The Effects of Payment Instruments on Charitable Giving:

Evidence from a Field Experiment

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Abstract

This study reports on a door-to-door field experiment on the effects of introducing portable debit terminals for mobile payment authorization on the contributions to charity. About 4,500 households are approached, randomly divided in three experimental treatments, distinguished by the possibility for respondents to pay with cash, by debit card, or both. The study answers three related questions. First, does the acceptance of the debit instrument increase the number of households that participate in the fund-raise? Second, does, conditional on participation, the average amount given change? Third, does the availability of the debit terminals increase payment efficiency in terms of the number of coins and notes involved in the transaction?

I find that adding the option to pay electronically does not increase participation nor the amount raised. Compared with the treatments where cash is accepted, participation rates and gross proceeds are significantly lower in the debit-only treatment, although debit card use increases in the latter treatment relative to the combined treatment where almost none of the respondents uses the terminal. Young people are somewhat more likely to switch to electronic donations. Conditional on contributing, average donations of households that use their debit card are about twice as high as those of donors that pay cash. With regard to payment efficiency, I surprisingly find that the mere presence of the debit terminal induces small cash donors to donate more efficiently.

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1 Introduction

Debit card use has increasingly replaced cash as the instrument for making point-of-sale payments in the Netherlands. Similar shifts in payment behavior are observed in other countries like the United States where debit card use now exceeds the number of credit card transactions (Borzekowski *et al.*, 2008). Point-of-sale debit transactions in the Netherlands are authorized by a PIN (Personal Identification Number).[1] The number of PIN debit transactions increased in 2006 with about 9% to 1.45 billion and the total amount of money involved was 64.2 billion euro (Currence, 2006), see Table 1. This constitutes the highest growth rate since 2002 and the Dutch central bank ascribes this high growth to the increased use of mobile debit terminals by merchants at fruit, vegetable and fish markets and by waiters serving customers at the outdoor terrace of bars and restaurants (DNB, 2006, p. 97). Still about 85% of all point-of-sale transactions are paid with cash, although in terms of amounts involved, the share of cash is much lower (Brits and Winder, 2005, p. 11).

Given its ambulatory nature, it only seems natural that charities will introduce mobile debit terminals in their door-to-door fund-raising campaigns to enable potential donors to use their debit card instead of making cash payments.[2] As compared to cash donations, debit card transactions carry a number of advantages both for donors as for charities: the solicitor no longer has to carry cash, which is both more convenient and enhances her safety; the solicitee receives a receipt of the transaction which allows her to deduct the gift from his taxable income;[3] the solicitors and the fund-raising institution save time and money because with debit card payments the gift is immediately transferred to the bank account of the charity.[4]

Despite these benefits and the increasing use of portable debit terminals in other economic transactions, currently none of the charities offer this possibility in their door-to-door fund-raising campaigns. Instead, they all use the traditional collection box de-

[1] With a PIN debit transaction, the customer needs a debit card and the merchant needs a debit terminal. The customers swipes his card through the terminal and enters his PIN. The transaction is completed after the customer has pressed a confirmation button and his deposit account is debited immediately.

[2] For charities, door-to-door fund-raising is a major source of income. In 2006, the total amount raised this way by charities in the Netherlands exceeded 58 million euro (CBF, 2006). For the four largest charities, income from door-to-door fund-raising accounts for 12 to 28% of their total income.

[3] Gifts to charity can be deducted as far as they exceed the threshold of 1% per cent of income before taxes and written proof of the gift is available.

[4] In 2007, the total cost involved in depositing currency amounted to €5,880 for the Reumafonds, which is 0.2% percent of total revenues.

picted in Figure 1. One obvious reason is the (one-time) cost associated with equipping all solicitors with a debit terminal but other considerations may also play a role, like for example the possibility that donors will not use the terminal because of risks of debit card fraud.

Figure 1: The collection box (a) and the Vx670 debit card terminal (b)

The aim of this study is to provide quantitative answers on how the introduction of mobile debit terminals affects revenues of door-to-door fund-raising. I do this by reporting on a door-to-door fund-raising field experiment with three treatments which differ with regard to the payment instruments that are accepted: respondents in the first group can only donate cash; those in the second may also use their debit card using the mobile debit card terminal depicted in Figure 1; respondents in the third group are only offered the debit terminal and cannot donate cash. By design, respondents cannot use other payment instruments than cash or debit. There are several reasons to limit attention to these two payment instruments. First, cash is the default payment instrument in door-to-door fund-raising drives. Second, debit card users view debit as a substitute for cash (Borzekowski and Kiser, 2008). Third, unlike the United States, the Netherlands is much more a debit card country than a credit card country.[5] Survey evidence by Jonker (2005, p. 9) indicates that 67% (84%) of Dutch consumers rarely uses the e-purse (credit card) in point-of-sale transactions with the comparable numbers for cash and debit being 6 and 8%, respectively. Finally, from a practical perspective, limiting attention to cash and debit ensures that both solicitors and solicitees understand

[5]Whereas in 2004, 52% of U.S. households owned a debit card (Borzekowski *et al.*, 2008), for each Dutch inhabitant 1.33 debit cards were issued (Bolt, 2006).

the payment options.

This study answers three related questions. First, does the acceptance of the debit instrument increase the number of households that participate in the fund-raise? Second, does, conditional on participation, the average amount given change? Third, does the availability of the debit terminals increase payment efficiency as measured by the number of tokens (coins and notes) involved in a transaction? Although the answers to these research questions are highly relevant for the practice of charitable fund-raising, research on consumers' payment choice thus far has been non-experimental and limited to transactions in retail settings whereas experiments on charitable giving have not yet considered the role of payment instruments nor the issue of payment efficiency.

This experiment has been performed in collaboration with the Reumafonds, CCV and KPN. Reumafonds, the Dutch rheumatism fund, is one of the largest charities in the Netherlands which caters for people with rheumatic diseases and finances research on rheumatism. The experiment was executed as part of their annual nation-wide fund-raising week in selected districts of Amsterdam. The fund received the gross revenues. CCV is an internationally operating supplier of debit terminals. CCV supplied the solicitors with mobile debit terminals. KPN is a Dutch telecommunications firm that supplied the data transmission technology necessary to record the individual debit card transactions.[6]

I find that total revenues given in the treatment where only debit card payments were accepted were 68 percent lower than in the treatment where only cash payments were accepted. To a great extent, this is due to a decrease in participation rates, which drop from 68 percent in the Cash-only treatment to 59 and 9% in the Cash&Debit and Debit-only treatments, respectively. Interestingly, whereas participation dwindles in the Debit-only treatment, it is also lower in the combined treatment, inducing an decrease in revenues of 13% relative to the Cash-only treatment. However, conditional on contributing, average donations of households using their debit card are about twice as high as those of donors that pay cash, with median contributions doubling from €1.50 to €3.00. This can be partially ascribed to selection bias: it are the more generous contributors who decide still to participate when only debit card gifts are accepted. However, less restraint among donors when using their debit card also seems to play a role. In fact, the maximal single amount given via the debit terminal exceeds the

[6]See `www.reumafonds.nl`; `www.ccv.nl` and `www.kpn.com`, respectively, for more information.

maximal single cash contribution. Looking at the characteristics of respondents, I find that participation by younger people is affected less by the switch from cash to debit as accepted payment instruments.

The experiment also identifies the some physical and personal characteristics of solicitors as important determinants in the amount a household contributes to the charity. A solicitor's self-efficacy and sociability positively impact the level of the donation whereas the assertiveness of the solicitor has a negative effect on the amount given. No effects are identified with regard to the propensity to give. In design and the explanatory variables included, this study is related to Landry *et al.* (2006) who also report on a field experiment on door-to-door fund-raising. They however do not compare payment instruments, their interest is in the effect of using lotteries and seed money on the contributions of actual charitable giving campaigns.[7] What is of interest to the current study is that they also include solicitor and solicitee characteristics as explanatory variables. Among other things, they find that female solicitor attractiveness is positively correlated with both participation and contribution levels.[8] The results in this paper do not corroborate these findings. My estimates do indicate that female solicitors induce higher participation rates, both among male and female solicitees, but do not show a relation with the physical attractiveness of the solicitor.

With regard to the effect on payment efficiency, I find that the probability that someone pays efficiently is increasing in the amount given. That is, the more people give, the greater the chance that they do so using the minimal number of coins.[9] The explanation for this phenomenon is that people experience the weight of many small coins in the wallet as a nuisance and seize the fund-raising as an opportunity to get rid of them. The question then however remains why this need would vary with the amount given. The evidence points to an alternative explanation: contributors may derive warm-glow from making a 'heavy' contribution: the mere option of paying with a debit terminal next to the option to pay cash induces cash contributors giving less than one euro to donate less coins on average.

In the attention for payment efficiency, I follow up on recent research on cash payments at checkouts of retail locations by Franses and Kippers (2007). They find evidence

[7] They find that lotteries raise more money than voluntary contributions.

[8] Another related field experiment is Alpizar *et al.* (2008) who study voluntary contributions to a national park in Costa Rica. As in the current paper, these authors distinguish between the decision to participate in the fund raise and the decision how much to contribute, conditional on participation.

[9] For example, a amount of €0.80 is donated in an efficient way when 50+20+10 eurocent is given and in an inefficient way in all other cases.

Table 1: Electronic point-of-sale payments in the Netherlands

	2000	2001	2002	2003	2004	2005	2006	2007
	Number of transactions (in mil.)							
Debit card	901	954	1.069	1.157	1.247	1.334	1.451	1.599
E-purse	25	31	97	109	127	147	164	175
Credit card	47	48	46	44	49	45	49	56
Cheques	14	5	0	0	0	0	0	0
Total	1,027	1,038	1,212	1,310	1,423	1,526	1,664	1,830

Source: DNB Annual Report 2006, 2007.

that most payments are efficient. Finally, this study also makes a contribution to the extensive literature on the economics of charity (see e.g. Andreoni, 2008; List and Lucking-Reiley, 2002; Soetevent, 2005).

The study proceeds as follows. The next section reviews the literature and presents a simple theoretical model. Section 3 describes the field experimental design. Section 4 provides the results and Section 5 concludes.

2 Literature Review and Theoretical Framework

Differences in the acceptance of payment instruments across treatments may affect both the number of households participating in the fund raise (extensive margin) as well as the level of the individual contributions of households that do participate (intensive margin). In this section I first review the literature on payment choice to identify the the relevant pecuniary and non-pecuniary product dimensions in comparing the cash and debit instrument and their effects on participation rates. I will also briefly discuss the individual consumer characteristics that are identified by empirical (survey) studies to influence consumer payment choice. An important observation is that the literature on payment choice almost exclusively focuses on retail point-of-sale (POS) situations. This necessitates a discussion about the extent to which findings in this literature on differences between the cash and debit instrument carry over to the context of door-to-door fund-raising.

The second part of this section discusses the relation between the acceptance and availability of payment instruments and the level of contributions made. This is not an issue in retail settings where the amount to be paid is exogenously given and independent of payment choice. Studies on payment choice are therefore silent on this issue. In the context of donating to charity, there are important reasons to suspect that the choice

of payment instrument and the amount of the gift are related. Field experiments have identified various factors that influence the demand for charity but did not yet consider the role of payment choice (e.g. Landry *et al.*, 2006).

2.1 Payment choice

The literature on payment choice mentions a number of product dimensions which are important to choose for a particular payment instrument. These variables, or "payment choice drivers" as they are coined by Borzekowski *et al.* (2008), include time cost (a preference for speed), convenience, money (transaction costs associated with using an instrument), restraint (a desire to limit overspending), acceptance (acceptance of the payment instrument by retailers) and security (Jonker, 2005; Borzekowski *et al.*, 2008; Zinman, 2008). I will discuss the role of each of these payment drivers in door-to-door fund-raising.

For our purposes, the study by Jonker (2005) is of particular interest as she uses detailed survey data to analyze the factors underlying the payment choice of Dutch consumers in various POS situations. With regard to time, she finds that cash and debit card users both mention the perceived speed of the payment process as the most important reason to choose that instrument in a number of POS situations. This indicates small differences between cash and debit in this dimension. Note however that the average time of a cash transaction in a donation context is likely to be shorter as compared to a POS situation, because no change is given. Indeed, the need to search for notes and coins and the time spent waiting for change are reported by Jonker as major aversions against using cash (2005, p. 18-19). Apart from transaction speed, the lack of sufficient cash and the wish to pay exact amounts (e.g. parking meters) are the most important reasons for using the debit card (Jonker, 2005, p. 12). In our fund-raising context, the latter motive does not play a role because the donor is free to donate any amount, which makes cash a better substitute for debit card payments than in POS situations.

Debit is often considered more convenient than cash in terms of the weight that one has carry around (one plastic card vs. a collection of coins and notes) (Zinman, 2008; Jonker, 2005, p. 19). Whereas this argument induces a preference for debit card payments in POS situations, it instead leads to a preference for using cash in contributing to door-to-door fund raises: since the solicitor visits homes, giving cash to

a solicitor at your door reduces the weight of one's wallet.

In the experimental set up, cash and debit do not differ along the money dimension because, irrespective of the amount donated, neither the donor nor the charity has to pay a fee for using the debit terminal. In contrast, many merchants in the Netherlands used to charge a small fee (€0.10-€0.20) for payments below €10 (Brits and Winder, 2005). Most of these surcharges have been abolished recently, due to decreases in electronic payment costs to merchants (DNB, 2007, p. 99). Despite a campaign to convince consumers to also use their debit card for small payments[10] many still associate debit payments with amounts exceeding €10-15. Jonker (2005, p. 10) reports that consumers prefer to use cash in POS situations where the amounts involved are small.

In her study, many consumers cite as a reason to pay cash "that it helps them monitor their expenses." This reason may as well apply when donating to a charity.

In our experimental set up, acceptance is imposed by the experimenter: in one treatment only cash is accepted, in the second both cash and debit may be used and in the third, only debit is accepted as payment instrument.

With regard to security, cash is sometimes perceived unsafe because of the risk of theft and of money being lost. Borzekowski *et al.* (2008, p. 158) report that consumers who cite security as the most important driver most often substitute debit for cash, "driven by a fear of loss or theft of cash." In the experimental context, consumers are at home which reduces the risk of theft. An important security issue surrounding debit use is the risk of debit card fraud (Jonker, 2005, p. 19). Newspaper articles about cases of debit card fraud[11] have recently made consumers aware of this risk. A number of respondents in the experiment told the solicitor that for this reason, they did not trust using the debit terminal.

Next to the importance of product attributes, empirical studies have identified correlations between a number of consumer characteristics and the adoption of types of payment instruments. The probability of debit card use is generally found to be higher among younger people and to increase with education level found and income (Stavins, 2001, p. 26-28; Borzekowski and Kiser, 2008, p. 895-896; Jonker, 2005, p. 13).[12] No

[10] This campaign called "Klein bedrag, pinnen mag" was organized by Currence, the firm that owns PIN (DNB, 2007, p. 99).

[11] For example
`http://www.volkskrant.nl/economie/article512301.ece/Intratuin_grijpt_in_na_grote_pinpasfraude`
or `http://www.politie.nl/haaglanden/nieuws/0701pasoppinpasfraudeaanhuis.asp`.

[12] Zinman (2008) finds that debit use decreases with credit card possession; consistent with this, Borzekowski *et al.* (2008, p. 156) find that debit card use is lower for the lowest income category but

strong gender effects are detected in the choice between cash or debit. In the experiment, solicitors record information on the gender and (estimated) age of respondents and these data are incorporated in the estimations. Information on household income and education levels is not available. Neighborhood statistics on the district frequented by the solicitors point out that these households on average have a rather modest income, thereby possibly somewhat pushing down debit card use.

In deciding which medium of exchange to use, not only owning a wallet or debit card is important, but also the availability of sufficient cash in the wallet and having a positive balance on the debit card account. Information on individual wallet contents is not available in our experiment. Given that the experiment takes place at the beginning of the month when most people have just received their paychecks, it is likely that most households approached have a positive balance at their debit card account.

The cited empirical evidence naturally leads to the following predictions regarding differences in participation rates across the experimental treatments. First, one expects participation rates to be higher when both the cash and debit instrument are accepted than when only cash or only debit is accepted. Second, one expects the average age of contributors to be relatively lower in the Debit-only treatment and no gender effect is expected. Finally, the joint effect of convenience, restraint and safety concerns on participation when moving from cash-only to debit-only is ambiguous.

2.2 Contribution levels

The effect of payment instrument acceptance on contribution levels naturally has not an issue in the literature on payment choice in POS retail settings, where the amount to be paid is exogenously given. In donations to charity, differences in payment instrument acceptance are likely to influence the level of individual contributions. In this context, the amount given will, among other things, be a function of both the payment instrument(s) offered as well as the availability of cash and the balance on the debit card of the respondent. Both variables are unobserved by the experimenter.[13] In (field) experiments on gifts to charity, the acceptance of different payment instruments and

that income in general is not a strong predictor of debit card use. In the Netherlands debit card use is likely to be closer related to income because credit card adoption rates are low.

[13]The web site `www.eurodiffusie.nl` contains monthly statistics of people's self-reported wallet contents. My web site contains additional material on developments in the coin composition in people's wallet over the time period 2003-2008 based on these data. As of September 1, 2004, shop-keepers are allowed to round amounts to multiples of 5 eurocents. This has had the effect that the percentage of 1 (2) eurocent coins in individuals' wallets has decreased from 13 (14) percent of all coins in 2003 to 3 (3) percent of all coins in 2008.

the practical availability of cash have so far not been investigated although both are potentially important and related determinants of contributions to charity. Households may switch to using their debit card not only when no cash is available, but also when their wallet content does not contain the exact amount they wish to donate or only allows them to donate the preferred amount in an inefficient way, i.e. using a great number of coins as when one gives €2.70 in the form of 27 coins of 10 eurocent.

Recently, a small number of empirical studies on the efficiency of euro cash payments have appeared (Kippers *et al.*, 2003; Franses and Kippers, 2007). In order to gain some understanding how payment instrument acceptance and availability together may affect payment instrument choice and contribution levels, I incorporate some of the ideas developed in that literature into the model of the voluntary provision of public goods provided by Landry *et al.* (2006).

Let Ω_i be the (unobserved) set of all combinations of coins and notes that can be made with the wallet content of agent i. Denote the monetary value of any element $\omega \in \Omega$ by the function $g(\omega)$. First consider the situation where only cash is accepted. Following Landry *et al.*, denote with y_i individual i's consumption level of a numeraire good, with $G = \sum_{i=1}^{n} g(\omega_i)$ the total provision of the public good and with $g(\omega_i)$ the individual contribution to the public good. With only cash payments accepted, each donor faces two constraints: a "wallet constraint" $\omega_i \in \Omega_i$ and a budget constraint $y_i + g(\omega_i) \leq z$ where z is the individual's budget which is assumed to be the same for all agents.

Landry *et al.* (2006) to not take into account the wallet constraint nor payment efficiency considerations, which is reasonable given that their design does not involve a comparison of different payment instruments. Their utility function from giving reads (p. 750)

$$U_{i,Cash} = u(y_i) + h(G) + \alpha f(g_i),$$

with g_i the own contribution to the public good. I follow their approach in assuming that $u(\cdot)$, $h(\cdot)$ and $f(\cdot)$ are (strictly) increasing and concave.[14]

Denote with b_i the amount individual i would donate in the absence of both a wallet constraint and payment efficiency considerations. That is,

$$b_i = \text{argmax}_b \; u(y_i) + h(G) + \alpha f(b).$$

[14]Provision of the public good is assumed socially desirable, i.e. $nh'(0) > u'(z)$.

Next I extend the above utility function by including a term $e(\cdot)$ which reflects the effort involved in donating the collection of currency ω. I assume $e(\cdot)$ to be strictly increasing in the number of elements in ω: the more coins one has to put in the box, the greater the effort.

The resulting utility function now writes

$$U_{i,Cash}(\omega_i) = u(y_i) + h(G) + \alpha f(g(\omega_i)) + \beta e(\omega_i), \tag{1}$$

with $\beta < 0$. Given their wallet constraint Ω_i, agents may now face a trade-off between donating an amount equal or close to their preferred amount b_i using relatively many coins, or using less coins but donating an amount further apart from the preferred amount. In the extreme case, agents with $b_i > 0$ can even decide not to donate in case their wallet content is very unfavorable.

Next consider the utility derived from making a donation by debit card. This utility is independent of the particular wallet content and the effort involved in the transfer is not related to the amount given. Furthermore, I assume that the balance on the debit card of agent i never imposes a constraint on an agent's donation decisions. Acceptance of debit allows agents to give their preferred amount b_i.

The utility function if the same individual donates by debit card is given by

$$U_{i,Debit}(b_i) = u(y_i) + h(G) + \alpha f(b_i)) + \delta D_{Debit}, \tag{2}$$

where D_{Debit} is a dummy variable accounting for the net utility difference between debit and cash payments caused by payment drivers like security, (perceived) surcharges, convenience issues etc. These may affect the preference for one or the other payment instrument but not the level of the conditional contribution.[15] One can come up with various reasons to prefer one of the two instruments; the effort associated with recalling the PIN and typing this number into the terminal may induce a preference for paying cash. On the other hand, since door-to-door fund-raising is traditionally done by means of cash payments in combination with sealed boxes, I expect the level of distrust toward solicitors that show up at the door-step without a box but with only a debit terminal to be relatively high. In this exposition, externalities between payment instruments are ruled out: the fact that a solicitor carries a debit terminal is for example assumed not to lead households to question the safety of paying cash.

[15] An alternative approach is to make the utility difference between cash and debit a function of the amount given. I could not come up with behavioral reasons that would ask for this.

This simple model leads to the following predictions regarding differences in contribution levels and payment efficiency across the experimental treatments. First, since the effort associated with using more coins reduces the relative utility of donating cash ($\beta < 0$), I expect households who can donate their preferred amount only while using a lot of coins and notes to have a relatively greater preference for using the debit terminal. This implies that relatively to the Cash-only treatment, contributors who choose to donate cash in the combined treatment are expected to do so in a more efficient way. Second, I will compare the cash and debit amounts given with respect to the number of tokens that would be involved in an efficient payment of this amount. For example, for an amount of €0.55 this number equals 2 (0.50+0.05) and 4 for €2.31 (2+ 0.20+0.10+0.01).[16] Given that the utility from a cash-payments is assumed negatively related to the number of tokens involved, I expect that the amounts given in cash-payments on average to relate to a lower number of (efficient) tokens than debit-payments. Without further assumptions on the form of the utility function and the wallet constraints agents face, one cannot predict what the net effect of introducing the debit terminal on average contribution levels will be. Likewise, given the absence of empirical evidence on the use of payment instruments in charity settings, I do not have a prior on the sign of δ. δ may be positive if convenience and tax-deduction motives are most important and negative when the risk of debit card fraud is the most important payment driver.

3 Experimental Design

Door-to-door fund-raising campaigns in the Netherlands are coordinated by the Central Bureau on Fundraising (CBF). This bureau assigns each of the charities a particular week in the year in which they may organize a fund-raising drive. This has the advantage that households are never approached by more than one charity a week. The Reumafonds is traditionally allocated a fund-raising slot in the first half of March. The resources generated by the annual fund-raising are important for the fund. In 2006, the fund-raising brought in 3.2 million, on a total income of 16.1 million (Reumafonds, 2006). The Reumafonds is widely known and is among the largest charities in the Netherlands

[16] Euro cash consists of eight coins with values 0.01, 0.02, 0.05, 0.10, 0.20, 0.50, 1 and 2 and seven banknotes with values 5, 10, 20, 50, 100, 200 and 500. The reason to compare numbers of tokens in efficient instead of actual payments is simply that with debit payments, by definition no coins and notes are used.

in terms of income out of door-to-door fund-raising.[17] Moreover, the fund-raising drive was widely announced at national television and in newspapers.[18]

The experiment consists of three treatments. To allow for a clean comparison, the treatments only differ in the payment instruments that are accepted by solicitors: Households approached by the first group of solicitors can only pay cash; those approached by the second group can choose between donating cash using the box and donating by debit card using the mobile terminal; households approached by the third group can only give electronically using the debit terminal. All treatments rely on voluntary contribution mechanisms.

In collaboration with the Reumafonds, suitable routes in the North of the city of Amsterdam were selected. Solicitors were randomly allocated to treatments and efforts were made to ensure that neighborhoods and streets in the different treatments were comparable in terms of characteristics of the households. The municipality of Amsterdam was informed about the research project.[19]

Care was taken that this natural field experiment (Harrison and List, 2004) resembled the ordinary door-to-door fund-raising drives as closely as the nature of our set-up allowed. For example, the student-solicitors used the same type of collection boxes as the other solicitors of the fund, they carried a bag and portfolio with the official logo of the fund and the informational brochures and the balloons they could distribute to small children at the door were identical to the ones used by other solicitors of the fund.

Solicitors were recruited by e-mail among the students of the University of Amsterdam. Potential solicitors were told that they could earn €75 by signing up as a solicitor for the fund-raising drive of the Reumafonds.[20] In exchange, they complied with a ten-minute intake interview in which they completed an application form.[21] For reason

[17] The Dutch Cancer Society tops the list with 8.8 million, followed by the Kidney Foundation (4.5 mln.), the Netherlands Heart Foundation (4.4 mln.) and the Rheumatism Fund (3.2 mln.). (CBF, 2006).

[18] This may explain partly why participation rates in the current study are much higher than in the study by Landry *et al.* (2006).

[19] In the beginning of March it is still wintertime in the Netherlands and a result twilight sets in fairly early. Therefore ordinary solicitors of the Reumafonds often walk in pairs were one person visits one side of the street and the other the opposite site. We enabled our solicitors to do the same by allowing them to sign up as a pair. They split up when soliciting such that households were approached by one solicitor only.

[20] The students were paid in vouchers. They could select themselves the type of voucher they wanted to obtain, such that in effect, the compensation was similar to receiving €75 in cash. The compensation was paid by CCV and not by the Reumafonds.

[21] Of the 36 recruited students, 34 showed up for the intake; two students dropped out in the week of the fund-raising due to personal circumstances; one of them could be replaced by a student who had already finished one route in the same treatment. Excluding data on the second route of this student does not change any of the results.

of comparison, the questions in the form have a great overlap with the questions asked by Landry *et al.* (2006); we asked about one's work experience, experience with fund-raising activities and included questions about weight and height to calculate a solicitor's body mass index (BMI). Next to this we used the same categorical-response questions as in Landry *et al.* (2006) to compose measure of assertiveness, sociability, self-efficacy, performance motivation and self-confidence. For each trait, the questionnaire contains two positively and two negatively framed questions to which students could respond with providing a number in the range (1) to (5), where (1) means strongly disagree and (5) strongly agree. Scaling the responses from -5 to -1 (negative frame) and 1 to 5 (positive frame) results in individual measures for the personality traits in the range $\{-8, -7, \ldots, 8\}$. Also very similar to Landry *et al.* (2006) for each solicitor a measure of physical attractiveness was derived. To this end, digital photographs of the solicitors were taken during the intake interview. Photos of two solicitors were randomly paired and printed in color on a sheet of paper. These photos were evaluated by 93 different observers who each were given five randomly selected prints to evaluate, leading to a total of 930 personal attractiveness rankings. The evaluators were students recruited at the Hogeschool van Amsterdam. Each observer was given ten photographs in total on a scale of (1) extremely unattractive, to (10) handsome. Again following Landry *et al.* (2006), each rater's scores were normalized according to the formula $a_{ij}^N = (a_{ij} - \bar{a}_j)\sigma_j$ to arrive at a standardized scale across raters. In this formula, a_{ij} denotes the personal attractiveness ranking of evaluator j for solicitor i, and $\bar{a}_j$ and σ_j denote the mean and the standard deviation of the attractiveness scores across solicitors for evaluator j, respectively. The a_{ij}^N's are $N(0, 1)$ distributed. The final personal attractiveness measure is obtained by averaging for each solicitor i the ratings a_{ij}^N over all evaluators j. Summary statistics of the solicitor characteristics by treatment are provided in Table 2.

In the week before the actual fund-raising, three separate training sessions were organized on March 6, one for each treatment group in order to prevent cross-contamination and information exchange across treatments. These sessions consisted of two (group 1) or three (groups 2 and 3) parts and lasted for 40 to 50 minutes. Each session was conducted by the same researcher, the same spokesperson of Reumafonds (all groups) and the same instructor from CCV (groups 2 and 3). In the first part of the training, the set up of the project was explained and solicitors were supplied with materials. Solicitors were shown how to fill in the record sheet for each household that was approached (Was

Table 2: Summary Statistics Solicitor Characteristics (s.e. within parentheses).

	Cash-only	Cash&Debit	Debit-only
Total # of solicitiors	11	11	11
Average earnings per hour‡	16.41	17.91	16.99
Mean beauty rating	-0.06	0.08	-0.01
	(0.68)	(0.60)	(0.66)
Mean body mass index	20.54	22.28	20.87
	(2.05)	(3.54)	(1.84)
% of male solicitors	54.6%	36.4%	45.5%
Age	20.45	22.64	21.09
	(1.29)	(4.86)	(3.18)
Mean sociability	4.64	4.27	3.18
	(1.96)	(1.49)	(1.47)
Mean assertiveness	3.91	4.64	3.64
	(1.04)	(1.36)	(1.63)
Mean self-efficacy	4.55	4.55	4.18
	(1.63)	(1.21)	(0.98)
Mean performance	2.18	1.64	2.27
motivation	(1.47)	(2.46)	(2.80)
Mean self-confidence	4.27	4.00	3.63
	(1.56)	(2.23)	(2.91)

‡ based on time spent excluding the training session and the intake interview.

anyone home? Did the household make a contribution? What was the gender and the estimated age of the person you spoke to?)

All solicitors received an official Reumafonds identification card, a detailed map of the streets in their route, brochures and balloons of the Reumafonds and a manual with extensive details on how to record observations and approach households, including a script. The identification card stated the name and address of the solicitor together with contact information of the charity fund such that people could make a phone call in case they questioned the trustworthiness of the solicitor.[22]

Solicitors in group 1 and 2 also received a sealed collection box and two small packages of envelopes, which were numbered on the inside. The envelopes carried the official logo of the charity. Households were asked to put their donation in the envelope and to put the filled envelope into the box.[23] Each solicitor supplied the envelope with number one to the first donor, the envelope with number two to the second donor, etc. In this way, the token composition of each donation was tracked and could afterwards be linked to the solicitee's background characteristics at the solicitor's record sheet.

In the second part of the training, the spokesperson of the Reumafonds provided the solicitors with background information on the fund and reviewed the fund's mission statement. Explicit attention was given to the way volunteers of the fund tend to approach people to solicit donations. In case small children opened the door, solicitors were advised to ask if one of their parents was at home.

The training session of solicitors in group 2 and 3 was complemented with a third part in which an instructor from CCV explained how to use the debit terminals. After a plenary instruction, students practiced by sliding through their own debit cards and making donations of 1 eurocent. In the end, everyone understood how to operate the terminal and each solicitor succeeded in making a donation. Contributors using the terminal received a printed receipt from the solicitor as proof of their payment. Like the collection boxes, the debit card terminals carried the name of the Reumafonds. Because of insurance conditions, solicitors received their debit terminal at the day of collection from an intermediary of CCV and they had to return the terminal immediately after finishing their route. The intermediary then printed transaction summaries for every returned terminal such that – like the cash payments – the debit card payments could

[22]Examples of routes, manuals and record sheets can be found on my web site.

[23]The ordinary usage of these envelopes is that in some villages, they are distributed to households one or two weeks before the actual fund raise. Households are asked to put money in the envelope and to drop it into the box of the solicitor in the fund-raising week.

be linked to the background characteristics of the contributors.

Like normal volunteers of the Reumafonds, our solicitors were free to choose which day(s) in the week March 10-15 they went out soliciting contributions, as long as they went out between 4-8.30 p.m. Door-to-door fund-raising drives usually take place within this time period because then most households are home. Moreover, in total solicitors had to work for about four hours; most chose to solicit one day, but some split work in two days of about two hours each. A short summary of the experimental design is presented in Table 3.

Table 3: Experimental design.

Cash-only	1609 Approach
11 Solicitors	752 Home
Cash&Debit	1510 Approach
11 Solicitors	762 Home
Debit-only	1494 Approach
11 Solicitors	792 Home

4 Experimental Results

This section reports the results of the experiment. Section 4.1 explores the differences between treatments in the total amount raised. Sections 4.2 and 4.3 dissects the effects of the introduction of debit terminals on participation and on contribution level conditional on participation, respectively. Section 4.4 analyzes the effects of changes in the acceptance of payment instruments on payment efficiency.

Before moving to the results, I first present for each treatment the average background characteristics (age and gender) of the contacts and use these to check whether the routes are indeed similar across treatments. Extensive summary statistics on the contribution decisions of households that answered the door and on the background characteristics are provided in Table 4. In constructing this table, observations of one solicitor who erroneously wrote down the age and gender only of non-contributors were discarded. Some other solicitors in a few cases occasionally forgot to write down these items. In those instances, I dropped the observations concerned but not the other

observations by the same solicitor.[24]

Table 4: Summary Statistics Solicitees (standard errors within parentheses).

	Cash-only	Cash&Debit	Debit-only
Total housholds home	659	753	767
% of male solicitees	41.3%	37.8%	45.9%
Percent of males			
Non-contribute	35.6%	38.9%	92.9%
Contributors - Cash	64.4%	60.0%	
Contributors - Debit		1.1%	7.1%
Percent of females			
Non-contributing	30.3%	39.3%	89.2%
Contributing cash	69.7%	60.7%	
Contributing debit		0.0%	10.8%
Mean age			
Overall	46.82	48.65	41.78
	(14.29)	(15.50)	(14.85)
Cash payments	45.78	48.71	
	(14.05)	(15.56)	
Debit payments		35.00	38.93
		(13.22)	(13.50)
Non-contributors	48.31	48.69	42.05
	(14.38)	(15.40)	(14.94)
Median age			
Overall	45	45	40
Cash payments	45	45	-
Debit payments	-	30	35
Non-contributors	50	50	40

I regress age and gender of all households that answered the door on treatment dummies.[25] If the coefficients of the treatment dummies are significantly different from zero, this indicates that the average value of these variables differs across treatments. I find no indication that the gender distribution is different across treatments, but with regard to age, it turns out that individuals that opened the door in the third treatment are significantly younger than those in the two other treatments. Both the

[24]Exactly this is the reason why Table 4 is based on less observations than Table 5.
[25]The regression results are not reported in the text but are available upon request.

group of contributors and non-contributors are on average slightly younger than in the other treatments. Since the age of respondents is estimated by the solicitors, a potential reason for the difference might be a systematic bias from the side of one or more solicitors. A regression of the age of the respondents on the age and gender of the solicitor does however not reveal such a bias. Despite the randomization, the average age of households in the Debit-only treatment truly seems to be somewhat lower.[26] Given the empirical evidence of a negative correlation between age and the use of electronic payment instruments, this implies that participation rates in the Debit-only treatment might be slightly biased upward.

4.1 Revenues

Table 5 provides summary statistics on contributions in each treatment. In total €926, €821, and €316 was raised in the three treatments.[27] The treatments were cash is allowed raised significantly more than the the treatment with only debit terminals. Contrary to expectation, less is raised in the combined treatment than in the Cash-only treatment. Table 5 summarizes the results. In the Cash-only treatment, the average donation per contact is €1.23, in the Cash&Debit treatment €1.08 and in the Debit-only treatment €0.40. As stressed by Landry *et al.* (2006), these numbers are independent across treatments, but dependent within treatment because a given solicitor approaches a number of households. I follow their approach by using a conservative test at the solicitor level by calculating for each solicitor the average donation and then rank solicitors on basis of these averages. Figure 2 depicts for each treatment the average amount per contact raised by each solicitor. The figure immediately shows that average contributions are much higher when cash is accepted; none of the solicitors in the Debit-only treatment has average contributions in excess of €1, while in the other treatments about two-thirds of the solicitors bring in more. I test for differences in treatments using a Mann-Whitney-Wilcoxon rank sum test and find that (a) average contributions in the Debit-only treatment are significantly lower ($p < 0.01$) than in the other two treatments

[26] Landry *et al.* (2006, p. 760) do not test for significance, but given that they report a difference in estimated average age between treatments comparable to the difference in our study, I expect the same issue to occur in their study. Closer inspection of our data reveals that routes of different treatments that where streets of one route are knitted into those of the others (knitting pattern) are similar in terms of age build-up; whereas differences occur when routes are close but adjacent (block pattern). Thus, experiment designs with a knitting pattern seem to be preferable.

[27] This amounts to €84, €75 and €29, respectively, per solicitor. For comparison, the average amount raised by a Reumafonds solicitor is about €55. In our case, average revenues are higher because our solicitors were supplied with about 120 addresses in order to obtain sufficient observations. Normal routes contain about 80 addresses.

and (b) that no significant difference is detected between average contributions in the Cash-only and Cash&Debit treatment.

Table 5: Summary Statistics Contributions (s.e. within parentheses).

	Cash-only	Cash&Debit	Debit-only
Total households approached	1609	1510	1494
Total households home	752	762	792
# households that contributed	512	447	73
# households that use debit terminal	–	3	73
Percent of households contributing	68.1%	58.7%	9.2%
Total amount raised	€926.73	€821.34	€316.50
Average donation per household that answered the door	€1.23 (1.34)	€1.08 (1.78)	€0.40 (1.88)
Average donation per household that contributed			
Cash contributions	€1.81 (1.27)	€1.83 (2.00)	–
Debit contributions	–	€3.17 (1.61)	€4.34 (4.64)
Median contribution per household that contributed			
Cash contributions	€1.55	€1.50	–
Debit contributions	–	€2.50	€3.00
Tokens used		Frequency	
20	0.0%	0.2%	–
10	0.1%	0.6%	–
5	1.5%	1.0%	–
2	12.9%	11.2%	–
1	14.2%	16.7%	–
0.50	13.9%	15.7%	–
0.20	19.3%	20.9%	–
0.10	15.7%	15.3%	–
0.05	18.9%	15.4%	–
0.02	2.3%	1.5%	–
0.01	1.3%	1.5%	–

The next section will show that the lower amounts raised in the Debit-only treatment is to a great extent due to lower participation rates. If one takes out non-contributors and focus on the average contributions of the households that do donate a different picture emerges; Table 5 shows that with €3.17 and €4.34, the average conditional contribution in the Cash&Debit and Debit-only treatment is about 75% and 138% higher than in the Cash-only treatment, respectively. Figure 3 plots for each treatment the

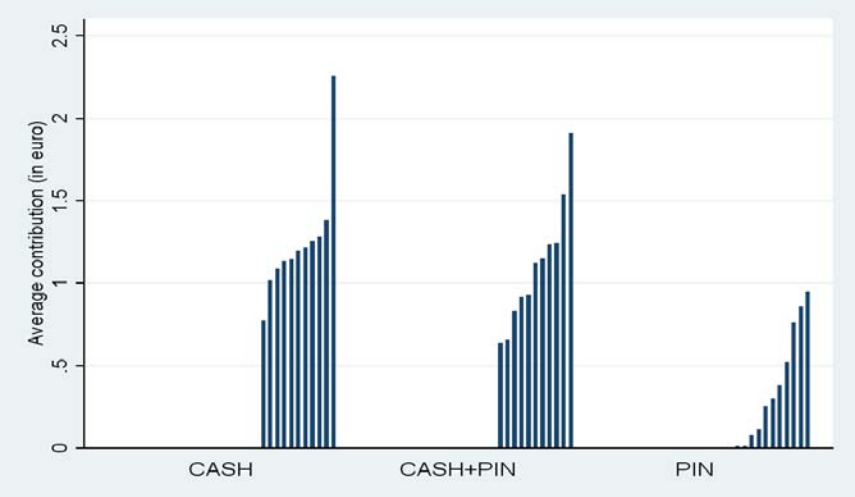

Figure 2: Average contributions per household: solicitor level

average amount raised per contributor for each solicitor. The figure clearly illustrates that conditional on contributing, households in the Debit-only treatment donate significantly more ($p = 0.0165$, both when compared with Cash-only as with Cash&Debit). As participation in the Debit-only treatment is much lower (see Section 4.2), the effect might be due to a selection bias: those who give in the Debit-only treatment, would also have given a relatively high amount in the other treatments. An alternative explanation is that donors feel less restraint in making bigger gifts when using their debit card because they do not physically see the amount they transfer to the charity. In sections 4.3 and 4.4 I will look at the background characteristics of households and the token composition of individual contributions. Evidence in those sections will make clear that selection bias only explains part of the effect.

4.2 Participation

Table 5 makes clear that participation in the fund-raising drive strongly decreases as one moves from the Cash-only to the Debit-only treatment and this is also reflected in Figure 4 where the percentage of households that contributed is plotted at the solicitor level. By again applying the Mann-Whitney-Wilcoxon rank sum test where the average success rate of a solicitor is the unit of observation, I find evidence that success rates are significantly lower in the Debit-only treatment ($p < 0.01$). Whereas on basis of the theory that more payment instruments would induce greater participation, I surprisingly

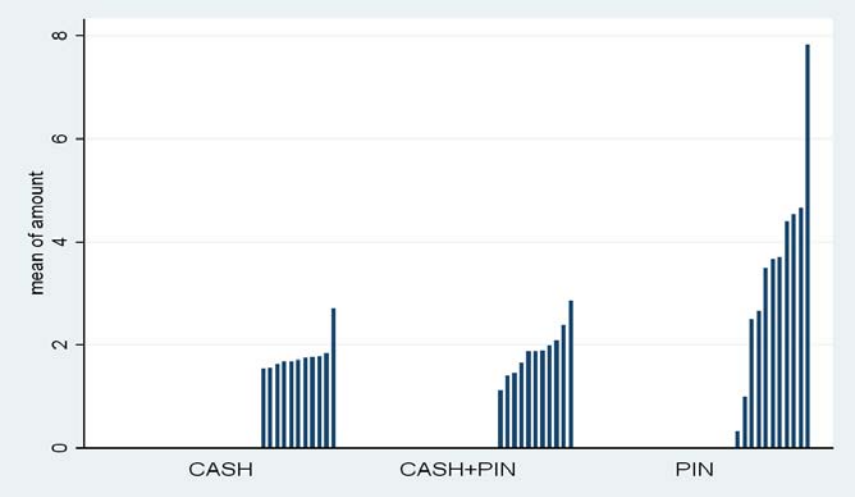

Figure 3: Average conditional contributions per household: solicitor level

find the opposite: introducing the debit terminal next to the collection box reduces participation ($p = 0.0328$). I will extensively discuss possible causes of this effect in the next sections.

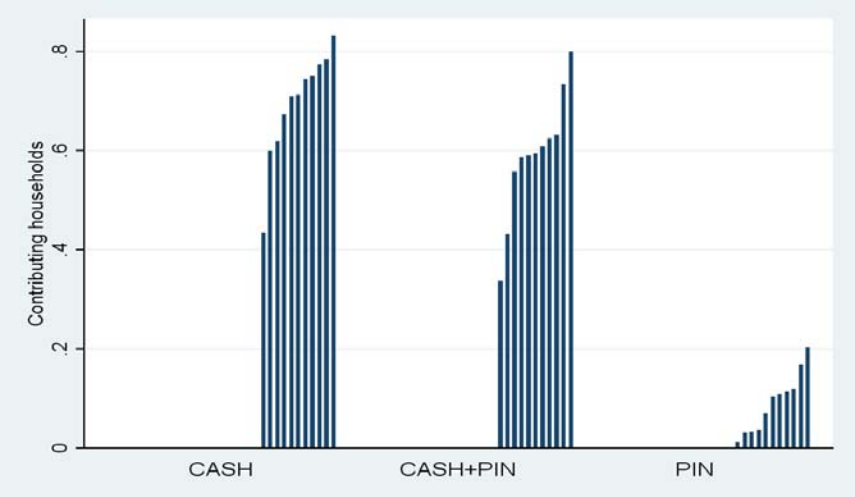

Figure 4: Percent of households contributing: solicitor level

4.3 The role of individual characteristics

The field character of the experiment entails that one has to control for a number of covariates that potentially affect both participation and contribution rates. In this section, I take observable differences across solicitors and solicitees and unobservable differences across solicitors into account by estimating an Heckman selection model.

In donating to charity, households make two separate but closely related decisions; the decision whether or not to participate in the fund-raising and the decision which amount to contribute. Our sample of donations is selective in the sense that it only contains the amounts given by households who decided to participate; of the non-contributors, the amounts given are truncated at zero. The following simple model is introduced to account for this sample selection by jointly modeling the participation and contribution decision.

$$\begin{bmatrix} L_{ij}^* \\ C_{ij}^* \end{bmatrix} = \begin{bmatrix} \mathbf{Z}_{ij}\delta + \mathbf{X}_{ij}\alpha \\ \mathbf{Z}_{ij}\gamma + \mathbf{X}_{ij}\beta \end{bmatrix} + \begin{bmatrix} u_{ij} \\ v_{ij} \end{bmatrix}. \tag{3}$$

In this equation, L_{ij}^* and C_{ij}^* are two latent variables where L_{ij}^* represents the unobserved amount household i wants to donate to solicitor j and C_{ij}^* is the unobserved value for the same household of participating in the fund-raising. The variables actually observed, whether or not a household participates and how much it contributes, denoted by C_{ij} and L_{ij}, respectively, are related to C_{ij}^* and L_{ij}^* as follows:

$$L_{ij} = \begin{cases} L_{ij}^* & \text{if} \quad C_{ij}^* > 0 \\ 0 & \text{if} \quad C_{ij}^* \leq 0 \end{cases} \tag{4}$$

$$C_{ij} = \begin{cases} 1 & \text{if} \quad C_{ij}^* > 0 \\ 0 & \text{if} \quad C_{ij}^* \leq 0 \end{cases} \tag{5}$$

The data contain two types of observations: one for which both L_{ij} and C_{ij} are observed to be zero and ones for which $C_{ij} = 1$ and $L_{ij} = L_{ij}^*$. Equation (3) further contains a vector of treatment dummies $\mathbf{Z}$ and a vector $\mathbf{X}$ containing observable solicitor and solicitee characteristics and day-dummies to account for temporal heterogeneity in giving rates, for example due to changing weather conditions. The errors are clustered at the solicitor level to account for unobservable heterogeneity across solicitors. I assume that the errors are normally distributed and I allow for a correlation ρ between u_{ij} and v_{ij}. Equation (3) is estimated by maximum likelihood.[28] The estimates for three specifications of this model are presented in Table 6; in the table, columns with the same letter

Table 6: Heckman selection maximum likelihood estimates.

	Contribution			Participation		
	A	B	C	A	B	C
constant –	2.014**	2.375**	1.853*	0.395†	0.726*	0.985**
Cash is baseline	(0.231)	(0.624)	(0.802)	(0.230)	(0.354)	(0.350)
Cash&Debit	-0.273	-0.089	-0.071	-0.093	-0.017	-0.174
	(0.273)	(0.267)	(0.387)	(0.217)	(0.184)	(0.233)
Debit	2.184**	2.005**	2.949**	-1.514**	-1.628**	-1.746**
	(0.565)	(0.398)	(0.783)	(0.201)	(0.139)	(0.198)
(age $\leq$ 30)*Cash			-0.108			0.115
			(0.125)			(0.172)
(age $\leq$ 30)*(Cash&Debit)			-0.013			0.068
			(0.164)			(0.167)
(age $\leq$ 30)*Debit			-2.105*			0.282*
			(0.984)			(0.134)
(age $>$ 60)*Cash			0.451†			-0.221
			(0.244)			(0.222)
(age $>$ 60)*(Cash&Debit)			0.475			0.169
			(0.351)			(0.179)
(age $>$ 60)*Debit			0.595			-0.347
			(0.725)			(0.315)
Female solicitee		-0.166	-0.148		0.077	0.087
		(0.165)	(0.161)		(0.074)	(0.074)
Solicitor beauty		0.168			0.150	
rating		(0.249)			(0.179)	
Beauty – male			-0.149			0.493*
solicitor			(0.740)			(0.224)
Beauty – female			0.122			-0.010
solicitor			(0.328)			(0.276)
Assertiveness of		-0.423*	-0.442*		-0.083	-0.063
solicitor		(0.166)	(0.216)		(0.072)	(0.062)
Sociability of		0.130†	0.183*		0.018	0.011
solicitor		(0.074)	(0.092)		(0.066)	(0.064)
Self-efficacy		0.522**	0.493**		0.074	0.077
solicitor		(0.156)	(0.174)		(0.114)	(0.112)
Performance		0.021	0.058		0.043	0.034
motivation		(0.060)	(0.078)		(0.039)	(0.036)
Self-confidence		-0.017	-0.174		-0.077	-0.083
solicitor		(0.112)	(0.116)		(0.073)	(0.069)
BMI $\geq$ 25		0.242	0.207		-0.272	-0.256
		(0.357)	(0.330)		(0.409)	(0.429)
ρ				-0.008	-0.016	-0.012
σ				2.215	2.163	2.131
day fixed effects	YES	YES	YES	YES	YES	YES
obs.	1861	1861	1861	1861	1861	1861
censored	1190	1190	1190	1190	1190	1190
uncensored	671	671	671	671	671	671

**: significant at the 1% level; **: significant at the 5% level; †: significant at the 10% level. Errors clustered at the solicitor level.

(A, B or C) relate to jointly estimated contribution and participation decisions.

In Model A of Table 6, only the treatment dummies and a constant are included. The estimates confirms the findings in previous sections:

(*i*) Replacing the collection box for cash payments by mobile debit terminals leads to significantly lower participation rates;

(*ii*) Offering the possibility to pay by debit terminal next to the option of paying cash does neither significantly affect participation nor contributions conditional on participation;

(*iii*) Conditional on participation, contributions are much higher when only debit card payments are possible.

Next the model is extended with solicitee's physical and personal characteristics like their assertiveness, self-confidence, BMI etc. Table 6 shows a strong positive impact of self-efficacy on solicitor productivity; a one-unit increase in solicitor self-efficacy increases conditional contributions with €0.52. A somewhat weaker but significant effect is found for the sociability of the solicitor; a one-unit increase in sociability increases conditional contributions with about €0.13 In contrast, solicitor assertiveness has a negative impact on conditional contributions; a one-unit increase in assertiveness decreases conditional contributions with €0.42. These results are by and large consistent with Landry *et al.* who also find self-efficacy (assertiveness) to increase (decrease) average contributions.[29] Based on estimates of a linear probability model, they however reach the conclusion that "the primary effect of personality traits is on the probability that the solicitor will elicit a contribution." (p. 772). This is in sharp contrast with our estimates of Model B, which show that personality traits primarily affect the conditional contributions of households and not their participation decision. Part of these differences in findings are likely to be caused by differences in estimation techniques. Whereas in this paper the participation and contribution decision are jointly modeled, Landry *et al.* (2006) estimate separate linear probability models for both the level of contributions made by households that answer the door (including zero contributions) and their participation decision. This difference also seems to cause our coefficients

[28]The loglikelihood function that is maximized can for example be found in Davidson and McKinnon (1993, p. 543).

[29]The estimated effects reported are nominally higher than theirs but this is due to the fact that I focus on conditional contributions instead of average contributions.

of self-confidence to be negative but insignificant whereas in their paper a significant negative effect of solicitor self-confidence on average contributions is identified.[30] Unlike Landry *et al.* (2006), I do not find an effect for performance motivation but share their conclusion that there is little statistical difference in the productivity of obese and nonobese solicitors.

The results with regard to solicitor attractiveness are strikingly different from those obtained by Landry *et al.* (2006). Whereas they find that only female physical attractiveness is correlated with higher contributions, estimates of Model C in Table 6 instead shows a significant effect of attractiveness on participation rates for male solicitors only. The effects of attractiveness however disappear as soon as interaction terms between the gender of the solicitor and the solicitee are included (reported as Models D-F in Table A.1 in the Appendix). It turns out that, irrespective of the gender of the solicitee, female solicitors are more effective in eliciting participation; Table A.3 shows that households approached by a female are on average about 14 percent more likely to contribute.

Model C also includes the solicitee's age. Given the empirical evidence on higher debit card adoption rates among younger people, the specification allows the age effect to differ per treatment. For our purposes it is of particular interest to assess how differences in treatment effects regarding participation rates and conditional contributions are related to the age of the solicitee. The estimates show that, relative to the benchmark category of people aged 30-60, conditional contributions among elderly people are slightly higher in the treatment that only includes the traditional collection box but not in the treatments that include debit terminals. For young people under the age of 30 the opposite holds: in line with non-experimental evidence, they are more likely to participate in the Debit-only treatment than those between the age of 30 and 60. To the disadvantage of the charity however, conditional on giving, the youngsters give about €2.10 less on average in the Debit-only treatment than those between 30 and 60.

In summary, this set of estimates leads to the following results:

(*iv*) The probability that a solicitor will elicit a contribution is decreasing with the age of the solicitee in case households can only pay by debit card.

(*v*) When only debit card payments are possible and conditional on participation in

[30] To ease comparison with their estimates, results of similar linear regressions on the current data are provided in the Appendix of this paper. Indeed, the self-confidence coefficients are significantly negative in Table A.2.

the fund raise, people under the age of 30 make smaller gifts.

(*vi*) When only cash payments are possible and conditional on participation in the fund raise, people over the age of 60 make larger gifts.

4.4 Payment efficiency

The analysis on the effects of different payment instruments so far was limited to effects on participation rates and contribution levels. However, for charities as well as in retail POS settings, the effects on the composition of coins and notes involved in transactions, and thereby on payment efficiency, may also be of great practical interest. This section therefore concentrates on the question whether and in which direction the introduction of portable debit terminals affects payment efficiency. I follow Cramer (1983) and Franses and Kippers (2007) who define an efficient payment as a payment that minimizes the number of coins and notes that change hands in the course of a transaction. Franses and Kippers (2007) is the first empirical study on this issue. They collect data on observed cash payments and wallet contents of persons at the checkout of a supermarket and an appliance store and find that most payments are efficient and that individuals do not have a preference for using certain coins and notes. The current study differs from theirs in a number of aspects. First, whereas people at a checkout need to pay a specified amount, our solicitees are free to donate any amount to the charity. Second, whereas at checkouts it is possible to receive change (and the number of tokens transferred from cashier to buyer is included in the efficiency measure), this is not possible in our setting where the boxes are sealed. This implies that in our case the total number of tokens involved in a transaction is the number of tokens given by the solicitee. Finally, unlike Franses and Kippers, we do not have information on the exact wallet content of solicitees.

If solicitees have a preference for efficient payments, they will make their gift with as few tokens as possible, conditional on their wallet content. They might even increase or decrease the amount given if their wallet content only allows them to donate the preferred amount in an inefficient way. Note that the two decisions on how much to donate and on the number of coins to use in the transaction are not independent. Figure 5 depicts the relation between any amount between €0.01 and €35.00 and the the minimal number of tokens needed to donate this sum. The relation clearly is non-monotonic with clear downward spikes around the denominations 10, 20, 50 eurocent

and 1, 2, 5, 10 and 20 euro, but a weak increasing trend can be distinguished: if a solicitee wants to contribute a larger sum, she is likely to need more tokens to make the transfer. Thus when solicitees care about payment efficiency, this might induce them to donate less than the amount they would prefer in the absence of payment efficiency considerations or to donate an amount which coincides with a currency denomination.

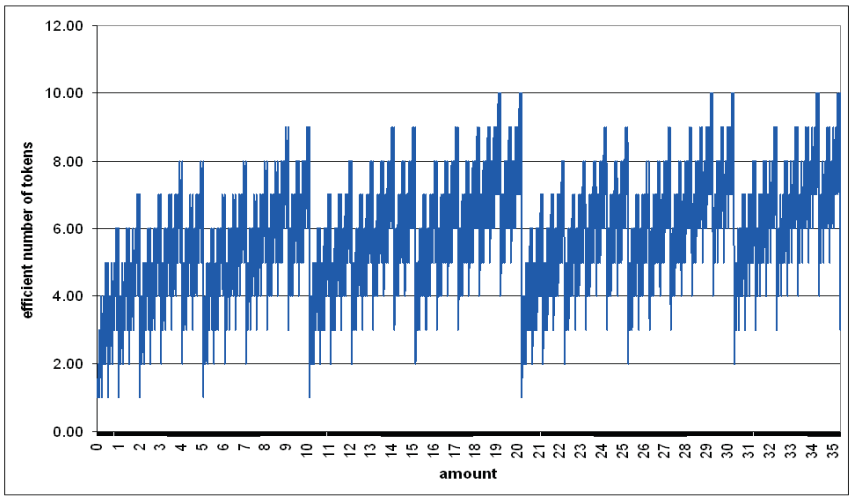

Figure 5: Efficient number of tokens for payments of €0.01 to €35

In contrast to cash payments, the effort involved in using the debit terminal is independent of the amount transferred. Following the reasoning above, this implies that solicitees will donate their preferred amount. Together with the positive relation between the amount given and the minimum number of tokens needed, this offers a possible explanation for the observation that average contributions by solicitees using the debit terminal are significantly higher: these solicitees use the debit terminal in order to avoid contributing a large number of tokens.

I test this hypothesis by comparing cash payments with debit card payments. By definition, one does not observe the actual number of tokens used in the latter case and I therefore compare cash and debit card payments by looking at the efficient or minimal number of tokens needed to donate a given amount. On basis of payment efficiency considerations, and following the reasoning in section 2.2, one expects these to be larger for debit card payments. The results shown in Figure 6 however reveal that, if anything, *less* tokens are needed for amounts given by debit card. The regression presented in Table 7 corroborates this impression; while the minimal number of tokens needed

slightly increases with the amount given, we nevertheless observe that on average, for the amounts given in the Debit-only treatment, significantly less tokens would be necessary.

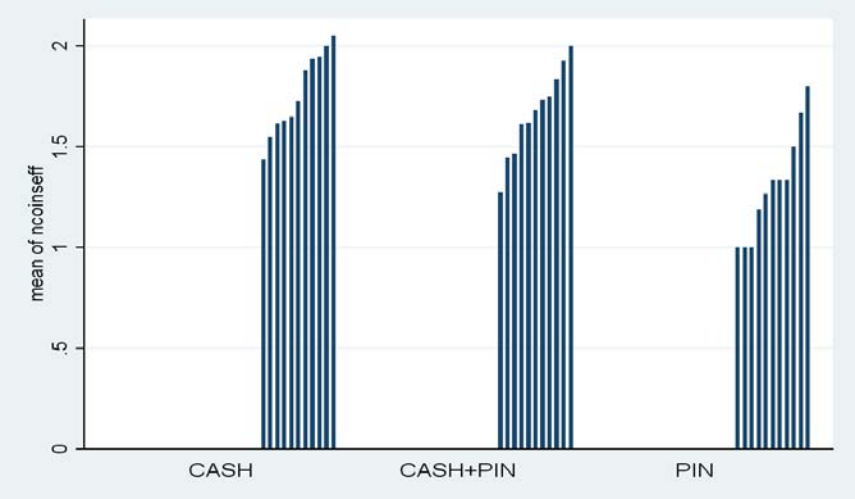

Figure 6: Average of the minimum number of coins needed to make contribution: solicitor level

Table 7: Regression minimal number of tokens needed to donate given amount.

amount contributed	0.0176
	(0.0149)
Cash&Debit	-0.1756
	(0.1091)
Debit-only	-0.4584**
	(0.1038)
constant	1.7111**
	(0.0782)
obs.	738

Non-zero contributions only;
Errors clustered at the solicitor level.
†: Significant at the 10-percent level;
*: Significant at the 5-percent level;
**: Significant at the 1-percent level.

This points in another direction: individuals may actually value the possibility given in the first two treatments to pay in an inefficient way. I offer two possible explanations for this phenomenon. The first explanation is originates from the convenience motive: individuals regard the volume and the weight of the small coins in their wallet as a

nuisance and seize the opportunity of the door-to-door fund-raising to get rid of them.[31] The second explanation is kind of a "warm-glow" argument: individuals not only care about the amount they contribute to the charity, but also about the tokens they use to contribute this amount (see Andreoni, 1990). That is, contributing €1,00 by putting ten 10 cent coins into the box might give you a better feeling than contributing the same amount in the form of one 1 euro coin.

One way to shed more light on the question which of the two explanations drives the results is to compare across treatments the percentage of small and large amounts that is given efficiently. I infer that warm-glow effects are relatively more important for individuals who contribute small amounts. With regard to the first explanation of small-coin-nuisance, it is however hard to see why this should be a more important consideration for households donating small amounts than for those donating larger amounts. One reason for why the small-coin-nuisance may be different for small and large donors would be that individuals who donate high amounts simply do not have a lot of small change in their wallet. On basis of the experimental data, I cannot rule out this possibility but it does not seem very likely that this drives the results presented below.[32]

Figure 7 plots for Cash-only and the Cash&Debit treatment the percentage of solicitees making an efficient donation, where we distinguish on basis of the amount given. The figure shows that the percentage of efficient payments is increasing in the amount given. Consistent with this – and despite the fact that the number of coins needed is positively related to the amount given – Figure 8 shows that also the actual median number of coins used is decreasing with the amount given.[33] This provides some indication that individuals who donate larger sums are less susceptible to either the warm-glow motive and/or the small-coin-nuisance motive.

The most remarkable result from Figures 7 and 8 is that when one focusses on solicitees contributing less than €1, one observes that the mere introduction of the debit

[31] As Franses and Kippers (2007) note, with cash *payments* in shops individuals do not get much time to make their choice amongst coins and notes because other buyers may be waiting. In this setting, the choice is less constrained in both time and complexity, because individuals are visited at their home and do not have to donate a specified amount.

[32] The Appendix provides additional information on this issue in the form of a simple analysis of the sample of 272 wallet contents collected by Franses and Kippers (2007). The wallets of households that pay efficiently an amount between €0.01-€0.99 are estimated to contain on average 22.4 tokens and than those of households that pay efficiently pay an amount between €1.00-€4.99 21.3 tokens, a difference of 1.1 tokens or 5%.

[33] I use the median here instead of the average because it is less sensitive to the one or two individuals donating a very large number of coins.

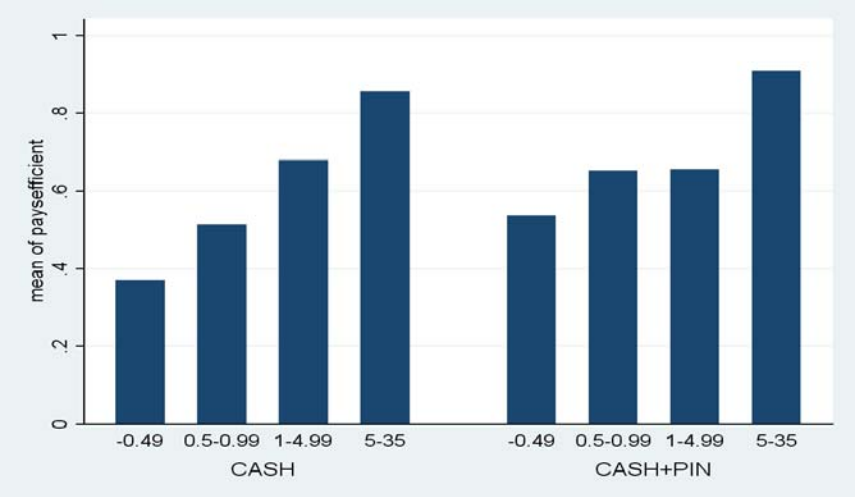

Figure 7: Average number of solicitees making an efficient cash payment

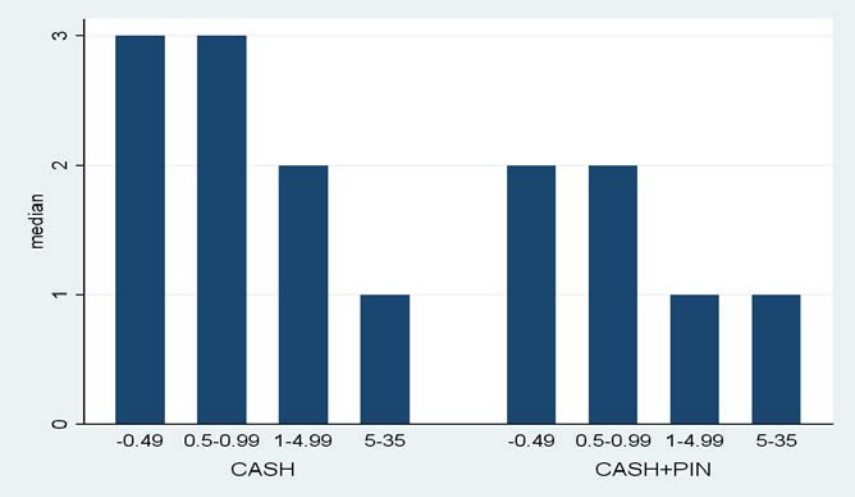

Figure 8: Median number of coins used by solicitees making cash payments

terminal leads these small donors to contribute more efficiently, with their level of efficiency becoming comparable to those of the bigger donors. There are three possible explanations for this increase in payment efficiency. The first explanation is that the acceptance of debit may lead inefficient small-cash donors to switch payment instruments using debit instead of cash in the Cash& Debit treatment. A second explanation is that the introduction of the debit terminal induces small-cash donors to donate more effi-

ciently.[34] The third explanation is that the introduction of the terminal leads potential small-cash donors to drop out from the fund raise. We can confidently rule out the first explanation for the mere reason that we only observe a total of three solicitors using the debit card terminal in the Cash& Debit treatment. The available evidence does not allow us to decide which of the latter two explanations is the more important one. However, the 14 percent lower participation rate in the Cash& Debit treatment leads me to conclude tentatively that introducing the debit terminal considerably reduces the participation of potential small-cash donors in the fund-raise.

5 Concluding remarks

This study reported on a door-to-door field experiment on the effects of introducing portable debit terminals for mobile payment authorization on the contributions to charity. About 4,500 households were approached, randomly divided in three experimental treatments, distinguished by the possibility for respondents to pay with cash, electronically, or both.

The study shows that replacing the collection box for cash payments by mobile debit terminals leads to significantly lower solicitor productivity. I find that much of this effect comes from the impact on average participation rates. When the option to pay cash is available, elderly people are relatively more likely to participate than younger people. In contrast, young people are relatively more likely to participate in case only debit card payments are possible. Offering the possibility to pay by debit terminal *next to* the option of paying cash does neither significantly affect participation nor contributions conditional on participation.

Limiting attention to the households that make a contribution, we observe that these contributions are much higher when only debit card payments can be made. In general, households that use their debit card make on average gifts that are 75% to 140% larger than the average contributions of those who pay cash. Compared to other age groups, individuals under 30 are more likely to make smaller gifts with their debit card.

Looking at the efficiency of payments, we observe that especially cash payments with a value less than €1 are paid in an inefficient way. This leads to the tentative conclusion that some households seize the opportunity of the fund-raising as an opportunity to get

[34] This would imply that for the solicitor, introduction of the debit terminal carries the benefit that the weight of the coins she carries around is reduced, even when the debit terminal itself not used by solicitees.

rid of the low-value coins in their wallet. This is no longer possible when solicitors only carry a debit terminal which may explain part of the lower participation rate in that treatment.

Borzekowski *et al.* (2008, p. 171) end with the question whether "there is a base level of cash (...) use that will remain even after debit cards have diffused fully into the economy." The evidence shows that at least in door-to-door fund-raising, cash will continue to an important role in the foreseeable future.

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Appendix

A. Analysis wallet contents Franses and Kippers (2007)

For their study on the efficiency euro cash payments, Franses and Kippers (2007) constructed a data set containing the wallet contents of 272 individuals. These individuals were asked for the contents of their wallets at the check-out of either a supermarket or an appliance store (like "Home Depot") on various days in October 2002. In this section, these data are used in an attempt to answer the question raised in Section 4.4 whether the wallet content of households donating at least €1 differs – in terms of total number of tokens – from those donating less than €1. Given that the solicitor shows up at the doorstep without announcement, it seems reasonable to assume that the wallet contents of the households at the time of the fund-raise are random and comparable to the wallet contents of visitors of a supermarket or an appliance store. The few households that have installed boxes with small change near their front door, which they draw from when donating to charity, may pose an exception. Furthermore, households in the experiment will have less 1 and 2 eurocent coins in their wallets compared to the individuals in the checkout data set, because as of September 1, 2004, shop-keepers are allowed to round amounts to multiples of 5 eurocents which has considerably decreased the number of 1 and 2 eurocent coins in peoples' wallets.

For each amount A between €0.01 and €40 I determine the number of wallets n_A in the sample that allow for efficient payment of this amount. Furthermore, for each of these wallets $A^1, A^2, \ldots, A^{n_A}$ I denote the total number of tokens t_{A^j} in the wallet (up to notes of 50 euro). Taking the average $\bar{t}_A = [\sum_{j=1}^{n_A} t_{A^j}]/n_A$ gives us for each amount A "the average number of tokens in wallets that allow for efficient payment of A". To assess whether this number is less for amounts less than €1, one now could simply compare

$$\bar{t}^{0.01-0.99} = \sum_{A=0.01}^{0.99} \left\{ [\sum_{j=1}^{n_A} t_{A^j}]/n_A \right\}$$

with, say,

$$\bar{t}^{1.00-4.99} = \sum_{A=1.00}^{4.99} \left\{ [\sum_{j=1}^{n_A} t_{A^j}]/n_A \right\}.$$

This comparison however neglects the fact that some amounts A are in practice donated more frequently than others. For example, a donation of €2 is much more likely than

one of €1.99. To account for this, I return to the experimental data to constructs weights. To this end, I consider all efficient cash payments made in the experiment (564 in total). For each amount $B \in [0.01, 40.00]$ I count the number of times this amount is given efficiently in the experiment and denote these by n_B^E. Weights w_B are then constructed according to the formula $w_B = n_B^E / \sum_{B=0.01}^{40.00} n_B^E$, with $B \in [0.01, 40.00]$. This allows us to calculate to compare the weighted means

$$\bar{t}_w^{0.01-0.99} = \sum_{B=0.01}^{0.99} w_B \cdot \left\{ [\sum_{j=1}^{n_B} t_{B^j}]/n_B \right\}$$

and

$$\bar{t}_w^{1.00-4.99} = \sum_{B=1.00}^{4.99} w_B \cdot \left\{ [\sum_{j=1}^{n_B} t_{B^j}]/n_B \right\}.$$

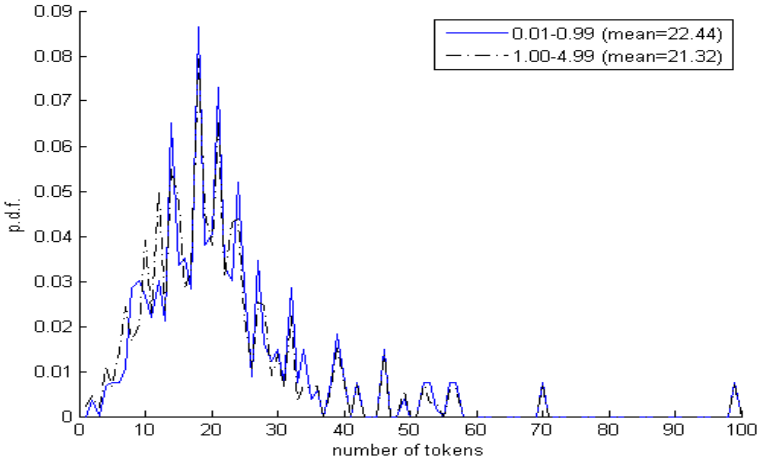

Figure 9: Estimated number of token distribution in the wallets of households giving less than €1 (solid line) or more than €1 (dashed line)

On basis of the experimental data and the data set of wallet contents, it turns out that $\bar{t}_w^{0.01-0.99} = 22.44$ and $\bar{t}_w^{1.00-4.99} = 21.32$, see also the distribution plotted in Figure 9. That is, the provisional analysis provides some indication that people who donate larger amounts efficiently tend to have slightly less tokens in their wallet than those who pay small amount efficiently. The difference of 1 token, about 5% of the average total number of tokens, does however seem to be to small to explain the difference in payment efficiency between small and larger donors observed in Section 4.4.

B. Tables

Table A.1 shows estimates of equation (3) that include interaction terms between the gender of the solicitor and solicitee (Model D); terms that interact the attractiveness of the solicitor with the gender of solicitor and solicitee (Model E) or terms that interact the attractiveness of the solicitor with the treatment dummies (Model F).

Table A.1: Heckman selection maximum likelihood estimates.

	Contribution			Participation		
	D	E	F	D	E	F
constant –	2.183**	2.043**	2.552**	0.629†	0.574	0.838*
Cash is baseline	(0.704)	(0.721)	(0.742)	(0.369)	(0.375)	(0.424)
Cash&Debit	-0.121	-0.105	-0.518	-0.145	-0.141	-0.131
	(0.337)	(0.333)	(0.461)	(0.241)	(0.240)	(0.291)
Debit	3.125**	3.146**	2.662**	-1.779**	-1.776**	-2.078**
	(0.839)	(0.830)	(1.002)	(0.184)	(0.183)	(0.277)
(age $\leq$ 30)*Cash	-0.101	-0.086	-0.136	0.114	0.109	0.128
	(0.126)	(0.124)	(0.127)	(0.171)	(0.169)	(0.193)
(age $\leq$ 30)*(Cash&Debit)	-0.078	-0.128	-0.073	0.130	0.132	0.093
	(0.176)	(0.183)	(0.166)	(0.160)	(0.162)	(0.144)
(age $\leq$ 30)*Debit	-2.307*	-2.307*	-2.421*	0.334*	0.335*	0.350**
	(1.041)	(1.040)	(1.115)	(0.143)	(0.144)	(0.121)
(age $>$ 60)*Cash	0.413†	0.421†	0.355	-0.195	-0.198	-0.227
	(0.234)	(0.244)	(0.221)	(0.232)	(0.234)	(0.263)
(age $>$ 60)*(Cash&Debit)	0.521	0.523	0.407	0.139	0.138	0.079
	(0.355)	(0.348)	(0.358)	(0.177)	(0.177)	(0.175)
(age $>$ 60)*Debit	0.760	0.776	0.767	-0.389	-0.385	-0.342
	(0.663)	(0.657)	(0.592)	(0.315)	(0.316)	(0.296)
Male solicitor –	-0.128	0.114	-0.124	0.112	0.192	0.093
female solicitee	(0.290)	(0.318)	(0.284)	(0.128)	(0.157)	(0.126)
Female solicitor –	-0.682	-0.641	-0.967†	0.508†	0.583*	0.607†
male solicitee	(0.581)	(0.596)	(0.523)	(0.282)	(0.293)	(0.323)
Female solicitor –	-0.856	-0.638	-1.126*	0.571*	0.595*	0.619†
female solicitee	(0.545)	(0.585)	(0.490)	(0.281)	(0.291)	(0.323)
Assertiveness of	-0.481*	-0.490*	-0.463**	-0.057	-0.057	-0.026
solicitor	(0.217)	(0.215)	(0.137)	(0.060)	(0.060)	(0.050)
Sociability of	0.277*	0.276*	0.365**	-0.032	-0.031	-0.062
solicitor	(0.134)	(0.133)	(0.113)	(0.065)	(0.065)	(0.063)
Self-efficacy	0.546**	0.542**	0.481**	0.072	0.073	-0.016
solicitor	(0.175)	(0.176)	(0.131)	(0.101)	(0.100)	(0.091)
Performance	0.083	0.080	-0.086	0.021	0.021	0.050
motivation	(0.080)	(0.079)	(0.083)	(0.040)	(0.039)	(0.039)
Self-confidence	-0.379**	-0.141	0.000	-0.044	-0.044	0.035
solicitor	(0.133)	(0.133)	(0.086)	(0.076)	(0.076)	(0.071)
BMI $\geq$ 25	0.154	0.156	0.029	-0.261	-0.265	-0.753

Table A.1: (continued)

	Contribution			Participation		
	D	E	F	D	E	F
	(0.362)	(0.356)	(0.303)	(0.454)	(0.456)	(0.504)
Beauty – male	0.331			0.120		
solicitor	(0.545)			(0.281)		
Beauty – female	0.229			-0.172		
solicitor	(0.336)			(0.282)		
Beauty – male		0.041			-0.265	
solicitor & male solicitee		(0.692)			(0.456)	
Beauty – male		0.494			0.033	
solicitor & female solicitee		(0.646)			(0.293)	
Beauty – female		0.510			0.188	
solicitor & male solicitee		(0.418)			(0.294)	
Beauty – female		0.051			-0.243	
solicitor & female solicitee		(0.384)			(0.325)	
Beauty – male			0.317			0.669
solicitor in Cash			(0.671)			(0.497)
Beauty – female			-0.361			0.209
solicitor in Cash			(0.329)			(0.254)
Beauty – male			0.630			-0.408
solicitor in Cash&Debit			(0.642)			(0.447)
Beauty – female			2.841**			-1.389*
solicitor in Cash&Debit			(0.799)			(0.587)
Beauty – male			1.161**			-0.261
solicitor in Debit			(0.431)			(0.364)
Beauty – female			-0.361			0.012
solicitor in Debit			(0.329)			(0.337)
ρ			-0.004	-0.019	-0.021	-0.004
σ			2.104	2.127	2.125	2.104
day fixed effects	YES	YES	YES	YES	YES	YES
obs.	1861	1861	1861	1861	1861	1861
censored	1190	1190	1190	1190	1190	1190
uncensored	671	671	671	671	671	671

**: significant at the 1% level; **: significant at the 5% level; †: significant at the 10% level.

Errors clustered at the solicitor level.

Linear regression estimates

In order to ease comparison with results in Landry *et al.* (2006), tables A.2 and A.3 show the estimates if the effects of the different explanatory variables on participation and conditional contributions are estimated with a linear regression model instead of a Heckman selection model. That is, in Table A.2, forms of

$$L_{ij} = Z_{ij}\delta + X_{ij}\beta + \epsilon_{ij}$$

are estimated, with L_{ij} the contribution household j makes to solicitor i (including zero contributions), $\mathbf{Z}$ a vector of treatment group status indicators, $\mathbf{X}$ the vector of other covariates and ϵ_{ij} the error term. Likewise, Table A.3 presents the estimates of the linear participation equation

$$C_{ij} = Z_{ij}\delta + X_{ij}\beta + \upsilon_{ij}$$

with C_{ij} equaling unity if solicitor i received a positive contribution from household j and zero otherwise.

Table A.2: Linear probability model: Contributions.

	Model A	Model B	Model C	Model D	Model E	Model F
constant –	1.332**	1.276**	1.423**	1.137**	1.093**	1.510**
Cash is baseline	(0.214)	(0.359)	(0.334)	(0.340)	(0.338)	(0.352)
Cash&Debit	-0.218	-0.111	-0.259	-0.262	-0.262	-0.434
	(0.204)	(0.137)	(0.168)	(0.171)	(0.171)	(0.318)
Debit	-0.741**	-0.694**	-0.650**	-0.651**	-0.650**	-1.016**
	(0.216)	(0.097)	(0.121)	(0.109)	(0.109)	(0.260)
(age $\leq$ 30)*Cash			-0.030	-0.026	-0.028	-0.012
			(0.146)	(0.145)	(0.145)	(0.152)
(age $\leq$ 30)*(Cash&Debit)			-0.017	0.037	0.034	0.009
			(0.175)	(0.168)	(0.169)	(0.169)
(age $\leq$ 30)*Debit			-0.074	-0.058	-0.057	-0.042
			(0.116)	(0.112)	(0.113)	(0.109)
(age $>$ 60)*Cash			0.038	0.056	0.056	0.020
			(0.187)	(0.196)	(0.195)	(0.207)
(age $>$ 60)*(Cash&Debit)			0.426†	0.397†	0.398†	0.380†
			(0.216)	(0.215)	(0.216)	(0.214)
(age $>$ 60)*Debit			-0.341	-0.361	-0.357	-0.340
			(0.277)	(0.272)	(0.273)	(0.270)
Female solicitee			0.003			
			(0.066)			
Male solicitor –				0.019	0.102	0.012
female solicitee				(0.071)	(0.073)	(0.069)
Female solicitor –				0.365†	0.393†	0.313
male solicitee				(0.217)	(0.224)	(0.237)
Female solicitor –				0.347	0.400†	0.274
female solicitee				(0.218)	(0.218)	(0.232)
Assertiveness of		-0.102†	-0.097†	-0.091†	-0.092†	-0.060
solicitor		(0.057)	(0.052)	(0.051)	(0.051)	(0.041)
Sociability of		0.063	0.064	0.040	0.040	0.042
solicitor		(0.073)	(0.070)	(0.062)	(0.062)	(0.062)
Self-efficacy		0.160	0.153	0.160†	0.160†	0.099
solicitor		(0.107)	(0.101)	(0.091)	(0.091)	(0.076)
Performance		0.021	0.024	0.009	0.010	0.010
motivation		(0.021)	(0.021)	(0.022)	(0.022)	(0.025)
Self-confidence		-0.094†	-0.098*	-0.071	-0.070	-0.037
solicitor		(0.054)	(0.050)	(0.052)	(0.052)	(0.054)
BMI $\geq$ 25		-0.018	-0.021	-0.058	-0.056	-0.277
		(0.399)	(0.415)	(0.453)	(0.453)	(0.486)
Solicitor beauty		0.174				
rating		(0.127)				
Beauty – male			0.337*	0.112		
solicitor			(0.141)	(0.149)		
Beauty – female			0.061	-0.076		

Table A.2: (continued)

	Model A	Model B	Model C	Model D	Model E	Model F
solicitor			(0.206)	(0.235)		
Beauty – male					0.030	
solicitor & male solicitee					(0.170)	
Beauty – male					0.189	
solicitor & female solicitee					(0.160)	
Beauty – female					-0.042	
solicitor & male solicitee					(0.280)	
Beauty – female					-0.099	
solicitor & female solicitee					(0.244)	
Beauty – male						0.752†
solicitor in Cash						(0.419)
Beauty – female						-0.068
solicitor in Cash						(0.337)
Beauty – male						0.070
solicitor in Cash&Debit						(0.459)
Beauty – female						-0.552
solicitor in Cash&Debit						(0.434)
Beauty – male						-0.063
solicitor in Debit						(0.169)
Beauty – female						0.263
solicitor in Debit						(0.236)
R^2	0.043	0.059	0.065	0.067	0.068	0.073
day fixed effects	YES	YES	YES	YES	YES	YES
obs.	1861	1861	1861	1861	1861	1861

**: significant at the 1% level; **: significant at the 5% level; †: significant at the 10% level.

Errors clustered at the solicitor level.

Table A.3: Linear probability model: Participation.

	Model A	Model B	Model C	Model D	Model E	Model F
constant –	0.690**	0.737**	0.747**	0.630**	0.614**	0.864**
Cash is baseline	(0.081)	(0.071)	(0.079)	(0.093)	(0.099)	(0.080)
Cash&Debit	-0.043	-0.062	-0.075	-0.073	-0.073	-0.224**
	(0.064)	(0.052)	(0.055)	(0.054)	(0.054)	(0.055)
Debit	-0.575**	-0.590**	-0.595**	-0.593**	-0.593**	-0.714**
	(0.054)	(0.034)	(0.041)	(0.041)	(0.041)	(0.057)
(age $\leq$ 30)*Cash			0.021	0.024	0.023	0.035
			(0.059)	(0.059)	(0.058)	(0.058)
(age $\leq$ 30)*(Cash&Debit)			0.004	0.024	0.024	0.034
			(0.066)	(0.061)	(0.063)	(0.056)
(age $\leq$ 30)*Debit			0.033†	0.039*	0.039*	0.044**
			(0.019)	(0.018)	(0.019)	(0.016)
(age $>$ 60)*Cash			-0.056	-0.049	-0.050	-0.071
			(0.068)	(0.068)	(0.069)	(0.068)
(age $>$ 60)*(Cash&Debit)			0.008	-0.001	-0.001	-0.002
			(0.061)	(0.060)	(0.060)	(0.061)
(age $>$ 60)*Debit			-0.074†	-0.083*	-0.082†	-0.061
			(0.041)	(0.042)	(0.042)	(0.037)
Female solicitee			0.024			
			(0.019)			
Male solicitor –				0.034	0.060	0.030
female solicitee				(0.032)	(0.045)	(0.032)
Female solicitor –				0.136*	0.158*	0.085†
male solicitee				(0.058)	(0.065)	(0.048)
Female solicitor –				0.149**	0.158*	0.097*
female solicitee				(0.056)	(0.063)	(0.042)
Assertiveness of		-0.011	-0.008	-0.007	-0.007	0.006
solicitor		(0.015)	(0.013)	(0.013)	(0.013)	(0.010)
Sociability of		-0.002	-0.003	-0.011	-0.011	-0.012
solicitor		(0.012)	(0.012)	(0.011)	(0.011)	(0.008)
Self-efficacy		0.013	0.015	0.022	0.022	0.001
solicitor		(0.016)	(0.017)	(0.015)	(0.015)	(0.011)
Performance		0.011	0.011	0.005	0.004	0.008
motivation		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Self-confidence		-0.011	-0.012	-0.005	-0.005	-0.012
solicitor		(0.010)	(0.011)	(0.009)	(0.009)	(0.008)
BMI $\geq$ 25		0.133*	0.130*	0.105	0.104	0.122**
		(0.060)	(0.061)	(0.070)	(0.070)	(0.045)
Solicitor beauty		0.048*				
rating		(0.021)				
Beauty – male			0.083†	-0.007		
solicitor			(0.044)	(0.063)		
Beauty – female			0.029	-0.022		

Table A.3: (continued)

	Model A	Model B	Model C	Model D	Model E	Model F
solicitor			(0.032)	(0.035)		
Beauty – male					-0.033	
solicitor & male solicitee					(0.079)	
Beauty – male					0.017	
solicitor & female solicitee					(0.055)	
Beauty – female					-0.041	
solicitor & male solicitee					(0.050)	
Beauty – female					-0.010	
solicitor & female solicitee					(0.034)	
Beauty – male						0.314**
solicitor in Cash						(0.066)
Beauty – female						-0.042
solicitor in Cash						(0.044)
Beauty – male						-0.108
solicitor in Cash&Debit						(0.069)
Beauty – female						0.047
solicitor in Cash&Debit						(0.060)
Beauty – male						-0.035
solicitor in Debit						(0.055)
Beauty – female						-0.088
solicitor in Debit						(0.092)
R^2	0.288	0.297	0.300	0.305	0.305	0.317
day fixed effects	YES	YES	YES	YES	YES	YES
obs.	2137	2137	2137	2137	2137	2137

**: significant at the 1% level; **: significant at the 5% level; †: significant at the 10% level.

Errors clustered at the solicitor level.