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RESEARCH

How Can Policy Interventions Encourage Pro-Social Behaviours in the Health System?

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Pro-social behaviours in the health system range from voluntary (unpaid) *time* donations supporting health and social care services, to *monetary* donations funding medical research, to *biological material* donations such as blood transfusions and organ transplants, among other types of donation. Without these pro-social behaviours, health systems would face chronic shortages and operational challenges. Hence, an important question for policy design is how we stimulate such pro-social behaviours? We argue that although pro-social behaviours are motivated by altruism and ‘benevolent rewards’, governments can indeed encourage them by designing ‘compatible incentives’, by removing ‘disruptive constraints’, or through a combination of both. We illustrate our argument with examples of several pro-social behaviours, including the donation of human tissues, fluids and organs; monetary donations to health-related causes; as well as volunteering in health-related settings (the donation of time). We further address how these interventions interact with health care donors’ behavioural attitudes, including altruism and empathy.

Keywords: incentives; constraints; altruism; reciprocity; pro-social behaviour; blood donation; organ donation; monetary donation; volunteering

1. The critical nature of pro-social behaviours in the health system

Pro-social health behaviours are critical for a health system to function effectively. These behaviours include the following:

- (i) Unpaid volunteering, or *time donations*, whether to provide informal care for elderly or disabled individuals, to test new vaccines or drugs in clinical trials, or to support health services in an emergency when staff shortages are the norm, as the first wave of the COVID-19 pandemic has illustrated (Lachance, 2020).
- (ii) Similarly, *monetary donations* have been a vital source of funding for the treatment of neglected diseases,¹ vaccine development² (including the global response to the Coronavirus)³ and, medical research, especially Alzheimer or cancer research.⁴ These donations complement public funding across health care settings.
- (iii) Finally, the *donations of biological material* are an essential input that supports health care providers in a wide range of services, including the donation of blood products and well-functioning organs to patients with organ failure. Umbilical cord donations enable directed and undirected stem cell transplants, and neonatal care units rely on donated breastmilk to feed premature children when their mother is unable to do so.

Nonetheless, health care markets that depend on pro-social behaviour are usually in *chronic shortage* of such behaviour, with demand far greater than the supply across the board. The vast majority of eligible individuals to become blood or organ donors are not registered donors, with only a small fraction of the global population engaging in donation behaviours (WHO, 2011). While the data shows that there has been a worldwide increase in the total and used global number of deceased organ donors, from 2013 to 2019 (**Figure 1**),⁵ the number of donations still falls far shorter than the number of individuals in need of an organ, and some donations have not been used. In terms of blood donor par-

¹ <https://www.gatesfoundation.org/what-we-do/global-health/neglected-tropical-diseases>.

² <https://www.ft.com/content/847a9052-6847-11ea-a6ac-9122541af204>.

³ https://ec.europa.eu/commission/presscorner/detail/en/ip_20_797.

⁴ <https://www.cancerresearchuk.org/get-involved/donate>.

⁵ The latest data from the World Register of Transplants managed by the National Transplant Organization (ONT) estimates the number of organ transplantation in the world in 2019 to be 146,840. Of these, 95,479 were kidney donations (36% from living donors), 34,074 liver donations

icipation, we find an upward trend too (WHO, 2020).⁶ However, in both instances, this upward trend is primarily the result of increases in only a few countries rather than being indicative of a general worldwide shift (**Figure 2**). Given the importance of such pro-social behaviours, policy makers are left asking: what is it that guides health-related pro-social behaviour? What do we know about the constraints, characteristics and incentives for pro-social health behaviours? What policy instruments are available for governments to overcome chronic shortages in these markets?

In this paper, we outline a number of potential policy avenues aimed at encouraging pro-social health behaviours, either by incentivising them (e.g., changing the donors' 'benevolent reward') and/or by reducing, or even removing, the numerous potential barriers (e.g., decreasing the donors' transport costs, transaction costs, discomfort as well as cognitive costs) of engaging in such behaviours,⁷ which we label as 'constraints'.

Incentives can include any policy instrument that can change the reward offered to a donor for acting pro-socially or benevolently. Such 'benevolent rewards' can either be extrinsic, where they are often quantifiable in a tangible sense, or intrinsic, such as by fulfilling an altruistic social norm or simply reflecting the need to empathise with others. However, the pursuit of either type of incentive is fraught with difficulty. For instance, the use of extrinsic rewards can undermine the internal reward mechanism of 'would-be donors', which is known as the *crowding out of intrinsic motivation*.

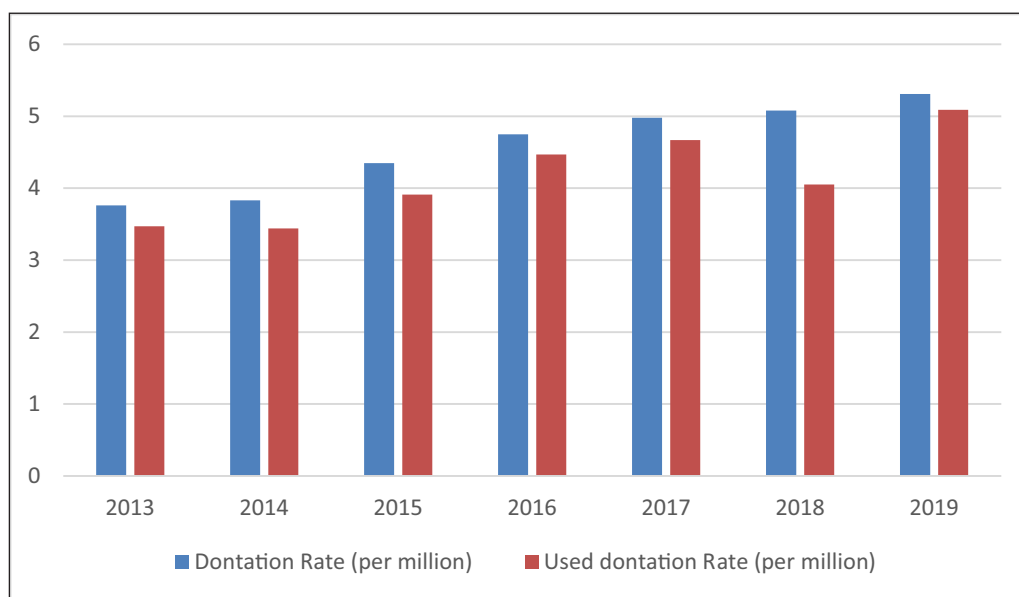


Figure 1: Total actual and used global deceased organ donors and rate per million population from 2013 to 2019. Source: Global Observatory on Donation and Transplantation. <http://www.transplant-observatory.org/data-charts-and-tables/>.

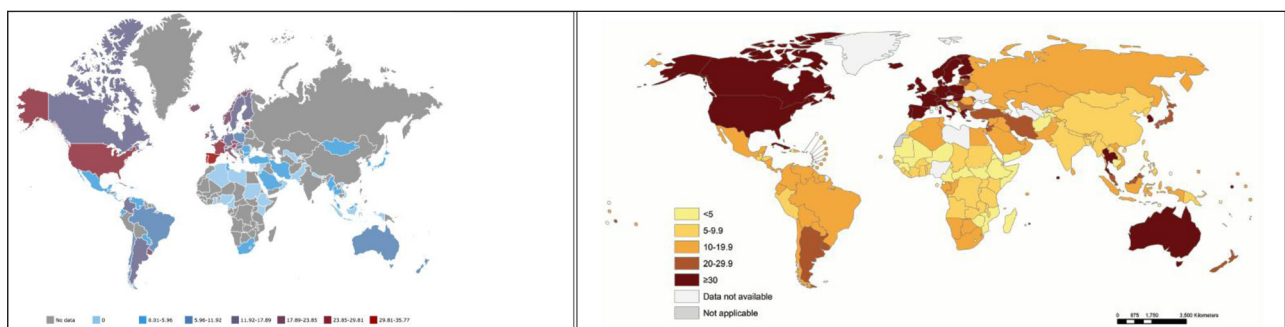


Figure 2: World distribution of organ (number per million population in 2019) and blood donors (donations per population of 1,000 in 2013).

Source: Global Observatory on Donation and Transplantation and WHO, https://www.who.int/bloodsafety/global_database/en/.

(19% of a living donors), 8,311 heart donations, 6,475 lung donations, 2,338 pancreas donations and 163 intestine donations. However, donations differ dramatically across countries and some countries, such as Spain, make 20% of organ donations in the EU.

⁶ https://www.who.int/bloodsafety/global_database/en/.

⁷ We rely on the assumption that donors choose to donate whenever the benefits they receive from donating outweigh the costs.

Titmuss' [1] seminal work has outlined the dangers that elevating external rewards would pose to blood donations and discusses how policy interventions should consider these trade-offs.

That said, relying on intrinsic motivations alone might not change the behaviours of those individuals who face significant general and specific constraints (such as: time limitations, travel restrictions, discomfort from the donation process) on their ability to donate. For individuals to be allowed to donate blood or organs, they must be healthy. For example, anaemic individuals are ill-suited to donating blood, even if they are willing or motivated to do so. Therefore, health systems must implement changes at other levels, such as by investing in preventive anaemia treatment, to overcome such constraints on the donation process. On a more prosaic level, if individuals don't have to travel long distances, or can easily and flexibly book an appointment to donate blood, they are more likely to actually donate. Finally, donation can be incentivised by making it a more 'pleasant experience' (e.g., absent of discomfort or pain, including bruises or adverse effects), hence reducing the total costs of engaging in donation behaviours.

In this context, we argue that creating incentives for blood donation must also consider their impact on the motivations of current donors in order to avoid their disenfranchisement. The right balance must be struck between those incentivised by internal rewards and those incentivised by external rewards. Policy makers will need to identify potential donor constraints even before considering incentive effects. Removing a 'disruptive constraints' can entail, for example, changing the opening hours of a blood donor centre to cater to the needs of the local donor pool, personalising the donation process,⁸ and reducing the families' veto of organ donations [2].

The rest of this article is organised as follows. Section two sets out the elements of pro-social behaviour in health: donation of human tissue, fluids and organs; monetary donations to health-related causes and volunteering in health-related settings. Section three and four outline incentives and constraints for pro-social behaviour in health, respectively. Section five provides examples of potential interventions to encourage specific pro-social health behaviours. Section six discusses the evidence on behavioural motivations and individual characteristics that correlate with donation behaviours. The final section provides a conclusion.

2. Examples of pro-social health behaviours

In this section, we discuss the selected evidence concerning health-related pro-social behaviours, focussing on the donation of human tissue, fluids and organs; monetary donations to health-related causes and volunteering in health-related settings. First, we briefly describe some of these actions in order to identify the underpinning pro-social behaviour motivator(s).

2.1 Blood donation

Given that many medical procedures depend on blood transfusions, well-functioning health services require adequate blood donations. The WHO recommends that the totality of this needed blood supply should be fulfilled by voluntary, unpaid donors, and most countries in the world do so, many through anonymous, undirected blood donation systems. Those countries that rely on patients' family and friends for donations tend to have more precarious, if not inadequate, supplies of blood. In most anonymous, undirected systems, donors are screened for suitability, and there is a compulsory period between donations that limits the amount of blood that can be donated by each donor per year. In most countries, both the benefits and costs that accrue to the donor are low to non-existent.⁹

2.2 Organ donation

The lives of patients who have failing organs can be saved by the transplantation of compatible organs. Here, a crucial distinction must be drawn between living and deceased donations: Living donations often involve the donation of a single organ, most commonly a kidney, and usually from a family member. Deceased donations, which is our primary concern, involve multiple organs being donated to unrelated and unspecified patients.

In the latter's case, the possibility of saving many lives is severely curtailed by the limited supply of suitable organs, with many, if not most, patients added to the waiting list. In most countries, waiting lists are perpetually growing, resulting in the deaths of a significant share of patients whose lives otherwise could have been possibly saved or, at least, extended [3]. Moreover, such donors frequently do not consider the prospect of donation in advance, but near the moment of death, with the pressing circumstances limiting the time available for them to make an informed decision. In an ideal world, this decision would be prearranged, with prospective donors having considered the prospect and either pre-registered or writing it in a living will (with pre-defined instructions before death).

For both types of donation, they are intrinsically altruistic, although the direct cost (and risk) is obviously higher for the living donor. In both instances, the participation and consent of the family is important, although in living

⁸ There are numerous other examples of general and specific constraints on pro-social behaviour in health, ranging from organisational and management practices, to family involvement or lack of it, to transport costs, to inconvenience in a monetary donation process.

⁹ Some countries, such as Italy, offer time off work, while others offer a range of minor, non-monetary incentives such as donor merchandise, donor cards, free cholesterol tests, coupons, or even biscuits. Such benefits are primarily orientated around building an individual's reputation, self-image, and their identity as a 'blood donor'.

donations, the donor has full agency, while in deceased donations, the family tends to play a role given their close contact with the donor.

2.3 Cord blood donation

Umbilical cord or blood cord donation is necessary for stem cell transplant, however only 0.1% of deliveries result in a donation.¹⁰ There is relatively little required for mothers to donate the umbilical cord, with delivery processes that incorporate donation varying little from the ordinary delivery process.¹¹ Given this fact, ensuring an adequate supply would seem straightforward. There are currently 37,000 people in the UK requiring a stem cell transplant, but around 70% of patients requiring one do not have a matching donor [4]. Many parents now choose to freeze the umbilical cord in the case that their children might need their stem cells at a later point, but some choose to donate from the beginning. It is important that the donors understand the benefits of such a donation, ideally by discussing it prior to labour beginning, ensuring that they make an early choice, because indecision later on reduces the likelihood of a final donation. Consistently, some research finds that soft commitments play a role in encouraging mothers not to procrastinate and consent to the donation before the delivery [48].

2.4 Human breast milk donation

Human breast milk is the best food for new-born babies and is particularly crucial for infants born prematurely. In some cases, babies have mothers who produce more breast milk than they require, while other babies have mothers who cannot produce enough or no longer have a mother at all. Women who produce surplus milk can donate it to human milk banks (HMBs). There are also markets in which human milk may be purchased or sold by individuals or commercial entities. For those women who produce excess milk, their motivation is driven by altruism and empathy towards mothers and babies. However, the working environment in a neonatal unit can prove essential in reducing the constraints that could otherwise inhibit the decision to continue donating milk [5].

2.5 Health care volunteering

In some countries, volunteers make an overwhelming contribution to the health care system by providing either supplemental health or social care for patients. In England, a King's Fund Report estimated that there were about 3 million volunteers who take on various roles, with some, for instance, being crucial in providing support to people with multiple long-term conditions or mental health problems, such as 'dementia friends' [6]. In a similar vein, throughout the ongoing COVID-19 pandemic, volunteers have provided support to those self-isolating at home, such as by delivering medicines and other necessities. Similarly, volunteers have been essential to test the efficacy and safety of vaccines by participating in vaccine trials, with more than 250,000 people in the UK having volunteered to take part in COVID-19 vaccine trials through the NHS Vaccines Registry.¹²

2.6 Monetary donations

Monetary donations are crucial for the treatment of many conditions, such as cancer or Alzheimer's, with patients often receiving care from private or charitable organisations alongside the state. Without the donations to organisations like the Alzheimer's Society or Cancer Research UK, their ability to provide raise funds for medical research would be heavily circumscribed.¹³

In some instances, these donations are fiscally incentivised,¹⁴ such as via payroll giving¹⁵ or tax relief, but these incentives are mainly relevant for high income and corporate donors. The majority of donations entails some level of benevolence or as a response to a personal connection to the charity [6, 7]. Therefore, the key issue here is how to incentivise donations for conditions when individuals have not been directly affected by them, including conditions that are relatively rare, and are therefore neglected or ignored by potential donors.

3. Incentives for pro-social behaviour in health

3.1 Motivations of pro-social behaviour

The motivations of pro-social behaviour can take both altruistic and self-interested forms. Within the altruistic context, donations are usually given from the donor to the recipient without any expectation of reward, although, in some instances, there may be concealed elements of self-interest or exchange, such as an expectation of a bequest in a future will. Within the context of self-interest, donors' perceived reward for donating should be at least equal to, if not greater than, the perceived costs [7]. Here, the reward can either be tangible, such as a pecuniary reward, or intangible, such as fulfilling a social norm or enhancing the donor's self-esteem.

¹⁰ <https://parentsguidecordblood.org/en/news/percentage-births-banking-cord-blood-country>.

¹¹ Following either vaginal or caesarean delivery, the cord is clamped as usual before being taken with the placenta for blood extraction. The blood is transferred to a cell therapy centre, assessed for transplant suitability and then frozen for up to 25 years.

¹² <https://www.gov.uk/government/news/10000-uk-volunteers-to-take-part-in-new-covid-19-vaccine-trials>.

¹³ <https://covid19responsefund.org/en/>.

¹⁴ <https://www.gov.uk/donating-to-charity>.

¹⁵ <https://www.wcrf-uk.org/uk/fundraising/payroll-giving>.

Where the reward takes a tangible form, particularly if it is monetary, there is the risk that such rewards can interfere with would-be donors' altruistic motivations. In some instances, it can deter would-be volunteers or donors to feel as if their altruism has been tarnished by the reward. Indeed, some studies in the context of blood donations have found that paying blood donors not only fails to attract new donors, but reduces the participation of past donors. They end up serving to crowd out pro-social behaviour, rather than enhancing it. Here, the monetary compensation depressed the motivation to donate blood among experienced donors [8]. Furthermore, although some studies point to safety concerns associated with monetary rewards [9], a recent comprehensive review found that there was no negative impact on blood safety [10].

The key issue presented by these studies is whether offering a pecuniary reward incentivises more than it deters, and within this, whether there is a link between the amount of money offered. The crucial point between the money being enough to incentivise the self-interested, while being small enough to not deter the altruistic, must be found. The use of incentives in blood donation has played some, but a limited role, in increasing blood donations [10], although a study assessing the UK population's perspective on donation rewards found that roughly only a quarter of the population supports the use of incentives, especially younger and first-time donors, as they are more likely to support those incentives [11].

The solution to motivate pro-social behaviour without engaging in crowding out might come through using small, non-financial, rewards (such as days off work) which do not crowd out altruistic identities [12]. These small incentives (e.g., discounts, tickets, gifts, paid time off work or coupons to be redeemed for merchandise) have the strongest potential as they might add new donors without reducing the pool of voluntary or non-remunerated (VNR) donations [13].

Nonetheless, the effectiveness of such small monetary incentives is contextual and might not work in all settings [14]. Although they work in recruiting new donors, they might not always retain existing ones, and stimulate a 'donation habit', without such incentives in future. Indeed, a limitation of monetary incentives is that once the incentive is removed, it stops working [16]. Hence, it prevents a habit from arising, and means such a donor becomes difficult to retain. As such, relying on monetary incentives can therefore become an expensive system to maintain.

With regard to organ donations, numerous interventions that qualify as monetary incentives have been proposed to increase the organ donor pool, including a tax credit provision for living donors, payment of funeral expenses, and reimbursement for living donor expenses associated with travel, housing and lost wages [15]. However, there is still currently little empirical evidence about the impact of such incentives on organ donations.

3.2 Social Incentives

Social incentives, which can be used in combination with monetary incentives, offer an alternative to promote pro-social behaviour in the long term and reinforce donation habits. These include the role of priming commitment devices and reminders to keep donating, and the social recognition of donation behaviours which can elevate the social esteem of donors [17]. Improving one's self-image as a donor by meeting social expectations can be a powerful motivator if individuals wish to belong within society. Other social motivations include people's empathy and sympathy, perhaps even having perceptions of heroism by engaging in costly pro-social behaviours. The main incentive here is social esteem, namely seeking the appreciation of others, and avoiding the social penalty or stigma from failing to engage in pro-social behaviours. These reflect evolutionary mechanisms designed to avoid free-riding on others when cooperation entails large social gains.

Studies have shown that social incentives can be more effective than monetary incentives, avoiding the inhibiting effect that financial compensation can have on some donors [12, 18, 19]. For individuals to be willing to engage in pro-social behaviour, they might need to first experience negative feelings in response to witnessing others' unmet needs and suffering, which is known as 'empathetic distress', towards the community of a would-be donor [20, 21]. Hence, pro-social behaviour can be envisaged as a behaviour to reduce such negative feelings [22, 23, 24].¹⁶

With regard to the COVID-19 pandemic, role models were found to play a role in motivating pro-social behaviour. An experimental study examining the effect of watching private citizens and public officials acting in ways that either increase or decrease the spread of the Coronavirus on monetary donations suggested that positive citizen role models (e.g., obeying social distancing rules) increased donations rather than negative ones (e.g., those watching people disobey social distancing guidelines). [25]. However, the opposite was found to be true for public official's role models, which are seen as substitutes of those of fellow citizens.

3.3 Altruism budget

One of the concerns of those studying pro-social behaviour is whether the individuals have a fixed amount of altruism, or an 'altruism budget' [26]. This means that an increase in an individual performing one type of pro-social behaviour (e.g., monetary donation) reduces the likelihood of their performing another type of pro-social behaviour (e.g., volunteering, donating blood). While resolving this question is important, as is the question of whether it is possible to grow the 'budget' if it is found to exist, there is currently limited evidence on it within the health domain. If individuals have

¹⁶ We should distinguish empathetic distress and personal distress; it mainly refers as 'distress on the other's behalf'. That is, distress resulting from others' difficult circumstances.

a pre-determined level of altruism, then even incentivising some pro-social behaviours might be at the expense of others. Hence, public policy makers will need to decide which of the two pro-social behaviours is of higher social value and ensure that the incentives for each behaviour properly reflect the needs of society more broadly.

3.4 Tipping points

Although pro-social behaviours might be path-dependent and inertial, little is known about how pro-social behaviour differs after the effect of *tipping points* [27], or sudden and unexpected changes (shocks). This entails looking at how catastrophic events that could not be anticipated increase the supply of pro-social health behaviours. For instance, there is some evidence to suggest that the existence of a close family member in need of a blood transfusion increases the willingness of affected family members to donate more generally [28]. Similarly, health emergencies can potentially increase the 'benevolent reward' as they might increase their perceived social value. With regard to the aforementioned altruism budget, there is also the prospect that such events may be one of the factors that can 'grow' an individual's budget.

3.5 Choice Architecture

In addition to monetary and social incentives, modifying the architecture of the donation process, such as the consent mechanisms, can remove barriers to pro-social behaviours. The use of presumed consent legislation, rather than informed consent, has been seen to nudge individuals in favour of organ donation, with individuals forced to actively opt out, rather than opting in [29]. By placing the cognitive and practical burden on individuals to opt out, a greater number of people, and especially those with limited willpower, are likely to remain within the default position, thereby increasing the overall donor pool. However, the evidence on the effect of presumed consent should be treated with caution.¹⁷ We will come back to this point when discussing constraints.

Promoting pro-social behaviour could also be incentivised by reducing the cognitive costs associated with donations, such as reducing their perceived risks and increasing the perception of safety. For instance, improving the safety of kidney donation or blood donation could motivate risk-averse donors to donate. Alongside this, reminders that they, or their friends and family, could require a donation may serve to make the issue seem less remote. Potential donors could be nudged with reminders, such as SMS messages, reinforcing the benefits of donation, including, perhaps, specific details on where the blood may be used (e.g., the name of the local hospital where donations are delivered), so that people have a more concrete idea about how their donation helps, building a 'benevolent reward'. Such messaging may also help retain past donors.

4. Constraints on pro-social behaviours

Minimising the constraints for individuals to overcome while they are engaging in pro-social behaviours can be effective to tilt the balance in favour of some individual's pro-social behaviours. For instance, reducing the physical consequences of donations of biological material is likely to increase the willingness of an individual to donate. Accordingly, reducing the occurrence of bruises and other forms of physical pain or discomfort would enhance the prospects of individuals donating blood or other forms of donation, most notably for our purposes, that of breastmilk. In line with this, reimbursing transaction and transport costs (rather than incentivising through payments), or time invested in donating (e.g., by compensating employers that allow employees to donate), would also remove an important constraint on pro-social behaviour [30].

Families can also be a significant constraint, with family vetoes often preventing would-be organ donations from signing up. [2]. There is significant national variation on this. For example, Spain sees relatively few families object to donation (20%), while the UK and the USA see almost half of families' object. Kessler and Roth [31] found that relatives are more likely to support organ donation if the deceased explicitly chose to do so, as opposed to simply opting out.

Finally, constraints can also present themselves in the form of human capital limitations, with donors needing to be both physically fit and mentally aware enough to donate. Governments interested in promoting pro-social behaviours should look after the health of its population, all of which are potential donors [32, 33].

5. Pro-social health behaviour and habit formation

5.1 Behavioural Motivations

Health related pro-social behaviours can be driven by a number of factors including altruism (selfless concern for others) and empathy (ability to understand other circumstances). One of the many rationalizations of altruistic behaviour is that humans share a common bond and have an inherent desire to help others. However, knowledge about the aggregate scarcity of blood or organs affect the marginal value of one's donation and hence the benevolent rewards one receives from it [34, 35, 36]. Indeed, one would expect people to give more when the aggregate supply is less, namely when blood is scarcer. Evidence shows that more individuals with a more scarce blood type are not more likely to be donors [37], which suggest that either people are not aware of their blood type, or they genuinely do not respond to scarcity. However, even when benevolent rewards can recruit donors [38], such rewards need to be maintained over

¹⁷ As there might be confounding effects influencing the estimated effect of presumed consent on behaviours.

time to retaining them. This leads to the role of social incentives, the role of esteem and what is generally referred as 'social desirability bias' [39].

Pro-social behaviours are context specific and depend on the existence of an 'altruism culture'. Breastmilk, blood and organ donors cannot choose the recipients of their donation. Thus reciprocity models (an exchange with mutual rewards) are also problematic to estimate blood and organ donations due to the fact that the donors and recipients remain strangers [40]. In addition, donors rarely make a public display about their donations or donate with others to gain reputation [41]. However, social image and reputation, especially among close social ties, play an important role [42].

Alternatively, pro-social behaviours may result from exchange mechanisms, with donating individuals receiving external benefits. For instance, those registering as organ or blood donors may experience a boost in their self-image [12] or in reputation if they are observed [43], and this is likely to extend to donors after donating [39]. Such emotions however, are at odds if monetary incentives are offered, with a balance needing to be maintained between ethical and self-interest components. Policymakers should consider the trade-off between the two.

5.2 First time donors and recurrent donations

It is important to distinguish incentivising first-time donors and retaining the loyalty of past donors. Ensuring that past donors continue to donate can be done through various means. Closing donor centres increases donor lapses, with past donors seemingly unwilling to travel longer distances to donate [44].¹⁸ As well as ensuring that centres are easily accessible, past donors respond well to habit forming initiatives. These range from making sure that the donation process occurs at a similar place at a similar time of year in a similar place to reminding donors of their past behaviour, such as through messaging services.

5.3 Individuals' characteristics

There are a number of specific characteristics of individuals that affect each type of pro-social health behaviour examined. *Volunteering* is affected by the religiosity of the donor, the number of children, and their broader social interactions [32]. Good health status increases the probability of informal helping but negatively influences volunteering, implying that healthier people volunteer less because they informally help more [32]. *Monetary donations* are sensitive to income, whether individuals take advantage of a tax relief and demographic variables.

Finally, the *donations of biological materials* are sensitive to Egalitarian values, and a better subjective health status can increase the likelihood of donating blood [45] but does not affect organ donation registration, organ donation decision nor charitable donations [46]. Previous studies have documented that Caucasian, married, middle-aged, educated men are more likely to donate blood [47]. Similarly, organ donation is influenced by education, income and religion [48].

6. Policy interventions for pro-social health behaviours

Next, we outline a set of policy interventions or strategies to influence both the incentives and constraints including the choice architecture outlined above. We also highlight the risks posed by, as well as potential benefits of, making behaviourally compatible tweaks to established policies.

6.1 Blood donation

First, the use of new designs involving monetary equivalent rewards, such as a health checks or health information (that individuals would have to seek from commercial companies), may also prove an adequate 'compatible incentive' with other self-interest goals (e.g., such as improving their own health), particularly among younger donors, for whom such information can help them engage in preventive activities [35]. Further, publicising blood donors' names, rather than maintaining anonymity, may shift the 'social desirability bias' in favour of donation behaviour, while personalised messages delivered are more likely to recruit and then retain donors. Here, telephone requests should be preferred to email recruitment, with the latter consistently shown to be less effective at recruiting donors than telephone requests [36]. Finally, donor appreciation can play a role in retaining donors, such as through providing donors with information on how their blood has been used, elevating their self-esteem.

6.2 Organ donation

The adoption of opt-out systems of organ donation, based on presumed consent, is likely to be the simplest and most feasible way of rapidly expanding the organ donor base without much investment. However, this must be done in conjunction with avoiding family vetoes by encouraging early discussion, as late family participation in the process might potentially delay the donation to the point at which the organs are unviable, if they don't stop it outright [2]. Alongside this, ensuring that families and would-be donors are provided with information on the effects of organ donation on people's lives would also likely increase recruitment of new donors. Similar interventions include taking advantage of the need for further organ donations after an emergency (also referred to as the 'availability effect') to recruit new

¹⁸ They find that donors whose donation centre closed were 53% more likely to lapse. In addition, they find that the probability of lapsing was 102% among O blood donors [44].

donors. Finally, there is an important role for donor units in following up with potential donors and assisting in the process until a compatible donation takes place. Practically, this means regularly following up people who have agreed to donate and remaining involved to reduce second thoughts and dropouts.

6.3 Stem cell & breastmilk donations

Regarding stem cell donations, the most important incentive is simply reminding mothers of the need for umbilical cord donations [49], with there being relatively few constraints to remove. In contrast, the situation is reversed in regard to breastmilk donation, with the primary focus needing to be reducing the discomfort of the mother's extraction of milk, such as by improving delivery, collection, and general hygiene.

6.4 Monetary donations

Monetary donations are sensitive to diffusion of information of an emergency (e.g., a natural disaster) and calls understanding the effect of tipping points or experienced that affect the potential 'benevolent rewards'. Regular monetary donations are sensitive to fiscal incentives (such as tax rebates and tax exemptions of payroll donations) which play a role in incentivising monetary donations at the time individuals 'just get paid', or corporations 'just have announced a profit'. For those incentives to be effective, they should be followed by reminders and prompts that grab people's attention. However, if individuals have an 'altruism budget', individuals that donate for a cause might fail to engage in other pro-social behaviours. Hence, in designing incentives for monetary donations, one would need to understand how they impact on other desirable pro-social behaviours.

6.5 Volunteering

Volunteering activities are very sensitive to the social esteem or praise that volunteers receive. Maximising the social desirability of volunteering may be achieved through enhancing and emphasising the benefits that volunteers may receive in terms of fulfilment of a social duty for their community, as well as improvements to their emotional wellbeing. Alongside this, ensuring that volunteering becomes a habit is critical to sustaining volunteer numbers, and here, donor appreciation, much like with blood donors, is likely to play an important role in volunteer retention.

7. Conclusion

Pro-social behaviours are central to the well-functioning of a health system. However, we still know little about the best way to promote them. This paper has argued that the recruitment and retainment of donors can be incentivised by developing policies that are 'incentive compatible' with other social motivations in the society to engender changes in donation habits. The latter is the main challenge of monetary incentives more generally. However, in addition to the design of compatible incentives, policy makers need to think in terms of reducing a many of the 'disruptive constraints' that otherwise hamper the donation process, even when individuals are motivated to donate. The latter includes barriers that add transaction costs to the donation realisation, and other barriers affecting the recurrence of donations described in this paper.

More generally, the evidence suggests that there is a significant scope for improving the platforms where people donate, which requires investment in donation campaigns, in collecting donations, and more generally in strengthening the management of the donation processes for each type of donation: time, money and biological material. When individuals are influenced by the presence of an 'altruism budget', some attention should be placed on the existence of spillovers between different types of pro-social behaviours. Finally, it is worth pointing out that unanticipated events can act as tipping points and increase the 'benevolent reward' that donors receive and expand the supply of pro-social behaviours.

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Competing Interests

The authors have no competing interests to declare.

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