



# The effects of information, social and financial incentives on voluntary undirected blood donations: Evidence from a field experiment in Argentina



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## ABSTRACT

In many low- and middle-income countries blood donations per capita are substantially lower than in advanced economies. In these countries blood supply is mostly collected through directed donations from relatives and friends to individuals needing transfusions or to replace blood used in emergencies. The World Health Organization considers this method of blood supply inefficient compared to *undirected voluntary* donations. To examine methods to motivate undirected voluntary donations, we ran a large-scale, natural field experiment in Argentina, testing the effectiveness of information, social and financial incentives. We find that only higher-valued financial incentives generated more donations, increasing with the value of the reward. These incentives did not create adverse selection in the safety or usability of the donated blood. We discuss the implications of our findings for researchers interested in understanding motivations for pro-social behavior and for health agencies and policymakers concerned with the current and growing shortages in blood supply in low- and middle-income countries.

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## Introduction

Guaranteeing an adequate supply of safe blood is a major health challenge in developing countries where blood shortages are common and have severe consequences (WHO, 2011). In part, shortages are due to inefficient blood supply systems based on directed donations from relatives and friends to individuals needing transfusions or to replace blood used in emergencies. This approach may work well for one-time uses and in small communities, but is inefficient for chronic needs of blood (e.g., to treat blood diseases and many types of cancer) and in areas with weaker social ties (e.g., large urban areas). The World Health Organization

argues that a blood supply system based on undirected donations by regular voluntary donors will ensure more donations and provide safer blood by being able to better monitor donors' health conditions (WHO, 2009). Undirected donations also reduce inefficiencies due to donor-recipient blood incompatibility. Because the demand for blood transfusions in developing countries is likely to increase dramatically due to population aging, advances in medical technologies and general improvements in economic conditions, shifting from emergency/replacement donations to voluntary undirected donations represents a pressing public health challenge.

There have been several attempts to create voluntary undirected donation systems to improve the supply of blood in low- and middle-income countries. These efforts typically include the re-organization of blood collection towards a centralized "national blood system" and massive media and educational campaigns to change social attitudes from donating blood to relatives and friends to voluntary undirected donations as a "public good" (Fraser, 2005; Lancet, 2005; WHO, 2009, 2011). These initiatives are financially and organizationally demanding and can take years to implement.

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Although these efforts may in the long term be successful, in the short term additional and alternative micro-level approaches are available that can be introduced immediately to address the current and growing demand for blood.

In this study we examine three micro-level approaches to motivate blood donations. We assess the impact of information, social prestige and financial rewards on the individual decision to make undirected voluntary blood donations by running a field experiment in Argentina where 88% of blood donations are emergency/replacement donations (Ministerio de Salud, 2010).

We chose these treatments because each provides potential benefits associated with motivating volunteer undirected donations (rather than motivating emergency donations). First, people are unlikely to be aware of the benefits of an undirected volunteer-based donation system, therefore providing this information might be sufficient to increase donations. Second, in higher-income countries volunteer blood donations are usually associated with “doing good,” thus offering social recognition could increase the benefits donors receive by providing a credible signal of their pro-sociality. Third, the costs to donate (in terms of time or expected pain) may outweigh the social benefits for a substantial share of the population; therefore, financial rewards could tip the tradeoff in favor of donating by increasing the total benefit of donating. However, there are two possible concerns with offering financial incentives. One concern is that extrinsic incentives may conflict with people’s intrinsic motives to “do good” (Bénabou & Tirole, 2006; Gneezy & Rustichini, 2000) and thus lead to a reduction in blood donations. A second concern is that donors motivated by rewards might provide more unsafe blood (Abolghasemi, Hosseini-Divkalayi, & Seighali, 2010; Lancet, 2005; Titmuss, 1971; WHO, 2009). Although both social and economic rewards have been effective in developed countries (DellaVigna, List, & Malmendier, 2012; Goette & Stutzer, 2008; Lacetera & Macis, 2010, 2013; Lacetera, Macis, & Slonim, 2012, 2013a; Rodriguez del Pozo, 1994), and without adverse effects on blood safety (Goette & Stutzer, 2008; Lacetera et al., 2012), responses may differ in other contexts. For instance, giving blood is associated with being pro-social in developed countries, but it might carry a negative stigma in developing countries where blood is sometimes (illegally) sold for cash.

To test the effectiveness of these treatments, we conducted an intervention in September and October 2011. We randomly selected from the electoral list 18,500 individuals aged 18–65 who were residents in San Miguel de Tucuman (SMdT) in northern Argentina. The subjects were sent flyers inviting them to donate at the Centro de Medicina Transfusional y Hematología (CMTH), a well-established, private blood bank located in a central neighborhood in SMdT. Subjects were randomly assigned to one of seven different conditions that included: (a) a “pure control” flyer inviting them to make a voluntary undirected donation; (b) an “information only” flyer that included information on the benefits of undirected donations as opposed to emergency systems; and five conditions that combined information with reward offers: (c) a T-shirt indicating they are blood donors; (d) a mention in the “Socials” page of the local newspaper in recognition of their voluntary blood donation; and (e) vouchers for use at a local supermarket in three values (AR\$ 20, 60 or 100).

We examine the effects of the treatments on both quantity and quality (i.e., safety and usability) of undirected donations. For quantity, we consider the number of individuals who present to donate (i.e., turnout) and the number usable units of blood collected among those invited. We also anticipate and measure “indirect” effects in which individuals other than subjects will be more likely to donate in the voucher treatments given that Lacetera, Macis, and Slonim (2013a) found indirect effects in their study with American Red Cross blood donors. For quality, we assess whether the treatments affected deferral rates of presenting

subjects and rejection rates of donated blood after subsequent blood screening tests were conducted.

We find that only the two financial rewards of higher value (vouchers for AR\$60 and 100) led to a positive, significant increase in undirected donations, whereas the other treatments had no effect. The effects increased with the value of the rewards and generated the anticipated indirect effect. We further find that, compared with emergency/replacement donations, the donations of the incentivized subjects did not have lower blood safety or usability. Thus we conclude that financial incentives can effectively motivate individuals to make voluntary, undirected donations in contexts where undirected donations are not the norm.

This is the first study that provides field-experimental evidence on the effects of social and financial incentives on undirected blood donations in a setting where the prevailing social norm is to make donations directed to specific recipients. Moreover, most previous studies have only examined individuals who had already given blood in the past whereas the sample in this study is taken randomly from the general population and thus includes mostly non-donors. A further advance compared to existing studies is that we are also able to distinguish ineligible-to-donate and rejected blood units in order to explore the exact reasons for non-usable donations. Finally, this study contributes to a growing stream of research that highlights the role of field experiments in providing policy-relevant evidence to tackle major problems in global health and development (see, e.g., Ashraf, Bandiera, & Jack, 2012; Ashraf, Berry, & Shapiro, 2010; Baird, Garfein, McIntosh, & Özler, 2012; Cohen & Dupas, 2010; Duflo, Hanna, & Ryan, 2012; Dupas, 2011; Okeke et al., 2013; de Walque et al., 2012).

The following section describes the study setting and Section [Methods](#) presents the methods of our study. Section [Results](#) reports the findings. Beside the academic relevance in understanding whether any of the approaches examined here can increase pro-social behavior in the context of blood donations in a middle-income economy, an important policy question is whether these approaches are financially feasible to address blood shortages. This is particularly pressing in low-income countries where financial constraints are likely to be tight. Thus we also assess the cost of our intervention. Section [Discussion and implications](#) discusses the implications of our findings, the limitations of this study and outlines avenues for future research.

## Study setting

### *Blood donation in Argentina*

Like in most low- and middle-income countries, blood shortages in Argentina are frequent and, due to increasing life expectancy and technical advances (e.g., in surgery and transplants), likely to worsen without improvements in supply. In 2002, the Argentine Health Ministry launched a “National Blood Plan” aimed at creating awareness about blood donations and increasing the number of voluntary blood donors. Following WHO recommendations, the National Blood Plan aims to foster voluntary *unpaid* donations. In terms of total blood collected, Argentina performs better than most transitional economies with 12.4 donations per 1000 persons in 2008 (Ministerio de Salud, 2010), but this rate is still well below the 38 per 1000 persons (WHO, 2011) in developed countries. Further, the average masks significant regional differences. For instance, there are 14 donations per 1000 persons in the Central region (where Buenos Aires is located) but only 9 donations per 1000 persons in the Northeast (where the current study was conducted). According to the Health Ministry, the plan has increased the number of voluntary donors. Nonetheless, the Argentine system still relies heavily on emergency/replacement donors which in

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