My five pounds are not as good as yours, so I will spend them

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Abstract An experimental approach is used to examine how money denomination and the choice between or availability of coins and banknotes may influence consumers’ purchasing behaviour. Evidence shows that for small amounts of money, consumers may prefer a smaller monetary value in banknotes rather than a higher value in coins. Findings also suggest that people carrying coins are more likely to make a purchase of small value than people not carrying coins.

Keywords Field experiment · Currency denomination · Banknotes · Coins

JEL Classification C93

1 Background

The nature of money has been influencing consumer behaviour since the ancient times. The ancient ruler of Sparta Lykourgos replaced the city’s currency with large and heavy bars of iron, making it difficult for Spartans to carry money, as his intention was to make citizens lose interest in money (Michell 1947). The issue of inconvenience in carrying large amounts of small denomination money (although the nature of coins or banknotes is not specified) has been brought up by Lee et al. (2005). According to the authors, there is a trade-off between the benefits of small denominations and the cost incurred because of carrying a large quantity of small denomination currency. Changes in currency, which automatically im-
plies change in denomination, have shown interesting effects in the past. Kooren-
man et al. (2004) found that there was an increase in charity donations following
the introduction of the Euro in the Netherlands, which was attributed to money il-
lusion, mental accounting issues generated from the guilder-euro exchange rate, as
well as rounding up donations to the nearest available coin. Another study found
similar results in Italy and Ireland (Cannon and Cipriani 2006). Findings by Kohli
(1988) suggest that the public favours larger bills (in value), that an increase in
income or price levels increases demand for larger bills and that an increase in
velocity or interest rates reduces shares of large bills. Previous research on cur-
rency denomination has focused on optimal denomination structure (Wynne 1997;
Telser 1995) and spacing (Van Hove and Heyndels 1996). According to Van Hove
(2001), the principle of least effort, limiting the number of denominations, compat-
ibility with the decimal system and the issue of surveyability are factors that should
be considered when deciding upon the optimal denomination.

The nature of money has attracted attention in the literature on the psychology of
money. According to Bruce et al. (1983), the shape and colour of a coin influences
its perceived value, while it has been shown that the size of coins has a similar ef-
fect (Boustead et al. 1992). Also, Furnham (1983) found that at a time of significant
inflation, subjects underestimated the size of banknotes. Another study considered
wealth as a factor of the perceived size of coins, and findings suggested that poorer
children were more likely to overestimate the size of a coin than rich children (Bruner
and Goodman 1947). Lea (1981) showed that subjects gave bigger estimates of coins
under the old names (before the decimalisation of Britain’s currency), which was
attributed by the author to the loss of value of the coins in the meantime.

In a recent study, consumers spent more when holding smaller denominations once
having made a decision to make a purchase, in two out of three cases (Raghubir and
Srivastava 2009). Alter and Oppenheimer (2008) showed that people use familiarity
and fluency to determine an item’s value. Using questionnaires, they reached the con-
clusion that people valued 1-dollar banknotes more than 1-dollar coins. However, this
study was conducted in a US setting, where the 1-dollar coin is used relatively rarely,
so people are less familiar with it. This is why the authors attribute this difference in
perceived value to familiarity and fluency. In another study, individuals were asked
to express their willingness to purchase various goods, depending on what banknotes
they were given to hold. Findings showed that “people show a tendency to hold on to
money in the form of a whole and a willingness to spend money in the form of parts”
(Mishra et al. 2006), which, according to the authors, “results from the whole pro-
viding an enhanced experience of processing fluency, which is hedonically marked
and results in a higher valuation”. Findings of the two latter studies were based on
questions posed on subjects, so additional empirical evidence from field experiments,
which would test subjects’ actions (rather than perceptions, tendency and willingness
to pay), would contribute significantly to this field of study.

Coins are heavier than banknotes, require more space and are less organisable.
Also, as they are more kinetic, it is more likely for coins to drop out of a pocket.1

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1In the United Kingdom, a £2 coin weighs 12 g; a £1 coin weighs 9.5 grams; a 50p coin weighs 8.0 g; a
20p coin weighs 5.0 g; a 10p coin weighs 6.5 g; a 5p coin weighs 3.25 g; a 2p coin weighs 7.12 g; a 1p
coin weighs 3.56 g (Royal Mint 2010). A £5 banknote weighs less than a gram.
In addition, coins can be noisy when carried. Banknotes can be folded into wallets, purses or pockets. It is not uncommon for people to empty their pockets from coins when arriving home, keeping them in a box. Carrying coins may increase the consumers’ tendency to make a purchase: Exchanging monetary units for goods will relieve them from holding bulky coins in their pockets or wallets, as they will have been used in the transaction. Furthermore, people carrying banknotes rather than coins may be more reluctant in making a purchase, as they may not wish to receive coins as change. If this is true, then money denomination can have an effect on consumption and on small purchases in particular. In terms of value, cash accounted for £267 billion worth of transactions in the United Kingdom in 2009, as opposed to £139 billion by credit cards and £241 billion by debit cards (Payments Council 2010a). The fraction of transactions made in cash has decreased from 73 % in 1999 to 59 % in 2009 (Payments Council 2010b). Therefore, although credit and debit cards are very popular even for small transactions, cash is still widely used.

Natural aversion to coins has been demonstrated in the United Kingdom by the use of coins-for-cash machines that charge a fee for the service. Coinstar charges consumers on the high street an 8.9 percent fee on the total value of coins (Coinstar 2010). Nevertheless, in 2008, Coinstar collected over £200 million in coins (Payments Council 2010a), indicating that consumers were willing to forego part of their monetary value in order to change coins for banknotes. The fact that there was a large volume of coins turned into banknotes shows that, in practice, for some consumers banknotes may be valued more than coins. According to the Payments Council (2010a), consumers store coins in order to avoid carrying them around, rather than as a store of value, which would be “implausible”.

Aversion towards coins has also been demonstrated by consumers in the United States. In 2000, the $1 coin (known as the Sacagawea coin) replaced the Anthony dollar, which had been introduced in 1979. However, it proved unpopular, as the $1 banknote was not withdrawn from circulation and despite extensive marketing by the mint, the new dollar coin failed to become popular among consumers (GAO 2002). According to two GAO reports (GAO 1990 and GAO 2002), barriers to the widespread use of the dollar coin were, among others, the public resistance to use the dollar coin, and the ease of carrying bills rather than coins. Also, consumers were averse to coins because they are bulky and add weight to pockets and wallets. Results of a GAO study using focus groups involving a small number of participants (8–10 people from professional associations) showed that convenience stores, taxi drivers, restaurants and soft drink vendor associations favoured the Anthony Dollar coin, because it led to increased sales and larger tips (GAO 1990).

This study advances the literature by using simple field experiments to examine (a) whether consumers are likely to forego a small monetary value in order to avoid coins and (b) whether carrying coins rather than banknotes may affect the likelihood of a consumer making a small purchase. The experiments are conducted in the United Kingdom, and were thus not contaminated by familiarity and fluency effects, as all British coins and banknotes are widely used in the country and there are no particular means of payment that are less popular, contrary to the 1-dollar coin in the US (GAO 1990 and GAO 2002).

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2Except perhaps for the £50 note, which is however not used in the experiments in this paper.
The remaining of the paper is organised as follows: Sect. 2 explains the experimental design; Sect. 3 presents results and Sect. 4 concludes.

2 Experimental design

Coins are inconvenient to carry in comparison to bills because of their bulkiness, size, weight and noise. This relative disutility may make people prefer a bill to the equivalent amount in coins. Since the inconvenience stems largely from coins being bulkier and heavier, this disutility may decrease or vanish when carrying a bag. It may also be the case that carrying a bag represents some heterogeneity where individuals who are more organised carry bags and are better able to deal with coins. Given that the effect of additional monetary units on utility is diminishing, a wealthier person is more likely to choose a lower monetary value in order to receive the amount in banknotes rather than in coins. Consumers with coins may also be more likely to make a purchase because the total utility of keeping coins is lower than the total utility of keeping the equivalent monetary value in banknotes, but in either case the purchasing power is the same. In summary, we expect that lower income and carrying a bag are associated with lower aversion levels to coins, and that people holding coins are more likely to make a purchase.

For the purpose of this study two experiments are conducted. The goal of the first experiment is to see whether bulkiness of coins causes disutility to some individuals and whether this would make them willing to forego part of the monetary value paid in order to receive the amount in banknotes rather than coins. The second experiment examines whether there are differences in consumption depending on whether consumers hold coins or banknotes. Both experiments took place in London, United Kingdom, and all subjects were adults.

Experiment A: Are consumers willing to accept a lower monetary value in order to avoid coins? Subjects were randomly approached in the early afternoon on Saturdays in a large Central London park (therefore not too close to retail points) and were offered £5 to anonymously fill in a questionnaire of simple questions on their everyday behaviour that would not take more than 3 minutes for academic research purposes. Questions on age, gender, education and income were included, which were the only questions that were actually used in the analysis, as other questions were not relevant to the purpose of this study (the questionnaire is presented in the Appendix). After having answered the final question, subjects were asked if they would rather receive a £5 note, or £5.10 in coins: two £1 coins, four 50p coins, five 20p coins and a 10p coin. Simultaneously, the two money options were already shown to them. Following their reply, they were given any of the two amounts that they requested. During the experiment it was observed whether the subject was carrying a bag or purse or not.

3Some people may use coins on automatic vendor machines, although the use of such machines in London is extremely limited. Also, paying for on-street parking can be done by mobile phone, which may limit even further the use of coins.
**Experiment B: Does the availability of coins as opposed to banknotes have an effect on consumption?** Subjects were randomly approached in the early afternoon on Saturdays outside a small newsagent shop (selling newspapers and magazines, water, soft drinks, snacks and other items, mostly of a small value of up to £5), which also had chairs and tables and served coffee. They were approached after they had made a step past the entrance of the shop, meaning that at least at that point they did not have the intention to make a purchase from that particular retail point. This does not mean, however, that they did not wish to make a purchase in general, as they may have been intending to make a purchase from another store, or simply buy something later. Subjects were offered £5 to take a seat inside the shop and anonymously complete the same questionnaire as in experiment A (including questions on age, gender, education and income). In this case, subjects were randomly given (without a choice) either a £5 note or £5 in coins (two £1 coins, four 50p coins and five 20p coins). In total, half were offered a banknote and the other half were offered coins. Again, during the experiment it was noted whether the subject was carrying a bag or purse or not. Then, it was observed whether each subject walked up to the counter to purchase something before leaving, or simply left without making any purchase. It was not possible to observe whether subjects already had coins on them. However, additional coins cause additional bulkiness. Therefore, it is reasonable to assume that the effect of this additional bulkiness is towards the same direction (although not necessarily of the same magnitude) as for subjects that did not have any coins on them and obtained coins through this experiment.

## 3 Results

**Experiment A** Summary statistics of experiment A are in Table 1 and results are in Fig. 1. Out of 46 people, 22 chose the £5 option in the form of a banknote and 24 chose the £5.10 in coins option. Thus, 47.83 percent of the participants chose to receive a lower payment (5 pounds instead of 5.10 pounds) in order to receive a banknote instead of coins. This shows that for this large proportion of the sample, a monetary value in coins is associated with a lower level of utility than the same

| Variable         | Total (N = 46) | Coins (N = 24)          | Notes (N = 22)          |
|------------------|----------------|------------------------|------------------------|
|                  | Mean Std. Dev. | Mean Std. Dev.         | Mean Std. Dev.         |
| Choosing coins   | 0.522 0.505    | 0.833 0.381            | 0.500 0.512            |
| Carrying a bag   | 0.674 0.474    | 0.667 0.482            | 0.364 0.492            |
| Female           | 0.522 0.505    | 0.583 0.504            | 0.409 0.503            |
| Age              | 40.239 15.529  | 40.750 17.996          | 39.682 12.707          |
| Income (in logs) | 10.497 0.698   | 10.294 0.757           | 10.719 0.564           |
| Basic education  | 0.500 0.506    | 0.250 0.442            | 0.318 0.477            |
| Postgraduate education | 0.283 0.455 | 0.167 0.381            | 0.273 0.456            |
monetary value in banknotes. The nonparametric Wilcoxon rank-sum test shows that
the number of subjects who chose a lower payment to avoid coins is statistically
higher than zero ($z = 4.690$, $p = 0.000$), and that the difference between the number
of subjects who chose coins and the number of subjects who chose banknotes is not
significant ($z = -0.295$, $p = 0.768$).

Results suggest that a large proportion of the subjects in the sample are averse
to coins. However, the results are not indicative of the reason for this aversion. A
hypothesis is that this aversion is related to the nature of coins, as they are heavy and
bulky.

For this reason, we observe whether the subject had been carrying a bag, as it is
much easier to carry coins around when having a place to store them. Showing that
carrying a bag makes it more likely for a consumer to choose coins could reveal that
people are averse to coins because of their size and weight and are willing to receive
a smaller value of money in order to avoid coins.\footnote{Alternatively, it could reveal some degree of heterogeneity, as people carrying bags may be more organised, as suggested in Sect. 2.} In addition, income can play a role in the choice, as people with higher income may be more willing to forego this two percent value in order to avoid coins.

Figure 2 shows the distribution of income for people who choose banknotes
and those who choose coins. There is a difference in income, which, according to
the nonparametric Wilcoxon-Mann-Whitney test is weakly statistically significant
Fig. 3  Experiment A. Income distribution of subjects by bag and choice between coins and notes

(z = 1.925, p = 0.054): Subjects with higher income are more likely to avoid coins. Figure 3 shows the distribution of income by both the choice between banknotes and coins and for carrying a bag or not. For subjects not carrying a bag, subjects choosing coins have statistically significant lower income levels than those choosing a banknote (z = 2.885, p = 0.004). For subjects carrying a bag, however, there is no statistically significant difference in income between subjects choosing coins and those choosing a banknote (z = 1.508, p = 0.132). This finding provides evidence that the effect of income on the choice between coins and banknotes may be limited to people not carrying a bag, as for subjects with a bag the inconvenience of carrying coins vanishes. Considering the entire sample, the difference in income between people who carry bags and people who do not carry bags is statistically insignificant (z = -1.454, p = 0.146).

We also use simple econometrics (a probit approach) to explain the determinants of subjects’ choice between coins and banknotes. The dependent variable is a variable showing whether the subject chose the coins option or the banknotes option (1 for coins, 0 for banknotes). Explanatory variables include a dummy variable showing whether the subject was carrying a bag or not (1 for carrying a bag, 0 for not carrying one), a gender dummy (1 for female, 0 for male), the subject’s age in years and the subject’s annual income (measured in logs). Three dummy variables are used to capture subjects’ education level: basic education; higher education; and postgraduate education.

Results of the baseline econometric analysis of experiment A are in Table 2, columns 1 and 2 (coefficients and marginal effects, respectively). Carrying a bag has a positive and statistically significant coefficient. People with bags were more likely to choose coins by 58 percentage points, which underlines the disutility that coins’ bulkiness causes. Income has a statistically significant negative effect, suggesting that
Table 2  Experiment A. Probit regression results

| Dependent variable | Choosing coins |                | If bag = 1 |                |
|--------------------|----------------|----------------|------------|----------------|
|                    |                | Entire sample  | Mfx        | Coef           |
|                    |                |                | Mfx        | Coef           |
| Carrying a bag     | 1.653***       | 0.580          | 1.387***   | 0.504          |
|                    | [0.542]        | [0.524]        |            |                |
| Female             | −0.268         | −0.107         | 0.050      | −0.211         |
|                    | [0.535]        | [0.501]        | [0.602]    | [0.556]        |
| Age                | −0.002         | −0.001         | −0.003     | −0.004         |
|                    | [0.017]        | [0.016]        | [0.017]    | [0.018]        |
| Income (in logs)   | −0.941**       | −0.375         | −0.530     | −0.194         |
|                    | [0.452]        |                | [0.500]    |                |
| Above median income| −0.510         | −0.201         | −0.295     | −0.107         |
|                    | [0.520]        |                | [0.711]    |                |
| Higher education   | −0.092         | −0.037         | −0.489     | −0.193         |
|                    | [0.520]        | [0.540]        | [0.682]    | [0.703]        |
| Postgraduate education | −0.103     | −0.041         | −0.654     | −0.254         |
|                    | [0.586]        | [0.576]        | [0.775]    | [0.758]        |
| Constant           | 9.102**        | −0.271         | 6.416      | 1.001          |
|                    | [4.376]        | [0.657]        | [5.022]    | [0.885]        |
| N                  | 46             | 46             | 31         | 31             |
| Pseudo R²          | 0.231          | 0.177          | 0.074      | 0.054          |
| Wald χ²            | 15.82          | 13.17          | 3.61       | 2.61           |
| Log pseudolikelihood | −24.472     | −26.204         | −18.680   | −19.070        |

Note: Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1
Robust standard errors in brackets

people with a higher income are less likely to choose the additional monetary value in coins over banknotes. An increase in income by 1 percentage point leads to a decrease in the probability of choosing the coin option (which means rejecting the higher monetary value) by 0.375 percentage points. Control variables gender, age and education are statistically insignificant.

As a robustness check, we also capture the effect of income using a dummy variable that takes the value of 1 for individuals whose income is higher than the median income in the sample. Results are presented in columns 3 (coefficient) and 4 (marginal effects) of Table 2. Carrying a bag has again a positive and statistically significant coefficient. Individuals with bags were more likely to choose coins by 50.4 percentage points. However, in this case the coefficient of the variable that captures the effect of income (being above the median income) is statistically insignificant. The same holds for the coefficients of all other explanatory variables.

The income effect may be conditional on not carrying a bag, because for an individual carrying a bag, there is no (or lower) inconvenience of carrying coins. In order to examine this, a model with an interaction between bag and income would
provide insight into this question. However, collinearity problems did not allow the estimation of this model. As an alternative, the sample was limited to subjects carrying a bag, to examine the effect of income on choice between coins and banknotes for this particular group. In both models (using the log of income and a dummy for individuals whose income is above the median income used to capture the income effect, in columns 5–6 and 7–8 respectively), all explanatory variables are statistically insignificant. These findings suggest that for people carrying a bag, the likelihood of preferring coins to banknotes is not affected by income.

A linear probability model was also estimated as an additional robustness check. Results were qualitatively the same as those of the probit models and hold the same interpretation (results not reported in tables): In the first specification (using the log of the income to capture the income effect), the coefficient of carrying a bag is positive and statistically significant and the coefficient of the log of income is negative and statistically significant; all other coefficients are statistically insignificant. In the second specification (using a dummy for being above the median income to capture the income effect), the coefficient of bag is positive and statistically significant, with all other coefficients being insignificant. When restricting the model to people carrying bags, all explanatory variables are statistically insignificant in both specifications.

Experiment A confirms the hypothesis that some consumers are willing to receive a lower payment in banknotes in order to avoid coins. Also, this experiment shows that people carrying bags are less reluctant to receive coins and that people with a higher income are more likely to forego part of the payment in order to avoid coins. This income effect, however, is limited to individuals not carrying bags.

Experiment B Summary statistics of experiment B are presented in Table 3 and a summary of the main results is in Fig. 4. Of a total of 60 subjects, 30 were given £5 in coins and 30 were given £5 in banknotes. 12 out of 30 people given coins made

| Variable               | Total (N = 60) | Coins (N = 30) | Notes (N = 30) | Diff in distributions |
|------------------------|----------------|----------------|----------------|-----------------------|
|                        | Mean (Std. Dev.) | Mean (Std. Dev.) | Mean (Std. Dev.) | z                  | p-value   |
| Making purchase        | 0.283 (0.454)   | 0.400 (0.498)   | 0.167 (0.379)   | −1.989               | 0.047     |
| Offered coins          | 0.500 (0.504)   | 1.000 (0.000)   | 0.000 (0.000)   |                      |           |
| Carrying a bag         | 0.750 (0.437)   | 0.733 (0.450)   | 0.767 (0.430)   | 0.296                | 0.768     |
| Female                 | 0.583 (0.497)   | 0.600 (0.498)   | 0.567 (0.504)   | −0.260               | 0.795     |
| Age                    | 42.200 (15.221) | 41.567 (15.520) | 42.833 (15.155) | 0.370                | 0.712     |
| Income (logs)          | 10.472 (0.576)  | 10.547 (0.630)  | 10.397 (0.516)  | −1.169               | 0.243     |
| Basic education        | 0.367 (0.486)   | 0.333 (0.479)   | 0.400 (0.498)   | 0.531                | 0.595     |
| Higher education       | 0.333 (0.475)   | 0.367 (0.490)   | 0.300 (0.466)   | −0.543               | 0.587     |
| Postgraduate education | 0.300 (0.462)   | 0.300 (0.466)   | 0.300 (0.466)   | 0.000                | 1.000     |
a purchase (40 percent), while 5 out of 30 people given banknotes made a purchase (16.7 percent). Findings suggest that people receiving coins are more likely to make a purchase than those receiving a banknote. The nonparametric Mann-Whitney test shows that this difference is statistically significant ($z = -1.989, p = 0.047$). Table 3 also shows differences in the remaining observed variables between the two treatment groups. Apart from the likelihood of making a purchase, no other observed variables (carrying a bag, age, gender, income, education level) differ significantly across the two groups.

Figure 5 presents income distributions by coins or banknotes and by choice to make a purchase or not. For individuals given banknotes, the difference in income between those making a purchase and those not doing so is statistically insignificant ($z = 0.891, p = 0.373$)(this result must be treated with caution because of the small number of subjects (only five) who were offered banknotes and made a purchase).
The same holds for individuals given coins ($z = -0.995, p = 0.320$). The income distribution of people carrying a bag who were given coins by decision to make a purchase or not is presented in Fig. 6. The difference in income between these two groups is statistically insignificant ($z = -1.802, p = 0.072$).

A probit model is also estimated in order to examine the likelihood of making a purchase, controlling for carrying a bag or purse, age, gender, income and education. Results of the baseline probit regression (Table 4, columns 1 and 2) suggest that subjects who were given coins were significantly more likely to make a purchase by 25.2 percentage points. People carrying a bag were less likely to make a purchase by 36.7 percentage points. Gender, age, income and education appear to have a statistically insignificant effect on the decision of making a purchase or not.

As in the case of experiment A, as a robustness check we estimate the same model using a dummy variable taking the value of 1 for individuals whose income is higher than the median income. Results are in columns 3 and 4, Table 4. Being offered coins is positive and weakly statistically significant ($\alpha = 10\%$) and carrying a bag is negative and weakly statistically significant ($\alpha = 10\%$). Gender, age, income and education again appear to have a statistically insignificant effect on the decision of making a purchase or not.

We also restrict the sample to people carrying a bag, in which case all explanatory variables have a statistically insignificant effect. Results are presented in columns 5 and 6 (when using the log of income to capture income) and columns 7 and 8 (when using a dummy for subjects with income above the median) in Table 4. Results indicate that carrying a bag or having coins or banknotes does not influence the decision of making a purchase.

A linear probability model is also estimated as an additional robustness check. The results are qualitatively the same as those of the probit model and hold the same interpretation (results not reported).

Econometric results suggest that people carrying coins are on average more likely to make a small purchase than people carrying banknotes. Unfortunately it was not possible to control for any amount of money that the subjects may have already been carrying before the participation in the experiment. However, when a subject was already carrying coins, additional coins may have caused them additional disutility of carrying them.
Table 4  Experiment B. Probit regression results

| Dependent variable | Making purchase | If bag = 1 |
|--------------------|-----------------|-----------|
|                    | Coef Mfx        | Coef Mfx  | Coef Mfx | Coef Mfx |
| Offered coins      | 0.793** 0.252   | 0.739* 0.234 | 0.246 0.065 | 0.161 0.042 |
|                    | [0.386] [0.385] | [0.551] [0.551] | [0.446] [0.451] |
| Carrying a bag     | −1.033** −0.367 | −1.073* −0.381 | 
|                    | [0.523] [0.551] | |
| Female             | −0.051 −0.017   | −0.076 −0.025 | 0.410 0.098 | 0.366 0.088 |
|                    | [0.464] [0.470] | [0.551] [0.551] | [0.472] [0.462] |
| Age                | 0.003 0.001     | −0.002 −0.001 | 0.017 0.005 | 0.015 0.004 |
|                    | [0.015] [0.015] | [0.015] [0.015] | [0.017] [0.016] |
| Income (in logs)   | −0.112 −0.036   | 0.025 0.007 |
|                    | [0.472] [0.486] | |
| Above median income|                | 0.265 0.085 | 0.350 0.093 |
|                    |                 | [0.451] [0.451] | [0.472] [0.472] |
| Higher education   | −0.389 −0.119   | −0.480 −0.145 | −0.348 −0.087 | −0.350 −0.087 |
|                    | [0.548] [0.484] | [0.531] [0.520] | |
| Postgraduate education | −0.472 −0.142 | −0.674 −0.195 | −0.806 −0.174 | −0.900 −0.188 |
|                    | [0.548] [0.486] | [0.662] [0.623] | |
| Constant           | 1.058 0.122     | −1.968 −1.661** |
|                    | [4.421] [0.820] | [4.646] [0.744] | |
| N                  | 60 60           | 45 45    |
| Pseudo R²          | 0.158 0.162     | 0.067 0.079 |
| Wald chi sq        | 12.57 11.64     | 3.61 4.19 |
| Log pseudolikelihood | −30.206 −29.982 | −21.005 −20.750 |

Note: Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1
Robust standard errors in brackets

4 Conclusions

This study has three main findings. First, a significant number of consumers are willing to receive a lower payment in order to receive it in banknotes rather than coins. Thus, utility related to money does not depend exclusively on the number of monetary units, but also on the nature of cash. Second, in the absence of factors related to familiarity and fluency, the reason why people prefer banknotes to coins appears to be the inconvenience of carrying them, as carrying a bag makes people less averse to coins; and third, when not carrying a bag, people who carry coins are more likely to make a small purchase than people who carry banknotes.

Two experiments have been conducted. The first experiment studied whether people value coins less than banknotes (because of the disutility that may occur due to their physical nature) by investigating whether they are willing to give up coins for a smaller nominal sum of money in banknotes. Results of the first experiment
suggest that for some consumers coins are associated with lower utility levels than banknotes. The second experiment studied differences in purchasing behaviour of consumers when they were given the same amount in coins or banknotes. The results of the second experiment suggest that people bearing coins are more likely to make an immediate purchase of small value. It must be acknowledged, however, that a limitation of the paper is that, as purchasing decisions are only observed inside the store, we cannot be sure that these individuals will ultimately consume more; also if these individuals lose their coins, due to the different nature compared to banknotes, they may eventually make fewer purchases. The combination of findings of the two experiments reveals some interesting implications about human purchasing behaviour and money perception.

The higher likelihood of making a purchase when carrying coins rather than banknotes can be attributed to the inconvenience of carrying them because of their bulkiness, size, weight and noise. Previous studies have suggested that other factors that influence a decision to spend are related to processing fluency (Mishra et al. 2006), familiarity (Alter and Oppenheimer 2008) and the fact that “large denominations are psychologically less fungible than smaller ones” (Raghubir and Srivastava 2008). The present study can also disentangle the inconvenience effect from the “bias for the whole” (Mishra et al. 2006) because the effect is mediated by carrying a bag, which the bias for the whole does not predict.

A significant proportion of subjects in the first experiment preferred banknotes to coins despite the two percent monetary value incentive to select coins. This is a small percentage of the value and a limitation of this study is that it does not show how far this effect can go. It is worth mentioning that this two percent is lower than the 8.9 percent fee that Coinstar charges consumers using machines on the high street to convert coins into banknotes. We cannot be sure whether and to what extent subjects in this experiment would still choose banknotes if the difference in value was as high as the commission that Coinstar charges consumers. In any case, the example of Coinstar applies to a particular group of consumers who are willing to give up part of the value of their coins to exchange them with banknotes. Consequently, this effect of 8.9 percent is not universal and may only concern a relatively small number of consumers. This paper improves on the evidence from Coinstar by observing subjects’ income and possibility to carry coins (using bags), and infers on the reason why subjects are willing to pay for banknotes. Future research in this field can examine up to what amount consumers are willing to give up in order to avoid coins and can include different monetary values (to calculate elasticities) and higher-value notes.

Finally, wider use of credit or debit cards or contactless cards may also have an effect on consumption (Manoj et al. 2011; Raghubir and Srivastava 2008) and the effect of credit, debit and contactless cards on purchasing patterns can be studied in this context, to add on to previous work that studied the effect of these means of payment on consumption.

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My five pounds are not as good as yours, so I will spend them

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