

Mental Accounting in Childhood¹

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The purpose of this study was to investigate the development of mental accounts. Of particular concern was how mental accounts function in the everyday life of children and how children deal with money matters. Sixty children from three age groups (5-6, 8-9 and 11-12) were individually interviewed about their financial situation (e.g. sources of money, storage of money, expenditure patterns) and were presented with various financial scenarios. Some of these were children's versions of scenarios devised for adults by Thaler and by Kahnemann and Tversky; others (on windfalls, on money Tumping', on buying for self versus buying for others) were devised especially for this study. No compelling evidence was found for mental accounting in childhood though there was some indication that the 11-12-year-olds responded in a similar fashion to adults whilst the younger children did not.

Introduction

Over the past 50 years there has been a considerable amount of research into the economic socialisation of children (Furnham, 1996, provides a thorough review). However, the vast bulk of this work consists of neo-Piagetian stage descriptions of children's understanding of a variety of economic concepts. For example, the literature suggests that children pass through a series of stages in attaining an adult understanding of money, though the number of stages identified varies from three to nine (Strauss, 1952; Berti & Bombi, 1988). This work focuses mainly on children's understanding of the adult economic world. Children's *own* economic behaviour, and their understanding of it, has been rather neglected. As Webley and Lea (1993) have argued, it is possible that the superficially less serious economic world of the playground, where football cards are swapped, deals done and marbles valued according to local scarcity (Webley, 1996), may actually be more important in the development of children's economic understanding, and that the foundations of adult economic spending styles may be laid when children try to solve the particular economic problems that face them.

Few researchers have considered what it is that develops in children's economic socialisation, perhaps because it seems self-evident. Clearly cognitive development is crucial, and underpins children's progressive understanding of economic concepts (Schug & Birkey, 1985). Cognitive development is also important for children's own economic behaviour: making budgetary decisions about how much can be spent and when, and how to accumulate sufficient money to buy a desired toy requires some mathematical skill (Webley, 1998). But there are other factors that may be equally important. First there is a marked increase in economic independence and economic opportunities during childhood. Children's income typically increases considerably from age five to age twelve (Furnham, 1996) and there is a parallel increase in their opportunities (and free-

dom) to spend. From thirteen onwards, their income can increase even more as they have the opportunity to participate (as part-time workers) in the adult economy. Active participation in the economy is very important in understanding it, and may account for the superiority over European children that African children show with regards to economic understanding (Jahoda, 1983). Second, children develop a range of self-control and money management strategies (Webley *et al.*, 1991; Sonuga-Barke & Webley, 1993). Young children typically do not realise that they need to protect themselves from themselves; older children recognise their weaknesses and use a variety of techniques to deal with them, such as going out with only a limited amount of money, using a route home from school that avoids a sweetshop and putting their money in places, such as traditional piggy banks, from where it is difficult to retrieve it. Third, and the focus of this paper, there *may* be the development of mental accounting systems.

The notion of mental accounting was introduced by Thaler (1980, 1985). He points out that all organisations with explicit accounting systems have a number of accounts and budgets, which enable executives to devolve spending decisions and monitor and control activities. This leads to inefficiencies as inevitably some departments spend money at the end of the year on rather marginal activities (as otherwise their budgets will be cut) and some are unable to make important purchases. Mental accounts function in the same way, and enable individuals to monitor and control their spending. In attempting to model aspects of saving, for example, Shefrin and Thaler (1988) have proposed that people have three mental accounts: a current income account, a current assets account and a future income account and that the marginal propensity to spend is very different across these three accounts. Extra money that is seen as in the current income account is much more likely to be spent than if it is perceived as being in the current assets account. Similarly, people are much less willing to buy a replacement theatre ticket (if they have just lost one) than they are to buy a ticket if they have lost an equivalent sum of money. The lost theatre ticket may be seen as a loss from a mental leisure account, which is then significantly depleted, whereas the lost money is from the mental general account, where the impact is far less.

The evidence that adults use mental accounts is now quite substantial (Thaler, 1993) though there is considerable debate over their configuration and functioning (Webley, 1995). For instance, based on a study of Japanese housewives, Kojima and Hama (1982) propose that there are nine 'psychological purses' whereas Winnet and Lewis (1995) feel that there is good evidence for the existence of three mental accounting schemes: capital/labour, asset/income and windfall/regular. For example, for most shareholders income from capital is classified as non-spendable (regardless of whether it is in the form of dividend income or capital gains), whereas income from labour is seen as spendable. Regardless of arguments over the differences in form mental accounts may take however, the existence of some kind of adult mental accounts suggests that it would be worthwhile to explore the development of mental accounting in childhood, which is what this paper sets out to do. Mental accounting implies that income and assets should be categorised in some way and that this categorisation should affect spending. It also suggests that similar patterns to those found in adults may also be found in children. Consequently, in this study we explore

whether children have mental accounts by looking at how they spend different sources of money and how they think about financial decisions.

Method

Sample

The sample consisted of 60 children, 20 from each of three age groups (5-6, 8-9, 11-12). There were an equal number of boys and girls in each group. The children came from two schools in Exeter with catchment areas which covered both privately owned and council houses, thus the socioeconomic background of the participants was varied. The children were randomly selected from each teaching group by the researchers.

The interviews

Each child was interviewed individually. The interviews were semi-structured and consisted of two parts (1) questions about the child's current financial situation and (2) scenarios involving hypothetical financial situations. The first section covered sources of money (pocket money, holiday money, birthday, work), where the child's money is kept (e.g. money box, bank account) and how it is spent. Thus each child was asked about how much pocket, holiday and work money they got, what they spent it on and what proportion of each they saved. In the second section, the child was presented with a set of seven scenarios. Each scenario came in two versions (A and B). Half of the children in each age group were presented with the first set of scenarios (all the 'A' versions) and half with set 2 (all the 'B' versions). In each set the scenarios were presented in the same order (described below). The scenarios covered (1) gift-giving versus own expenditure, (2) a little extra money regularly versus a lump sum, (3) income lumping (pocket money every two weeks versus pocket money every month), (4) lump sum now versus lump sum in two weeks time, (v) foreign versus English money, (vi) extra expenditure required to use either a ticket bought with own money or a ticket given as a present, (vii) losing a ticket versus losing an equivalent sum of money. Three scenarios are described in full here to give a flavour of the approach used: details of all scenarios can be obtained from the authors. Scenario 3 went as follows:

Imagine that your mother has a new idea. She wants to give you your pocket money every [two] OR [four] weeks instead of every week. So every [two\four] weeks you get [twice \ four times] as much money as you used to get every week.

The child was then asked 'What would you do with the money? Is it different from getting money every week? How?'

Scenario 6, which is a child's version of Thaler's (1993) 'basketball game in the snow' example went as follows:

Imagine that [you have bought a ticket for the circus with your own money] or [your mother gave you a ticket for the circus]. A family friend will take you to the circus by car. On the evening of the circus the car breaks down. The only way to go is by bus which takes one week's pocket money.'

The child was then asked 'Would you spend this money to go to the circus?' and 'Why (not)?'

The final scenario (which was essentially a child's versions of the lost-theatre-ticket problem described by Tversky and Kahneman, 1981) ran as follows:

Imagine that you are at the fairground with your parents. Your mother gives you a 50p coin and your father gives you a one pound coin. You put this money in your pocket. After walking around for a while you decide to use the 50p coin to buy a ticket for the merry-go-round.

[But when you want to go on the merry-go-round you discover that you have lost your ticket] or [But then you discover that you have lost the 50p coin].

The child was then asked 'Would you use the one pound coin to buy a [new] ticket. Why (not)?'

Results

Sources of money and spending

From the children's answers to questions in the first half of the interview it is clear that pocket money, holiday money and birthday money are perceived and used differently (only 40% of children received money for doing work — household chores — and so money from work is not considered further). Overall three-quarters of the children received pocket money, with over 90% of children in the two older age groups but only 45% of the youngest age receiving it. For those children who did receive pocket money, the 11-12-year-olds got an average of £2.50 per week, the 8-9-year-olds an average of £1.17 and the 5-6-year-olds an average of 56 pence. Around two-thirds of the children received holiday money, with nearly all of the older children being given this but only around half of the youngest children. Overall 90% of children got some money for their birthday, this often being quite a substantial sum.

The pattern of expenditure of this money was different depending on its source. Put simply, quite a lot of pocket money is saved (see Table 1) albeit in some cases for short periods of time. By way of contrast, holiday money is seen as spending money and is used for entertainment, souvenirs and presents. Birthday money was used to buy clothes, shoes and toys and the left-over money saved. There was a significant overall difference between the proportions of pocket, holiday and birthday money that was spent (Friedman $Q = 7.9$, $df = 2$, $p < 0.05$) with a greater proportion of pocket money being saved compared to birthday money and holiday money. The different patterns of expenditure for each source of money are well illustrated by the following comments by the children.

Pocket money

'I get £2 every week ... I pay for guides (75p) and to go to club (45p) ... I save the rest of the money (for) Christmas and special occasions so that I can buy like the presents.' (Amy, 11)

'Fifty p I spend on sweets and £1 I save' [Int. 'Do you save £1 every week?']
'Yes.' (Diane, 11)

Table 1 The relationship between children's spending and the source of money

| <i>Pocket money</i> | | | | |
|-----------------------|----------|-------------------------|---------------------------------|--------------------------------|
| <i>Age</i> | <i>N</i> | <i>Save most or all</i> | <i>Save half and spend half</i> | <i>Spend most or spend all</i> |
| 5-6 | 9 | 3 | 2 | 4 |
| 8-9 | 17 | 4 | 8 | 5 |
| 11-12 | 18 | 9 | 2 | 7 |
| Total | 44 | 16 | 12 | 16 |
| <i>Holiday money</i> | | | | |
| 5-6 | 9 | 2 | 0 | 7 |
| 8-9 | 15 | 1 | 2 | 12 |
| 11-12 | 17 | 0 | 1 | 16 |
| Total | 41 | 3 | 3 | 35 |
| <i>Birthday money</i> | | | | |
| 5-6 | 14 | 4 | 2 | 8 |
| 8-9 | 14 | 4 | 2 | 8 |
| 11-12 | 17 | 2 | 1 | 14 |
| Total | 45 | 10 | 5 | 30 |

Note: The cell entries show the number of children giving answers of each type.

'I save up to buy things like my riding hat, because I look forward to getting it' [Int. 'Do you save all of your pocket money?'] 'No, not all of it, about £4 and I keep £1 back for myself.' (Amanda, 11)

'I get £1 a week ... I save it up and I might buy something with it when I am older, buy myself a big present' [Int. 'Do you save all of your pocket money?'] 'Yes.' (Mike, 8)

'I get 60p every week ... I keep some of it and I spend some of it' [Int. 'How much do you usually keep each week?'] 'Thirty pence, usually and I spend 30 pence.' (Nick, 6)

Holiday money

'My mum gave me £30. On holiday I keep this in my bedroom. If I wanted to buy something I went to the shops and bought all sorts of things. When I came home I had 1p left over.' (Mark, 9)

'I bought presents for my friends and I bought presents for myself and presents for my nans and uncles and aunties and I bought some sweets for myself [Int. 'How much did you have leftover?'] '£5' (out of £40). (Melanie, 9)

'I would buy ice creams and cookies and go in the arcades.' (John, 8)

'I bought a T-shirt and some presents to take back.' (Clarissa, 11)

'We used to go on the fair and buy sweets and drinks.' (Chris, 11)

Birthday money

'My nan gave me £30 and my other nan gave me £20. I bought some games

and some books and gave my sister some of the money. I had £5 left over and have put it into my bank account.' (Melanie, 9)

'I spent it on books.' (Lisa, 6)

'I got £10 from my gran, £10 from my auntie, £10 from my other gran and £10 from my mum. I bought an Umbro T-shirt, some gloves and a new pair of shoes. I had £10 left over and I saved it.' (Liam, 9)

'I will probably buy a couple of CDs and I want to get a ring.' (Cindy, 11)

'I spent it on a game for my Gameboy and I spent it on a pair of trousers.' (William, 12)

Scenarios

Scenario 1: Gift-giving versus own expenditure

Both versions of this scenario dealt with the way children solve a particular practical problem in everyday life. In each version the child had to deal with the same problem (how to get enough money to buy something), the difference being that in the one case this was for something they wanted (money from the mental 'current account') and in the other for a birthday present for a friend (money perhaps from a 'gift-giving mental account'). Unfortunately, it proved impossible to categorise the wide range of solutions suggested and it is clear that the kinds of answers given were heavily dependent on the kind of similar experiences the child has had. Thus Claire (8) says,

'I would ask my mum if she could lend me it and then I would pay her back when I get my own pocket money. She would give me the money if I would be good for her ... by taking the dog for a walk, feeding the cat, taking my little sister out,

whilst Lisa (6) is less sanguine 'I would ask my mum. I do not think she will give me the money because she wants to buy something for herself. Philip (9) speaks from bitter experience 'I would ask my mummy for the £1. I would have to pay her back later. She would just take it out of my Halifax without me knowing it' whilst Donna (6) is realistic,

I would go to my bank account and get some money to buy the toy. I have to ask my parents permission, sometimes they say yes and sometimes they say no. When it is very cheap they say yes. And when it is really expensive they say no.

Scenario 2: A little extra money regularly versus a lump sum

According to Shefrin and Thaler (1988), a windfall that comes in the form of a little extra money is most likely to be coded as regular income. In contrast a windfall that comes as a lump sum should be placed in the current assets mental account, which implies that the marginal propensity to spend is greatest for the current accounts and less for current assets. So we predicted that the lump sum would be more likely to be saved than the extra money regularly. There was, however, no significant difference in the way the money was spent in the two conditions.

Scenario 3: Income lumping (pocket money every two weeks versus pocket money every month)

This scenario did not work well with the younger children, who found it hard to understand the idea of receiving more money at less frequent intervals and thus shed little light on mental accounting. The older children recognised that getting money every month would be different from getting it every two weeks. They acknowledged that more self-control might be required 'you have to make your money last the whole month, not just a week, and it is a bit difficult to do that' (William, 11) but also felt that there could be benefits in receiving larger sums 'because you will be getting more money you can get more things with it' (James, 11).

Scenario 4: Lump sum now versus lump sum in two weeks' time

According to Shefrin and Thaler (1988), a windfall that comes in the form of a lump sum will be put in the current assets account, whereas a windfall that is payable in the future should be put in the future income account. People are more likely to save money that is in the future income account. In order to examine the effects of age and when money was given on expenditure a two-way analysis of variance was carried out, with proportion of saving (with scores between 1 and 4) as the dependent variable and age and when money was given (now, in two weeks' time) as the independent variables. Note that though the data are actually ranked categories (spend it all, spend some and save some etc.), analysis of variance is very robust with non-interval level data (Gabrielsson & Seeger, 1971; Greer & Dunlap, 1997). The analysis showed a significant effect of when the money was given ($F = 6.30$, $df = 1,42$, $p < 0.05$) but no effect of age nor a significant interaction. Surprisingly children turned out to be more likely to spend money that they will receive in the future — money received now is more likely to be saved.

Scenario 5: Foreign versus English money

Foreign money was perceived quite differently from English money and had a clear emotional value. Twenty-five out of thirty children said that they would keep or save the foreign money — by contrast only eight of thirty children said they would save or keep the English money ($\chi^2 = 19.5$, $p < 0.001$). Only one child (Mike, 8) said that he would exchange the foreign money for English money: 'I don't go to foreign countries and if I can't use them in Exeter I'll exchange it'.

Scenario 6: Extra expenditure required to use either a ticket bought with own money or a ticket given as a present

This scenario is concerned with the psychology of sunk costs. In the original example given by Thaler (1993), it is clear that adults are more willing to incur extra costs to do something if they have paid an amount already (the sunk costs) than if they have not. Rationally, of course, it should make no difference: the only question is whether going to the event is more valuable than the extra expenditure required. Children turn out to be more rational than adults and most regarded whether the ticket was bought or given as irrelevant and simply focused on the attractions of the circus (or the extra costs necessary). There were no significant differences in the reactions to the two versions of the scenario. Patrick (11) simply said 'You can get like candy floss and popcorn and stuff like

that. And I like it, so I would spend the money', a view echoed by the majority, including Alex (6): 'I like circuses and it is fun watching'. The minority view is expressed by Anne (11): 'I'd rather save it if I can't go to the circus. If I spent my money on the bus fare I wouldn't be able to buy popcorn'.

Scenario 7: Losing a ticket versus losing an equivalent sum of money

This scenario focuses on the difference in behaviour if money is seen as coming from the general mental account versus a leisure mental account. Adults are less willing to buy a ticket after having lost a ticket than when having lost an equivalent sum of money. The same turns out to be true of children, as Table 2 shows (overall $\chi^2 = 6.44$, $df = 1$, $p < 0.05$). But the table also makes it clear that these result is primarily dependent on the answers of the older children. The hypothesis is confirmed for 11-12-year-olds (8 out of 10 will not buy a replacement ticket — Fisher exact test results, $p < 0.05$) but not for either of the other two age groups analysed separately. The common theme running through the comments of the 11-12-year-olds is the idea that buying a replacement ticket would be a waste of money: as Stephen (11) puts it, 'it is just a waste of money because I have already bought one but have lost it', a view echoed by James, 'I wouldn't bother really to buy another ticket ... because it would be a waste of money'. Younger children are much more straightforward: 'Yes, I would use the £1 coin to buy another ticket because I wanted to go on it' (Linda, 5) and 'I would use the £1 coin to buy another ticket because I wanted to go in' (Thomas, 5).

Table 2 The relationship between age and reactions to the lost ticket/lost money scenario

| | <i>Lost ticket</i> | | <i>Lost money</i> | |
|-------|--------------------|---------------------|-------------------|---------------------|
| | <i>Buy ticket</i> | <i>Wouldn't buy</i> | <i>Buy ticket</i> | <i>Wouldn't buy</i> |
| 5-6 | 8 | 2 | 7 | 3 |
| 8-9 | 5 | 5 | 9 | 1 |
| 11-12 | 2 | 8 | 9 | 1 |
| Total | 15 | 15 | 25 | 5 |

Note: Wouldn't buy includes 'it depends' responses.

Discussion

The results of this study do not, in general, provide strong evidence for the use of mental accounting in childhood. This is partly due to weaknesses in the interview used (e.g. the poorly understood scenario on income lumping) but may also reflect the fact that mental accounting is not that important in middle childhood. It is possible that mental accounting is more important in adolescence, when children have more money, from more sources and spend it on a greater variety of goods and services.

Whilst it is clear that pocket money, holiday money and birthday money are spent differently and that this is consistent with the idea of mental accounting, it is easy to think of alternative explanations for these differences. For example, it maybe that holiday money is explicitly or implicitly labelled spending money by parents or that the expenditure of birthday money has to be accounted for (through the writing of thank-you letters) and so there is a concentration on buying larger items. More simply it could be a consequence of when the interviews

were carried out (in the autumn term) as that is the time of year that children are more likely to be saving their pocket money to buy Christmas presents. It is also the case that the accounting periods are different: half of a child's pocket money may be saved for two weeks and then the accumulated savings all spent in the third (which using our definitions would be categorised as 'saving half'), whereas we asked what proportion of children's holiday money was spent during the holiday (which might itself have lasted three weeks). More detailed questioning at different times of the year about how children think about money from these different sources and when exactly money is spent would be needed to explore these options.

A windfall that is payable in the future is more likely to be spent than one received now. This is superficially a puzzle. One possibility is that children simply do not have a 'future income account': given that they have much shorter time horizons, this seems very plausible. In this case, money that is described as arriving in a future that is perceived as a long time hence is seen as a windfall and perhaps not taken so seriously and is simply spent. Money that is described as arriving now, on the other hand, is actual money and deserves to be taken more seriously — it is not unreasonable then that some of this would be saved.

The best evidence for mental accounting is found in the final scenario, which reveals the kind of developmental trend that was anticipated. However, whilst the evidence is clear it is not obvious why 11-12-year-olds should respond like adults in the lost ticket situation. One possibility, and the most likely one, is that general processes of cognitive development enable the older children to think in a more sophisticated way about financial matters. The problem with this explanation is that mental accounting (dividing money up into different categories and then spending it differently as a result) does not seem particularly sophisticated. Indeed, thinking of money as psychologically linked to its source (hypothecation) is a more concrete approach, whilst thinking of money in theoretical terms, as a generalised medium of exchange, is more abstract. An alternative possibility is that during middle childhood children get more exposure to the way the formal economic world is organised, that they encounter bank accounts with different characteristics (such as current accounts and savings accounts) and that this reinforces the tendency to think about money in different ways.

We cannot pretend that this research has done much more than scratch the surface and it poses a lot more questions than it answers. We need to know how children learn to categorise income and assets, whether there are standard ways of doing this (as the economic models of Shefrin & Thaler, 1988 assume) or whether there is a lot of idiosyncrasy (as might be expected from the work of Kojima & Hama, 1982). And perhaps more importantly, we need to know whether mental accounts are used as deliberate self-control strategies to limit a tendency to spend inappropriately. And the answers to these questions have serious implications for children's education in economics, which, at least in middle childhood, needs to be firmly grounded in children's own experience of the economic world.

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Note

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