The role of mental accounting in consumer credit decision processes

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Abstract

The role of mental accounts in consumer credit decision making was investigated. First, in a conversation-based process-tracing study, 96 adults with experience of credit were presented with minimal descriptions of three instalment credit options in realistic consumer scenarios. They chose a credit option and a repayment plan, but before doing so could request further information. When choosing the source of credit, participants usually sought and compared information on Annual Percentage Rate (APR) or total cost (TC), often using simple decision heuristics. When choosing repayment plans, they frequently asked about, and made trade-offs between, monthly repayment amounts, TC, and loan duration. Second, in an independent groups experiment, TC and APR information were systematically varied. Participants chose from pairs of repayment plans conflicting in loan duration and monthly repayment amount (N = 28). Although APR significantly influenced choice, its effect was substantially moderated by TC information. It was concluded that (i) although APR is an important attribute for source of credit decisions, TC is more important for repayment plan decisions, since consumers often represent specific credit plans in terms of total mental accounts; and (ii) recurrent budget period accounts are used to evaluate monthly repayments and anticipate future goals and hazards.

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1. Introduction

A number of surveys have investigated factors underlying the use of consumer credit, from Katona’s studies of the 1950s, to the current monitoring of credit and debt in certain waves of the British Household Panel Survey (Berthoud & Kempson, 1992; BHPS, 2002; Katona, 1975; Office of Fair Trading, 1988, 1994; Viaud & Roland-Levy, 2000). There has also been research on the negative aspects of credit, i.e., default and debt. Although much of this appropriately emphasises the importance of social and economic factors, the contribution of psychological factors has also been identified (Ford, 1988; Lea, 1999; Nyhus & Webley, 2001; Webley & Nyhus, 2001). An important element in understanding routes into default and debt is the quality and nature of initial decisions to take credit. However, there have been relatively few studies of the psychology of this decision process (Hirst, Joyce, & Schadewald, 1994; Prelec & Loewenstein, 1998; Soman & Cheema, 2002). Moreover, the only previous study of preferences for different instalment credit options seems to be those of Hirst et al. and Ranyard and Craig (1995).

Ranyard and Craig (1993, 1995) developed the mental accounting concepts of Tversky and Kahneman (1981; Kahneman and Tversky, 1984) and Thaler (1985, 1999; Shefrin and Thaler, 1988) and proposed a dual mental account model of how consumers perceive and evaluate instalment credit. They did not, however, directly investigate the decision process itself, or relationships between decision strategies and mental accounting. The present article describes two studies of credit decision making aiming to do this. The first used a conversation-based process tracing method to trace the credit decision process at the time of purchase, in particular to identify the information people regarded as important and the decision strategies they used (Williamson, Ranyard, & Cuthbert, 2000a). Respondents were asked to complete two tasks, each involving four decisions. In both tasks, concerning the purchase of a new washing machine and a second-hand car, respondents had to (1) choose among three products; (2) decide whether to take out an extended warranty on their chosen product (a form of insurance against product failure); (3) choose which of three forms of credit to pay with and how to use it; and (4) decide whether to insure their credit repayments. Here, we present an analysis of the data from the credit decisions (3 above). Findings related to the other choices have been reported in Ranyard, Hinkley, and Williamson (2001) and Williamson, Ranyard, and Cuthbert (2000b). The second study presented here was an experimental investigation to clarify the role in credit decisions of two key aspects of credit cost: Annual Percentage Rate (APR) and total cost (TC). The role of different measures of the cost of credit in decision making has not been previously investigated, and findings may have important implications for consumer credit policy.

1.1. Instalment credit in the UK

The sale of credit in the UK is regulated by the Consumer Credit Act (1975). One of the important elements of this is the requirement to state the ‘true’ interest rate for any credit arrangement on offer. The legally defined measure of the true interest rate is known as the Annual Percentage Rate (APR) of interest charged. This is the compound rather than the
simple rate of interest, and gives a comparison with a standard loan repaid in full exactly one year later. Lenders must display this rate. For credit cards, interest is charged every month, for example, about 2% of the outstanding loan, giving an APR of about 26%. For fixed instalment credit, interest is charged at a flat rate, say, 10% of the initial loan for each year of the loan, giving an APR of about 20%. Typically, retailers’ credit purchase has a higher APR than bank personal loans. In surveys since the 1980s, all these forms of personal credit were found to be popular in the UK. For example, the Office of Fair Trading (1994) found that 58% of their sample had used some form of credit in the last five years, with credit and charge cards (26%) the most popular type of consumer credit. More recently, the UK’s Directorate of Consumer Affairs (2001) reported that the use of unsecured loans more than doubled in five years, from about 37 million pounds borrowed in 1995 to about 67 million in 2000.

1.2. Credit choice as a multi-attribute decision process

Some previous studies have examined the initial decision of whether to pay by credit or to pay ‘up front’ (Prelec & Loewenstein, 1998; Soman & Cheema, 2002). Our focus is on choices subsequent to such a decision, among the different forms of credit that are available nowadays to fund the purchase of consumer durables. We assume, following Beach’s (1990, 1998) image theory, that people often adopt a two-stage decision strategy, first eliminating many alternatives using simple heuristics, and then making a final choice from a short-list. Our studies investigated the second stage, specifically, how people choose from a short-list of a fixed instalment bank loan, a similar loan offered by a retailer, and a credit card. We also examine the choice of repayment plan, that is, the schedule of repayments and loan duration.

The choice from the short-list of credit offers can be represented as a multi-attribute choice task, in which the problem space is represented as a matrix of alternatives (the rows), each of which varies on a set of attributes (the columns). The cells of the matrix represent the aspects that define each alternative. Table 1 illustrates, for a loan of £400, three actual credit offers on the market at the time of the first study. As well as deciding on the type of credit and lender, the borrower must also choose a repayment plan. With fixed instalment credit, typical plans could be over a minimum of 12 months, or 24 or 36 months as shown. The credit card repayment arrangement is more flexible since in any

<table>
<thead>
<tr>
<th>Option and type</th>
<th>APR (%)</th>
<th>Duration</th>
<th>Repayment</th>
<th>Total cost</th>
<th>Flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bank loan</td>
<td>20.9</td>
<td>12 months</td>
<td>£36.88</td>
<td>£442.56</td>
<td>Fixed</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>24 months</td>
<td>£20.20</td>
<td>£484.80</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>36 months</td>
<td>£14.72</td>
<td>£529.92</td>
<td></td>
</tr>
<tr>
<td>4 Store card</td>
<td>32.8</td>
<td>12 months</td>
<td>£38.76</td>
<td>£465.12</td>
<td>Fixed</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>24 months</td>
<td>£22.10</td>
<td>£530.40</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>36 months</td>
<td>£16.54</td>
<td>£595.44</td>
<td></td>
</tr>
<tr>
<td>7 Credit card</td>
<td>21.9</td>
<td>9 months</td>
<td>£47.85</td>
<td>£430.65</td>
<td>Flexible</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>16 months</td>
<td>£28.25</td>
<td>£452.00</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>60 months</td>
<td>£9.92</td>
<td>£595.20</td>
<td></td>
</tr>
</tbody>
</table>
month repayment can be between the specified minimum and the whole outstanding debt. Let us consider three examples, over 9, 16 and 60 months. Type, flexibility and duration are defining attributes of credit offers, and the cost of borrowing is also important. The table shows how the alternatives vary on three measures of cost: APR, TC and monthly repayment amount. In addition, people could consider other more subjective attributes, such as the trustworthiness of the lender and the convenience of the transaction. As proposed by Bettman, Luce, and Payne (1998) among others, we assume that people have a repertoire of decision strategies they may deploy in a given choice context, and that strategy selection is motivated by different goals, any of which would shape the decision process differently.

1.3. A mental accounting perspective

The instalment credit options described earlier are quite complex and therefore somewhat difficult to evaluate. Two concepts relevant to understanding consumer evaluations are time discounting and mental accounting. Time discounting refers to differences in the evaluation of future assets and outcomes compared to equivalent ones in the present (for a review see Loewenstein & O'Donoghue, 2002). Ranyard and Craig (1995) argued that in the context of instalment credit, time discounting would depend on how credit options were mentally represented. Their dual mental account model proposed that people may construe instalment credit in terms of two possible representations, the total account and the recurrent budget period account. The total account representation of a credit option is the non-discounted sum of future repayments plus the amount borrowed. The recurrent, budget period account is an on-going budgeting construct that develops over time. Its temporal structure, as suggested by Thaler (1985), is based on a budget period, a heuristic that reduces the temporal complexity of financial transactions. The time over which a loan runs is perceived as a sequence of discrete units, or budget periods, each of which is treated as a static unit: that is, all income and expenditure transactions within it are dealt with as if they occurred simultaneously. Successive budget periods are perceived as being similar to each other, incorporating similar, often recurrent, transactions.

Different theoretical perspectives lead to different expectations concerning the attributes of cost that people will regard as important and will use in credit decision strategies. On the one hand, if people follow the standard advice given by economists, the rate of interest, as measured by the APR, should guide decision making. On the other hand, from the perspective of the dual mental account model, it will depend on whether people construe credit options in terms of either a total, or a recurrent budget period account. With respect to a recurrent budget period account, the main considerations would be the monthly repayment amounts, and the number of budget periods over which the loan runs. With respect to a total account, the important attribute would be TC.

2. Study 1

The first aim of Study 1 was to identify the information that experienced consumers sought and regarded as important at the point of credit purchase, particularly with respect to the cost of credit, as explained earlier, and loan duration. Hirst et al. (1994) found that people prefer loans with duration corresponding to the lifetime of the item purchased. Although we do expect consumers to be influenced by the life expectancy of the goods pur-
chased, from a mental accounting perspective we would anticipate a more complex picture
to emerge.

The second aim was to discover how cost, loan duration and other information are used
in decision strategies for both source and type of credit, and repayment plan. Since a short-
list of three alternatives was presented in this study, it was expected that many direct com-
parisons across alternatives would be made, sometimes forming the basis of relatively sim-
ple comparative decision heuristics (Bettman et al., 1998; Payne, Bettman, & Johnson,
1993). In addition, we expected that people would often engage in deeper information
search and processing and use more complex comparative decision strategies (Svenson,
1996, 2003). However, in naturalistic decision contexts non-comparative processes of
matching alternatives to some goal state or standard have often been reported (Lipshitz,
Klein, Orasanu, & Salas, 2001). Overall, then, we expected a range of comparative and non-
comparative strategies to be applied, both compensatory strategies involving trade-offs
between good and bad aspects, and non-compensatory heuristics.

2.1. Method

2.1.1. Design and decision scenarios

In an interview setting, respondents were presented with written minimal descriptions of
decision scenarios and they could ask as many questions as they wished to enable them to
make their decisions. Answers were given orally, resulting in protocols consisting of a
respondent’s questions and comments, and the interviewer’s replies. Post-decision summa-
ries, which required respondents to summarise in their own words how they reached their
final decisions, were requested from all respondents. In order to evaluate different aspects
of the conversation-based process tracing method, respondents were randomly allocated to
one of six conditions. The effect of process tracing condition on the data from the product
choice decision was reported in Williamson et al. (2000a). In the present analysis of credit
decisions, data from the six conditions was aggregated where appropriate. However, the
evaluation study concluded that data from two of the six process tracing conditions were
substantially better. Therefore, verbal protocols from these two conditions were analysed
in detail. In both of these conditions respondents were requested to think aloud as they
made their choices. In addition, in one of them, respondents also participated in an
unstructured interview after making their choices that probed their thinking further.

Respondents were asked to complete two tasks, each involving four decisions relating to
the purchase of a consumer durable. One task involved a new washing machine costing
about £400, and the other involved a second-hand car costing about £2700 after trade-in.
All respondents completed both tasks, with order being counterbalanced. For both tasks,
respondents were first given minimal descriptions of the first two decisions (choice of car or
washer and whether to take out an extended warranty). They were then presented with the
minimal descriptions of the credit and repayment insurance choice alternatives as shown
below. Actual credit offers and payment protection policies were used in order to answer
respondents’ questions. The instructions for the washer task are shown below:

Suppose you want to buy a new washing machine to replace your existing appliance
...The prices of the appliances vary from £349.99 to £429.99. At present you cannot
afford to pay for the machine with one cash payment, and so you have decided to use
a credit option. Three types of credit are available to you. First, you can take out a
loan with one of the major banks. Alternatively, you can make your purchase using
in-store credit or using a credit card. The APRs for the different types of credit vary
between 20.9% and 32.8%. You can also insure your credit repayments so that they
will be paid for you should you be unable to work through illness or redundancy. The
charges incurred can be added to the credit repayments.

The car task was similar, with the same structure. For each task, after the respondents
had made their choice from the three credit options, they were asked how they would use
the credit facility. Specifically, in the case of fixed repayment credit they were asked what
duration of loan they would choose, and for credit card purchase they were simply asked
what would be their strategy of repayment.

2.1.2. Participants
An opportunity sample of 96 adults was recruited for the study. Full time students and
people with no experience of using credit were excluded. A wide range of socio-economic
and employment groups were represented including manual, semiskilled and professional
occupations. Respondents were paid £10 for their participation. The sample consisted of 42
males and 54 females in the following age categories (frequencies in brackets): 18–24 (5),
25–44 (57), 45–64 (32), over 64 (2).

2.1.3. Procedure
Respondents were interviewed individually, in a quiet location, often in college pre-
mises, but sometimes in their home or place of work. They were given a brief orientation as
to the aims of the study, were assured of anonymity, and advised of their right to withdraw
at any time. Permission to tape record the protocols was obtained and respondents com-
pleted both decision scenarios (car and washer tasks) as outlined earlier. After each task,
they completed a questionnaire relating to the choices they had just made. They also com-
pleted a general questionnaire, which asked for demographic details and previous experi-
ences of credit and insurance. At the end of the interview, respondents were given the
opportunity to ask for more information about the study and were paid and thanked. Each
tape-recorded interview was then transcribed in full.

2.2. Results
First, preferences for the credit options available for the purchase of the washer and the
car were summarised. For each item, the credit offer with the lowest APR was rated as
more attractive and was chosen by more than half the sample. The credit card was a rela-
tively attractive option for the lower priced item, and was chosen by about one third of the
sample, but this was not the case for the higher loan required for the car purchase. For the
fixed credit options there was a general preference for shorter loan duration, that is, 12
rather than 36 months for the washer, and 24 rather than 60 months for the car. The repay-
ment plan preferred by those who chose the credit card was to repay the loan ‘as soon as
possible’.

Second, the broad content of the information that participants sought before making
decisions was identified. Due to technical difficulties, one respondent’s data was not
included in this. Percentages of participants asking at least one question about key aspects
of the three credit offers are shown in Table 2. For both items, the first questions most peo-
ple asked concerned APR. In fact, some people only asked about APR (20% in the case of the washer loan, 29% in the case of the car). However, the table also shows that information concerning monthly repayment amounts, loan duration and TC was also requested quite frequently. It can also be seen that respondents asked about APR, monthly payments and loan duration more often in the case of the more expensive car loan.

Third, a detailed qualitative analysis was carried out of the verbal protocols and information requested by 32 participants who spoke aloud their thoughts as they made their choices. This subgroup requested information about these and other attributes of credit broadly to the same extent as that of the full sample shown in Table 2, and their choice frequencies were similar to the full sample. The basic unit of analysis was the whole verbal protocol, including respondents’ spontaneous post-decision summaries, but excluding the unstructured post-decision interviews with 16 participants. First, as discussed below, each of the 64 protocols was assigned to one of four information-search categories defined by depth of cost information searched. Then, separate analyses were carried out of decision strategies for source of credit and for repayment plan, each focusing on the use of cost information (APR, TC and monthly repayment).

The coding processes for the main categories of information search and strategy type were checked for reliability on 20% of the protocols and the final coding of these was decided by agreement. Within each main category, more specific strategy types were identified in a post hoc analysis. Since a coder reliability analysis was not appropriate for this, the classification criteria were made explicit and protocol extracts illustrating specific strategy types are presented below (as recommended by Miles & Huberman, 1994).

2.2.1. Decision strategies: Source and type of credit

It was useful to distinguish between selection or comparative strategies on the one hand, and matching or non-comparative strategies on the other. That is, did respondents explicitly compare the three options and select the best, or did they match them separately to some ideal or acceptable course of action? Within each basic strategy type we then examined how the three cost measures were used (APR, monthly repayment and TC). Table 3 shows, for each information search category and each task, the number of protocols falling into each basic strategy type (Cohen’s kappa = .88 for search category and .63 for strategy type). As the table shows, by and large, respondents explicitly compared the alternatives. In the five protocols in the no request information search category, respondents based their choices on the minimal description of the problem initially presented to them and on their previous knowledge. Two were comparative strategies based on knowledge of the type of
alternative on offer, and three were non-comparative and reflected recognition-primed decisions (Klein, 1989).

In the APR only category, the protocols generally reflected relatively simple, attribute-based comparative strategies. Ten could be described as applying a take the best APR strategy, for example (interviewer’s replies in italics, respondent number and task in brackets):

It would definitely go off the amount of APR being repaid on them, that would be a point of high interest, between 20.9 and 32.8, so there’s quite a difference. Which of the three is offering the 20.9 initially? The bank loan. The bank loan, so that’s favourable for a start isn’t it, that’s less repayments… I would go for the bank loan, purely and simply through the… 20.9 repayment plan, to save some finance (69, washer).

Although several APR-only protocols were categorised as reflecting very simple, single-attribute choice heuristics, others involved comparisons on other attributes, or additional prior knowledge. For example, experience with the chosen credit option could be used to consolidate a choice based on APR, or, as illustrated below, an interest in APR might be accompanied by a preference for shorter loan duration:

What is the in-store APR? In store APR is… 32.8%. And the bank, that’s going to be is it the 20.9? That’s the 20.9. And have you got one for the credit card, have you one that’s stipulated? … 21.9… That would still point me to what I said before, I would probably go to the credit card. My current credit card, the percentage isn’t a lot different and I would probably look to pay it off, you know I wouldn’t go for an extended like the 12 months, 2 years, I would look to be paying it off sooner than that. That’s what I normally do, well we try to do with hire purchase. So yes I would go for my credit card. (44, washer)

Of the remaining protocols in this search category, two stated explicitly that the reason for their choice of option with lowest APR was to reduce TC, and four chose the credit card because of a preference for clearing the loan early even though they knew the APR was slightly higher.

Turning to protocols in the MR+ information search category, these participants asked for monthly repayment, but not TC information. In many cases APR information was also

<table>
<thead>
<tr>
<th>Decision strategy</th>
<th>Information requested</th>
<th>None</th>
<th>APR only</th>
<th>MR+</th>
<th>Total cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washer task</td>
<td>Comparative</td>
<td>2</td>
<td>12</td>
<td>7</td>
<td>7</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Non-comparative</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Car task</td>
<td>Comparative</td>
<td>0</td>
<td>6</td>
<td>14</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Non-comparative</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5</td>
<td>18</td>
<td>27</td>
<td>14</td>
<td>64</td>
</tr>
</tbody>
</table>

* MR = monthly repayment amount.
requested. In fact, since MR information was generally used only in the repayment plan decision, many of the type of credit strategies in the MR+ category were similar to those already described. Only one involved explicit comparisons of MR across credit options.

In the final information search category, TC information was requested, often in combination with APR or monthly repayment. All 14 protocols reflected comparative strategies, five being based mainly on comparisons of TC, sometimes in conjunction with MR. The more thorough information search of one of these participants is summarised at the top of Table 4, and the corresponding protocol is shown in Appendix A.1. It can be seen that this participant examined the cost of specific repayment plans (TC and MR) across two of the main credit options.

2.2.2. Decision strategies: Repayment plan

There was a basic difference between repayment plan decisions for fixed and flexible credit options. Where respondents chose one of the fixed-repayment credit options (bank, store or garage loan), the options were specific repayment periods. On the other hand, where respondents opted for the credit card, the repayment decision was open-ended: a free response to variations of the general question, ‘how would you repay the loan’? For example, the most common response was ‘as quickly as possible’. Table 5 summarises an analysis of repayment decision strategies. Again it was useful to distinguish between non-comparative and comparative strategies, the latter usually involving comparisons of different repayment options from the same source. A second useful distinction was whether or not the protocol yielded useful information about the repayment decision strategy. It can be seen that the basis of non-comparative decision strategies was often unclear, especially in the case of the washer loan. The table also shows that, overall, respondents compared aspects of repayment alternatives much less than they did for source of credit decisions. There was a difference between tasks, with comparisons of repayment alternatives more frequent for the car loan.

Some of the comparative protocols indicated simple strategies in which TC was the main concern. However, more frequently compensatory strategies were evident, whereby monthly repayments were weighed against loan duration or TC. The information search pattern from one such protocol is summarised at the bottom of Table 4. Preferences for shorter loan duration were sometimes connected to the idea of owning the car as soon as
possible, and sometimes to planning; for example, to replace the car or to spend on something unspecified at some time in the future. Preference for lower repayments was generally concerned with leaving sufficient recurrent income for other priorities (See Table 6 for examples). Turning to the non-comparative protocols, Table 5 shows that only 19 were informative. Of the informative protocols, while one expressed a recognition-primed decision process, most indicated that TC, monthly repayment, or both, were important considerations. Some examples are shown in Appendix A.2. The first expresses the importance of TC, while the second and third indicate that planning for the future was important, including taking into account the life expectancy of the car.

3. Study 2

From the perspective of the dual mental account model, it was rather surprising that APR was such an important cost attribute in many of the decision strategies for source and type of credit in Study 1. We suggest that this was partly because participants believed

<table>
<thead>
<tr>
<th>Decision strategy/informativeness of protocol</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Washer loan</td>
</tr>
<tr>
<td>Comparative</td>
<td>6</td>
</tr>
<tr>
<td>Informative</td>
<td>4</td>
</tr>
<tr>
<td>Unclear</td>
<td>2</td>
</tr>
<tr>
<td>Non-comparative</td>
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</tr>
<tr>
<td>Informative</td>
<td>10</td>
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<tr>
<td>Unclear</td>
<td>16</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 5
Study 1: Repayment plan decision – frequencies of basic strategy type by task (n = 32)

Table 6
Study 1: Comparative strategies for the repayment plan decision (interviewer replies in italics)

<table>
<thead>
<tr>
<th>Monthly repayment and duration important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ‘Well obviously like I say I want to own the car and I want it to be mine… it would have to be two years plus, it might be two, it might be three, depending on the repayments. Do you have that information? Yes, I do. What would it be over two year? Over two years. It would be £137.42 a month. Right… and what would it be over three year? It would be £98.60. So it’s about £38 difference, isn’t it? … I would take it over two year, I’d take it over two, that would be favourable, because I would want to own the car as soon as I possibly could and I probably couldn’t pay it over a year, so I would say over two years.’ (34, car)</td>
</tr>
<tr>
<td>2. ‘I would probably, I think I would do it over four years actually. Four years? Yes because I think other than that it would be too high a payment, that’s the only one really that we can afford. A four year payment, I mean if you tell me what it would be over four years. It would be £87 a month. Oh, that’s lower than I thought. What’s three years? Three years would be £109 a month. And what would the two? £152. I’d go for the three actually, yes on that price, yes I’d go for the three.’ (77, car)</td>
</tr>
</tbody>
</table>
APR to be a reliable indicator of TC, which would be the main concern of those who represented the credit options in terms of a total account. However, an alternative explanation could not be ruled out, that people adopted the rational economic perspective and rate of interest was their main concern with respect to cost. The aim of Study 2 was to examine the relative impact of APR and TC information on credit decision making in contexts where these aspects of cost may conflict.

Different repayment plans from the same lender have the same APR, and so the interest rate is not in conflict with TC. However, if repayment plans from different lenders are compared, APR and TC in some cases favour the same alternative, but in others they conflict. For example, consider Option 1 and Option 5 in Table 1. Here, there is a basic conflict between loan duration (12 months versus 24 months) and monthly repayment (£36.88 versus £22.10), and people may prefer either to repay the loan early or to repay less per month. However, the table shows that Option 1 is better because both the APR and TC are lower. On the other hand, consider a choice between Option 2 (24 months, £20.20 per month) and Option 4 (12 months, £38.76 per month). This is a similar conflict between monthly repayments and length of loan. However, in this case there is a conflict between lower TC, which favours Option 4, and lower APR, which favours Option 2. Therefore, in order to investigate the relative impact of TC and APR information, Study 2 examined preferences for repayment plans of different duration from lenders offering different APRs.

3.1. Method

3.1.1. Participants and design

Twenty-eight adult respondents were randomly assigned to one of the four independent groups (mean age = 39 years, SD = 12.5; 17 female, 11 male). They were asked to imagine they had already decided to take out a loan for £4000 for a consumer item and had obtained information from two banks. They were presented with a questionnaire containing nine scenarios in which they had to choose between two specific offers. In each case, Bank A and Bank B offered alternative times to repay and monthly repayment amounts. In each case, the option with the shorter loan duration had the higher monthly repayment. The nine scenarios were derived from Table 1 with repayments multiplied by 10 to match the amount borrowed, £4000. In four cases, the option with the lower APR also had the lower TC (as illustrated in Table 7), and in the others, the lower APR had the higher TC.

Cost information was varied in a 2 × 2 factorial design. The factors were APR Information (no APR versus APR), and TC Information (no TC versus TC). Therefore, one group received information on the loan duration and monthly repayment only, the second received additional information on APR, the third received additional information on TC,
and the fourth received both APR and TC information. After completing the main task, respondents answered some questions about how they had made their decisions. In particular, we were interested in whether those not presented with TC calculated it anyway.

The dependent variable was the number of choices (out of nine) for the option with the lower loan duration, which was also the one with the lower total cost. If APR were to influence choice, the scores on this measure should be lower when APR was given. Similarly, if TC were to influence choice, scores should be higher when TC was given.

3.1.2. Procedure

Participants were provided with one of the four versions of the questionnaire selected at random. They were given a brief introduction to the aims of the study, were assured of anonymity and advised of their right to withdraw at any time. They were asked to read the introduction, which included an example of a completed scenario, and then to make their decisions by ticking a box next to their preferred alternative in each scenario. Finally, they provided written answers to some questions about how they had made their decisions. On return of the questionnaire to the researcher respondents were given the opportunity to ask further questions and they were thanked for their time.

3.2. Results

The basic choice participants were asked to make was between a loan with a shorter duration but a higher monthly repayment, and a longer loan with a lower monthly repayment. In each case, the loan with shorter duration also had the lower TC. Fig. 1 shows the mean number of choices for the shorter loan in each of the four groups. An interaction between the two factors can be seen. A two factor, between subjects ANOVA was carried out, with the number of choices for the shorter loan as dependent variable (out of 9 for each person). The independent variables were APR and TC Information. The analysis showed that the interaction between these two variables was significant ($F(1, 24) = 8.36, p < .01$, partial eta squared = .26). Neither main effect was significant at the .05 level ($F(1, 24) = 3.14$ in each case).

Fig. 1 shows that the provision of TC information without APR led to only a small change in preference for the shorter loan compared to the context where no additional cost information was given. In fact, the difference between these conditions was in the opposite

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Fig. 1. Study 2: Mean number of choices for the shorter loan, by group.
direction to the prediction of a TC effect. In contrast, the provision of APR information without TC led to substantially less preference for the shorter loan compared to when no additional cost information was provided. The figure shows that the effect of APR information was not found in the fourth group, who were provided with both APR and TC information. In fact, for this group there was the same preference for the shorter loan as in the case where no additional cost information was provided. Therefore, although APR information influenced preferences substantially and significantly, the addition of TC information completely cancelled out this influence. Finally, with respect to TC, the post-experiment questionnaire revealed that seven out of 14 respondents who were not given this information routinely calculated it by multiplying the monthly repayment and the number of repayments.

4. Discussion

4.1. Methodological issues

The conversation-based process tracing method adopted in Study 1 did not attempt to simulate real consumer scenarios at the store, garage or bank. Rather, optimal conditions for individual decision making were established with an interviewer trained to provide only the information requested (Williamson et al., 2000a). Since only minimal information was initially presented, with respondents subsequently requesting further information, the method revealed the information participants identified as important for their decisions. Furthermore, the think aloud variant of the technique revealed how the information received was interpreted, how previous knowledge was brought to bear, and how old and new information was utilised in decision strategies.

The method does not provide complete traces of the decision process, as the large number of protocols categorised as unclear indicated. Also, since the data are based on verbal reports, they need to be interpreted with appropriate caution, and triangulated against independent evidence. The validity of findings derived from the method were discussed in detail by Ranyard and Williamson (2004), and that of verbal protocols generally by others who have used the think aloud technique (Backlund, Skaner, Montgomery, Bring, & Stenström, 2003; Ericsson & Simon, 1980, 1993; Payne, 1994; Svenson, 1989). Steps taken to ensure the validity of the evidence in Study 1 included: fully training the interviewers in using the method; selecting participants who had some experience of credit; and using real credit options typical of those available in the UK at the time.

4.2. Cost information and the total account

Consistent with the contingent strategy perspective (Bettman et al., 1998), the detailed qualitative analysis of Study 1 identified a range of decision strategies for source and type of credit varying in the depth of processing of cost information. In some cases respondents used a non-comparative, recognition-primed decision strategy (Klein, 1989). However, they usually adopted comparative strategies, comparing credit options on various attributes. Many were simple non-compensatory strategies or heuristics, for example the lexicographic strategy, take the best APR. However, more complex compensatory strategies were also common, in which an evaluation of APR or TC was accompanied by consideration of aspects such as the greater convenience of the store or garage loan, the
greater flexibility of the credit card or the advantages of shorter loan duration. A minority of participants searched cost information quite thoroughly and compared the cost of specific repayment plans across the three sources of credit in terms of TC and monthly repayment.

Although some participants adopted decision strategies for source of credit based on TC, the majority used APR. One plausible reason for this is that APR was mentioned in the minimal description of the task, since this is the legal requirement for credit advertising in the UK. Another is that some participants believed APR to be a reliable indicator of TC, which would be the main concern of those who represented credit options in terms of a total account. In fact, low APR was explicitly interpreted as meaning low TC in several protocols. However, an alternative explanation could not be ruled out, that people adopted a rational economic perspective and therefore the rate of interest was their main concern with respect to cost.

In order to clarify why preferences were strongly influenced by APR in Study 1, TC and APR information were independently varied under controlled conditions in Study 2. We found that, as in Study 1 for source and type of credit, where APR information was provided it influenced choice in favour of alternatives with lower APR. However, when TC was given in addition, this information completely cancelled out the influence of APR. Thus, when people were presented with the TC of specific repayment plans, this guided their decision, rather than APR.

These findings support the hypothesis that people evaluate instalment credit in terms of total mental accounts specific to the decision context encountered. Tversky and Kahneman (1981; Kahneman and Tversky, 1984) first proposed the basic theory that people construct specific psychological accounts to mentally represent decision alternatives. This was subsequently developed by Thaler (1999) and others to include the mental accounting processes of integration and segregation of sequential decision outcomes (Gärling, Karlsson, Romanus, & Selart, 1997). The total account defined here is an application of these concepts to instalment credit: rather than segregating successive repayment amounts and associating each with its time of repayment, they are all integrated into the total account. Clearly, it is a simplified representation that ignores the temporal complexity of a loan and does not enable time discounting to be considered. Also, it takes no account of any temporary stresses a loan might add to a borrower’s budget. However, the total account has two important adaptive functions. First, it reduces the memory load and cognitive effort involved in thinking about a relatively complex financial product. Second, it provides information on the total ‘stress’, in terms of expenditure, that the loan would put on the borrower’s economic situation over time.

The findings presented above confirm the importance of TC to the consumer, and the need to facilitate the evaluation and comparison of repayment plans in terms of a total account frame of reference. Although many consumer advice organisations, such as the UK Office of Fair Trading, recognise the importance of TC information, consumer credit regulations continue to emphasise the importance of APR. Furthermore, credit sellers do not always present TC information as carefully as the consumer is entitled to expect.

4.3. Monthly repayments, loan duration and the recurrent budget period account

Other aspects of decision strategies for repayment plans in Study 1 were interpreted in terms of recurrent budget period accounts. Comparative strategies were positively indi-
cated in only about one third of the protocols examined in detail. Typically, comparisons were made between two repayment options for one type of credit, for example, a two-year versus a three-year bank loan, usually including evaluations of monthly repayments. One common approach was to search for the arrangement with the maximum affordable monthly repayment, thereby reducing the loan duration as far as practically possible, often explained in terms of reducing TC. However, other reasons for accepting higher monthly repayments included clearing the debt early, thereby freeing up future budget periods for new projects, sometimes the future replacement of the vehicle. On the other hand, some people accepted a longer loan period in order to keep the monthly repayment low, thus leaving recurrent resources available for other anticipated expenditure over the period of the loan.

It is possible to explain differences in preference for loan duration in terms of temporal discounting, with preferences for shorter loans being related to lower subjective discount rates. However, we found no verbal statements expressing evaluations of future repayments in such terms. Rather, two concerns were prominent. First, concern with monthly repayments relative to a monthly budget, which is a basic element of a recurrent budget period account, and second, concern with financial planning. Hirst et al.’s (1994) hypothesis, that consumers form a specific mental account for the transaction that links the length of loan to the life expectancy of the item in question, relates to one aspect of financial planning. As we saw, some protocols did indicate that this link sometimes loomed large in people’s thinking about repayment plans: the need to replace the car or washer at some time in the future was sometimes taken into account. However, protocols revealed that other aspects of planning were relevant, such as matching monthly repayments to recurrent budget goals and planning for other future projects and contingencies. Our analysis of decisions to purchase repayment insurance (Ranyard et al., 2001) identified related aspects of financial planning. For example, respondents did not believe that repayment insurance would be necessary for low repayments or for loans of short duration.

To summarise, the aspects of decision strategies discussed above support the hypothesis that recurrent budget period accounts are used to evaluate both monthly repayment amounts relative to a budget limit and loan duration. They thereby serve the important functions of managing the short-term financial stress that a credit commitment may cause, and anticipating longer-term opportunities and problems in future budget periods.

4.4. Concluding remarks

APR has had a prominent role in consumer credit policy in the UK and other countries since the 1970s. We found that people were able to use this information appropriately and effectively to choose from three different credit offers, even though they often misinterpreted its precise meaning. However, it is clear that consumers want additional information, not all of which is routinely available in the credit market. In particular, for longer-term planning they needed clear information on the duration and total cost of a loan and for short-term budgeting they needed to know repayment amounts and the extent to which these are flexible.

In conclusion, the findings presented here corroborate Ranyard and Craig’s conclusion (1993, 1995) that people often mentally represent instalment credit in terms of either a total account or a recurrent budget period account. The main contribution of the present studies
was to show how these frames of reference can influence the information people seek and use in credit decision strategies. Further research is needed to test the generality of the findings in naturalistic credit decision contexts and across a wider range of credit arrangements. For consumer policy, further evaluation of the most effective ways to present credit information would be useful.

5. Uncited references


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Appendix A. Protocol extracts illustrating types of decision strategy (interviewer replies in italics)

A.1. Type of credit decision: A comparative strategy based on total credit costs and monthly repayments (42, car)

‘...I’m not buying this on the credit card...I think I would probably take out a bank loan...they would be perhaps a little bit more sympathetic if I did come across hard times...just tell me how much it’s going to cost me for them both really, without me making, that is just, you know, instant decision of what comes into my mind, I just feel I would be safer, but perhaps I might not be, so I’d rather hear of the options really...so I’m borrowing £2800, over how long? You can have up to five years*

...how much is it, how much, from the bank, how much will it cost me, how much will I have paid for the car in five years time? You would have paid £4149 in five years...and does it go down in years, you know, over three years what?...you’d pay back £3578

...the monthly payment, what am I paying on three years? ...£99.40p. But you also need to add on another £17.74 for the extended warranty

And over five years, what’s my monthly payment with an extended warranty? ...that’s £69 for the payment itself and another £12 for your extended warranty, so that’s...£81.

Yes I would think I would probably opt for the three years, but what about the garage, what can they offer me? over three years your loan would cost £98.60 a month, plus your £17 for your warranty

...so it’s not a lot different is it? And how much am I paying for the...car?... You would pay £3549 over three years

So that’s cheaper then? Oh I’m going to get the loan from the garage then.
A.2. Repayment plan decision: Non-comparative strategies

Total cost important

1. ‘...and you went for the credit card this time. ‘Yes. Well obviously you pay the credit off and it works out about 1.2 percent or something, whatever it is. Oh no it’s not it’s 20 to 30. Two percent per month on outstanding money. You pay most of that off. Over two months it’s paid off… well I’d pay it off on the first payment so I wouldn’t incur any interest anyway but if I had to pay it off over a short period I would pay it off as quick as I could over a period of perhaps one month, two month, three month. So, therefore that would attract less interest than taking out a full 12 months interest off the others.’ (72, washer).

Duration important (planning)

2. ‘Right…how much would be the total monthly payment? …On the whole lot …the garage finance over 36 months would be 109.36 and then on top of that you’d have the…£109.36 then you’d got the £16.75 on top… The cost of the warranty is another £8.54. So that’s £144.65 a month …You know yeah an’ I think 3 years is like standard you know on, I wouldn’t go more… you want to give yourself time to finish paying for one car before you get another… and norm’, it’s between 2 and 3 years when you’re thinking about … changing a car anyway.’ (39, car).

3. ‘But in practice, … the problem with the repayments over 12 months is they are still quite high, so what do you think about that?’ Well personally I work on the basis of get it paid out of the way rather than prolonging something. If it means you’ve got to cut back on one thing to pay for something else over a 12 month period, at least you’re straight after that 12 month period rather than waiting and budgeting over a 2 years, 3 years, because people change things happen, you can’t always tell all the time etc. so get it done, get it out of the way, you’re, you’re own man again your finances are your own …’ (69, washer – post-decision interview).

References


