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Consumer demand for charitable purchases: Evidence from a field experiment on Girl Scout Cookie sales



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ABSTRACT

We conduct a field experiment on Girl Scout Cookie sales at retail locations to explore the decisions to make charity-linked (impure public good) purchases and charitable donations (pure public good). We collect detailed sales data in Rutherford County, Tennessee over a seven-year time period and conduct a field experiment that randomly assigns specific cookie booths to receive a charitable bonus contribution for purchases of the impure or pure public good. The bonuses take several forms, which potentially affect warm-glow utility from a purchase, while holding the purchase price and utility from consumption constant. Matching donations are not only effective for increasing donations to charity (pure public good) but also generate spillovers for increasing cookie sales for consumption (impure public good). Charitable bonuses on individual varieties of cookies increase sales of those varieties. In our data, consumers are more sensitive to changes in the relative cost of pure donations to charity than they are to changes in the relative cost of charity associated with a cookie purchase.

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1. Introduction

In the United States, there is a large amount of charitable giving. Approximately 90% of individuals donate each year to charity, giving a total of roughly \$200 billion (Andreoni, 2006; Della Vigna et al., 2012). Because giving is not easily explained by standard models that assume rational self-interest, economists seek to gain a better understanding of the underlying factors that prompt consumers to engage in direct charitable giving and to purchase products for which a portion of the proceeds go to charity.

Traditional models of economic behavior typically assume purchases are made based on the utility derived from the perceived costs and benefits associated with the purchase. A consumer is willing to pay a monetary sum for which the utility loss associated with paying that sum is less than or equal to the utility that the consumer derives from the purchase. One explanation for charitable giving that is applicable to our study is that giving generates utility through the good feelings or “warm-glow” associated with helping others. For pure donations, consumers may derive warm-glow utility from contributing to the public good and thus do so even at a personal cost. In the case of charity-linked consumption goods, the products can be considered impure public goods (also called “hybrid goods” and “bundled goods”). Consumers may derive utility

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directly from consumption and also potentially derive additional utility that is related to the perceived value of making a donation to the organization (pure public good) but is unrelated to consumption. The motivation for and benefits received by consumers from charity-linked purchases are difficult to quantify. Making the distinction between utility derived from own consumption and from other-focused motivations requires detailed data and suitable variation in charitable contributions for the same monetary value, which are generally unavailable to researchers. The lack of suitable data from which to infer value from charitable purchases has limited economists' understanding of these markets.

This experiment explores the motivations for consumer decisions to purchase an impure public good, and/or to make a direct donation for the public good when both options are available. The impure public good in our study is Girl Scout Cookies, a desirable product for consumption for which a portion of the price paid is donated to a respected nonprofit organization. We also examine direct donations to charity as a pure public good. We have constructed a novel data set that contains detailed sales information on Girl Scout Cookie sales collected over a seven-year period. We conduct a field experiment where we randomly select times and locations at which we offer to match charitable donations to the pure public good, offer bonus charitable contributions on the purchases of impure public goods, or to display a sign advertising the public good.

We find several interesting impacts from our experimental treatments. Our results show that offering to match charitable donations leads to a statistically significant increase in donations to charity. Our data from a treatment offering a \$1-to-\$1 match on donations, which effectively decreases the cost of donating by 50%, produces a 182% increase in donations. The implied elasticity of donations to charity with regard to the match rate of approximately 3.6. Interestingly, the treatment that matches donations to the pure public good generates a positive spillover to sellers because it induces consumers to purchase more cookies for personal consumption (the impure public good) even though the match applies only to cookies purchased for others and not for personal consumption. This finding suggests a more nuanced set of considerations relating to utility derived from impure public goods. The mechanism behind the spillover to sales extends beyond simply making buyers aware of the program because the act of displaying a sign advertising the prospect of charitable donations has no impact on donations or cookie purchases.

Bonus contributions to charity offered for the purchases of certain cookie varieties are effective at increasing sales of the subsidized variety. That bonuses matter indicates customers do consider the charitable aspect of the cookie purchase when buying cookies. There is noticeable heterogeneity in this effect, however. We find that the implied elasticities of cookie purchases with regard to the generosity of the match rates depend on the variety of cookie subsidized. The elasticity of cookie purchases with regard to the match rate offered on Thin Mints, the most popular variety of cookie, is only about 0.44 whereas the elasticities for less popular types ranges from 1.09 to 1.43. Type-specific subsidies are more effective for troops who, all else equal, have more experience selling cookies. The fact that charity bonuses on the most popular variety do not increase sales by the same percentage indicates that customers are also buying cookies partially for the utility derived from consumption. However, the charitable component also seems to matter because consumers are more sensitive to the bonuses if they are offered on varieties that are less desirable from a consumption perspective. This is consistent with some consumers choosing to purchase the variety that generates more charitable giving even though consumption of the variety is less desirable. There is some evidence that bonuses offered on the purchase of the impure public good spill over and increase donations to the pure public good, though the relationship is weaker than in the other direction.

The clear presence of consumer utility from consumption suggests one benefit from selling a charity-linked product. Consumers are less price sensitive to the cost of charity when a desirable product can be consumed than when the donation does not involve consumption. Selling a product provides an organization more flexibility than simply soliciting donations because the charity linked product can attract buyers who value consumption whether they value the charitable component or not.

2. Related literature

Our study builds upon the existing literature in several areas. We investigate warm-glow motivations for charitable giving, matching donations to the public good, the impact of soliciting face-to-face donations, and the impact of non-consumption utility derived from impure public goods. We briefly summarize the relevant literature on these topics.

There is a substantial amount of theoretical and empirical research on the economics of charitable giving. [Andreoni \(1989, 1990, 1998\)](#) proposed some early economic theories of rational charitable giving based on pure altruism and on impure altruism, or “warm-glow” motivations, whereby givers derive utility from donating.¹ For example, [Crumpler and Grossman \(2008\)](#) and [Null \(2011\)](#) find strong evidence of warm-glow motivations for giving in experiments.

There is also a growing literature on how to increase charitable donations for what can be considered pure public goods. [Vesterlund \(2015\)](#) summarizes an unexpected, but consistent, finding from experiments that giving is not very sensitive to changes in price. Several experimental studies estimate price elasticities on donating to be near zero and offer insight into the heterogeneous nature of giving. [Eckel and Grossman \(2006\)](#) find that matching donations are more effective than rebates for inducing donations in a laboratory experiment. [Meier \(2007\)](#) conducts a field experiment and finds that matching

¹ There are numerous theories to explain charitable giving such as the desire to avoid feelings of guilt associated with not giving (i.e. “guilt aversion”) and or “social pressure” which motivates giving that apply in various settings. We focus on “warm-glow” motivations because our experimental treatments can operate through this channel while other motivations are not likely to be affected by the treatments.

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