An Experiment on Charity Economics

in Email Advertising

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Introduction and Background

Advertising for non-profits is a relatively new and increasingly important concept. The term "not-for-profit marketing" was coined in 1969 by researchers Philip Kotler and Sidney Levy (Nagyova 2004), and it has since grown and diverged to traditional and digital platforms. For instance, top technology companies today such as Google and Facebook have recently innovated new venues for non-profits to advertise, and prestigious marketing agencies as Vivial, Ignite, Going Clear, WordStream, and HubSpot now boast success stories of their non-profit clients. In this modern context, a non-profit's decision to advertise is increasingly vital to their outreach, but it can come with unique challenges and costs.

Since Kotler and Levy (1969) first wrote about non-profit marketing, the concept has become a subject of controversy among donors and non-profit organizers. Unlike for-profit corporations which measure success financially, non-profits try not to appear self-interested, even when their efforts to stay solvent come from a desire to continue doing humble work. This makes it difficult for non-profits to invest in advertising as donors may be upset to see some of their contributions used for marketing rather than for a public need. Though advertisements can help an organization grow and achieve its charitable goals more successfully, each appeal risks this negative donor response. Specifically, if donors or potential donors believe that the non-profit is spending too much money on marketing, then they are less likely to support the organization (Nagyova, 2004). For this reason, it is vital that a non-profit makes each advertisement as lucrative as possible. A close study of philanthropy theory through the lens of non-profit advertising may shed light on how an organization can make each advertisement most effective.

Context in Charity Economics

Most research on advertising for charitable giving focuses on the demand side of philanthropy. That is, it seeks to understand what advertisement content encourages donations. Researchers vary ad content and try to understand how consumers respond to each variation. For example, Scharf and Smith (2013) study how advertising match rates and tax rebates impact donation size, and they find that participants who view ads claiming "your contribution will be doubled by [a local corporation]" donate more money than those who view ads explaining tax rebates that come alongside donations. Gandullia and Lezzi (2018) find similar results. Karlan and Smith (2007) as well as List and Lucking-Reilly (2002) find that when viewers are made aware of a non-profit's considerable seed money, they are more likely to give to that organization.

Economists also study various social pressures related to charitable giving. Most notably, Sudhir, et al. (2016) finds that sympathy biases in mailed ads result in increased charitable donations on both the intensive and extensive margins. Shand and Croson (2009) as well as DellaVinga, et al. (2012) also study the impact of social pressure in ads on charitable donation size. All of these studies attempt to discern what type of advertising encourages interaction with the nonprofit and charitable giving the most. However, none of them consider the three major motivators for charitable giving that economists and psychologists largely agree on.

Within the study of philanthropy, there is a relative consensus among scholars that people are motivated to donate to charities by three distinct factors: *altruism*, *warm glow*, and *prestige*. This paper, inspired by the literature of both charity economics and advertising economics, seeks to understand how appeals to altruism, warm glow, and prestige impact ad viewership, which is an essential first step in charitable giving resulting from an ad.

When motivated by *altruism,* people are concerned that charities receive some total amount of resources required to address a need, regardless of where those resources come from. Thus donations coming from themselves, from their friends, from strangers, or from the government are all perfect substitutes. In recent years, researchers have found a relatively small amount of empirical support for the theory that people are primarily motivated by altruism. The most widely referenced paper in support of altruism as the most significant motivator is Andreoni (1990), which finds that people are motivated first by altruism and next by imperfect altruism, or pride in acting altruistically.

However, imperfect altruism is better categorized as what psychologists and behavioral economists today recognize as the second major motivator: *warm glow*. Warm glow is internal satisfaction felt after supporting a cause. When motivated by this factor, donors view charitable gifts from different sources as imperfect substitutes; their own donation is more valuable than an equal donation from another source because their own donation gives internal satisfaction. Empirical evidence points primarily to this motivator. Building off the idea of impure altruism in Andreoni (1990), Saito (2015) shows that impure altruism and impure selfishness—not wanting to feel shame from being selfish—motivates volunteers more than pure altruism. For the purposes of this paper, impure selfishness and impure altruism can be classified as warm glow because they both contribute to a person's level of self-satisfaction. Andreoni (1990) also finds evidence of warm glow as a major motivator for appropriate use of public goods.

Lastly, donors are motivated by *prestige*, or charitable giving that signals wealth or status. Here, again, gifts are not substitutes. People are not motivated by addressing a need, but instead by recognition for their donations. Harbaugh (1997) finds that once a donor recognition system is initiated, donors typically increase the quantity of their donation in order to reach the

next level of donation size. Similarly, Glazer and Konrad (1996) find evidence that wealth signaling is a key motivator for charitable giving.

Research Question and Experimental Design

This paper combines elements of the current literature on advertising for charitable giving with the three major motivators of philanthropy described above. The goal is to discern whether and how ads that appeal to altruism, warm glow, or prestige impact email viewership behavior.

To find an answer, I conduct a field experiment with a local non-profit organization, the Regional Environmental Council of Worcester and Central Massachusetts (REC Worcester). The experimental design includes three emails that make appeals to either altruism (conveying that there is a need which must be addressed), warm glow (conveying that the viewer can feel satisfied with themselves if they donate), or prestige (conveying that viewers will be publicly recognized if they contribute). With the help of the Development Coordinator at REC Worcester, Ajayi Harris, and the organization's existing marketing software system, I design, distribute, and track interaction with this non-profit's ads.

Context in Economic Theory

These motivators for charitable giving can be integrated into a utility optimization problem to better understand hypothetical donors: those who are motivated only by care for the public good (altruist) and those who are motivated by egoism through warm glow or prestige (egoist). To start this integration, I assume that there are n identical consumers that derive utility from consumption of a private good x_i the total amount of a public good G, and the individual's donation to the public good g_i. The total amount of the public good is the sum of each individual

donation g_i. Each consumer has income w_i which is spent on the private good and a donation to

the public good. Assuming a Cobb-Douglas utility function, the optimization problem for each

consumer i is as follows:

$$\max_{x_i, g_i} x_i^\alpha G^\beta g_i^\gamma$$

$$\text{subject to } w_i = x_i + g_i$$

The two solutions to this optimization problem provide the optimal levels of the private

good, x_i and the private donation g_i:

$$x_i = \frac{\alpha n g_i}{\beta + n\gamma} \qquad\qquad g_i = \frac{w_i}{\frac{\alpha n}{\beta + n\gamma} + 1}$$

Looking closer at the private donations solution, we can isolate two hypothetical

consumers, the altruist and the egoist, in order to understand the conditions that impact donation

behavior. In both cases, we assume that both types of consumers derive utility from the public

good, or $\beta \neq 0$. In other words, both donors would prefer, to some positive extent, that the charity

continues its work. However, the consumers mathematically differ in that for the altruist,=0, and

for the egoist, $\neq 0$. Contextually, this is because the altruist does not derive extra utility from

personally contributing to the public good, whereas the egoist does because they feel prestige

and/or warm glow from personally contributing.

Therefore, donation behavior for the altruist, where =0, can be mathematically

understood as:

$$g_i = \frac{w_i}{\frac{\alpha n}{\beta} + 1}$$

The derivatives of this result suggest that an altruist's donations would increase with rises

in income (w_i) or the individual's preference for the public good (β). Conversely, donations from

the altruist would decrease with a rise in population (n) or the individual's preference for a

private good (α).

Additionally, utility for the second actor, the egoist with $\neq 0$, is:

$$g_i = \frac{w_i}{\frac{\alpha n}{\beta + n\gamma} + 1}$$

From the derivatives of this result, it is clear that the egoist's donation behavior increases

with income (w_i), with their preference for the public good (β), and also with their preference for

egoism () -- the extent to which they are motivated by prestige or warm glow. Similar to the

altruist, individual donations among egoists decrease with population (n) and their preference for

a private good (α).

There are two relevant conclusions for the empirical work that follows. First, individual

donations g_i are larger for egoists compared to altruists holding all other factors constant. This is

because egoists derive utility from both the increased level of the public good and the private

satisfaction from giving. Second, the level private utility from donating, or , positively influences

donor behavior. This parameter contains the warm glow and prestige motivators for donating,

and the empirical research attempts to distinguish between these theoretically overlapping

concepts.

Context in Advertising Economics Literature

Empirical advertising literature suggests that variables besides appeals to altruism, warm

glow, and prestige may also impact donation behavior. Though these studies focus on

advertisements promoting for-profit organizations, they are still useful as they shed light on

potentially confounding variables which must be controlled in my experiment.

For instance, Alniacik and Yilmaz (2012) find that more quantitative information and claim specificity in ads result in a perception that the product is high quality. Chan (2000), Koertz, et al. (2017) and Piggott (2003) draw similar conclusions. Thus, in my experiment, it is important that each ad (altruism appeal, warm glow appeal, and prestige appeal) contains the same level of specificity and that each includes the same number of quantitative claims about the non-profit. Another key variable is whether the ad contains humor, which Yoo and Tinkham (2013) argue would result in improved memory of the product. To ensure consistency, none of my ads contain humor. Lastly, temporal spacing, which is the time period between when a viewer sees the ad and when they are able to purchase the product, impacts a viewer's willingness to buy according to Sahni (2015). To control for this, within each trial, all of my study's ads are delivered via email in the early afternoon on weekdays. This increases the likelihood that viewers can donate to the charity right after seeing the ad.

The literature also suggests other confounding variables that are useful to my study. To start, Shanahan, et al. (2019) study the impact of personalization in digital advertisements on brand engagement and conversion. They find that greater personalization, such as including the viewer's name and interests, as well as using a conversational tone, contribute to a positive perception of the brand. In comparison, Kim and Han (2014) show that including personal information in digital advertisements could irritate viewers with privacy concerns. Without an empirical consensus on whether personalization in advertisements helps or hurts, I run pretests prior to the main experiment to test the effects of personalization on subsamples of the data. Similarly, I use pretesting to determine whether longer or shorter ads have higher open rates.

To my knowledge, there are no current academic studies that determine whether long or short advertisements achieve higher conversion rates. However, the private advertising firm

GroupM (2018) finds that when viewers watch a long video ad (16 or more seconds) in its entirety, they are more likely to convert than a viewer who watches a shorter ad or only part of a long ad. Thus, I also use pretests to determine whether, for my population, ad length relates to conversion. These preests, studying personalization and ad length, are described in detail in the "Methodology" and "Pretests" portions of this paper.

The majority of advertising papers, including all those aforementioned, employ surveys, which are completed in laboratory settings where volunteer participants view ads and then answer a questionnaire. A benefit of survey methods is that researchers can study a variety of dependent variables. For instance Alniacik and Yilmaz (2012) measure each participant's perception of the ad itself, the brand and product, and their willingness to pay for the product. However, a key flaw in this structure, besides that inorganic laboratory settings may profoundly change typical behavior, is that participants think about each ad for the same amount of time, which makes them give greater consideration to ads that they otherwise may have ignored.

Field experiments allow researchers to collect data on more realistic consumer responses thereby producing more meaningful conclusions. The most thorough advertising field experiment is Sudhir, et al. (2016), which investigates sympathy biases in ads for charitable giving in India. Sudhir, et al. partner with HelpAge India, an anti-poverty non-profit. This study uses mailed letter campaigns with varying levels of sympathy bias, a social pressure by which viewers theoretically donate more when people pictured on the ad look most similar to themselves. The authors then track individual-level data of donations from people who receive the letters. Unlike survey studies, this field experiment generates less biased results in an authentic setting.

I similarly partner with a non-profit group and distribute ads to their network. However, I use email to increase ease of tracking consumer response as well as to reduce the confounding impact of temporal spacing on viewer response. Email also facilitates more precise regressions because I include control data on whether the email was opened or left unread. My specific methods are described later in this paper.

Partnership

Since 1972, REC Worcester has worked to engage the city's community in preserving the local environment, educate the public about relevant environmental issues, and participate in environmentally-friendly activities. Their self-proclaimed mission is to "Bring people together to build healthy, sustainable, and just communities across Worcester." To this end, REC Worcester organizes community farmers' markets, youth programs, community gardens with accessible healthy food, public area cleanups, garden festivals and plant sales, and more (Regional Environmental Council, 2019, Homepage).

All of these programs (80% of total expenses), plus management and fundraising, totaled to expenses of $1,257,430 in 2018. In order to finance these endeavors, REC Worcester gains support and revenue from primarily individual contributions and grants (49.7% in 2018) (REC Worcester, 2019, 2018 Annual Report)[1]. So, successfully engaging potential donors is a very important factor in REC Worcester's continued ability to do work in the Worcester community. REC Worcester is the ideal partner for this project because they are conveniently located near the researcher and already have a sophisticated marketing strategy that they hope to develop further.

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[1] After resources from contributions and grants, REC Worcester's other sources of support and revenue are: program income (22.4%), government grants and contracts (13.4%), donated goods and services (9.8%), special events (4%), and other income (.8%)

By partnering in this study, REC Worcester gains the knowledge of what tactics in its emails are the most effective at achieving high open rates for its specific network.

Pretests

When emails from REC Worcester arrive in recipients' inboxes, the recipients choose whether to open the email, and if they do, then whether to donate online to REC Worcester. This viewership is vital to increase community interaction and possible charitable giving to the REC. Besides the presence of psychological motivators, other attributes of an email's subject line, sender's name, and preview text, may determine whether a recipient decides to open the email. In order to maximize open rates based on these other variables, I conduct pretests. The context of the emails for the pretests is invitations to two REC Worcester events: a plant sale and a farm party.

Working alongside Harris at REC Worcester, I create and send emails using MailChimp, a digital marketing tool that is described in further depth in the Methods section. In MailChimp's testing platform, half of an email's total recipients are randomized into test groups. So, in a two email test, a random 25% of the recipients receive Email A, Group A, and a different random 25% receive Email B, Group B. After the testing period, 24 hours, is over, the "winning" email is sent to the remaining half of the sample, the Remainder Group. Variations in the subject line may impact the email's open rate, which is the portion of recipients in each group who open the email delivered to their inbox. Likewise, variations in the email body may impact the email's click rate, which is the number of times a recipient clicks on any links in the body of the email. My pretests focus on variations in subject line, so open rate is the dependent variable for both *Pretest 1* and *Pretest 2.*

Pretest 1: Testing the effect of "Fw: Re:.." in the subject line on open rate

In this pretest, Harris and I test the effect of including "Fw: Re:" in the subject line (making the email appear as if it were a continuation of a conversation that the recipient was already participating in) on open rate. The body of the email is the same for both groups. For Test Group A, the subject line reads: "Fw: Re: Pre-Order Seedlings for the REC's Annual Plant Sale!🌱🌸🌷☘️🌻" and for Test Group B, the subject line reads: "Pre-Order Seedlings for the REC's Annual Plant Sale!🌱🌸🌷☘️🌻." After 24 hours, Email B's open rate, .423, was significantly higher than Email A's, .294, so the Remainder Group was sent Email B. Another 24 hours later, Remainder Group expectedly had a high open rate of .529. See the results in *Table 1*.

Table 1: Pretest 1 Data

Group	Email Received	n	Open rate
P_1 -- Test Group A	Email A	51	.294
P_2 -- Test Group B + Remainder Group	Email B, "Fw: Re:"	52 + 104 = 156	[.423(52) + .529(104)] / (52+104) = .494

A simple z-score test for the difference in population proportions between P_1 and P_2 shows a statistically significant difference between the populations with z-score -2.495. It is clear that the "Fw: Re:..." tactic resulted in higher open rates in P_2. Based on this result, I decide to employ the "Fw: Re:..." tactic in the main part of the experiment in order to maximize open rates.

Pretest 2: Testing the effect of first name personalization in the subject line on open rate

In the second pretest, Harris and I use the Merge Tags feature on MailChimp to test whether first name personalization in the subject line effects an email's open rate. The two email variations contained the same email content and only differed in their subject lines. Test Group A received Email A which had the subject line "FW: RE: Don't forget: Farm Party Sept 20!🌻🌾🌱

🍁," and Test Group B received Email B with the personalized subject line "FW: RE: Don't

forget, *|FNAME|*: Farm Party Sept 20!🌻🌱🌿🍁." With MailChimp's programming,

recipients of Email B see their first name instead of "*|FNAME|*." After 24 hours, Group B had

the higher open rate at .549, versus Group A's open rate at .49, so, the Remainder Group was

sent Email B. Despite Group B's higher open rate, the Remainder Group had a lower open rate,

.436.

Table 2: Pretest 2 Data

Group	Email Received	n	Open rate
P$_1$ -- Test Group A	Email A	164	.494
P$_2$ -- Test Group B + Remainder Group	Email B, "*|FNAME|*:"	164 + 328 = 492	[.549(164) + .436(328)] / (164+328) = .4736

A test for the difference in these populations yields a z score of -.4529, demonstrating no

statistically significant difference in the open rates for P$_1$ and P$_2$ in this pretest. As a result,

including first name personalization in the main part of my experiment likely would not impact

the open rate. However, lengthy subject lines create the risk that some recipients will not be able

to read the whole subject line on smaller devices, such as their phones, before deciding whether

to open the email. Therefore, since there is no clear benefit in adding first name personalization

but it does add to this risk of a longer subject line, I decide not to incorporate first name

personalization into the subject lines of the main part of the experiment.

Methods

For the main experiment, I work with Harris to design three original subject lines for each

of two trials. For each trial, all of the recipients are randomly assigned to one of three groups:

altruism, warm glow, or prestige group. Each participant receives an identical email with only the subject line varying between groups. The emails are designed, sent, and tracked using MailChimp, which is a free, email marketing, online service for businesses. Using MailChimp, businesses can create emails with basic graphic design, send them to people who have previously subscribed to receive emails from that particular business, and then track which recipients opened the email and which did not. Users can also manipulate a particular variable, such as the subject line, and conduct A/B testing to determine the effectiveness of an email marketing technique (MailChimp).

The email subject lines are all roughly the same length and contain no humor, as to control for potentially confounding variables. Also, based on the results of the pre-tests, the subject lines all begin with "FW: ..." and do not include the recipients' names.

In order to match the definitions of the motivators from the literature as closely as possible, the altruism ad conveys to the viewer that "the Worcester environment needs to be protected, and donating to REC Worcester helps do so;" the warm glow ad suggests that "you [the email viewer] could feel good about helping protect Worcester's environment, and donating to REC Worcester helps;" and the prestige email communicates that "you [the email viewer] will be publicly recognized for helping protect Worcester's environment if you donate to REC Worcester." All subject lines also include emojis, which are frequently used in email ads to attract an audience's attention through visual cues. For consistency, in both trials, four on-theme emjojis are used. The first three relate to donating to REC Worcester in general, and the last relates to the subject line's psychological motivator.

Within both trials, each email also has the same sender and preview text. These three elements of an email -- the sender, the subject line, and the preview text -- are the elements that

are displayed in each recipient's inbox and contribute substantially to whether the recipient opens the email. For a display of how this would appear in an email user's inbox, see figure 1. The sender, subject lines, and preview text for all emails in trials 1 and 2 are available in table 3.

All emails for trial 1 were sent to the recipients at 1:59pm on December 13, 2019. The topic of the emails was to ask recipients to donate to REC Worcester that day, as Patagonia, a clothing company with a reputation for being environmentally conscious, would match any gifts made to environmental non-profits, including to REC Worcester, made through the Patagonia website. This information is conveyed in the emails' preview texts. The sender's name is Steve Fischer, who is the Director of REC Worcester.

All emails for trial 2 were sent at 12:59pm on December 26. The topic asks recipients to donate to the REC in order to support their community in the new year, which is conveyed in the preview text. The email's content was in the words of Jefferson Zziwa, a member of the youth group YouthGrow at REC Worcester. So, Jefferson Zziwa was the name of the sender of these emails.

Figure 1: Screenshot of email layout, displaying how an email sender's name, subject line, and preview text are displayed in an inbox, before a recipient decides whether to open the email and read its content. The Gmail inbox was used for these screenshots.

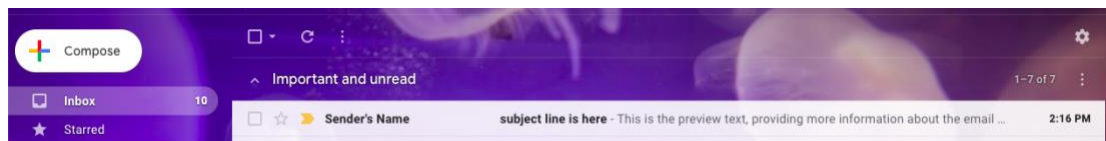*Figure 1a: email layout on a desktop or laptop.*

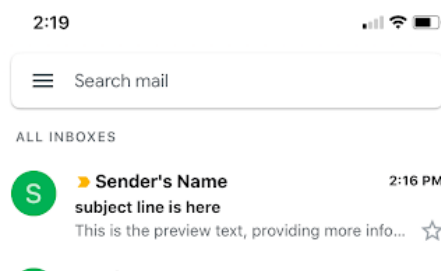*Figure 1b: email layout on a mobile device.*

Table 3: Subject lines for each group in trials 1 and 2.

Table 3a: Trial 1, solicitation email's subject lines, sent December 13, 2019

Group	Email's Subject Line
Altruism	FW: Double your gift for free! A gift for food justice🎁🌿♻️⚖️
Warm Glow	FW: Double your gift for free! The most satisfying gift🎁🌿♻️▯
Prestige	FW: Double your gift for free! A gift worthy of many thanks🎁🌿♻️👏

*Sender's name for all emails: Steve Fischer
*Preview text for all emails: Patagonia will double your gift to REC Worcester!

Table 3b: Trial 2, solicitation email's subject lines, sent December 26, 2019

Group	Email's Subject Line
Altruism	FW: Give Community Growth 🎁🌿🏢📈
Warm Glow	FW: Fulfilling Gifts to your Community 🎁🌿🏢▯
Prestige	FW: Admirable Gifts to your Community 🎁🌿🏢👏

*Sender's name for all emails: Jefferson Zziwa
*Preview text for all emails: A message from Jefferson, REC YouthGrow Student

In order to maintain their network of contacts, including email subscribers, REC Worcester uses Kindful -- a consumer relationship management online software for non-profit businesses. In this case, Kindful manages data that consumers have given to REC Worcester,

including participants' email addresses. I integrate Kindful with MailChimp in order to send the emails in trials 1 and 2 to as many people as possible.

Description of the Data

Resultant donation quantities and number of donors from each email group in both trials are listed in Table 4. Since the number of donors are very low for all groups, rather than reporting on the effects of the psychological motivators on donation rates, my results focus on the effects of the psychological motivators on email open rates.

Table 4: Summary of donations made from the emails in Trials 1 and 2

Group	Donations (# donors)	
	Trial 1	Trial 2
Altruism	$125.00 (1)	$249.30 (3)
Warm Glow	$150.00 (3)	$265.00 (2)
Prestige	$250.00 (1)	$300.00 (3)

For each trial, after designing the three emails and sending them to three randomized groups of participants, I use MailChimp to track which participants opened the email and which did not. I also use MailChimp to track when and how many times the email is opened. The binary variable of whether each participant opened the email (openonce=1) or not (openonce=0) is the dependent variable. I focus on whether each participant opens the email as a binary rather than a count variable because there is no significant change in the regressions. Table 5 provides summary statistics for the open rates of each email for both trials.

Table 5: Summary Statistics for email opens, trials 1 and 2, for the psychological motivators.

Psychological Motivator	Trial 1 *% (n) open*	Trial 2 *% (n) open*	Average of both trials *% (n) open*
Altruism	18% (423)	23% (459)	20% (882)
Warm Glow	20% (425)	21% (460)	21% (885)
Prestige	13% (423)	20% (466)	17% (889)

In addition to merging with MailChimp and storing the email addresses for contacts in REC Worcester's network, Kindful also maintains files for each contact with any personal information available to the REC Worcester. This includes data on each person's affiliation with the REC, such as when a person joined the REC Worcester network and subscribed to emails, their donation and contact history, and where they live (if they choose to provide this information to the REC). These variables provide multiple ways of defining warm versus cold leads. Rather than using a limited definition of what makes a participant a warm or cold lead, incorporating multiple variables identifying who they are in relation to the REC allows for a more holistic discussion of the factors that contribute to whether recipients open emails. I merge these data with the data from MailChimp to see whether any variables stored by Kindful impacted who opened the emails. Table 6 provides summary statistics for these variables to demonstrate what the typical subscriber looks like.

In Table 6, "Joined REC in the last three months," is binary, indicating whether the participant had been a subscriber to REC emails for more than three months before the experiment emails were sent (equals zero) or less than 3 months (equals one). People may join REC in a variety of ways: online (such as through the REC website or Facebook page), or at community events in which REC members are present with sign up sheets. The date when each

contact joined is filed in each person's Kindful data. This variable, as well as the next two, "Gave in 2019" and "Member rating," all indicate a person's affiliation with the REC.

"Gave in 2019" is also a binary variable for whether each individual gave in 2019 prior to these emails being sent out in December. Giving indicates that a participant has a relatively close affiliation with REC Worcester, as they must already be fairly familiar with the group and see it in a positive light to have donated already in the same year as when this experiment was conducted. All donations are tracked by the REC and entered into Kindful, making it easy to view each participant's donation history. Lastly regarding affiliation with the REC is each participant's "member rating," which is a linear variable that comes from MailChimp. On MailChimp, when a person is emailed by REC Worcester for the first time, they are automatically given a member rating as 2 out of 5 stars. Depending on how often the person opens and clicks through emails from the REC, their member rating increases or decreases according to MailChimp's algorithm. For example, a person who has subscribed to REC Worcester for years but has never opened an email would be rated "1 star" whereas someone who always opens and clicks the links in REC's emails would be rated "5 stars" by MailChimp. MailChimp member ratings are only available to the business who the rating is associated with via that business' private password-secure MailChimp account.

A participant's location is loosely related to their affiliation with the REC, and it is measured with the next variable, "Located in MA." The REC is located in Worcester, Massachusetts, so this binary variable indicates whether each participant is also located in Massachusetts. When people join the REC, they have the option of listing their home address, town, and/or state in order for the REC to contact them with the most relevant news and membership opportunities. This data is also tracked in Kindful and organized by REC subscriber.

Lastly, "Recent Contact(s)" is a linear variable counting the number of times in the last three months that each participant has been solicited by the REC via email before each trial was conducted. Each participant was solicited between 0 and 9 times before these trials. Solicitation emails do not simply include information or updates about the REC; these are requests for the recipients to take a specific action such as donating, attending an event, or participating in REC fundraisers at local businesses. These emails are all sent through MailChimp, which saves the lists of people who were emailed each time. Rather than affiliation, this variable indicates participants' potential fatigue of being solicited by the REC more often than they would prefer.

Table 6: Summary Statistics for email opens, trials 1 and 2, for other variables.

Variable	Trial 1 *% open (n)*	Trial 2 *% open (n)*	average of both trials *% open (n)*
Joined REC in last three months	20% (75)	32% (198)	29% (273)
Gave in 2019	16% (1249)	33% (181)	18% (1430)
Member rating 1	0% (15)	0% (15)	0% (30)
Member rating 2	3% (697)	5% (768)	4% (1465)
Member rating 3	18% (125)	32% (146)	25% (271)
Member rating 4	23% (194)	34% (216)	29% (410)
Member rating 5	53% (240)	58% (240)	55% (480)
Located in MA	20% (545)	23% (540)	22% (1085)
1 Recent Contact	0% (0)	0% (0)	0% (0)
2 Recent Contacts	0% (0)	0% (0)	0% (0)
3 Recent Contacts	18% (458)	19% (456)	19% (914)
4 Recent Contacts	28% (64)	32% (63)	30% (127)
5 Recent Contacts	14% (672)	18% (668)	16% (1340)
6 Recent Contacts	21% (53)	19% (52)	20% (105)
7 Recent Contacts	33% (18)	40% (143)	39% (161)
8 Recent Contacts	0% (0)	0% (0)	0% (0)
9 Recent Contacts	50% (6)	33% (3)	44% (9)

Estimations and Results

I assess the impact of the above factors on whether each recipient opened the email they received. Using a regression analysis, I estimate how the type of email each individual received as well as the other variables pertaining to their relationship with REC Worcester impacted the decision of whether to open the email. I begin with a least squares estimation for each trial. Table 7 presents a subset of these results.

Table 7: Least Squares Estimations. Coefficient (p=value)

Variable	Trial 1 impact on open rate	Trial 2 impact on open rate
Altruism Email	**0.0506** (p = 0.023)	-0.0038 (p = 0.871)
Warm Glow Email	**0.0742** (p = 0.001)	-0.0026 (p = 0.910)
Gave in 2019	**-0.1750** (p = 0.015)	-0.0018 (p = .954)
Lives in MA	0.0416 (p = 0.169)	**0.0975** (p = 0.004)
Member Rating	**0.1484** (p = 0.000)	**.1722** (p = 0.000)
Recently Joined REC	0.0559 (p = 0.168)	**0.0800** (p = 0.028)
Recently Solicited	0.0265 (p = 0.061)	**0.0677** (p = 0.000)
Constant	-.2766 (p = 0.499)	-0.6462 (p = 0.000)
r-squared	0.2594	.2781

Bold estimates indicate statistical significance at $\alpha = 0.05$ or less

My main result from Table 7 is that across both trials, there is not a clear relationship between the psychological motivators in a subject line and an increase in likelihood that the recipient opens the email. This suggests that for this population, recipients' relationships with the

REC are not motivated solely by either altruism, warm glow, or prestige, but rather that there is a mix of factors present in the population. The REC network as a whole is not motivated by one psychological factor more than the others.

On the other hand, the variables that could be used to classify recipients as warm leads are all significant in at least one trial. Giving in 2019 has a negative impact on whether a recipient opened the email, particularly in Trial 1. This is possibly because people who have already donated to the REC within that year are not likely to donate again, so they are less likely to open an email that is soliciting monetary contributions. However, Located in Massachusetts has a positive and statistically significant effect in Trial 2. This suggests that people who are in close physical proximity to the REC, and therefore also the people who are most positively impacted by the local environmental work that the REC does, are more likely to be receptive to solicitation emails from the REC. Next, a higher MailChimp rating corresponds with a higher open rate, and this estimate is statistically significant. This validates MailChimp's formula as a predictor of member's behavior on email. In Trial 2, having joined REC in the past 3 months positively impacted the open rate, implying that when people join the REC, they are eager to learn more about the organization and to be an active member. Lastly, contrary to expectations based on the literature, in trial 2, recipients who had recently received more solicitation emails are more likely to open this email. This suggests that rather than being fatigued by increasing solicitations, REC members' reaction is to be more engaged. This may be because more emails increase members' awareness of the REC.

Conclusions

According to the existing economics literature, there are three key motivators as to why people donate to non-profit organizations: altruism, warm glow, and prestige. My study fills the gap between this literature and advertising literature. Through a field experiment with a local non-profit, REC Worcester, I investigate how different email subject lines that employ each of these psychological motivators impact whether recipients open the email. Over two trials, two email campaigns, I am unable to say that one motivator in particular works best for the REC Worcester network. However, the conclusion from this result is that there are people, even within the fairly small REC Worcester network, who are motivated by altruism, warm glow, or prestige; all are legitimate psychological motivators and lend to effective advertising by the REC. In order to persuade as many people to donate as possible, I thus recommend that REC Worcester and non-profits like it vary their use of these motivators. Some non-profits tend to lean on one more than the other, such as REC primarily using altruism appeals before this experiment, but their advertising efforts may reach a wider audience if they employ all three motivators. In terms of the literature, this experiment provides clear evidence that all three psychological motivators are legitimate. I would encourage further field experiments, such as on other non-profits' populations, to support or negate this conclusion.

Lastly, all businesses, including non-profits, find it helpful to know who in their network is a warm lead and who is a cold lead. This allows them to target warm leads in hopes of increasing their return on marketing and advertising costs. In the non-profit sector, excessive marketing can drastically decrease profits because potential donors view the non-profit as unfocused on their mission and irresponsible with overhead costs. So, effectively categorizing warm and cold leads is vital to non-profit advertising. The second portion of my results suggests

that for REC Worcester, living within the state (Massachusetts), having a high rating on MailChimp, and recently joining the REC are all factors that make subscribers more likely to open a solicitation email and therefore a warm lead. Oppositely, if the recipient has already given in that year, they are less likely to open the email and should be considered a cold lead. Lastly, my results show that frequent solicitation emails increase the likelihood that a recipient opens an email. This is an unexpected result given the aforementioned notion that too much advertising may harm a non-profit. It may be that a balance of frequent solicitation, but not too often, is actually best. For instance, on average, people in this experiment received 5 email solicitations in the past three months, with some people receiving a maximum of 8 in that time. The result thus suggests that for the REC and similar groups, increasing solicitations to 8 emails per three months would increase recipients' familiarity with the group and maintain their interest in donating without being perceived as exploiting donations for overhead costs.

I conclude that employing these factors to effectively categorize warm leads and target them with a variety of psychological motivators may be the best advertising strategy for the REC and similar non-profits. Further studies that combine charity economics and advertising literature may help strengthen or improve this conclusion as only examining open rates is a limitation of the paper. For further studies, I recommend that researchers examine donation rates as a dependent variable of these three motivators. Additionally, lack of REC infrastructure to support prestige-motivated members is another limitation of this study. Social recognition for donations at non-profits likely encourages generosity by people who are motivated by prestige better than theoretical statements that their donation would be admired by people around them. Thus, I recommend that REC institute a system to recognize donors in order to appeal to those motivated

by prestige. I also recommend that future researchers investigate various levels of theoretical and

tangible social recognition on the effectiveness of prestige as a motivator.

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