IS ALTRUISM PATERNALISTIC?*

Fredric Jacobsson, Magnus Johannesson and Lars Borgquist

We test if altruism is paternalistic with respect to health. Subjects can donate money or nicotine patches to a smoking diabetes patient whose willingness to pay for nicotine patches is positive but below the market price. In a between-subjects treatment, average donations are 40% greater in the nicotine patches group. When subjects can donate both nicotine patches and money more than 90% of the donations are given in kind rather than cash. These results are also confirmed in three additional stability experiments that vary the framing, use food stamps instead of money, and use exercise instead of nicotine patches.

The taste for improving the health of others appears to be stronger than for improving other aspects of their welfare. (Arrow 1963, p. 954)

Health care is heavily subsidised in most Western societies. Even in the US, that is sometimes characterised as a private insurance market, government spending accounts for almost 50% of total health care expenditure (Folland et al., 2001).1

Explaining the heavy subsidisation of health care has been difficult for economists. An argument for a Pigouvian subsidy could be made for communicable diseases, where vaccinating an individual will decrease the risk of others contracting the disease (Weisbrod, 1961). However, the treatment of communicable diseases constitutes only a small fraction of health care expenditure in Western countries. Insurance market failure due to adverse selection is another common argument for public spending on health care, but the welfare gain from insurance does not seem large enough to motivate observed degrees of subsidisation (Feldstein, 1973; Feldman and Dowd, 1991). Indeed, it is not even clear that adverse selection constitutes a major problem in health insurance (Cardon and Hendel, 2001; Buchmueller and DiNardo, 2002).

Yet a common argument for public spending on health care is equity, i.e. ensuring access to health care for disadvantaged groups. In the US the two major public programmes, Medicare and Medicaid, are targeted towards the poor and the elderly. In terms of redistributing resources to the poor and the elderly, it would, however, be more efficient to make monetary transfers to these groups rather than subsidising health care. By promoting the consumption of health care over and above the provision by the market, the government does not respect the preferences of the poor and the elderly. Goods such as health care and education, where the government acts paternalistically to ensure a high consumption, are often referred to as merit goods (Musgrave, 1959).

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1 Since employer-provided health insurance is exempt from income taxation, the extent of public subsidisation is even higher.
Although the notion of merit goods is well established in economics, it lacks a strong theoretical foundation. One possible interpretation of merit goods is in terms of other-regarding preferences. There is a growing literature showing that individuals care not only about their own income, but also about the income of others; see for instance the overview of experimental results in Camerer (2003). However, as shown by Bergstrom (1982), altruistic preferences do not affect the optimal allocation of health care. The reason is that altruism increases the marginal utility of all types of consumption equally (i.e. health care as well as other consumption). For health care to be extra valuable relative to the consumption of other goods, altruism has to be stronger for health care than for the consumption of other goods (Jones-Lee, 1991, 1992). The extreme case would be that people care only about the consumption of health care (or the health level) of others and not at all about their remaining consumption. Jones-Lee (1991, 1992) refers to such preferences as safety-focused altruism; we prefer the term paternalistic altruism below. Arrow (1963) argued that paternalistic altruism is one of the characteristics that distinguish health care from other goods in his classic 1963 article (see the quotation above).2

Although the distinction between pure altruism and paternalistic altruism is of great importance for policy, we are not aware of any empirical tests of this distinction. In this article we test experimentally whether individuals are paternalistic altruists with respect to health care. Subjects can donate money to an anonymous smoking diabetes patient. Patients are recruited based on having a willingness to pay for nicotine patches that is positive but below the market price. Nicotine patches are used in smoking cessation treatments, and are available as a non-prescription drug in Sweden. All decisions are blinded with respect to both other participants and the experimenter.

In the money treatment the diabetes patient can use the donated money freely, and in the nicotine patches treatment the donated money is converted to nicotine patches at the market price (so that a donation is worth less to the patient in this experimental treatment). On average donations are 40% greater in the paternalistic group. To test the stability of these results we carry out a further experiment where subjects can choose between donating nicotine patches or money. This produces even more striking results with more than 90% of the donations given in kind rather than cash. These results are also confirmed in three additional stability experiments that vary the framing, use food stamps instead of money, and use exercise instead of nicotine patches. Our results suggest that altruism is predominantly paternalistic, which may help to explain the widespread public subsidisation of health care.

Our article is structured as follows. First we provide some theoretical definitions. Thereafter we present the general methodology and the design and results of a series of six different experiments. We end the article with some concluding remarks.

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2 See also Pauly (1971, chapter 2) for a similar view. In another early contribution Buchanan (1968) argued that individuals are likely to prefer redistribution in kind rather than money transfers, as they feel more strongly about others’ consumption of specific goods. In a similar vein, Pollak (1988) argued that paternalistic altruism might explain transfers in kind from parents to children. Rangel (2003) recently incorporated paternalistic altruism in an analysis of forward intergenerational goods such as environmental preservation.
1. Theoretical Definitions

Consider the utility function: \( u_1(c_1, \ldots, c_n; h_1, \ldots, h_n) \), where \( c \) is the consumption of non-health goods, \( h \) is the consumption of health care, and \( i = 1 \ldots n \) are the individuals in a society.\(^3\) The utility of individual \( i \) is assumed to be increasing in own consumption (\( c_i \)) and own health care (\( h_i \)), and non-decreasing in its other arguments. Let \( u'_{c_j} \) and \( u'_{h_j} \) denote partial derivatives. Individual \( i \) is selfish with respect to individual \( j \) if \( u'_{c_j} = 0 \) and \( u'_{h_j} = 0 \). Individual \( i \) is a pure altruist with respect to individual \( j \) if \( u'_{h_j}/u'_{c_j} = u'_{h_j}/u'_{c_j} \), i.e. if \( i \)’s marginal rate of substitution of \( j \)’s consumption for \( j \)’s health care is the same as \( j \)’s marginal rate of substitution of own consumption for own health care. Individual \( i \) is a paternalistic altruist if he/she is not selfish and if \( u'_{h_j}/u'_{c_j} \neq u'_{h_i}/u'_{c_i} \), i.e. individual \( i \) does not ‘respect’ the preferences of individual \( j \). Paternalistic altruism is health care focused if \( u'_{c_j} = 0 \) and \( u'_{h_j} > 0 \) or if \( u'_{h_j}/u'_{c_j} < u'_{h_i}/u'_{c_i} \), i.e. \( i \)’s marginal rate of substitution of \( j \)’s consumption for \( j \)’s health care is greater than \( j \)’s marginal rate of substitution of own consumption for own health care. From now on, we are only concerned with health care focused paternalistic altruism.

To test empirically whether people are pure or paternalistic altruists, we need to study a situation where subjects can donate money or health care to another person, knowing that the other person strictly prefers money. In such a situation a pure altruist will prefer to donate money. A paternalistic altruist prefers to donate health care if the paternalism is sufficiently strong. In the extreme case in which the paternalistic altruist is only concerned with the health care consumption of the other individual, i.e. \( u'_{c_j} = 0 \) and \( u'_{h_j} > 0 \), he/she will always prefer to donate health care.

2. General Methodology

Below we report the design and results of a series of six experiments designed to test the existence of paternalistic altruism. In all experiments a subject divides SEK 100 (divided into SEK 20 bills) between herself and an anonymous recipient (SEK = Swedish Kronor; exchange rate June 2003: $1 \approx$ SEK 8). All subjects in a session donate to the same recipient. Subjects are paid a participation fee of SEK 50 in all experiments. The design of all experiments reported below is double blind so that other subjects or the experimenter cannot observe the decision of each subject. The double blind experimental design is similar to previous double-blinded dictator game experiments (Hoffman \emph{et al.}, 1994, 1996; Eckel and Grossman, 1996, 1998; Johannesson and Persson, 2000). The complete instructions for the six experiments are available from the authors upon request.

2.1. Subjects

The subjects in the six experiments are undergraduate students at Linköping University. They were enrolled by e-mail advertisements. In total 360 subjects participated in the experiments. Although all subjects are undergraduate students from the same

\(^3\) One could alternatively think of \( h \) as health and that health care is used to produce health.
university, the subject pools are not necessarily strictly comparable between the different experiments. The e-mail advertisements were sent to different student populations for each experiment, to avoid that one student could participate in more than one experiment, and the recruitment and execution of the experiments was carried out at two different campuses (the university campus in Linköping and the university campus in the nearby city of Norrköping). The experiments were also carried out over a period of about two years.4

2.2. Questionnaire Data

The subjects in all experiments are asked to complete a questionnaire anonymously after their donation decision. The questionnaire confronts subjects with four possible motives for donating money and donors are asked to indicate which of these (if any) corresponded to their thinking. In an open-ended question they can also indicate other motives.

The four potential motives for donating money are related to different explanations in the literature. The first motivation is empathy/compassion.5 Empathy has been argued by psychologists to be a major motivation for altruistic preferences (Batson, 1991; Batson et al., 1995; Davis, 1996). Recent experiments in neuroscience also indicate that empathy is important for other regarding behaviour (Singer et al., 2004; Morrison et al., 2004, Jackson et al., 2005; Fehr and Singer, 2005). The second motivation is fairness.6 It is often argued that fairness is an important reason for not maximising the individual payoff in experiments; see e.g. Fehr and Schmidt (1999). The third motivation is warm glow.7 Andreoni (1990) has argued that donating money in itself makes people feel good, and that this has an effect on utility that is independent of the utility gain of the recipients. The final motivation is reciprocity, which has been suggested as an important motivation for donations in the literature (Hoffman et al., 1994, 1996). To include reciprocity as a possible motive may seem surprising given that the double-blind design of the experiment seemingly removes any possibilities for the recipients to reciprocate to the subjects. The motivation question was, however, stated in more general terms as a general principle of reciprocity.8

To check the validity of the results subjects in experiment I-II (the between-subjects comparisons) are also asked whether they would have donated more/less/the same if they had been in the other experimental treatment.

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4 Experiment I and II were carried out in the spring of 2003, experiment III was carried out in the spring of 2004, and experiment IV–VI were carried out in the spring of 2005.

5 This motivation was phrased in the following way in the questionnaire: ‘I feel empathy/compassion for the diabetes patient in the experiment and would therefore like to give up some money to him/her.’

6 This motivation was phrased in the following way in the questionnaire: ‘I choose to give up some money to the diabetes patient in the experiment for fairness reasons, as the allocation of the SEK 100 in the experiment will be fairer after I have allocated some of the money to the diabetes patient.’

7 This motivation was phrased in the following way in the questionnaire: ‘I choose to give up some money to the diabetes patient in the experiment, as the act of giving in itself makes me feel good. The most important for me is that I have given a gift. Whether the gift will be useful is less important.’

8 This motivation was phrased in the following way in the questionnaire: ‘I choose to give up money to the diabetes patient in the experiment as I hope that this entails that I can get help in the future if I get into difficulties. Empathy/compassion and fairness considerations are in this case of no importance to me.’

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2.3. Statistical Tests

To compare mean donations we use bootstrap techniques, because bargaining experiments usually lead to skewed distributions. Bootstrap techniques make it possible to conduct statistical testing without imposing normality, i.e. by inferring the underlying distribution from which the data has emerged (Efron and Tibshirani, 1993). Ellingsen and Johannesson (2004) discuss the choice of test statistics in more detail. The significance levels we report below have all been obtained by generating 2,099 bootstrap replications (Davidson and MacKinnon, 2000). For comparison we also report the significance level with a standard t-test and a non-parametric test (the Mann-Whitney test for between-subjects comparisons and the Wilcoxon test for within-subjects comparisons). A Pearson chi-square test is used to compare proportions between treatments (D'Agostino et al., 1988). All reported p-values are two-sided.

3. Experiment I

3.1. Design of Experiment I

We set up an experiment in which subjects can donate money or nicotine patches to a smoking diabetes patient. The patients are recruited based on having a willingness to pay for nicotine patches that is positive but below the market price. A pure altruist will therefore always prefer to donate money, whereas a paternalistic altruist may prefer to donate nicotine patches. We compare donations of money and nicotine patches between subjects in two different treatments (the ‘money treatment’ and the ‘nicotine patches treatment’). In the money treatment the patient receives the donated money and can use it freely. In the nicotine patches treatment every SEK 20 bill donated to the patient is converted to a nicotine patch, and the nicotine patches are given to the diabetes patient. Subjects are randomly allocated to the money treatment or the nicotine patches treatment.

Two diabetes nurses at Huskvarna primary health care centre in Sweden recruited the patients. The nurses were instructed to recruit smoking diabetes patients that had not previously used nicotine patches, but were willing to try nicotine patches if provided free of charge. Only after the patients had agreed to participate in the study, were they told that they could receive money rather than nicotine patches (depending on the treatment they were randomised to, see below).9 Nicotine patches are a non-prescription drug in Sweden and can only be bought at pharmacies.10 Nicotine-replacement therapy by nicotine patches has been shown to be effective for smoking cessation. According to a literature overview by the Swedish Council on Technology Assessment in Health Care, the chance of quitting smoking doubles with the aid of nicotine patches (Swedish Council on Technology Assessment in Health Care, 1998). The cost of nicotine patches is not reimbursed by the state, so a patient who wants to buy nicotine patches always has to pay the full retail price out of pocket. The official retail price

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9 The ethics committee for medical research at the county of Östergötland approved the study and the recruitment of patients.
10 All pharmacies in Sweden are owned and operated by the National Corporation of Swedish Pharmacies, a state owned company with a monopoly on the retailing of drugs in Sweden.
(which is the same at all pharmacies in Sweden) was SEK 286 for a pack of 14 patches at the time of the experiment, i.e. SEK 20 per patch.

We carried out three sessions of each treatment with about 25 students in each session. In total 168 subjects participated in this experiment, yielding donation data for 156 subjects (in each session we ‘lose data’ for two subjects as one subject is a monitor and one subject is for anonymity reasons only given slips of paper; see below). We test the null hypothesis that the donation of money is the same in the money treatment and the nicotine patches treatment. The two treatments are described in more detail below.

3.1.1. Treatment 1 (The money group)

The subjects are recruited to a room. The subjects are paid a SEK 50 show up fee and are asked to sit at assigned seats positioned to keep subjects as separate as possible. Before the experiment starts, subjects are reminded that there should be no talking during the experiment. The subjects are given the experimental instructions that are read aloud by the experimenter. A monitor is chosen among the subjects and he/she conducts the experiment and verifies that the procedures are followed as described in the instructions.

The monitor calls one subject at a time and randomly gives them an envelope. All envelopes except one contain five SEK 20 bills and five slips of paper. The remaining envelope contains ten slips of paper.11 The subject that has received an envelope goes behind a screen. In private behind the screen, the subject removes (and keeps for his/her own use) five units from the envelope (bills or slips of paper), seals the envelope and then drops it in a box, knowing that any money in the box will be given to a diabetes patient. The subject then proceeds to a second screen to complete a questionnaire anonymously. After completing the questionnaire the subject drops it in a box and leaves the room. When all subjects have made their decisions, the monitor opens the envelopes. The monitor records the contents of each envelope and puts the sum of money in an envelope addressed to the primary health care centre of the diabetes patient and seals the envelope. Together with the experimenter the monitor goes to a mailbox and mails the envelope.12 The experiment is then over. In the instructions the subjects are given the following information about the diabetes patient:

You will not be told who this diabetes patient is. Nor will the diabetic be told which persons that have participated in this study. The diabetic is a patient with diabetes type II, who is treated at a primary health care centre in Sweden. He/she is a smoker but would like to quit. Persons with diabetes type II have an excess risk of cardiovascular disease implying that they may die prematurely due to a heart attack or stroke. They may also experience problems with varicose ulcer and high blood pressure. These risks imply a shorter life expectancy and a reduced quality of life compared to other persons. Smoking further increases the risk of disease and reduces the quality of life due to for instance kidney problems, worsened eyesight and increased risk of cardiovascular disease. On average smoking reduces the life expectancy of a diabetic by 3.4 years.13

11 The envelope with ten slips of paper is included as an additional guarantee of anonymity, as even if no subject donates any money to the recipients the experimenter cannot infer the decision of a single subject.
12 The diabetes nurse at the primary health care centre that received the envelope then forwarded the money to the patient.
13 The information about the impact of diabetes and smoking on health is taken from Nilsson et al. (2002).
3.1.2. Treatment 2 (The nicotine patches group)

This treatment proceeds in the same way as in the money group, with the exception that the monitor replaces each SEK 20 bill that is donated to the diabetes patient by a nicotine patch. The monitor puts all the donated nicotine patches in an envelope addressed to the primary health care centre of the diabetes patient and seals the envelope. Together with the experimenter the monitor goes to a mailbox and mails the envelope. In addition to the information in the altruistic group about the diabetes patient, subjects in this treatment are given the following information:

‘Nicotine patches have been shown to be effective for smoking cessation. Scientific studies have shown that the chance of quitting smoking doubles compared to trying to quit smoking without the aid of nicotine patches. The diabetes patient in this study has agreed to try and quit smoking with the aid of nicotine patches, given that he/she will not have to pay for the nicotine patches (he/she has chosen to not previously try this method of quitting smoking because he/she has considered nicotine patches to be too expensive). Nicotine patches can be purchased at pharmacies without a prescription. One patch that will last for 16 hours cost SEK 20, and this cost is not reimbursed by the state. In clinical studies of smoking cessation, the treatment period with nicotine patches has ranged between 4 weeks (28 patches) and 18 weeks (126 patches). The diabetes patient has promised to undergo a smoking cessation programme consisting of one patch per day as long as the patches from the experiment last.’

3.2. Results of Experiment I

The results of the first experiment are shown in Table 1. In the money group subjects on average donate 29% of the endowment, and in the nicotine patches group subjects on average donate 41% of the endowment. This difference is statistically significant at the 5% level (p = 0.041) according to the bootstrap test, so we reject the null hypothesis of no difference. Figure 1 displays the distribution of donations in the two experimental groups. The fraction of subjects that donate some money is somewhat higher in the nicotine patches group than in the money group (70% versus 61%; p = 0.260), but the

<table>
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<tr>
<th>Experimental group</th>
<th>p-value of difference (two-sided)</th>
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<tr>
<td></td>
<td>bootstrap</td>
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<tr>
<td>Number of observations</td>
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<td>STD of donation</td>
<td>32.86</td>
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Table 1

Results of Experiment I: A Between-subjects Comparison of Donating Money or Nicotine Patches to a Smoking Diabetes Patient

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14 The information about the impact of nicotine patches on smoking cessation and the duration of clinical studies is taken from a literature overview on smoking cessation by the Swedish Council on Technology Assessment in Health Care (1998).

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most striking difference is the fraction of high donations. In the nicotine patches group 28% of the subjects donate 80% or more of the endowment, whereas 13% of the subjects donate 80% or more of the endowment in the money group (p = 0.022). The fraction of subjects that donate everything to the diabetes patient (100%) is 23% in the nicotine patches group and 12% in the money group (p = 0.067).

Figure 2 displays the distribution of donors’ motivations according to the questionnaire (note that the fractions sums to over 100% across motives as subjects could agree with more than one motive). There is no significant difference in motivations between the two experimental groups. Empathy is by far the most common motivation, mentioned by a majority of subjects in both treatments. Fairness is the second most common motive, followed by reciprocity and warm glow.15

As an additional validity check, the subjects that donated some money were asked whether they would have donated more/less/the same if they had been in the other

15 But it should be mentioned here that the wording of the warm glow motivation question may seem loaded against warm glow in that it conveys a strong degree of selfishness. Especially the final sentence of the motivation, ‘whether the gift will be useful is less important’, may lead to that subjects did not choose this motivation even if they were motivated by warm glow giving. The results concerning the fraction of subjects motivated by warm glow should therefore be interpreted very carefully.

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experimental treatment. In the money group 75% of the subjects said they would have donated more if the donation had been health related, 20% said they would have donated the same amount, and 5% said they would have donated less. In the nicotine patches group 81% said they would have donated less in money terms than for nicotine patches, and 19% said they would have donated the same amount. These questionnaire results suggest that very few subjects can be classified as pure altruists (as a pure altruist would donate less in kind).

4. Experiment II

4.1. Design of Experiment II

Our set-up in the first experiment resembles previous double blind dictator game experiments. In double blind dictator game experiments the mean donation has ranged between 8% and 16% (Hoffman et al., 1994, 1996; Eckel and Grossman, 1996, 1998; Johannesson and Persson, 2000; Burnham, 2003). This is substantially lower than in our experiment. However, there are two contradictions in comparing our results to previous dictator game results. First is the fact that the recipient of the donation in our experiment is a diabetes patient, whereas in previous dictator games the recipients have typically been other students. Diabetes patients may be viewed as a more deserving group than students, leading to increased donations. Second is the fact that all subjects are donating to the same recipient. To further disentangle these effects, we therefore carry out an additional experiment with the same design except that the recipient is now an anonymous student rather than an anonymous diabetes patient. This experiment proceeds in the same way as experiment 1, with the exception that the money that is donated is mailed to an anonymous student. Instead of the information in the money donation group about the diabetes patient, subjects in this experiment are given the following information:

‘The total sum of money that is given will be given to one specific student at a university in Sweden. You will not be told who this student is. Nor will the student be told which persons that have participated in this study.’

We carried out two sessions of this experiment. In total 53 subjects participated in this experiment, yielding donation data for 49 subjects. We test the null hypothesis that the donation of money is the same with student recipients (Experiment II) as with diabetes patients as recipients (the money donation group in Experiment I).18

16 An exception to this is the study by Eckel and Grossman (1996) that compare student recipients with donations to the Red Cross. In the ‘Red Cross’ treatment subjects donate 30% of the endowment, which is significantly higher than with student recipients.

17 The two student recipients in the two sessions were recruited by contacting a teacher at Linköping University that asked two students in his class if they were willing to act as recipients for these two sessions (this class did not receive any e-mail advertisements about the experiment, and these subjects could therefore not enrol in any of the experiments reported in this article). They were also located at a different campus (in a different city) from the subjects in this experiment.

18 This test should be interpreted with some caution. Although experiments I and II were carried out shortly after each other and with subjects from the same university, subjects were not randomly allocated between the two experiments.
4.2. Results of Experiment II

The distribution of donations with an anonymous student as recipient is shown in Figure 3. About 50% of the subjects donate some money, and 10% donate more than 50% of their endowment. The average donation, depicted in Table 2, is 18%. This is significantly lower than the money donations with a diabetes patient as recipient in the first experiment ($p = 0.031$ according to the bootstrap test). This indicates that diabetes patients are viewed as a more deserving group than students. Interestingly the mean donation in our student recipient experiment is on a comparable or higher level than in previous double-blind dictator games. This is in spite of that the recipients in our experiments earn much more money (SEK 440 on average across the two sessions) than the ‘dictators’. Donation behaviour therefore does not seem to be driven by inequality aversion in payoffs (Fehr and Schmidt, 1999).

As revealed in the questionnaire data fewer donors, 36%, are motivated by empathy compared to the first experiment. Fairness is the most common motivation cited by 40% of the donors, whereas 20% of donors mention reciprocity and 16% mention warm glow. As a consistency check the subjects were asked if they would have donated more/less/the same to a diabetes patient. No one said they would have donated less to a diabetes patient, 27% said they would have donated the same and the remaining 73% said they would have donated more. This is consistent with the difference in donations between experiment I and II.

**Table 2**

*Results of Experiment II: Donating Money to an Anonymous Student*

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<thead>
<tr>
<th></th>
<th>p-value of difference (two-sided)*</th>
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<td>Bootstrap</td>
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<td>STD of donation</td>
<td>25.25</td>
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*Compared to money donations to a smoking diabetes patient in experiment I.

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5. Experiment III

5.1. Design of Experiment III

In the first experiment we could compare the average donation of money and nicotine patches between the groups. To get more information about the fraction of subjects that are paternalistic altruists we also carry out a within-subjects comparison where subjects can choose between donating nicotine patches or money (or can donate both). This experiment also serves as an additional robustness check of the results in the first experiment. A potential limitation of the between-subjects comparison in the first experiment is that the information to the subjects in the two treatments differed somewhat. The information about the nicotine patches (that the diabetes patient has a willingness to pay for nicotine patches that is positive, but below the market price) was only given to subjects in the nicotine patches donation treatment. It is possible that this information in itself could have affected donations, and this potential effect is controlled for in the within-subjects comparison.

This experiment proceeds in the same way as the first experiment, with the exception that each subject now decides how much of the donated money that should be donated as money and how much that should be donated as nicotine patches. We carried out two sessions of this experiment and in total 51 subjects participated, yielding donation data for 47 subjects. We test the null hypothesis that the donation of money and nicotine patches is the same.

5.2. Results of Experiment III

The results of the within-subjects comparison are shown in Table 3. Subjects on average donate 3% of the endowment as money and 34% of the endowment as nicotine patches. This difference is highly significant ($p < 0.001$ according to the bootstrap test), and we reject the null hypothesis of no difference. The distribution of donations is displayed in Figure 4. Out of the 47 subjects; 16 subjects made no donations (34%), 27 subjects (57%) donated only nicotine patches, 3 subjects (6%) donated only money and one subject (2%) donated both money and nicotine patches. The motivations for donations reported in the questionnaire are similar to the nicotine patches treatment in the first experiment. About two-thirds of the subjects refer to empathy (71%), 23% refer to fairness, 13% refer to warm glow, and 10% refer to reciprocity.

<table>
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<td>Average donation</td>
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Table 3

Results of Experiment III: A Within-subjects Comparison of Donating Money or Nicotine Patches to a Smoking Diabetes Patient
6. Experiment IV

6.1. Design of Experiment IV

The description of the smoking cessation treatment with nicotine patches in experiment III (and the first experiment) mentions how many patches are typically needed for successful treatment. It is possible that this phrasing could affect donations. It is well documented in the literature that framing effects may matter in experimental games; see for instance the overview of results in Camerer (2003). In this case it is not clear whether this framing would increase or decrease donations to nicotine patches. By being told how many patches are needed for successful treatment, it is conceivable that subjects would donate more towards nicotine patches. They may for instance anchor on the number needed for successful treatment divided by the number of subjects.\footnote{With 25 subjects in a session (excluding the monitor and the subject given only slips of paper) this would imply a donation of between 22\% (4 weeks treatment) and 100\% (18 weeks treatment) of the endowment.} This could increase donations of nicotine patches if the donations without this information would be below this anchor point.

It is also possible that the effect could go the other way. If subjects perceive that the minimum number for successful treatment could not be reached, they may perceive that it is not worthwhile to give anything. To be sure that our results are not driven by a framing effect we carry out an additional experiment without the information about the number of nicotine patches needed for successful treatment. This experiment is identical to Experiment III, with the exception that the following sentence has been dropped from the instructions:

‘In clinical studies of smoking cessation, the treatment period with nicotine patches has ranged between 4 weeks (28 patches) and 18 weeks (126 patches).’

We carried out one session of this experiment with 31 subjects, yielding donation data for 29 subjects. We test the null hypothesis that the donation of money and nicotine patches is the same.

\footnote{With 25 subjects in a session (excluding the monitor and the subject given only slips of paper) this would imply a donation of between 22\% (4 weeks treatment) and 100\% (18 weeks treatment) of the endowment.}

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6.2. Results of Experiment IV

The results of experiment IV are reported in Table 4. On average subjects donate 6% of the endowment as money and 25% of the endowment as nicotine patches. This difference is highly significant (p < 0.001 according to the bootstrap test), and we reject the null hypothesis of no difference. This indicates that our results are stable towards this framing issue. The distribution of donations is displayed in Figure 5. Out of the 29 subjects; 10 subjects made no donations (34%), 14 subjects (48%) donated only nicotine patches, 1 subject (3%) donated only money and four subjects (14%) donated both money and nicotine patches. The motivations for donations reported in the questionnaire are similar to the previous experiments with donation of nicotine patches. The most common motive is empathy (74%), followed by fairness (32%), reciprocity (21%), and warm glow (16%).

7. Experiment V

7.1. Design of Experiment V

The interpretation of our results so far is that giving in terms of nicotine patches is higher than giving in terms of money because there is a stronger concern for improving the health of others, rather than just their ability to consume more of whatever they

<table>
<thead>
<tr>
<th>Type of donation</th>
<th>p-value of difference (two-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Money</td>
</tr>
<tr>
<td>Number of observations</td>
<td>29</td>
</tr>
<tr>
<td>Average donation</td>
<td>5.52</td>
</tr>
<tr>
<td>STD of donation</td>
<td>14.04</td>
</tr>
</tbody>
</table>

![Table 4](image.png)

**Fig. 5. The Distribution of Donations in Experiment IV**
want. However, another subtly different interpretation is that dictators only care about restricting the consumption of the recipients to things that are not harmful. This issue may be particularly important in our context with a smoker as the recipient. The dictators may want to avoid donating money because they do not want to give the recipients anything that could be used to buy cigarettes. Paternalistic donations may therefore not necessarily mean that the allocation needs to be used to improve the recipient’s health, but instead that it not be used for something of which the dictator disapproves (or that decreases the recipient’s health).

To test this we carry out an additional stability experiment where subjects can choose between donating nicotine patches and/or ‘food stamps’ to a smoking diabetes patient. In Sweden a kind of food stamps is used by some employers to compensate their workers. Food stamps are accepted as payment for meals by 13,000 restaurants/grocer’s shops in Sweden, which is approximately 98% of all restaurants/grocer’s shops selling ready-cooked meals. However, the food stamps cannot be used to pay for tobacco or alcohol. Using food stamps therefore implies that the subject, as an alternative to nicotine patches, can make a donation that cannot be used to buy cigarettes (or alcohol). This experiment is identical to Experiment III, with the exception that the subjects can donate food stamps instead of money. The subjects also receive the following information about food stamps.

‘The food stamps that are given to the diabetes patient can be used by him/her to pay for meals (although they cannot be used to pay for tobacco, liquor, wine, or any other goods available from Systembolaget). Food stamps are accepted as payment by 13,000 restaurants/grocer’s shops in Sweden, which is approximately 98% of all restaurants/grocer’s shops selling ready-cooked meals.’

We carried out one session of this experiment with 31 subjects, yielding donation data for 29 subjects. We test the null hypothesis that the donation of food stamps and nicotine patches is the same.

7.2. Results of Experiment V

In Table 5 we report the results of experiment V. Subjects donate 6% of the endowment as food stamps and 32% of the endowment as nicotine patches. This difference is highly significant (p < 0.001 according to the bootstrap test), and we reject the null

Table 5

<table>
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<tr>
<th>Type of donation</th>
<th>p-value of difference (two-sided)</th>
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<tbody>
<tr>
<td></td>
<td>Food stamps</td>
</tr>
<tr>
<td>Number of observations</td>
<td>29</td>
</tr>
<tr>
<td>Average donation</td>
<td>5.52</td>
</tr>
<tr>
<td>STD of donation</td>
<td>11.83</td>
</tr>
</tbody>
</table>

20 Systembolaget is a state-owned company that has a monopoly on the retail sale of wines and spirits in Sweden.

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hypothesis of no difference. This indicates that our results are not driven by a fear that money donations will be used to buy cigarettes. Even if the payment excludes consumption of tobacco and alcohol, subjects clearly prefer to donate nicotine patches. The distribution of donations is displayed in Figure 6. Out of the 29 subjects; 14 subjects made no donations (48%), 9 subjects (31%) donated only nicotine patches, 1 subject (3%) donated only food stamps and five subjects (17%) donated both food stamps and nicotine patches. Also the motivations for donations reported in the questionnaire are consistent with the previous results. The most common motive is empathy (73%), followed by fairness (27%) and reciprocity (13%). 21

8. Experiment VI

8.1. Design of Experiment VI

Our results so far indicate that paternalistic altruism is important. However, all the experiments so far have been carried out in the same context of donating nicotine patches to a smoking diabetes patient. To test the stability of the results further we therefore carry out an additional test in a different context. We need a health related good that is not subsidised by the state. One such good is exercise. In Sweden some physicians prescribe exercise to patients as an alternative or complement to other treatment methods. The cost of exercise is, however, not reimbursed by the state so the patient has to pay the full price. Exercise has been shown to be beneficial for health, with studies indicating that regular exercise may substantially reduce the mortality risk (Blair et al., 1995, 1996; Zinman et al., 2004). In this experiment we use ‘aerobics visits’ as the health good and we set up an experiment where subjects can donate money and/or aerobics visits to a diabetes patient. 22 The patient is recruited based on having a willingness to pay for aerobics that is positive, but below the market price. A pure

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21 No subject stated warm glow as a motive.

22 Aerobics may not be the strictly correct translated term here. A visit consists of a session of keep-fit exercises led by an instructor from the Swedish Exercise Association. For simplicity we use the term ‘aerobics visits’ throughout the article.

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altruist will therefore always prefer to donate money, whereas a paternalistic altruist may prefer to donate aerobics visits.

A physician at Ryd primary health care centre in Linköping recruited the patient. The physician was instructed to recruit a diabetes patient that had not previously used aerobics as an exercise method, but were willing to try aerobics twice a week if provided free of charge. Only after the patient had agreed to participate in the study, were he/she told that he/she could receive money rather than aerobics visits. The aerobics exercise programme was provided by the Swedish Exercise Association (Korpen), a not-for-profit organisation that organises and provides various exercise activities in Sweden. The price of the exercise programme was SEK 500 for 15 weeks (30 visits) at the time of the experiment, i.e. about SEK 20 per visit.

This experiment proceeds in the same way as the other within-subjects experiments above. Each subject decides how much of the donated money that should be donated as money and how much that should be donated as aerobics visits. Every SEK 20 bill donated to the patient as aerobics is converted to a coupon that entitles the holder to one aerobics visit at the Swedish Exercise Association. The subjects receive the same information about the diabetes patient and diabetes as in the experiments above, with the exception of the information about smoking (as the diabetes patient in this experiment is a non-smoker). The subjects also receive the following information about the exercise programme:

Exercise has been shown to be effective in the treatment of diabetes type II. Scientific studies show that exercise halves the risk of cardiovascular disease. A successful regular exercise programme for a diabetic (of type II) can mean that the disease is more or less cured. However, it can be difficult to get diabetes patients to increase their physical activity. One way to achieve this is to prescribe exercise. The diabetes patient in this study has received a prescription of exercise by his/her physician. On the prescription the patient has been prescribed an exercise programme consisting of twice weekly aerobics sessions organised by the Swedish Exercise Association. The cost of this exercise programme is SEK 20 per aerobics visit. This cost is not reimbursed by the state. The diabetes patient in this study has agreed to carry out the prescribed exercise programme under the condition that he/she will not have to pay for the aerobics visits (he/she has chosen to not previously try aerobics as a treatment, because he/she has considered aerobics to be too expensive). The diabetes patient has promised to undergo the prescribed exercise programme with aerobics twice a week as long as the aerobics visits from the experiment last.23

We carry out one session of this experiment and 26 subjects participated in this session. We thus get donation data for 24 subjects. We test the null hypothesis that the donation of money and aerobics visits is the same.

8.2. Results of Experiment VI

As can be seen in Table 6 subjects donate 5% of the endowment as money and 43% of the endowment as aerobics visits. This difference is highly significant ($p < 0.001$

according to the bootstrap test), and we reject the null hypothesis of no difference. The results are thus very similar to our previous results for nicotine patches, although the level of donations towards aerobics is somewhat higher than for nicotine patches. The distribution of donations is displayed in Figure 7. Out of the 24 subjects; 9 subjects made no donations (38%), 11 subjects (46%) donated only aerobics visits, no subject donated only money and four subjects (17%) donated both money and aerobics visits. Nine subjects (38%) donated the entire endowment to the diabetes patient, which is the highest fraction among all the six experiments. This leads to an almost bimodal distribution, with spikes at donations of 0% and 100%. The motivations for donations reported in the questionnaire are similar to the experiments with nicotine patches. Empathy is the most common motive (73%), followed by reciprocity (40%), fairness (27%) and warm glow (20%).

9. Concluding Remarks

Our results suggest that altruism is predominantly paternalistic. Even though subjects know that a donation of nicotine patches is worth less to the smoking diabetes patient than cash, subjects still on average prefer to donate nicotine patches rather than cash. In the first experiment that compared donations between subjects, the average donation in the money group was 40% higher than the average donation in the nicotine patches group. When subjects could choose between donating money or nicotine patches, this difference was even more striking with 91% of the donations given in kind

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<td></td>
<td></td>
</tr>
<tr>
<td>Money</td>
<td>0.001</td>
</tr>
<tr>
<td>Aerobics visits</td>
<td>0.001</td>
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<td></td>
<td>0.001</td>
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Fig. 7. The distribution of donations in Experiment VI

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rather than cash. These results were confirmed in three stability experiments that varied the framing, used food stamps instead of money, and used exercise instead of nicotine patches. In these stability tests between 82% and 90% of the donations were given in kind as nicotine patches/exercise rather than cash (or food stamps). These differences are economically as well as statistically significant.

We notice that the experiments are biased against finding paternalistic donations in three potentially important ways. First, because subjects in the nicotine patches group know that the diabetes patient value nicotine patches below the market price, pure altruism should yield lower (rather than equal) donations in kind. Second, people may be less inclined to donate money towards smoking cessation than other health problems, as smoking may be viewed as being voluntary. Several comments in the questionnaire that followed the donation decision were consistent with this view. Schokkaert and Devooght (1999) also present questionnaire evidence that people are less likely to support subsidies of health care caused by smoking than subsidies of health care caused by a genetic disorder.24 Our experiment with exercise for a non-smoking diabetes patient is also consistent with this view as the total donation was highest in that experiment. Third, as we needed to use health goods that are not already subsidised by the state we used goods such as nicotine patches and exercise that are not considered to be core health care services. It seems plausible that the paternalistic preferences could be even stronger for health care services that are subsidised, as paternalistic preferences could be one reason for the public subsidisation.

In the experiments where donations could be made in kind more than two thirds of the donors referred to empathy as a motivation for giving. This supports our interpretation of donations being motivated by altruism. However, some recent work by Dana et al. (2004, 2005) points to the notion that a lot of giving in for instance dictator games is due not to a desire to improve the welfare of recipients, but instead to feeling compelled to give (without really wanting to). Thus, dictators appear to look for excuses not to give. In light of their results, being able to donate nicotine patches or aerobics visits that constrain the choice set might be interpreted as eliminating one excuse not to give (that the recipient will spend it on something not worthwhile like cigarettes). However, when nicotine patches were compared to food stamps that also constrain the choice set, this did not change our results.

We interpret our results as evidence of paternalistic altruism. However, Bruce and Waldman (1991) have argued that transfers in kind can be consistent with pure altruism. They analyse the transfer of resources from parents to children in a two-period setting, and show that a transfer in kind in the first period can be a way to prevent children from strategically overspending in the first period (to induce a larger transfer in the second period). Note, however, that in our experimental setting with anonymous donors and recipients there is no repeated interactions, and this strategic motive for donations in kind is absent. Another potential argument for why a pure altruist may prefer to donate nicotine patches rather than money is that smoking may lead to negative externalities. However, estimates by Viscusi (1995) suggest that the net externalities of smoking are small or non-existent. Cigarettes are also heavily taxed in

24 That people have stronger preferences towards compensating people for bad luck than for "bad behaviour" is also reflected in the accountability principle in the work of Konow (1996, 2000) on fairness.

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Sweden (>\$2 per pack), indicating that smokers may impose a net financial gain on non-smokers.

So why have individuals developed other-regarding preferences that are paternalistic? One possibility is that people do not expect others to be fully rational (i.e., behave in their own best interest). It is relatively well established that many people have self-control problems stemming from impatient preferences biased towards present as opposed to future consumption (Laibson, 1997; O’Donoghue and Rabin, 1999). If a person expects others to have self-control problems, donations in kind may be more helpful than cash donations. Smoking may be viewed as an indicator of self-control problems, and subjects may suspect that a money donation to a smoking diabetes patient will be used to buy cigarettes. However, the results of our two last experiments do not support this explanation. When subjects could donate food stamps rather than money, this did not change the predominant pattern of donating nicotine patches. Changing the good from nicotine patches to exercise and using a non-smoking diabetes patient as a receiver also produced similar results.

Recently, several authors have argued that present-biased preferences provide a rationale for paternalistic policies even in the absence of altruism (Choi et al., 2003; O’Donoghue and Rabin, 2003; Thaler and Sunstein, 2003).25 If altruism is paternalistic, as suggested by our results, the case for in kind donations is even stronger.

References


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