Time for Blood: The Effect of Paid Leave Legislation on Altruistic Behavior

Nicola Lacetera*
University of Toronto

Mario Macis**
Johns Hopkins University

Organizations and public agencies that promote pro-social activities constantly struggle to attract and encourage more contributions. In this article, we study the effects of an explicit reward in the context of blood donation. Specifically, we analyze the effects of a legislative provision that grants a one-day paid leave of absence to blood donors who are employees in Italy, using a unique data set with the complete donation histories of the blood donors in an Italian town. The across-donor variation in employment status, and within-donor changes over time are the sources of variation that we employ to study whether the paid-day-off incentive affects the frequency of their donations. Our analysis indicates that the day-off privilege leads donors who are employees to make, on average, one extra donation per year, which represents an increase of around 40%. We also find that the provision has persistent effects, with donors maintaining higher donation frequencies even when they cease to be eligible for the incentive. We discuss the implications of our findings for policies aimed at reducing the shortages in the supply of blood and, more generally, for organizations that try to motivate voluntary contributors. (*JEL*: D12, D64, I18)

*University of Toronto, Toronto, Ontario, Canada. Email: nicola.lacetera@utoronto.ca
**Johns Hopkins University, Carey Business School, Baltimore, MD 21202 USA. Email: mmacis@jhu.edu

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1. Introduction

Every year, millions of people devote time, effort, and money to voluntary, pro-social activities such as donating cash for a cause or organization, helping the elderly and disabled, cleaning beaches, or donating blood. These activities involve single citizens as well as small and large, private and public organizations, and represent a sizeable share of a society's life.[1] Yet, for many of these activities, supply is still below societal needs.

A notable example is given by blood donations. Blood transfusions are required in such situations as blood loss due to trauma or during surgeries, the treatment of premature babies, and for several chronic diseases. There is no available substitute for human blood, and, in recent years, the demand has increased dramatically due to, among other causes, an aging population and new surgical procedures such as organ transplants (Di Rado 2004; www.bloodbook.com). However, blood supply frequently does not keep pace with demand.[2] Neither eligibility criteria nor a lack of information fully explain these shortages. Although about 50% of adults are eligible to donate blood in developed countries, and donations can be made between 4 and 7 times per year according to different legislations, only 3.8 donations are made, on average, per 100 individuals (World Health Organization 2009). Also, information campaigns and communications about shortages are often conducted by such organizations as the Red Cross, government agencies, schools, hospitals, etc. An alternative cause to be explored concerns people's behaviors and incentives. Individuals might simply not find it worthwhile to dedicate time to donate blood if the private benefits of donating blood fall short of the opportunity costs. This implies that policies offering explicit incentives to donate might play a role in encouraging participation in activities that are, in most countries, based on voluntary and unpaid contributions.

In this article, we study the effects of Law 584, a legislative provision passed in 1967 that gives Italian blood donors the right to a paid day off work on the same day that they donate blood or blood components. The law applies to all donors who are employed at any private or public organization, and salary and contributions are reimbursed by the state. We evaluate whether this legislative provision induces blood donors to make more donations, and quantify this effect.

One would not necessarily expect a paid day off to increase blood donations. Although standard economic theory would deliver this

1. In the United States, for example, charitable giving totals over $260 billion, or around 1.9% of personal income (Andreoni 2008), and the estimated value of volunteer time is over $240 billion (Independent Sector 2006). The number of nonprofit organizations registered with the IRS grew by about 60% from 1995 to 2005 (List 2010).

2. Shortages are frequent in Western countries and even more in developing nations (World Health Organization 2009). It is estimated that, worldwide, there is currently a shortage of about 22 million units of blood (HemoBiotech 2008).

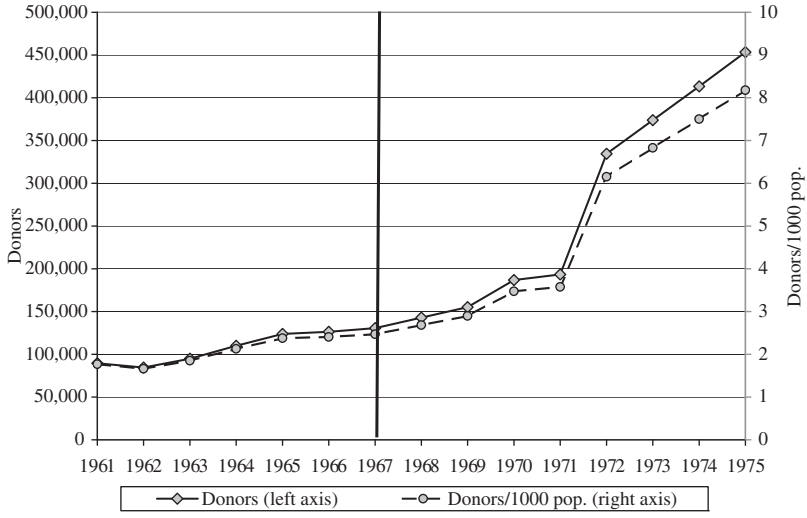

Figure 1. Number of Donors (Absolute and per 1000 Persons) Before and After the Introduction of Law 584/1967. The figure shows the number of AVIS members in Italy, in absolute terms (left axis) and per 1000 persons (right axis), for the years 1961–75. The vertical line indicates the year the Law introducing the paid leave of absence for donors was passed (1967).

prediction, research in psychology and, more recently, behavioral economics argues that extrinsic incentives might crowd out the quantity and quality of the supplied altruistic activity. For instance, the introduction of economic rewards might create doubts about the true reason behind pro-social behavior, thus potentially crowding out intrinsic motives. Economic incentives, therefore, could backfire instead of reinforcing altruistic motivations (Bénabou and Tirole 2006; Deci 1975).[3] Given the presence of competing predictions about the impact of economic incentives on pro-social behavior in general and on blood donation in particular, empirical examinations are in order.

Figure 1 reports the number of members of the Italian Association of Blood Donors (AVIS), both in absolute terms and per 1000 persons in Italy in the years immediately preceding and immediately following the passage of the law (individuals have to be affiliated with a blood donor organization, like AVIS, in order to donate blood. Further details in Section 2 below). The aggregate evidence indicates that there was no reduction in the number of donors (i.e., no net crowding out), and hints

3. These views lend support to the early claims of Titmuss (1971) about the negative effects of paying for blood, in terms of both quality of quantity of blood supplied. Titmuss' claims were very influential in marking the end of a paid blood supply system in the United States in the 1970s (Healy 2006; Shearmur 2007).

to an increase above the previous trend.[4] This evidence, however, is obviously not sufficient to draw causal implications of the addition of this extrinsic incentive. In particular, information on donors' labor market status is needed.

Even though AVIS's national headquarters does not collect data on the labor market status of its donors, local units of the association sometimes do. Our analysis is based on a unique, longitudinal data set comprising the individual histories of blood donations of the whole population of donors in an Italian mid-sized town ("The Town" hereinafter) located in the center-north region of the country. In addition to demographic information and the number and dates of donations made by about 2600 unique donors in the periods 1985–89 and 2002–06, the database includes information on the donors' labor market statuses and occupations. Because our data do not include the years both before and after the introduction of the policy, we cannot evaluate the effects of the policy on the extensive margin of donations (i.e., on inducing more people to become blood donors). However, the data do allow us to study whether blood donors are responsive to the paid-day-off incentive. In particular, our empirical strategy exploits cross-sectional variation in donors' labor market statuses, and, crucially, variation in job-switching by donors over time.

We exploit the fact that the incentive benefits only donors who are employed by using variation in donors' occupations and changes in donors' labor market status to identify the effect of this incentive on blood donations. The longitudinal nature of our data enables us to perform regressions of each donor's donation frequency on his or her labor market status with individual fixed effects, which absorb any heterogeneity in time-invariant personal attributes that might be correlated with donation behavior (including "intrinsic" altruism). Thus we use within-donor employment shifts to determine whether changing labor market status is associated with different donation frequencies.

Our findings indicate that when donors are eligible to benefit from the day-off incentive (i.e., when they are in paid employment) they make, on average, one extra blood donation per year, a substantial effect that represents a 40% increase. Notably, our findings are unchanged if we focus on the transitions between being an employee and being out of the labor force (i.e., being a student, homemaker, retiree, or unemployed), thus excluding self-employment. We are able, therefore, to rule out a potential alternative explanation for our findings, i.e. that people donate more when their opportunity cost of time is lower (as it would happen for an employee as compared with a self-employed individual), because being out of the labor force arguably leads to even more available time to donate. We also investigate whether ceasing to be an employee is associated with a lower donation frequency. Although our point estimates are

4. The large increase between 1971 and 1972 coincides with AVIS launching a national media campaign to inform donors about its activities.

negative, thus indicating a reduction in donations when donors cease to benefit from the day-off incentive, they are (in most cases) small in magnitude and not statistically significant. Even though more data would be required to make conclusive claims, this finding is consistent with some form of "persistence" in behavior whereby those with higher donation frequencies tend to maintain a high frequency even after they have lower incentives to do so. Evidence from patterns of repeat donations by new donors is consistent with this persistence being due to learning and selection, although we cannot rule out that exposure to the incentive can also lead to habit formation.

These findings are robust to a variety of specifications and sample restrictions that are aimed at addressing issues such as measurement error, serial correlation, in labor market status, and the concern that changes in labor market status might be capturing other life changes that might be correlated with donation frequencies, such as changes in health condition or family structure (proxied by age). These tests also allay the concern that the higher donation rates of employees are not due to an incentive effect but, rather, to an income or wealth effect.

Further indication that the day-off incentive affects donor behavior comes from our analysis of patterns in the choice of donation day, and from actual take-up rates of the day-off incentive. We document that a substantial fraction of donors who are employees choose to donate on a day that extends their weekend (notably Friday, which leads to 2.5 consecutive days off because donations can be made only in the morning), whereas no such preference is found for donors of a different labor market status. The "Friday effect" that we detect for employees suggests that a substantial share of this group of donors exploits the full potential benefit from the day-off provision. As a further corroboration of this view, we find that the take-up rates of the incentive, as represented by the percentage of donors who request a document attesting to their donation to be presented to their employer, average 70%, with spikes on Fridays and Mondays. Thus, most donors who are employees do take advantage of the incentive as opposed to, say, donating and returning to work. Interestingly, about 30% of employees who donate on a Saturday request the day-off document; therefore, a substantial share of employees donating on Saturday are, indeed, donating on their closest workday to the statutory free day (i.e., Sunday).

A number of studies have investigated the effects of material rewards on pro-social activities. Early laboratory experiments by Deci and his collaborators found that adding explicit rewards for the performance of activities that are motivated by intrinsic reasons leads to a reduction in the performance of those activities (Deci 1975). Similar findings have been obtained by, among others, Frey and Oberholzer-Gee (1997) and Gneezy and Rustichini (2000). Gneezy and Rustichini (2000), however, find that "large enough" incentives do stimulate pro-social behavior. With specific reference to blood donation, in an artefactual field experiment Mellstrom

and Johannesson (2008) offered Swedish college students small monetary rewards to undertake a health test in order to determine their eligibility to donate blood, finding no effects for males and negative effects for females on the willingness of taking the health test (the study did not observe actual donation behavior). Goette and Stutzer (2011), in a field experiment in Switzerland, find that lottery tickets used to promote donations increase turnout at blood drives. Lacetera et al. (2012a and 2012b) present observational and field-experimental evidence from American Red Cross blood drives that offering small material rewards increases donations.[5] In addition to providing novel findings from a new source of data, our study complements the existing literature on the impact of explicit incentives on the performance of altruistic activities in at least two other ways. First, the fact that in most industrialized countries there are tight restrictions to rewarding blood donations makes it difficult to analyze the issue empirically in the field. To the best of our knowledge, this study is the first to analyze the actual behavior of an entire population of blood donors in response to a naturally occurring incentive defined by the law. Second, in our context the individuals are free to not enjoy the economic benefits (e.g., by choosing the day of the week on which to donate, or by returning to work after donating). The "natural" occurrence of the incentive and the ability of donors to not benefit from it reduce concerns about social desirability bias and limited sorting in the experimental literature (Harrison and List 2004; Lazear et al. 2012).

The article proceeds as follows. Section 2 describes the institutional context of this study and the data. Section 3 presents the empirical analysis and findings. Section 4 offers a summary of the findings and considerations on their implications for organizations and policymakers.

2. Institutional Background and Data

The data used in this study originate from hand-collected information on the entire blood donation histories of all donors in an Italian town located in the north-central part of the country.[6] Before describing the data in detail, we provide institutional details on the blood donation system in Italy and in The Town, and we describe the day-off incentive introduced by Law 584.

5. Other studies have focused on other extrinsic motives for pro-social activities, such as the quest for social recognition. See, for example, Wedekind (1998); Harbaugh (1998a, 1998b); Nowak and Sigmund (2000); Price (2003); Polborn (2007); Ariely et al. (2008); Andreoni and Bernheim (2009); and Lacetera and Macis (2010a).

6. The demographic, social, and economic characteristics of The Town's population are highly representative of the overall Italian urban population. Statistics comparing The Town with other Italian towns on a number of socioeconomic characteristics are available upon request.

2.1 Blood Donation in Italy and in The Town

Blood donation in Italy is organized through blood banks run by volunteer donor associations. The associations have a central headquarters as well as town-level units. To donate blood, an individual is required to become a member of one of these associations. The three major associations, which are present in different parts of the country and therefore do not "compete" with one another, are *Associazione Volontari Italiani del Sangue* (AVIS), the largest association with about 1.1 million members in 2007; *Federazione Italiana delle Associazioni Donatori di Sangue* (FIDAS), with about 400,000 members (Caligaris 2007); and *Fratres*, with 150,000 members (in 2000).[7] The affiliation is to a local unit of the national associations, and blood donors predominantly donate in the town where the unit with which they are affiliated is located. In The Town, blood donation is managed by AVIS, and donations of either whole blood or blood components take place in The Town's public hospital, Monday through Saturday from 8 to 11 a.m. Donors do not make appointments, and donate on a "first come, first served" basis.

Only individuals between 18 and 65 years of age are allowed to donate blood. Italian law limits the frequency of donations of blood and blood components. Male donors must wait at least 90 days between donations of whole blood, and females 180 days (since 1991).[8,9] The time required for a platelet or plasma donation is about 1 h, compared with an average of 20 min for a whole blood donation. Including the time to reach the donation site, the waiting time before the donation and the resting time at the hospital after the donation (which is longer for donations of whole blood), on average, a blood donor should expect a commitment of about 2 h.

7. Blood donations run through blood banks and voluntary donor associations have become the official blood donation and collection system in Italy after World War II. Similar blood bank systems exist in countries such as Denmark, Greece, Norway, Portugal, and Spain. In the UK, France, and Ireland, in contrast, the organization of blood donation is run by the State. The Red Cross, finally, is the dominant organization that manages blood collection in such countries as Belgium, The Netherlands, Germany, and the United States. In the United States, however, the system is more heterogeneous and competitive, comprising the Red Cross, blood banks, and hospitals directly managing blood donations. See Healy (2006).

8. The Italian legislator limits the donation frequency of women in order to protect their health against excessive reductions in blood iron. These occur more often in women because of the menstrual cycle.

9. Platelets can be donated once every 30 days, and plasma every 14 days. Conversations with doctors and AVIS officials in The Town revealed that the type of donation is typically not an individual donor's choice. Donors, in general, join the Association to donate whole blood, and are assigned to donating blood components if they are not eligible to donate whole blood (e.g., if they have insufficient iron in their blood), or if there is some urgent need for a specific blood component. Therefore, one should not expect the day-off benefit to affect the choice of which blood component to donate.

2.2 An Explicit Incentive to Blood Donors: A One-Day Paid Leave of Absence for Employees

According to the National Law 584 of 1967, all donors who are employed at a private or public organization have the right to a paid day-off work on the same day that they donate blood or blood components. Employers are refunded by the state for the related salary expenses they incur (including social security and other contributions). From the employee's standpoint, this provision is equivalent to sick days in addition to those that he or she has by contract, with an important difference. Unlike an illness absence, when the employee is required to stay home (a medical inspector can be sent to check for the sickness claim), this requirement does not hold in case of an absence for blood donation.[10] Employees in other countries are typically allowed time during work hours to donate blood, usually without deductions in salary or accrued leave. However, these provisions just give donors the material time to make their donation, and, typically, the donor has to return to work after donating. The benefit from Law 584 goes well beyond giving some rest to donors after their donation; thus it represents an explicit, substantive reward to blood donors.

The typical work week of an Italian employee is Monday to Friday. Most businesses, as well as most public workplaces, do not operate on Saturdays. Some exceptions are represented by hospital doctors, teachers (in Italian public schools, attended by nearly all students, only Sundays are off), and some employees in public workplaces such as City Hall clerks in offices open to the public. A further notable exception is given by stores, most of which are closed, by law, on Monday mornings and are open on Saturdays.[11]

2.3 The Data

Searching the archives of both AVIS and The Town's hospital, we identified all of the Association's members (and, therefore, all of The Town's blood donors) from 1983 to 2006. For each individual donor, we obtained the entire donation history over this 24-year period. Information on donors includes sex, age, blood type, and the date when each individual became a donor. Following AVIS's practices, and to mitigate the risk of including in the sample individuals who have moved out of The Town or ceased to donate due to health reasons, we consider a donor to be "active" in each year if that donor has made at least one donation in the previous 2 years or in the current year, and exclude her

10. There is no formal requirement for a donor-employee to inform the employer in advance of the intention to donate blood (and to not go to work), and the employer cannot refuse to accord the one-day leave. However, an employee may give informal notice to his or her employer.

11. There are no other legislative or regulatory aspects that define a differential advantage of donating for different categories of donors. For example, the health care system is public and universal. As a consequence, any benefits from donating blood such as having periodic physical examinations are the same for everyone.

from the sample otherwise.[12] Crucially for the goal of this study, we have information on the donors' employment statuses. AVIS asked its members to report their occupation. In some cases, donors report it with great precision, indicating their exact job and even the name of the employer. In most cases, however, donors report very broad categories, such as "employee" or "self-employed." Therefore, we cannot distinguish jobs in the finest way, but we can reliably define three categories: employees, self-employed, and donors out of the labor force. The self-employed category also includes business owners, and individuals out of the labor force are students, homemakers, retirees, and those who report to be unemployed. This classification (together with a number of robustness tests described below) will allow us to identify the relationships of interest. AVIS does not update its members' employment statuses on a regular (e.g., yearly) basis. Within the period covered by our data, updates were made in 1985 and 2002. We therefore limit our analysis to two subperiods, 1985–89 and 2002–06, attributing the same employment status in the initial year of each period to the following four years. This introduces the possibility that, for some donors and in some years, occupation is recorded with error. We show below, however, that our results are essentially unchanged when we restrict the analysis only to the years 1985 and 2002, when occupation is accurately measured.

Table 1 presents descriptive statistics of the donors. The left panel shows data on all active donors, whereas the right panel focuses on donors who were active in both periods, and for whom we have complete labor market information. The number of donors has increased over time, going from 845 in 1985 to 2332 in 2006, and so has the fraction of female donors, from 24% in the mid-1980s to 30% in more recent years. The pool of donors has aged slightly over time, moving from an average age of about 37 to about 40 years. The average number of donations per year was 1.9 during 1985–89 and 1.8 during 2002–06. In 1985–89, 68% of donors (62% in 2002–06) were employees, 9% (12% in 2002–06) were self-employed, and 23% (25% in 2002–06) were out of the labor force. Of the 845 donors who were active in 1985–89, 338 (40%) were still active in 2002–06. Reaching the age limit is what mostly explains why donors cease to donate and hence drop out of our database between 1985–89 and 2002–06. Sixty-two percent of the donors who were below the age of 40 in 1989 were still active in 2002 (67% for males and 46% for females).[13]

12. This restriction could bias our estimates toward finding a positive effect of the day-off incentive because only the more active donors would be included in the regressions (which may be correlated with responding to the paid one-day-off benefit). As shown in Tables A6 and A7, the findings are essentially unchanged when keeping the "inactive" donors in the sample or if we weight each observation by the probability that the donor is in "active" status.

13. This is confirmed by linear probability and Probit regressions of the likelihood a donor who was active in 1985–89 to be still active in 2002–06 (Table A3). In particular, controlling for the age of donors in 1989, employment status in 1985–89 does not have a significant effect on the probability of being still active in 2002–06.

Table 1. Summary Statistics

	All active donors		Panel of donors active in both periods	
	1985–89 Mean	2002–06 Mean	1985–89 Mean	2002–06 Mean
Females	0.24	0.30	0.09	0.09
Age	36.87	39.5	35.18	50.06
	(10.82)	(10.74)	(8.06)	(8.09)
Blood type 0	0.52	0.49	0.50	0.51
Blood type A	0.38	0.39	0.45	0.43
Blood type B	0.07	0.09	0.05	0.05
Blood type AB	0.03	0.03	0.00	0.01
Years since joined AVIS	5.05	8.06	7.31	22.97
	(6.28)	(7.89)	(5.84)	(6.08)
N donations/year	1.91	1.76	2.54	2.42
	(1.35)	(1.62)	(1.20)	(1.84)
Employees	0.68	0.62	0.72	0.73
Self-employed	0.09	0.12	0.11	0.10
Out of the labor force	0.23	0.25	0.16	0.17
Number of donors	845	2332	159	159
Number of donor-year observations	3241	8500	662	713

The left panel reports descriptive statistics on all active donors in "The Town", where a donor is considered active at a given point in time if she donated at least once within the previous two years. The right panel reports statistics on the donors who were active in both periods and with complete labor market status information. An observation is a donor-year. When appropriate, standard deviations are reported below the corresponding mean in parenthesis.

Of the 159 donors who were active in both periods 1985–89 and 2002–06, 59 changed labor market status between 1985–89 and 2002–06 (73% of the transitions were between being an employee and being out of the labor force). Compared with the overall sample, the donors who were active in both periods had been members of AVIS for a longer period (7.3 years versus 5.1 years in 1985–89), and tended to make more donations per year (2.5 versus 1.9 in 1985–89). The distribution of these panel donors across labor market statuses is not too dissimilar from the overall distribution. Finally, only 9% of the donors in the panel are females, compared with 24% overall in 1985–89, but this discrepancy is mostly due to patterns in missing occupation information, as shown in Table A1.[14]

14. Table A1 presents descriptive statistics for all of the 338 donors in the panel, as well as separately for the donors with missing occupation information in at least one of the two periods. The main difference between the samples with complete and incomplete job information is that the latter sample includes more female donors (this also explains the smaller average number of donations per year and the shorter tenure as blood donors). We conjecture that the majority of female donors who did not indicate their occupation might have simply skipped the question because they are out of the labor force (e.g., homemakers); however, we chose to conduct our analysis on the observations with hard information only. Table A2 shows descriptive statistics for the donors in the sample broken down by employment status.

3. Empirical Analysis

We begin our empirical investigation by providing descriptive evidence on the behavior of donors of different job market statuses. We will consider the donation frequency and the choice of the donation days of these categories of donors, as well as the take-up rates of the day-off benefit. We then use regression analyses to assess whether Law 584, by increasing the economic benefits of donating for employees, leads to more blood donations.

3.1 Descriptive Evidence

3.1.1 Donation Frequency by Employment Category. Figure 2A shows the distribution of the number of donations per year by labor market status: employees, self-employed, and out-of-labor-force donors. The differences in the distribution of donation frequencies across these groups are substantial. The percentage of active donors not making any donation in a given year is 15% on average, 13% among employees, almost 18% among the self-employed, and 20% among the nonemployed. Similarly, the share of donors making one donation is 23% among employees, 27% for the self-employed, and about 30% for the nonemployed. Conversely, while about 44% of employees make three or more donations a year, this fraction is just 37% among the self-employed and 35% for those out of the labor force. The findings are very similar when we limit the analysis to male donors, as reported in Figure 2B, to account for the fact that female donors have tighter restrictions on the number of donations they can make per year. Kolmogorov–Smirnov tests confirm that the distribution of donation frequencies for employees is significantly different from that for the self-employed and that for the donors out of the labor force ($p < 0.001$ for both the overall and the male distributions). In contrast, no statistically significant differences are found ($p = 0.133$ overall, and 0.260 for males) between the donation frequency distributions of the self-employed and those out of the labor force.

Even though the higher donation frequency of employees suggests a positive effect of the day-off policy, there are other possible explanations for this finding. First, employees might differ from nonemployees along observable characteristics (e.g., gender, age) correlated with donation frequency; second, employees might possess a higher degree of (unobservable) intrinsic altruism than non-employees; and third, employees might donate more frequently because their opportunity cost of time is lower compared with other categories of donors. Our regression analysis below will address these concerns. First, the analysis will include controls for observable donor characteristics. Moreover, to account for heterogeneity in altruistic attitudes, we will include individual fixed effects in the regressions, thereby identifying our effects of interest from within-individual variation in employment status. Finally, we will address the third concern by focusing, in one of our specifications, on transitions between paid employment and out-of-the-labor-force status.

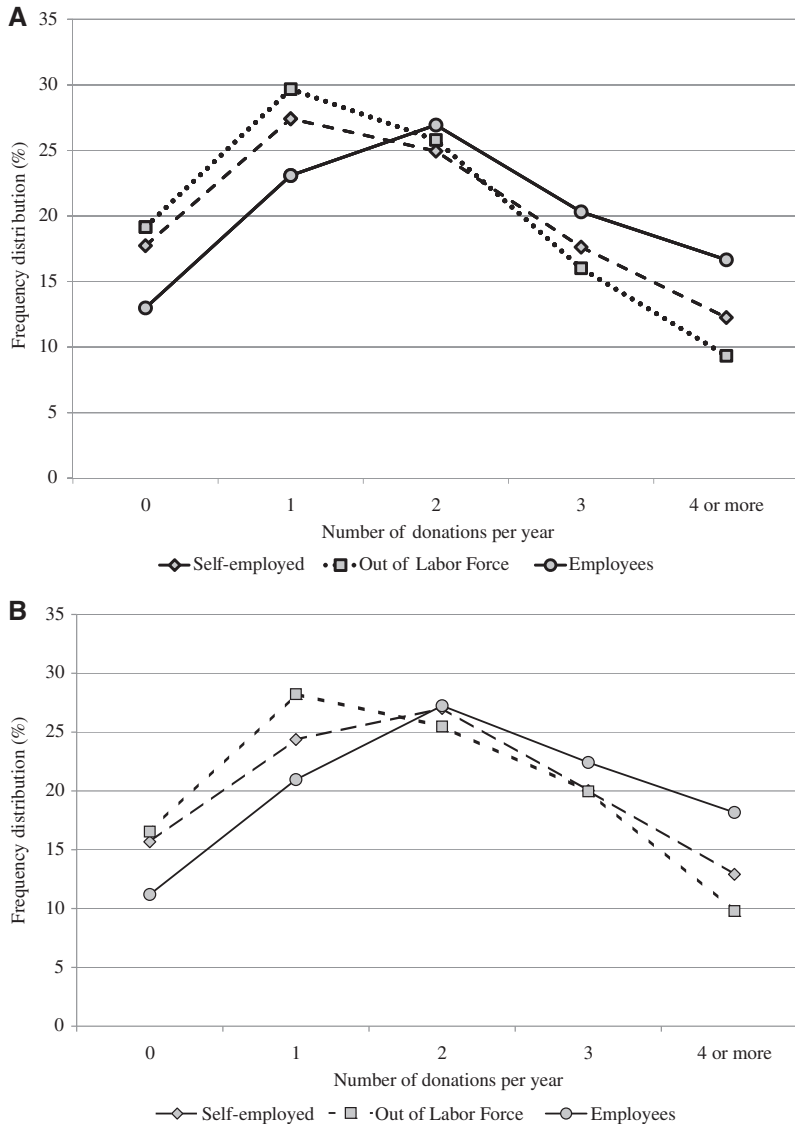

Figure 2. (A) Distribution of the Number of Donations Per Year, by Labor Market Status and (B) Male Donors Only. The sample includes all active donors, pooled 1985–89 and 2002–06 years. Each line represents the distribution of the number of donations per year, separately for each group of donors according to their labor market status (employee, self-employed, out of labor force). Number of person-year observations for employees = 5197; Number of person-year observations for self-employed = 930; Number of person-year observations for donors out of the labor force = 2035. Number of person-year observations for employees = 4188; Number of person-year observations for self-employed = 759; Number of person-year observations for donors out of the labor force = 1052.

In fact, although it could be argued that employees donate more often than do the self-employed because their opportunity cost of time is lower, this objection does not apply to the transition between being an employee and being out of the labor force, because in this latter status, if anything, people would have a lower opportunity cost of time. We will show that our findings also hold when we compare paid employment and out-of-the-labor-force status.

3.1.2 Occupation and Choice of Donation Day. Further descriptive evidence consistent with a positive response to the incentive of Law 584 is given by the analysis of the choice of donation day. Donating on different days of the week entails different costs and benefits for different categories of workers. Donors who are employees would need to ask for time off, or they could donate on a day when they do not work. Law 584, however, gives them the option of taking a day off when they make a blood donation. Because donations can be made only in the morning in The Town's hospital, and because most employees do not work on Saturday, donating on a Friday (if leisure is taken as a good) maximizes the number of consecutive days off (2.5) that a donor-employee can enjoy. A number of studies show that workers, in fact, favor work schedules with more consecutive days off (Moores 1990; Pierce and Dunham 1992; Facer and Wadsworth 2008). Therefore, one would expect donor-employees to show a preference for donating on Friday if they respond to the incentive in the sense of making the most out of it. The behavior of this group can be contrasted, again, with that of the other categories of donors, who do not enjoy the day-off benefit. First, donors who are out of the labor force (e.g., students, homemakers, retirees) should not display strong preferences over different days of the week, because costs and benefits are very similar. Second, for donors who own and operate a business (i.e., those we labeled "self-employed"), the cost of donating varies across days of the week; they would incur a cost if they donated on a working day, but not on the day their business is closed. In particular, this group also should not have any particular preference for donating on Friday.

Figure 3 reports the distribution of donations across the days of the week by donors' labor market status, pooling the data from the two periods 1985–89 and 2002–06.[15] The figure shows that a higher-than-average number of donations by employees, around 20%, take place on Fridays. The "excess fraction" of Friday donations (fraction on Friday minus 16.70%) is +3.3% for employees (t-ratio = 8.8), against − 0.93% (not statistically different from zero) for donors out of the labor

15. The distribution of donations across days of the week for all donors is virtually identical to that for donors with nonmissing labor market status. In the remainder of the article, we will consider donors with nonmissing labor market status information. Also, we replicated all of the analyses performed in this section separately by period (1985–89 and 2002–06), and the results were very similar.

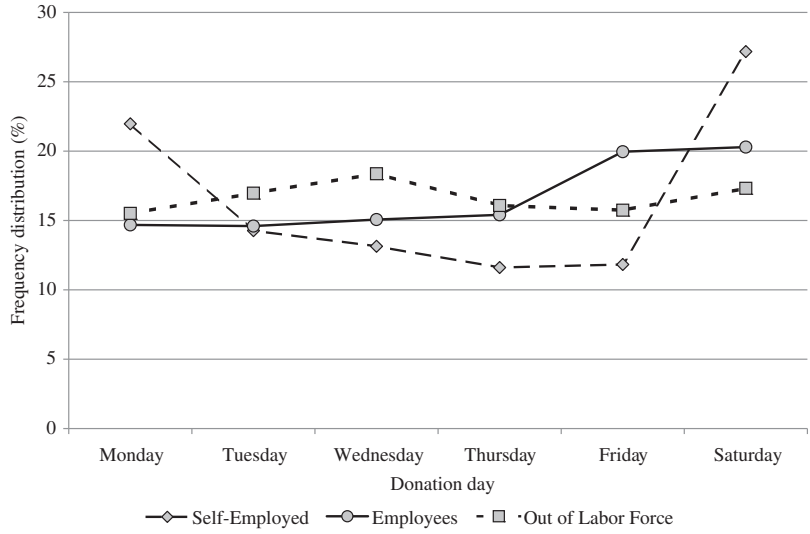

Figure 3. Distribution of Donations Across Days of the Week, by Labor Market Status. The sample includes all donations of all active donors in the period 1985–89 and 2002–06 years. Each line represents the distribution of donations across days of the week, separately for each group of donors according to their labor market status (employee, self-employed, out of labor force). Number of donations by employees = 11,358; Number of donations by self-employed = 1766; Number of donations by donors who are out of the labor force = 3494.

force, and a statistically significant −4.8% for the self-employed (t-ratio = − 6.3). Donations by the self-employed are clustered on Mondays and Saturdays. Specifically, store owners' donations are clustered on Mondays, when stores are closed, and the other employers' donations are concentrated on Saturdays, when the other businesses are closed. Finally, the donations by donors who are out of the labor force are essentially uniformly distributed across days of the week. This evidence is, again, consistent with all categories of donors making cost–benefit considerations when deciding when to donate.[16]

Together with Friday, note that Saturday also emerges as a favorite day by many employees. This is not surprising, for at least two reasons. First,

16. In regressions reported in Table A4, we estimate multinomial logit models for which the four outcomes are donating on (1) Monday, (2) Tuesday through Thursday, (3) Friday, and (4) Saturday. The explanatory variables include indicators for the labor market status of the donor, as well as controls for demographic characteristics and year effects. The results confirm that donor-employees are significantly more likely to donate on Friday than on any other day of the week (with the exception of Saturday) compared with donors who are out of the labor force as well as compared with the self-employed. In particular, the odds of an employee donating on Friday rather than on Tuesday–Thursday are about 1.5× greater than those of a donor who is nonemployed and about 2.6× higher than for donors who are self-employed.

it is possible that, for some employees, taking a full day off work is too costly (i.e., too disruptive given their role and responsibilities in the workplace). Second, some donors might prefer not to take advantage of the day-off benefit out of a concern that their blood donation might be misinterpreted as a self-interested act rather than as a purely altruistic act, and therefore they might decide to donate on a nonworkday to keep their signal "clean" (Bénabou and Tirole 2006).

As an additional investigation of this "long-weekend effect," we divided the sample of donor-employees based on a priori differences in the economic advantage of donating on a given day, as given by the type of employer, on which we have information for a subset of employees and only for the period 1985–89: small firms and large firms. We do not have direct information on such measures of size as number of employees or revenues. However, given the economic structure of The Town, the vast majority of private, local employers (i.e., those firms that are not part of a large company with a national presence) can be reasonably classified as small. Large firms include banks and other companies with a presence on a national level that also operate in The Town. Arguably, workers in small firms will be more constrained in their ability to take a day off. Anecdotal evidence indicates that this is indeed the case; workers in small firms who take a day off are typically required to make up for the time lost by exerting extra effort upon their return. Workers in large firms, instead, might be less "indispensable," therefore bearing a lower cost from leaving work during a business day. Furthermore, although employers cannot prevent a worker from taking the day off for the purpose of donating blood, the fear of being fired might induce employees to limit their use of the incentive. This concern is likely to be more serious in small firms because the Italian law grants far stronger protection in cases of "unfair" layoffs of workers in large firms than to those in smaller firms (Garibaldi et al. 2004).[17] We indeed find the preference for Friday to be much more pronounced among employees in large firms, where it reaches 30%. There are no systematic differences between employees in large and small firms in the number of donations per year. Thus, it appears that differences in work practices and regulations between small and large firms translate into different norms, thereby affecting the choice of the donation day but not the frequency of donations.

3.1.3 Take-Up Rates of the Day-Off Benefit. Evidence from actual take-up rates confirms that donor-employees do take advantage of the day-off provision. Upon donors' request, The Town's hospital provides the donors with official documentation that they can present to their employer to prove that they donated blood so they can actually enjoy the paid day off (the employer then presents the same document to the state when

17. Ichino and Riphahn (2005) show that the provision of employment protection does indeed cause greater absenteeism among Italian workers.

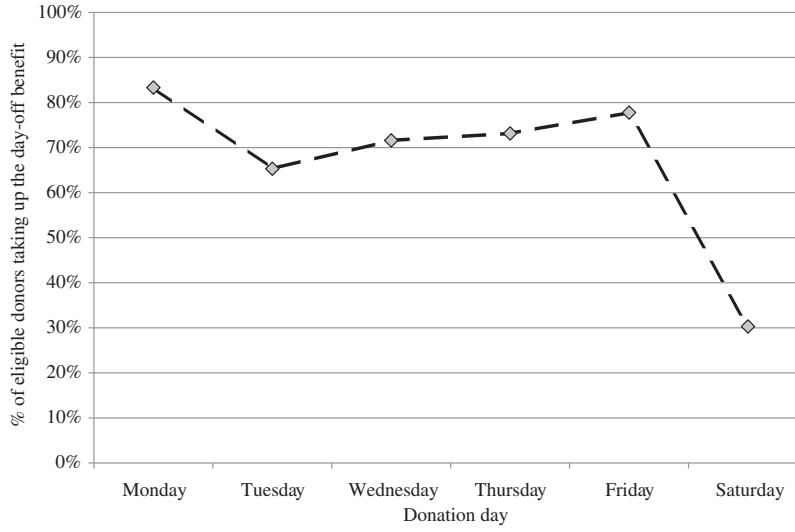

Figure 4. Take-Up Rates of the Day-Off Benefit, by Day of the Week (Year 2006). The figure reports, for each day of the week, the percentage of employees who request the official document, signed by the doctor who performed the blood draw, to be presented to the employers as proof of the blood donation to justify the day off. Data are for a sample of 433 donations by donors who were paid employees in 2006.

asking for reimbursement). The hospital, unfortunately, does not keep complete records of these documents. We obtained only partial records (about half a year in 2006), and report the information in Figure 4. On average, Monday through Friday about 70% of donor-employees requested official documentation to prove that they had donated. This indicates that they actually took the day off rather than donating and then returning to work. Spikes in the take-up rate (about 80%) are found on Mondays and Fridays.

Figure 4 also shows that the take-up rate is about 30% on Saturday; therefore, a non-negligible fraction of donor-employees who choose Saturday also enjoy the day off and extend their weekend. As reported above, for some categories of workers Saturday is not a free day; therefore, in this sense, it is "equivalent" to a Friday for the other salaried workers. Between the Friday donors and the Saturday donors who request the doctor's certificate, it would appear that about a quarter of donations by employees result in an extended weekend. Thus, although it is plausible that for some donors, donating on Saturday may be a way to reduce the noise in their signal of being altruistic, as discussed in Section 3.1.2 above, the high take-up rates throughout the whole week and the non-negligible rate on Saturdays are also consistent with many donors (and also the public) not perceiving any conflict or contradiction

between the altruistic act of donating blood and receiving a (visible) reward for it.[18]

The high take up rates are also in contrast with the possibility that the "excess" donations on Fridays by employees (or the Saturday donations, for the people who work on that day) might be driven by the desire to minimize disruptions for the employer. If donors wanted to minimize disruptions to their employers, and if such disruptions were smaller on Fridays (although we have no specific evidence to believe that the last days of the week are "slower" work days in general), they could donate and then go back to work; however, the high take-up rates are inconsistent with this being the case. Finally, if causing less disruption was the prevalent explanation for the choice of the donation day rather than the willingness to fully enjoy the day-off, we should not see an increase in the donation frequency, which is, instead, what emerges from the descriptive evidence above, and is confirmed by the regression analysis that follows.

3.2 Regression Analyses

3.2.1 Main Results.

As a first step toward establishing a causal relationship between the day-off incentive and the frequency of donations, in Columns (1), (2), and (3) of Table 2 we report the results from the estimates of the following linear regression model:

$$\text{DONATIONS}_{it} = \alpha_i + \beta \text{EMPLOYEE}_{it} + \gamma X_{it} + \varepsilon_{it}, \quad (1)$$

where the number of donations in year t by individual i is regressed on a dummy variable, EMPLOYEE_{it}, equal to 1 if a donor i is an employee at a given point in time t, and 0 otherwise; the regressions control for period effects (1985–89 and 2002–06), four age-group dummies (18–29, 30–39, 40–49, and >50), and individual fixed effects (α_i). The individual fixed-effects, as mentioned above, control for any unobservable, time-invariant donor characteristics (including "intrinsic" altruism) that may be correlated with the frequency of donations. The inclusion of period effects ensures that the results are not driven by common trends, and the age-group dummies control for possible effects due to aging.[19] In all of our regressions, the standard errors are clustered at the donor level, to account for potential heteroschedasticity and auto-correlation of

18. In Table A5, we report results from a regression relating the take up of the day-off certification with some observable characteristics of the donors, such as age and gender. We do not find any systematic relationship between the likelihood of taking advantage of the day off and these attributes of the donors, except for a marginally significant positive effect of being in the middle age categories (30–39 and 40–49) as opposed to young (18–29) or older (50–65). The donation day, however, does correlate with take-up rates, especially Monday and Friday.

19. All of our results are essentially unchanged if we include year-fixed effects among the regressors, as shown in Table A8. We chose to present results without year effects because this makes the interpretation of the coefficient on the 2002–06 period dummy variable more straightforward, as described in the text.

Table 2. Labor Market Status and Frequency of Donation: Regressions Results

Dependent variable:	Number of donations/year					
Sample:	All active donors	Donors active in both 1985–89 and 2002–06				
			All with complete employment transition info		Males with complete employment transition info	
	(1)	(2)	(3)	(4)	(5)	(6)
Mean of dependent variable	2.04	2.39	2.48	2.48	2.52	2.56
2002–06 dummy	0.10	−0.14	−0.10	−0.19	−0.00	−0.25
	(0.17)	(0.22)	(0.24)	(0.27)	(0.28)	(0.31)
Employee dummy	0.73***	0.68***	0.68***			
	(0.27)	(0.25)	(0.24)			
(Never an employee)*(2002–06)				−0.18	−0.31	0.12
				(0.34)	(0.38)	(0.60)
(Employee-to-other)*(2002–06)				−0.41	−0.54	
				(0.35)	(0.35)	
(Other-to-employee)*(2002–06)				0.96**	1.09**	
				(0.45)	(0.50)	
(Employee-to-out of lab force)*(2002–06)						−0.35
						(0.43)
(Out of lab force-to-employee)*(2002–06)						1.46**
						(0.66)
Donor-year observations	8138	1901	1375	1375	1252	1047
Number of donors (FE)	1879	289	159	159	144	120
Adjusted R^2	0.50	0.38	0.38	0.38	0.39	0.40

All the columns report results of individual fixed-effects regressions where an observation is a donor-year. In Column (1), the sample includes all donors with valid labor market information. In Columns (2) through (6), the sample includes donors who were active in both 1985–89 and 2002–06 ("panel donors"). Columns (3) through (6) include panel donors with complete labor market information in both periods. In these columns, the omitted employment status transition category consists of donors who were employees in both 1985–89 and 2002–06. Controls (not reported in the table) include age group dummies (18–29, 30–39, 40–49, and >50). Standard errors, clustered at the level of the individual donor, are reported in parentheses. ***$p<0.01$, **$p<0.05$, *$p<0.1$.

the error term within individuals. The sample includes all donors with labor market information in Column (1) whereas it is limited to the panel of donors active in both periods in Column (2). In Column (3) and beyond, we further restrict the analysis to the subsample of donors for whom we have complete information about their *transitions* across employment categories in the two periods. At the top of each column, we report the mean of the dependent variable. The coefficient estimate on the EMPLOYEE indicator, $\widehat{\beta}$, is the difference-in-differences estimator, identified out of the donors who switch labor market status. In these specifications, this coefficient estimate is positive and statistically significant. It indicates that when donors are eligible to benefit from Law 584 (i.e., when they are in the "employee" status) they make, on average, about 0.7 extra donations per year. The effect is sizeable; it amounts to 27−36% of the average number of yearly donations by the donors in the sample.

As mentioned above, if the day-off incentive does affect donors' behavior, one might expect donors who become eligible for the day-off benefit (by becoming a paid employee) to increase their donations, and donors who lose the benefit (by ceasing to be employees) to reduce them. Model (1) assumes these two effects to be identical in absolute size. However, one might not find those effects to be symmetric because, as found in other contexts (e.g., Charness and Gneezy, 2009), some form of "persistence" in behavior might exist, whereby those who were induced to donate more frequently by some incentive maintain a high frequency even after they lose the incentive. To explore this, we estimate the following model:

$$\begin{aligned}\text{DONATIONS}_{it} = {} & \alpha_i + \beta_0 D_{2002-06} + \beta_1 \text{NEVER\_EMPLOYEE}_{it} * D_{2002-06} \\ & + \beta_2 \text{EMPLOYEE\_TO\_OTHER}_{it} * D_{2002-06} \\ & + \beta_3 \text{OTHER\_TO\_EMPLOYEE}_{it} * D_{2002-06} + \gamma X_{it} + \varepsilon_{it}. \end{aligned} \tag{2}$$

Here we divide donors into four categories: (a) donors who were employees in both 1985–89 and 2002–06 (the omitted category); (b) donors who were nonemployees in both 1985–89 and 2002–06; (c) donors who were nonemployees in 1985–89 and became employees in 2002–06; and (d) donors who were employees in 1985–89 and became nonemployees in 2002–06. We define dummy variables for these groups and interact them with the dummy variable for period 2002–06, $D_{2002-06}$. We perform the analysis on male and female donors jointly (Column 4), as well as separately for males (Columns 5 and 6).[20] The coefficients of interest are those on the interactions of the 2002–06 dummy and the labor-market-transition indicators (because our specifications include person-fixed effects, the main effects of those dummies are not identified).

20. Because of the very small size of the female subsample (just 15 individuals), we are not able to obtain meaningful estimates for this group of donors.

The coefficient estimates on $D_{2002–06}$ are small and not statistically different from zero. Thus there was no significant change in the yearly frequency of donations for the baseline group (i.e., the donors who were employees in both periods). The coefficient estimates on NEVER_EMPLOYEE$_{it}$ * $D_{2002–06}$ are also small and not significant. This implies that donors who were not employees in both periods also did not experience a change in the number of yearly donations between the two periods. In both Columns (4) and (5), however, the coefficient on OTHER_TO_EMPLOYEE$_{it}$ * $D_{2002–06}$ is estimated to be positive and statistically significant, indicating that donors who became employees increased their donations compared with donors who did not change labor market status, net of period, age-group, and individual-fixed effects. The magnitude of the estimates indicates an increase by around one extra donation per year, or 39−43% increase over the baseline. As for the coefficient on EMPLOYEE_TO_OTHER$_{it}$ * $D_{2002–06}$, the estimates have a negative sign (in the case of males, this coefficient indicates that donors who ceased to be employees reduced their donations by 0.54 donations a year), although they are not statistically significant.

In Column (6), we report estimates from a further restricted sample, for which we only consider transitions between being an employee and being out of the labor force (as reported above, these transitions are 73% of all transitions). We do so because a potential alternative explanation for the higher donation frequency during the "employee" status is that people might donate more when their opportunity cost of time is lower. This would be the case for transitions to and from self-employment, as part of which donors, plausibly, have a higher opportunity cost of time. However, this does not apply to the transition between being an employee and being out of the labor force (e.g., student or retired), because in this latter status, if anything, people would have a lower opportunity cost of time. The estimates in Column (6) are not consistent with an opportunity cost explanation; the coefficient on OTHER_TO_EMPLOYEE$_{it}$ * $D_{2002–06}$ is positive, statistically significant, and larger than in Columns (4) and (5), indicating that becoming an employee is associated with nearly 1.5 extra donations per year (a 57% increase over the baseline).

The negative sign on the coefficient estimate on EMPLOYEE_TO_OTHER$_{it}$ * $D_{2002–06}$ suggests, at least directionally, a negative effect of leaving employee status, and therefore losing the possibility to enjoy the day off. However, the small absolute size of the estimate, and its statistical insignificance, indicate some form of persistence in behavior, whereby those with a higher donation frequency (induced by the day-off incentive) tend to maintain it even after they have lower incentives to do so. On the one hand, the initial higher incentive to donate might accelerate the learning process about the costs and benefits to donate blood (e.g., about the amount of time and physical pain it entails), and thus also lead to selection. On the other hand, individuals may have full information about these costs and benefits, and the initial incentives to donate might facilitate

the formation of a habit. Both mechanisms could be at work. The structure of our data makes it difficult to determine which, if any, dominates. In fact, the individuals in our panel (i.e., present in both periods) had already made several donations by the year 2002, and therefore any learning process or habit development would have occurred earlier.[21] In an attempt to assess the presence of learning (and selection) in blood donation, we consider the subsample of 180 individuals who have started to donate between 2002 and 2004. We do not have information on the number of past donations for the sample of donors appearing only in 1985–89, and for the most recent years, we consider donors who started no later than 2004 in order to be able (at least potentially) to observe a sufficient number of donations by the end of 2006. For these individuals, in Figure A1 we plot the share who make the n-th donation, conditional on having made $n-1$ donations. The figure shows that the share of returning donors is decreasing in the number of previous donations, especially when the number of donations is low. After the 8th donation, the share of returning donors increases sharply, to reach 90% at the 10th donation. Thus, it would appear that any learning and updating of beliefs is exhausted after 10 donations. This is consistent with learning occurring in the first few donations when people adjust their beliefs, and some select out from donating. If there were full information ex ante, and more donations led to habit, we would have observed a nondecreasing pattern of return donation rates. It could still be, however, among those who selected into remaining blood donors, additional donations helped creating a habit. A longer panel would be needed to make conclusive claims. Interestingly, the share of returning donors, especially for the first few donations, is higher for the employees than for the nonemployees. Although merely descriptive, this evidence is consistent with an incentive effect generated by the day off provision that, holding learning (and possibly habit) constant, provides an extra reason to donate again.

3.2.2 Robustness Tests. We perform a series of tests to assess the robustness of the findings reported above. First, we estimate Model (2) after collapsing the data into two periods: 1985–89 and 2002–06. In Columns (1) and (2) of Table 3, each donor has only two observations (one per period), and the dependent variable is the average number of yearly donations made by each donor in each period. We do so because our key explanatory variables do not actually change from one year to the next but only from one period to the next, and, as suggested by Bertrand et al. (2004), collapsing the data at the appropriate level helps in obtaining proper estimates and standard errors (clustering the standard errors, which we do in all our other regressions, is another strategy). Our results are confirmed both in magnitude and statistical significance.

21. The near totality of the donors in our panel had made more than 10 donations as of 2002.

Table 3. Robustness Tests

Dependent variable:	Average number of yearly donations in periods 1985–89 and 2002–06		Number of donations/year					
Sample:	Donors active in both 1985–89 and 2002–06		1985 and 2002 only		Donors active in both 1985–89 and 2002–06			
	All donors (1)	Males (2)	All donors (3)	Males (4)	All donors (5)	Males (6)	All donors (7)	Males (8)
Mean of dependent variable	2.36	2.39	2.63	2.64	2.47	2.52	2.47	2.52
2002–2006 dummy	−1.07**	−0.81	0.58	0.58	−0.44	−0.30		
	(0.50)	(0.54)	(0.75)	(0.74)	(0.46)	(0.50)		
(Never an employee)*(2002–06)	−0.07	−0.24	−0.35	−0.30	−0.28	−0.49	−0.12	−0.52
	(0.33)	(0.36)	(0.70)	(0.71)	(0.41)	(0.46)	(0.47)	(0.56)
(Employee-to-other)*(2002–06)	−0.26	−0.43	0.10	−0.17	−0.40	−0.55	−0.30	−0.43
	(0.36)	(0.36)	(0.73)	(0.73)	(0.38)	(0.39)	(0.44)	(0.46)
(Other-to-employee)*(2002–06)	1.01**	1.16**	2.21**	2.14**	0.95**	1.05**	1.38***	1.32**
	(0.43)	(0.48)	(0.92)	(0.95)	(0.41)	(0.46)	(0.48)	(0.51)
(Age 18–24 in 1985–89)*(2002–06)					0.35	0.53		
					(0.66)	(0.72)		
(Age 25–29 in 1985–89)*(2002–06)					−0.35	−0.23		
					(0.67)	(0.72)		
(Age 30–34 in 1985–89)*(2002–06)					0.61	0.72		
					(0.64)	(0.71)		
(Age 34–39 in 1985–89)*(2002–06)					−0.18	−0.21		
					(0.52)	(0.56)		
(Age 40–45 in 1985–89)*(2002–06)					0.18	0.28		
					(0.54)	(0.57)		
Donor-year observations	318	288	274	250	1375	1252	1375	1252
Number of donors (FE)	159	144	158	143	159	144	159	144
Adjusted R^2	0.19	0.20	0.04	0.04	0.39	0.40	0.43	0.44

All columns report results of individual fixed-effects regressions. In Columns (1) and (2), an observation is a donor-period and the dependent variable is the average yearly number of donations made by each donor in each period (1985–89 and 2002–06). In the remaining columns, an observation is a donor-year and the dependent variable is the number of donations per year. In Columns (3) and (4), the sample is limited to years 1985 and 2002 only. In the other columns, all years in the periods 1985–89 and 2002–06 are used. The omitted employment status transition category consists of donors who were employees in both 1985–89 and 2002–06. Controls (not reported in the table) include age group dummies (18–29, 30–39, 40–49 and >50) in Columns (1)–(6). In Columns (7)–(8) controls include a full set of period 1985–89 age dummies interacted with the 2002–06 dummy, as well as a full set of contemporaneous age dummies. Robust standard errors (clustered at the level of the individual donor in Columns 5–8), are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

In Column (1), where we include all donors in the panel, the coefficient estimate on $\text{OTHER\_TO\_EMPLOYEE}_{it} * D_{2002–06}$ is about 1, and in Column (2), where we limit the sample to males, it is roughly 1.6. Thus the estimates are virtually identical to those reported in Columns (5) and (6) of Table 2.

Our second robustness check addresses potential errors in attributing the same job to donors for each whole period, whereas having exact information only on the years 1985 and 2002. Thus, in Columns (2) and (3) of Table 3 (again, on males and females first, and then only on males), we use information for the years 1985 and 2002 only, and the results still hold. If anything, the estimated effect of becoming an employee is bigger, which might indicate that measurement error in the occupation variable was biasing our estimates toward zero.

Finally, we further test the key identifying assumption that the average outcomes for the "treated" (i.e., those who change employment status) and "control" (i.e., those who stay in the same employment status) groups would have followed parallel paths over time in the absence of the policy. Our interpretation of the effect of the day-off law on the frequency of donation is valid provided that no other factor that is associated with changing occupation is systematically associated with donation frequency. In particular, although in our regressions we are including individual-fixed effects and age-group dummies, it is possible that the variables associated with "becoming an employee" and "ceasing to be an employee" are capturing other changes that take place when individuals reach certain ages (e.g., changes in family structure or health). This is a possibility because donors who were out of the labor force and then became employed were, in 1985–89, of relatively young age (28 years old on average). Conversely, those who were employees and then left the labor force were relatively old in the first period (40 years old on average). Our identification test here is based on the fact that the unobserved life changes that one might be concerned about are correlated with age; moreover, they should occur not only for the employment-status switchers, but also for those who remain in the same employment status. Thus, we added to the regressions a set of dummy variables for six age categories to which the donors present in both periods could belong in the period 1985–89 (18–24, 25–29, 30–34, 35–39, 40–45, and 45–55) interacted with the 2002–06 indicator $D_{2002–06}$. The coefficients on these interactions represent the change in yearly donation frequency experienced in the period 2002–06 by individuals who were of a certain age group in the period 1985–89. This specification controls for the effect of *aging* on donations, allowing for donation trends to differ for different initial ages. Note that this strategy exploits variation in initial age among individuals in all employment transition categories (switchers and nonswitchers). As can be seen in Columns (5) and (6) of Table 3, the coefficient estimates on these interaction terms, in the full sample as well as in the sample limited to males, are small and never statistically significant, and the presence of these additional regressors

does not affect the estimates on the (labor-market-transition)*(2002–06) dummies. Columns (7) and (8) report results from an even more demanding specification, i.e., one where we include a full set of age dummies (for the period 1985–89) interacted with the 2002–06 dummy, as well as a full set of contemporaneous age dummies. Once again, our coefficients of interest are largely unaffected.

These exercises make us confident that the coefficients on the (labor-market-transition)*(2002–06) variables are capturing the effect of being eligible for the day-off benefit rather than that of other life changes.[22] The analyses in Columns (5)–(8) of Table 3 also allay the concern about another possible confounding factor: that the relationship between higher donation rates and occupational status might be due to income differences among groups. For example, if people with higher income have a higher propensity to donate blood, and employees have on average higher income than the self-employed and those out of the labor force, then this might drive the donation patterns that we observe, independent of the presence of the day-off provision. It is difficult to attribute precise income figures to these three broad categories of workers because detailed information about the precise job is available only for a small subset of donors and, in addition, the jobs included within each category span a high variety of earning levels. However, for the typical Italian employee, salary is largely based on seniority, and wealth can be taken as accumulating over time, on average. Thus the finding of a limited effect of aging is, again, evidence in favor of a genuine day-off incentive effect. Further, the evidence of a preference for donating on Fridays is consistent with donor-employees trying to take full material advantage of the privilege. If the main determinant of the higher propensity to donate was only income, we would see a more uniform donation distribution throughout the week.

4. Discussion and Conclusion

We have analyzed the effects of a legislative provision that grants a one-day paid leave of absence to Italian blood donors. Our results indicate that the policy induces donors who are employees to make, on average, one extra blood donation per year, which represents an increase of around 40%. Because we identified this effect by exploiting within-donor

22. In the analyses reported above, we have chosen to estimate linear regression models because we wanted to account for individual heterogeneity by performing fixed effects specifications. In Table A9 (all donors) and A10 (male donors), we check the robustness of our results by estimating Ordered Logit regressions. Column (1) in both panels reports the estimated coefficients, and Columns (2) through (6), we report the estimated marginal effects. Our results are indeed robust to this alternative specification. The analyses here indicate a significant shift in the distribution of yearly donation frequencies away from low values (zero, one, and two donations) toward higher values (three and four or more donations) for donors who become employees.

variation in employment status, our findings cannot be attributed to unobservable heterogeneity across donors of different labor market statuses. The effect was found to be robust to a variety of specifications and sample restrictions, which corroborates our causal interpretation.

We did not find the effect to be fully symmetric; ceteris paribus, donors who become employees make about one extra donation per year whereas the reduction in donation frequency by donors who cease to be employees is small in magnitude and not statistically significant. Although more data and further research would be needed to draw firmer conclusions, this result is consistent with habit formation in behavior, whereby those with a higher donation frequency (induced by the incentive) tend to maintain a high frequency even after they have lower incentives to do so (somewhat similar to what Charness and Gneezy [2009] find for gym attendance). Further indication that the day-off incentive affects donor behavior comes from our analysis of patterns in the choice of donation day, combined with actual take-up rates. We documented that a substantial fraction of donors who are employees choose to donate on a day that extends their weekend (notably Friday) whereas no such preference was found for donors of a different labor market status, and that is consistent with donor-employees maximizing the extrinsic, economic benefit of donating.

This article contributes to the larger debate on the role of extrinsic incentives in stimulating pro-social behavior. Evidence from donor surveys (Lacetera and Macis 2010b) and from research where the subjects were aware of being part of a study on the effect of incentives on blood donations (Mellstrom and Johannesson 2008) showed some indication of negative responses to rewards. However, recent field studies of actual populations of blood donors (and actual donation behavior) such as Goette and Stutzer (2011) and Lacetera et al. (2012a and 2012b) find that donors actually respond positively to material rewards, and that these effects increase with the economic value of the reward. This is consistent with Gneezy and Rustichini (2000), who found that "large enough" rewards do enhance pro-social behavior.

In this article, we have analyzed a large, naturally occurring economic incentive that is a step-removed from cash and, as such, a good candidate to have a substantial, positive effect on donations.[23] The incentive that we have analyzed and its behavioral effects have social welfare implications in that they impact the voluntary supply of blood. The evidence indicates that the paid-day-off provision does stimulate more donations. Therefore,

23. Although some studies have shown that small in-kind rewards might be more effective than direct cash because they are not interpreted as part of a market transaction, cash rewards were found to be as strong a motivator (if not stronger) than in-kind gifts for non-negligible dollar values (Heyman and Ariely 2004). Furthermore, in experiments where subjects are asked to choose among in-kind and cash prizes, most subjects choose cash even if they stated a preference for the in-kind gift (Kube et al. 2012).

removing this policy (a measure, in fact, recently advocated by the Italian Employers' Association as well as by the central Government; see Il Messaggero 2009) would likely result in a reduced number of donations by existing donors. Welfare comparisons, however, have to balance the gains from the policy with its costs to taxpayers. We found that the policy leads to about one extra donation per donor per year. The state, however, must finance *all* donations made by donor-employees (i.e., about three donations per donor per year). Evaluated at an average labor cost of 139 euros per day (inclusive of social security and other contributions [ISTAT 2007]), that one extra blood donation has a cost of around 400 euros related to the day-off incentive. To that, one would then add the production costs for the additional collected unit such as labor and equipment costs, and the cost incurred to separate the different blood components. Figures published by the Italian Health Ministry set the production costs of one additional unit of whole blood at around 250 euros. Thus, the incentive put in place by Law 584 would appear to be cost-effective provided that the full social value of one unit of whole blood is at least about 650 euros.

Other countries have recently introduced similar provisions in related contexts. In the United States, for instance, a number of states allow certain categories of employees (e.g., public employees) to take a paid leave of absence for the purpose of being bone marrow or organ donors. Our results do suggest that rewarding altruism with paid time off can be an effective way of stimulating it (see Lacetera, Macis, and Stith 2012). While effective in stimulating more donations, and at a unit cost likely below the social benefit,[24] however, the day-off incentive might not be the most cost-effective way of raising donations. In fact, Lacetera et al. (2012a and 2012b), in their analysis of American Red Cross blood drives, find that small gifts (e.g., T-shirts, mugs, coupons) lead to an increase in donations, and they calculate the cost of an extra donation to be, on average, about $250.

Here, we have focused on a population of existing blood donors. Further research is needed to establish whether incentives have an effect in attracting new donors (or inducing existing donors to cease to donate), and possibly facilitate learning about this activity and develop a habit to perform it. Also, the specific incentive studied in this article is designed so that donors can decide not to take advantage of it (e.g., by returning to work after donating, or by donating on a nonworking day) and therefore allows for different tastes and attitudes by different donors to be satisfied.

24. Estimating the social benefit from one unit of blood is a more complicated exercise to perform, however, and one that is beyond the scope of this article. In fact, from one unit of blood collected, a full unit of red cells and several partial units of plasma, platelets, and cryoprecipitate are typically derived, which can be used on one or multiple patients. To obtain an estimate of the social benefit, one would need to estimate the expected impact of the transfusion of each blood component on the life expectancy of the patients multiplied by the value of those extra years of life.

It would be interesting to examine whether the positive effects of the day-off incentive that we documented are due to such flexibility, or whether also other, less flexible incentive structures would deliver similar outcomes.

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Appendix A

Table A1. Comparison of Full Panel and Panel of Donors with Missing Occupation

	Panel of donors active in both periods Full sample		Panel of donors active in both periods Donors with missing occupation information	
	1985–89 Mean	2002–06 Mean	1985–89 Mean	2002–06 Mean
Females	0.16	0.16	0.22	0.22
Age	34.15	48.91	33.08	47.64
	(8.24)	(8.57)	(8.30)	(8.90)
Blood type 0	48.98	51.10	47.74	50.76
Blood type A	43.75	41.52	42.62	39.70
Blood type B	4.92	4.75	5.27	4.85
Blood type AB	2.35	2.63	4.37	4.70
Years since joined AVIS	6.19	21.78	4.82	20.40
	(6.64)	(6.68)	(7.29)	(7.07)
Number of donations/year	2.32	2.12	2.09	1.80
	(1.24)	(1.79)	(1.23)	(1.67)
Number of donors	338	338	179	179
Number of donor-year observations	1331	1378	669	665

The left panel reports statistics on donors who were active in both periods (1985–89 and 2002–06), whereas the right panel reports statistics on donors who were active in both periods but with missing occupation. An observation is a donor-year. When appropriate, standard deviations are reported below the corresponding mean in parenthesis.

Table A2. Descriptive Statistics, by Employment Status

	1985–89			2002–06		
	Employees	Self-employed	Out of labor force	Employees	Self-employed	Out of labor force
	All active donors					
Females	0.12	0.14	0.42	0.24	0.23	0.51
Age	38.95	39.17	32.17	40.78	40.73	34.69
	(9.60)	(9.50)	(12.91)	(9.50)	(9.57)	(14.24)
Blood type 0	0.52	0.58	0.48	0.52	0.44	0.46
Blood type A	0.39	0.31	0.37	0.38	0.40	0.42
Blood type B	0.06	0.10	0.11	0.08	0.09	0.09
Blood type AB	0.03	0.01	0.04	0.03	0.08	0.03
Years since joined AVIS	7.25	5.33	2.81	8.37	7.64	6.61
	(6.13)	(5.09)	(4.80)	(8.05)	(7.22)	(7.77)
Number of donations/year	2.37	2.09	2.08	2.13	1.85	1.62
	(1.26)	(1.26)	(1.21)	(1.73)	(1.63)	(1.39)
Number of donors	299	42	119	972	190	423
Number of donor-year observations	1269	172	435	3928	758	1600
	Panel of donors active in both periods					
Females	0.05	0.06	0.29	0.09	0.06	0.13
Age	36.51	36.00	28.80	48.67	49.13	56.68
	(7.16)	(7.22)	(9.25)	(6.86)	(8.16)	(9.65)
Blood type 0	0.46	0.62	0.62	0.52	0.51	0.48
Blood type A	0.51	0.20	0.38	0.43	0.37	0.48
Blood type B	0.04	0.16	0.00	0.05	0.04	0.04
Blood type AB	0.00	0.03	0.00	0.00	0.07	0.00
Years since joined AVIS	8.04	5.64	5.28	22.70	21.06	25.24
	(6.09)	(5.08)	(4.30)	(6.10)	(4.57)	(6.18)
Number of donations/year	2.61	2.39	2.32	2.58	2.31	1.81
	(1.21)	(1.03)	(1.22)	(1.94)	(1.72)	(1.22)
Number of donors	113	18	28	111	16	32
Number of donor-year observations	477	76	109	523	70	120

The top panel reports descriptive statistics on all active donors in "The Town," where a donor is considered active at a given point in time if she donated at least once within the previous two years. The bottom panel reports statistics on the donors who were active in both periods and with complete labor market status information. An observation is a donor-year. When appropriate, standard deviations are reported below the corresponding mean in parenthesis.

Table A3. Predicting the Survival of Donors in the Panel

Dependent variable = 1 if donor still active in 2002–06, 0 otherwise						
Sample	Donors who were active in 1985–89					
Method	OLS			Probit		
	(1)	(2)	(3)	(4)	(5)	(6)
Female	−0.14***	−0.18***	−0.17***	−0.15***	−0.20***	−0.19***
	(0.048)	(0.056)	(0.055)	(0.054)	(0.064)	(0.065)
Age 18–29	0.10**	0.12**	0.10*	0.11**	0.13**	0.11*
	(0.048)	(0.056)	(0.056)	(0.052)	(0.058)	(0.060)
Age 30–49	−0.10*	−0.09	−0.11*	−0.10*	−0.09	−0.12*
	(0.055)	(0.064)	(0.064)	(0.055)	(0.066)	(0.068)
Age >50	−0.57***	−0.55***	−0.60***	−0.59***		
	(0.037)	(0.039)	(0.041)	(0.030)		
Employee in 1985–89		−0.03	−0.05		−0.03	−0.05
		(0.047)	(0.047)		(0.056)	(0.056)
Number of donations per year in 1985–89			0.09***			0.10***
			(0.021)			(0.026)
Observations	596	459	459	596	412	412
Adjusted R^2	0.15	0.16	0.19			
Pseudo R^2				0.14	0.04	0.07

The sample includes all donors who were active in 1985–89. The dependent variable is equal to 1 if a donor was still active in 2002–06 and 0 otherwise. For the Probit regressions, marginal effects are reported. Standard errors, clustered at the level of the individual donor, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table A4. Donation Days and Occupation: Multinomial Logits Results

Dependent variable: day of donation					
		Odds comparing alternatives 1 to 2			
Alternative 1	Alternative 2	Coefficient	Z	$p > \|z\|$	e^b
Employees versus out of labor force					
Friday	Monday	0.27	3.44	0.00	1.31
Friday	Tuesday–Thursday	0.38	5.95	0.00	1.46
Friday	Saturday	−0.03	−0.38	0.70	0.97
Employees versus self-employed					
Friday	Monday	0.94	10.21	0.00	2.56
Friday	Tuesday–Thursday	0.38	4.62	0.00	1.47
Friday	Saturday	0.82	9.26	0.00	2.26
Observations:	16,578				
Wald $\chi^2 (p > \chi^2)$	426.29 (0.000)				

In each panel, the first column reports the raw coefficients, the second the *z*-score for the test of the hypothesis that the coefficient is equal to zero, the third the associated *p*-value. The fourth column reports the factor change in odds of alternative 1 relative to alternative 2 for a unit increase in the independent variable. Controls include sex, age dummies, period-fixed effects, and year-fixed effects.

Table A5. Day-Off Benefit Take-Up and Donor Characteristics

Dependent variable: 1 if doctor's certificate requested, 0 otherwise			
Sample	Donors who were employees in 2006		
	(1)	(2)	(3)
Female	−0.06		−0.06
	(0.08)		(0.08)
Age 30–49	0.16		0.10
	(0.12)		(0.10)
Age 40–49	0.21*		0.17
	(0.11)		(0.10)
Age 50–65	−0.00		−0.04
	(0.12)		(0.11)
Past donations <10	−0.08		−0.09
	(0.07)		(0.07)
Past donations >25	−0.01		−0.01
	(0.06)		(0.06)
Monday		0.53***	0.51***
		(0.08)	(0.08)
Tuesday		0.35***	0.35***
		(0.10)	(0.09)
Wednesday		0.41***	0.42***
		(0.08)	(0.08)
Thursday		0.43***	0.43***
		(0.08)	(0.07)
Friday		0.47***	0.46***
		(0.08)	(0.08)
Constant	0.58***	0.30***	0.26**
	(0.11)	(0.06)	(0.11)
Observations	429	433	429
R^2	0.05	0.12	0.16

The sample includes 433 donations by donors who were paid employees in 2006 (information on the number of past donations is missing for four observations). The table reports results from linear probability models where the dependent variable is equal to 1 if the donor requested the official document, signed by the doctor who performed the blood draw, to be presented to the employers as proof of the blood donation to justify the day off, and 0 if he/she did not request the certificate. Standard errors, clustered at the level of the individual donor, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table A6. Labor Market Status and Frequency of Donation: Regressions Results (Including "Inactive" Donors Observations)

Dependent variable	Number of donations/year					
Sample:	All donors	Donors observed in both 1985–89 and 2002–06				
			All with complete employment transition info		Males with complete employment transition info	
	(1)	(2)	(3)	(4)	(5)	(6)
Mean of dependent variable	1.92	2.16	2.35	2.35	2.40	2.45
2002–06 dummy	0.09	−0.13	−0.05	−0.15	0.05	−0.24
	(0.17)	(0.19)	(0.25)	(0.27)	(0.28)	(0.30)
Employee dummy	0.69**	0.62**	0.64**			
	(0.28)	(0.26)	(0.25)			
(Never an employee)*(2002–06)				−0.23	−0.45	0.10
				(0.34)	(0.38)	(0.62)
(Employee-to-other)*(2002–06)				−0.36	−0.50	
				(0.36)	(0.36)	
(Other-to-employee)*(2002–06)				0.92**	1.07**	
				(0.46)	(0.50)	
(Employee-to-out of labour force)*(2002–06)						−0.27
						(0.45)
(Out of labor force-to-employee)*(2002–06)						1.35**
						(0.68)
Donor-year observations	8618	2809	1455	1455	1317	1093
Number of donors (FE)	1879	478	161	161	145	120
Adjusted R^2	0.53	0.46	0.40	0.41	0.41	0.42

All the columns report results of individual-fixed effects regressions where an observation is a donor-year. In Column (1), the sample includes all donors who donated at least once and with valid labor market information. In Columns (2) through (6), the sample includes donors who donated at least once in both 1985–89 and 2002–06 ("panel donors"). Columns (3) through (6) include panel donors with complete labor market information in both periods. In these columns, the omitted employment status transition category consists of donors who were employees in both 1985–89 and 2002–06. Controls (not reported in the table) include age dummies (18–29, 30–39, 40–49 and >50). Standard errors, clustered at the level of the individual donor, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table A7. Labor Market Status and Frequency of Donation: Regressions Results (Weighting Each Observation by the Probability of the Donor Being "Active")

Dependent variable:	Number of donations/year					
Sample:	All active donors	Donors active in both 1985–89 and 2002–06				
			All with complete employment transition info		Males with complete employment transition info	
	(1)	(2)	(3)	(4)	(5)	(6)
Mean of dependent variable	2.04	2.39	2.48	2.48	2.52	2.56
2002–06 dummy	0.10	−0.06	0.07	−0.07	0.14	−0.13
	(0.17)	(0.22)	(0.24)	(0.27)	(0.29)	(0.32)
Employee dummy	0.84***	0.82***	0.84***			
	(0.29)	(0.27)	(0.27)			
(Never an employee)*(2002–06)				0.00	−0.20	0.31
				(0.36)	(0.38)	(0.61)
(Employee-to-other)*(2002–06)				−0.50	−0.66*	
				(0.35)	(0.35)	
(Other-to-employee)*(2002–06)				1.10**	1.27**	
				(0.48)	(0.53)	
(Employee-to-out of labour force)*(2002–06)						−0.42
						(0.45)
(Out of labor force-to-employee)*(2002–06)						1.68**
						(0.68)
Weights(*)	YES	YES	YES	YES	YES	YES
Donor-year Observations	8138	1901	1375	1375	1252	1047
Number of donors (FE)	1879	289	159	159	144	120
Adjusted R^2	0.48	0.39	0.367	0.368	0.377	0.39

All the columns report results of individual-fixed effects regressions where an observation is a donor-year and where weights(*) were used. In Column (1), the sample includes all donors with valid labor market information. In Columns (2) through (6), the sample includes donors who were active in both 1985–89 and 2002–06 ("panel donors"). Columns (3) through (6) include panel donors with complete labor market information in both periods. In these columns, the omitted employment status transition category consists of donors who were employees in both 1985–89 and 2002–06. Controls (not reported in the table) include age dummies (18–29, 30–39, 40–49 and >50). Standard errors, clustered at the level of the individual donor, are reported in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. (*) The weights were computed as follows. For every year in the data, we run a probit regression of the likelihood that an individual was "active" in that year (where a donor is considered active if he/she gave blood in that year or in the previous two years), as a function of gender and age (as shown in Table A3, these are strong predictors of whether an individual remains an active blood donor). Next, we computed the predicted probabilities for each individual-year in the sample, and we defined the weights as the inverse of those probabilities.

Table A8. Labor Market Status and Frequency of Donation: Regressions Results (Including Year-Fixed Effects)

Dependent variable:	Number of donations/year					
Sample:	All active donors	Donors active in both 1985–89 and 2002–06				
			All with complete employment transition info		Males with complete employment transition info	
	(1)	(2)	(3)	(4)	(5)	(6)
Mean of dependent variable	2.04	2.39	2.48	2.48	2.52	2.56
Employee dummy	0.70**	0.68***	0.70***			
	(0.27)	(0.25)	(0.25)			
(Never an employee)*(2002–06)				−0.19	−0.33	0.20
				(0.34)	(0.39)	(0.61)
(Employee-to-other)*(2002–06)				−0.42	−0.56	
				(0.35)	(0.35)	
(Other-to-employee)*(2002–06)				0.97**	1.10**	
				(0.45)	(0.50)	
(Employee-to-out of labor force)*(2002–06)						−0.36
						(0.43)
(Out of labor force-to-employee)*(2002–06)						1.49**
						(0.66)
Year dummies	YES	YES	YES	YES	YES	YES
Donor-year observations	8138	1901	1375	1375	1252	1047
Number of donors (FE)	1879	289	159	159	144	120
Adjusted R^2	0.516	0.385	0.384	0.385	0.391	0.405

All the columns report results of individual fixed-effects regressions where an observation is a donor-year. In Column (1), the sample includes all donors with valid labor market information. In Columns (2) through (6), the sample includes donors who were active in both 1985–89 and 2002–06 ("panel donors"). Columns (3) through (6) include panel donors with complete labor market information in both periods. In these columns, the omitted employment status transition category consists of donors who were employees in both 1985–89 and 2002–06. Controls (not reported in the table) include age dummies (18–29, 30–39, 40–49 and >50) and a full set of year-fixed effects. Standard errors, clustered at the level of the individual donor, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table A9. Labor Market Status and Frequency of Donation: Ordered Logits Results (Males and Females)

Dependent variable:	Number of donations/year					
Sample	Donors active in both 1985–89 and 2002–06 with complete labor market transition information All donors					
Method:	Ordered Logit					
		Marginal effects				
		No. don. = 0	No. don. = 1	No. don. = 2	No. don. = 3	No. don. = >4
	(1)	(2)	(3)	(4)	(5)	(6)
Female	−0.65**	0.07*	0.07**	0.02***	0.07*	−0.09***
	(0.30)	(0.04)	(0.03)	(0.01)	(0.03)	(0.04)
2002–06 dummy	−0.70	0.06	0.07	0.04	−0.06	−0.12
	(0.45)	(0.04)	(0.05)	(0.03)	(0.04)	(0.08)
Never an employee	−0.37	0.03	0.04	0.02*	−0.04	−0.06
	(0.32)	(0.03)	(0.04)	(0.01)	(0.03)	(0.04)
Employee-to-other	−0.31	0.03	0.03	0.02	−0.03	−0.05
	(0.37)	(0.04)	(0.04)	(0.02)	(0.04)	(0.05)
Other-to-employee	−0.48	0.04	0.05	0.02**	−0.05	−0.07*
	(0.30)	(0.03)	(0.03)	(0.01)	(0.03)	(0.04)
(Never an employee)*	0.52	−0.03	−0.05	−0.04	0.03**	0.10
(2002–06)	(0.43)	(0.02)	(0.04)	(0.04)	(0.02)	(0.09)
(Employee-to-other)*	−0.24	0.02	0.03	0.01	−0.02	−0.04
(2002–06)	(0.43)	(0.04)	(0.05)	(0.02)	(0.04)	(0.06)
(Other-to-employee)*	0.87**	−0.05***	−0.08***	−0.08*	0.04***	0.17*
(2002–06)	(0.40)	(0.02)	(0.03)	(0.04)	(0.01)	(0.09)
Age 18–29 in 1985–89	−0.06	0.00	0.01	0.00	−0.01	−0.01
	(0.43)	(0.04)	(0.05)	(0.03)	(0.04)	(0.07)
Age 30–49 in 1985–89	0.21	−0.02	−0.02	−0.01	0.02	0.04
	(0.39)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)
(Age 18–29 in 1985–89)*	0.03	−0.00	−0.00	−0.00	0.00	0.00
(2002–06)	(0.56)	(0.04)	(0.06)	(0.04)	(0.05)	(0.09)
(Age 30–49 in 1985–89)*	−0.04	0.00	0.00	0.00	−0.00	−0.01
(2002–06)	(0.44)	(0.04)	(0.05)	(0.03)	(0.04)	(0.07)
Observations	1358					
Pseudo R^2	0.016					

The table reports coefficients (Column (1)) and marginal effects (Columns 2 through 6) from an Ordered Logit regression. An observation is a donor-year. The dependent variable is the number of donations per year, and can take five outcomes: 0 donations, 1 donation, 2 donations, 3 donations, and 4 (or more) donations per year. Standard errors, clustered at the level of the individual donor, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table A10. Labor Market Status and Frequency of Donation: Ordered Logits Results (Males)

Dependent variable:	Number of donations/year					
Sample:	Donors active in both 1985–89 and 2002–06 with complete labor market transition information Males					
Method:	Ordered Logit					
		Marginal effects				
		No. don. = 0	No. don. = 1	No. don. = 2	No. don. = 3	No. don. = >4
	(1)	(2)	(3)	(4)	(5)	(6)
2002–06 dummy	−0.51	0.04	0.05	0.04	−0.04	−0.09
	(0.47)	(0.04)	(0.05)	(0.03)	(0.04)	(0.08)
Never an employee	−0.50	0.05	0.05	0.02**	−0.05	−0.07*
	(0.31)	(0.04)	(0.03)	(0.01)	(0.03)	(0.04)
Employee-to-other	−0.22	0.02	0.02	0.01	−0.02	−0.03
	(0.37)	(0.03)	(0.04)	(0.02)	(0.03)	(0.06)
Other-to-employee	−0.57*	0.05	0.06	0.03***	−0.05	−0.09*
	(0.34)	(0.04)	(0.04)	(0.01)	(0.04)	(0.04)
(Never an employee)*	0.37	−0.03	−0.03	−0.03	0.02	0.07
(2002–06)	(0.50)	(0.03)	(0.04)	(0.05)	(0.02)	(0.10)
(Employee-to-other)*	−0.40	0.04	0.04	0.02	−0.04	−0.06
(2002–06)	(0.43)	(0.04)	(0.05)	(0.02)	(0.05)	(0.06)
(Other-to-employee)*	1.02**	−0.06***	*0.08***	−0.10**	0.03*	0.21**
(2002–06)	(0.43)	(0.02)	(0.03)	(0.05)	(0.02)	(0.10)
Age 18–29 in 1985–89	0.18	−0.01	−0.02	−0.01	0.01	0.03
	(0.45)	(0.03)	(0.04)	(0.03)	(0.03)	(0.08)
Age 30–49 in 1985–89	0.30	−0.02	−0.03	−0.02	0.02	0.05
	(0.40)	(0.03)	(0.04)	(0.03)	(0.03)	(0.07)
(Age 18–29 in 1985–89)*	−0.20	0.02	0.02	0.01	−0.02	−0.03
(2002–06)	(0.58)	(0.05)	(0.06)	(0.03)	(0.05)	(0.09)
(Age 30–49 in 1985–89)*	−0.14	0.01	0.01	0.01	−0.01	−0.02
(2002–06)	(0.46)	(0.04)	(0.05)	(0.03)	(0.04)	(0.08)
Observations	1241					
Pseudo R^2	0.014					

The table reports coefficients (Column (1)) and marginal effects (Columns 2 through 6) from an Ordered Logit regression. An observation is a donor-year. The dependent variable is the number of donations per year, and can take five outcomes: 0 donations, 1 donation, 2 donations, 3 donation and 4 (or more) donations per year. Standard errors, clustered at the level of the individual donor, are reported in parentheses. ***p<0.01, **p<0.05, *p<0.1.

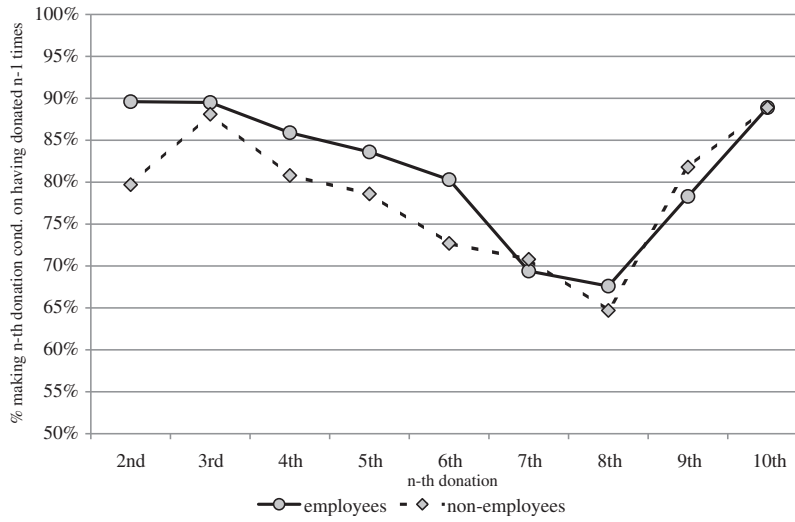

Figure A1. Percentage of Donors Who make the *n*-th Donation Conditional on Having Donated *n*-1 times The sample includes the 180 individuals (106 employees and 74 nonemployees) who made their first donation in The Town in 2002, 2003 or 2004. The figure shows the share of individuals who make the *n*-th donation conditional on having made the (n – 1)-th donation.

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