

The Preoccupied Parent

How Financial Concerns affect Child Investment Choices

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Abstract

We examine the hypothesis that parents' low investments in children may be a consequence of adverse *cognitive* effects of poverty: Financial worries preoccupy low-income parents with immediate concerns, reducing their attention to important parenting tasks. We test this hypothesis in an online experiment studying purchase decisions of UK parents, including their responsiveness to financial subsidies for child development products. Both low and higher-income parents respond rationally to a subsidy on such products, by spending more of their household budget. However, when primed with financial worries under the same budget, low-income parents alone ignore the subsidy, prioritizing purchase of immediate household needs instead. This non-responsiveness to subsidies is driven by worried parents farther away from their last payday. Better alignment of financial subsidies to payday cycles may help achieve more investment and better child outcomes in poorer families.

JEL Codes: D13, D91, H31

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1 Introduction

Being born into a poor family is a strong predictor of low human capital in a child’s early years, and affects her outcomes throughout life (Garces et al., 2002). No doubt, access to fewer learning resources and the lower quality of the living environment play a role in these outcomes. Policy responses to such disadvantages faced by poor children have been two-fold: better information and financial subsidies for low-income families. However, neither approach has yielded consistent success, as evidence on the effectiveness of early childhood interventions and education subsidies suggests. Early childhood interventions to provide better information and guidance on parenting practices do improve outcomes (Heckman et al., 2013); but even in the best of programs, the effects on parental engagement tend to fade out when the program ends (Gennetian et al., 2017). Equally, favorable effects of financial subsidies for children’s education have been undermined because parents were found to cut back on their own expenditure on school inputs, reallocating resources to other household goods instead (Das et al., 2013).

Are such scant allocations of time and attention to children by poorer parents carefully considered, rational choices? Is it such choices that perpetuate poverty and render policy solutions ineffective – or does poverty somehow push parents towards such choices? In this paper, we examine evidence for a hypothesis that suggests it may be the latter: that it is the mental burdens imposed by poverty itself that drives poor parenting choices and diminished attention to children.

Such a view draws on recent literature on Scarcity, which documents how financial worries under poverty deplete mental bandwidth.(Mullainathan and Shafir, 2013). When a person is one missed rental payment away from eviction, juggling mounting expenses with irregular incomes, financial concerns can limit a person’s ability to focus on issues beyond pressing immediate needs. Less urgent (even if very important) everyday actions such as talking or reading to children or keeping track of their school work can get relegated to the periphery (McLoyd, 1998; Evans, 2004). The cumulative impact of recurring crises on such everyday parenting choices could be considerable.²

This paper examines how such psychological effects of limited resources affect parents’ household budget allocation choices. We explore the hypothesis that financial worries may limit poorer parents’ attention to only the most immediate priorities, hence skewing their allocation decisions. In an online experiment with UK parents, we examine how financial worries affect parents’ budget allocation across immediate versus longer term priorities, and their responsiveness to financial subsidies for the latter.

Our experiment used a cross-cutting design that sequentially combined a psychological intervention to trigger worries with an economic intervention offering financial subsidies. For the first intervention, we used a technique referred to as *priming*, commonly used in recent work in

²For instance, evidence shows that slower growth in the productive vocabulary of two-year old children over time is largely accounted for by more limited conversation initiated by their mothers (Hoff, 2003).

economics and psychology (Steele and Aronson, 1995; Mani et al., 2013). As in the latter paper, we asked richer and poorer parents how they would cope with the financial demands associated with everyday scenarios, in this case, in British life. Given that the same everyday scenarios are more financially challenging for the poor (Shah et al., 2018), such worries have been found to deplete the mental bandwidth of this group, more so than among better off households. To examine whether the mental burden of such financial worries affect parents' choices, we then asked them to allocate an experimental budget across product categories reflecting immediate versus longer term priorities. The economic intervention, embedded in this task, consisted of a 50% discount on items that fulfil a longer term priority(child development).

Examining the purchase decisions of low versus higher income British parents across these different experimental treatments, we find some striking results.³ When offered the 50% subsidy (discount) under low financial challenge scenarios, both poor and richer parents respond positively, spending more on books and toys for their children. In fact, low income parents are highly responsive, doubling their expenditure on such products. However, under high financial challenge scenarios, they become non-responsive to the child investment subsidy. They reallocate more of their budget to immediate family needs (groceries) and cut back on luxuries too. In contrast, higher income parents' take equal advantage of the subsidy under low and high financial challenge scenarios.

When a family's finances are a tightrope walk, routine dips in income, for instance closer to end of a payday cycle, can feel quite challenging.⁴ We use variation in the time elapsed since parents' last paycheck as a proxy for low income; this allows us to confirm whether it is worries under low income (rather than unobserved parental attributes) that drive our results. Indeed, we find this to be the case: Under more challenging financial scenarios, it is low-income parents further away from their last payday who become non-responsive to the child investment subsidy; the ones who've just got paid take as much advantage of it as richer parents do.⁵

Both sets of results confirm that financial worries capture (or "tunnel") poorer parents' attention towards immediate family needs, making them non-responsive to subsidies for important longer term priorities (child learning). These behaviors accord well with the cognitive mechanism highlighted by the Scarcity hypothesis: the financial scenarios have no impact on poorer parents' actual resources, but they influence their choices by making them *feel* poorer.⁶

³The income categories were split based on median income for the UK in 2018 adjusted for household size (dividing by its square root).

⁴For instance, 52% of Britons with family responsibilities reported being unable to make ends meet for a full month (Office of National Statistics, 2019). In the US too, there is evidence of greater financial pressure before payday in poorer neighborhoods: worse nutrition(Gennetian et al., 2013) and more crime(Carr and Packham, 2019; Foley, 2011).

⁵Such shifts in parents' priorities and attention away from their children because of financial pressures before payday may partly explain the 40% higher incidence of disciplinary events at school among children of US food stamps recipients at the end of the month (Gennetian et al., 2013).

⁶We find no impact of financial pressure on the behavior of low or higher-income parents, in the absence of the subsidy(discount). This can partly be attributed to a floor effect, since 55% of poor parents and 38% of richer

Our work contributes to literature in three areas. First, we bring new insights to the literature on child development and human capital, on how cognitive demands of poverty explain low and erratic parental investment in children (Heckman, 2006; Heckman et al., 2006; Attanasio, 2015). Second, we add to the literature on under-reaction to taxes (and subsidies) by highlighting a new scarcity-based mechanism being a cause. Existing explanations for such under-reaction include a lack of salience (or visibility) of taxes (Chetty et al., 2009), complexity of tax rules (Miller and Mumford, 2015) and confusion (Feldman et al., 2016). Third, we contribute to the literature on the impact of scarcity on real-life decisions (Kaur et al., 2021; Burlacu et al., 2020; Madeira et al., 2020), providing evidence on the important domain of parenting.⁷ We note that our results on poorer parents’ purchases are not inconsistent with recent work that finds such consumers to be *less* susceptible to biases such as (lack of) tax salience (Goldin and Homonoff, 2013) or framing (Shah et al., 2015). While the poor may focus better on urgent priorities, the subsidy offered in our study is on products that fulfil a non-urgent goal (child learning).

Our findings point to two policy alternatives to encourage greater investment in children’s learning by poorer parents. First, our payday results suggest that better alignment of *timing* child investment subsidies poorer parents’ payday cycle may induce greater responsiveness to them. A second approach could be to supplement financial subsidies with non-financial behavioral tools and nudges (such as text reminders, goal-setting, and social rewards) to induce consistent parental attention to children (Gennetian et al. (2017)).

2 Experimental Setting

2.1 Experimental Setting

We conducted our study in the United Kingdom (UK) using an experimental platform called Prolific (Palan and Schitter, 2017). Prolific is a rapidly growing online service that facilitates social science research, offering nationally representative samples of participants according to the research questions of interest (Peer et al., 2017).

Given our interest in decision-making by poor parents in the UK, our eligibility criteria for participants were that they should (i) be UK residents (ii) with an annual household income below £50,000 and (iii) a child under 4 years of age. Restricting household income to below £50,000 meant that we oversampled people from the lower end of the UK household income spectrum. We picked the 0-4 age group for children because (i) it is widely emphasized as the key period in a child’s development and (ii) parents’ behavior has a larger influence on this process since children

parents who face even Easy financial scenarios do not invest in children’s learning products at all.

⁷The first two papers cited examine impacts on productivity and consumption of temptation goods, while the last paper also studies parental behavior. It documents inefficiency of parental expenditure on a *specific* product (text reminders to talk to children about schooling), while we track resource (re)allocation across competing family priorities.

spend more time with them in this pre-school phase.

2.2 Experimental Design

Our aim is to understand how financial worries affect resource allocation decisions of poorer parents. Our hypothesis is that such an effect occurs because worries affect a parent’s perception of trade-offs between immediate versus longer term family priorities. To test this hypothesis, our experiment examines parents’ online purchase decisions across three types of goods: those that cater to immediate household needs, to children’s longer-term (cognitive and emotional) development and to parents’ own short-run well-being. We also examine parents’ responsiveness to financial subsidies used to encourage investment in children.

Our experiment adopts a 2×2 design using two distinct treatments, one psychological and the other economic: (1) First, equal shares of participants are randomly exposed to ‘easy’ versus ‘hard’ hypothetical scenarios, of which the latter could trigger greater financial worries and (2) a 50% discount on the price of child investment goods, again randomly offered to half the participants. The discount represents a common type of financial subsidy that poor parents may be offered to encourage more learning inputs for their child’s development.

Our experimental design thus results in parents being randomly assigned to one of four groups, as described below:

1. **Easy Scenarios (Easy):** exposed to easy financial scenarios and baseline prices.
2. **Hard Scenarios (Hard):** exposed to more challenging financial scenarios that could trigger financial worries and baseline prices.
3. **Discount:** exposed to easy financial scenarios and 50% discount on child investment goods.
4. **Hard Discount:** exposed to more challenging financial scenarios and 50% discount on child investment goods.

Next, we describe the details of financial scenarios used to trigger financial worries and the financial subsidy (discount).

Financial Scenarios: Parents were asked how they would cope with each of 3 hypothetical scenarios, presented in random order, involving shocks to real income. Two of these shocks were adapted from Mani et al. (2013) and the third shock was one that specifically pertained to parents. The first scenario described a drop in real income due to higher prices of basic necessities; the second one described an unanticipated expense; the final scenario described an increase in the cost of childcare in the UK. What differed between Hard (‘Hard’ and ‘Hard Discount’) versus not (‘Easy’ and ‘Discount’) was the severity of the price/cost increases and income shock that participants were exposed to. The detailed scenarios, complete instructions and sample screenshots of the experimental market are available in Appendix B.

Parents responded to each of these scenarios with free-form answers on how they would cope with them. After their exposure to all three scenarios, they also answered two questions on how worried they were about (i) their current financial condition and (ii) being able to find money for an unanticipated expense, for which the answer options were coded using Likert scales. Responses to these questions serve as outcomes to check if our experimental manipulation actually triggered higher financial worries among participants exposed to Hard scenarios.

Household Purchases Task: Upon completing their responses to the three financial scenarios, parents were presented with the main task of interest: to allocate an experimental budget of £30 across three types of goods: (i) educational goods for children (ii) groceries and (iii) luxuries (i.e. treats for themselves)⁸. These product categories reflect parental priorities with different time horizons: Educational goods cater to a parent’s long-term priority: child development; groceries satisfy immediate family needs while non-essential items/luxuries cater to parents’ own short-term utility.

(a) *Child Investment goods:* This category included goods such as story and activity books and games that required (rather than substituted for) parental engagement. We chose only products parents were very familiar with, hence their value for their child’s development was clear. Prices ranged from £3.5-£5.5 for most books and £4-£10 for the educational games.

Discount/Financial Subsidy: Half the participants received a 50% discount(subsidy) on all child investment goods. In the task instructions, they were informed that some of the goods would have a 50% discount on the retail price. On screen, they saw the baseline price crossed out and the discounted price written right next to it. In other words, the information on the discount (financial subsidy) was prominently displayed on the screen, and in a format that online shoppers typically view such information.(See Figure B.1 and B.2 in Appendix B for sample screenshots). This allows us to minimize the (lack of) salience ((Chetty et al., 2009) of information about the subsidy being a factor influencing purchase decisions.

(b) *Groceries:* In this category, participants could choose from a wide selection of goods, including basic foods and cooking supplies (e.g. cereals, meats, milk, cooking oils etc.) as well as cleaning and hygiene products from one of UK’s major low cost retailers. We chose brands that were commonly purchased by online customers of this retail store, with prices ranging from less a £1 to £6.

(c) *Luxuries/Non-essential items:* Here, we offered branded coffee, perfumes, sun glasses and some other products that parents could exclusively consume. The prices for these goods were higher, ranging from £5.5 to £27, which allowed us to examine how financial pressures affect parents’ susceptibility to (costly) temptations. Due to ethical consideration, we could not include goods most typically associated with temptation such as tobacco and alcohol.

In total, participants were offered 66 different items across the three product categories,

⁸To avoid the trouble of spending exactly £30 which would require cognitive effort and may results in the choice of some products just to reach the required value, we allowed a lower limit of £28 to proceed further with the survey. The remainder from £30 was transferred as a bonus payment on Prolific.

presented in a typical online retail store format. The order of product categories (rather than of individual goods) was randomized across participants, to avoid high search costs. Overall, the product range, the online retail store format and use of actual market prices, all served to make the experimental task very realistic. Furthermore, participants were also incentivized to take the task seriously with a 1% chance of receiving the actual goods they chose (following the experimental design in Carvalho et al. (2016)). They also received a participation fee equal to the hourly UK minimum wage.

Interpretation of Experiment Outcome Differences across Treatments

The difference in outcomes between the first two treatments (Easy versus Hard) aimed to capture how financial worries affect parents’ investment in their child’s development, relative to other basic household needs and items for their personal enjoyment. The difference between treatments (1) and (3) (Easy versus Discount) captures the effect of being offered the 50% discount on parents’ investment in the child’s development; it tests participant’s responsiveness to price discounts (or price elasticity of demand). Finally, comparing the last two groups ((3) and (4)) (Discount versus Hard Discount) captures how parents respond to financial incentives (i.e. discounts) that encourage them to invest in their child’s development, when under financial pressure versus not.

Further Considerations: A few additional concerns come to mind, with regard to the experimental design outlined above. One potential concern is that parents’ purchase decisions may not reflect their true preferences – either if there is scope to reallocate their expenditure budget outside of the experiment, or opportunities for resale of those purchased within the experiment. However, such concerns would not explain differences in outcomes across different experimental treatments. Another concern, with the educational goods requiring parental time inputs. While we consciously chose these so as to be a good proxy for parent’s engagement with their child, we do not observe parents’ actual actions after purchase. In this sense, their purchase reflect their intention to engage with their child rather than their actual engagement. However, such a concern about the distinction between use and intent to use could equally be applied to other goods not requiring a time input, that are purchased in any experiment.

3 Data Description

A sample of 349 participants on Prolific’s website met the eligibility criteria specified at the beginning of section 2.1. The baseline survey administered by the company at the time of registration provided us with a rich set of demographics. Information on participants’ allocation choices, financial situation and additional demographic details were obtained from the experimental task and a short survey that followed.

Table 1 presents data on key participant characteristics and balance checks for these variables across treatment arms. The median annual household income in our sample (£28,000)

approximates the UK median income in 2018; the sample mean is lower than the UK average of £33,800, given that we capped our participant pool at an annual income of £50,000. On average, households have 3.9 members, including 1.9 children.

Table 1: Descriptive statistics and Balance Checks

	Easy	Hard	Discount	Hard Discount	p-value
	(1)	(2)	(3)	(4)	(5)
Child gender (Male)	0.43	0.53	0.44	0.50	0.56
Age in months	21.31	23.00	22.84	23.80	0.43
No formal childcare	0.46	0.41	0.45	0.44	0.92
Any sibling bellow 4	0.35	0.33	0.36	0.34	0.97
Age of parent	30.92	31.99	31.74	31.39	0.54
Gender of parent (male)	0.09	0.14	0.24	0.23	0.02
Completed higher education	0.51	0.45	0.47	0.55	0.60
Student	0.12	0.06	0.03	0.05	0.08
Nationality UK	0.89	0.95	0.90	0.92	0.47
Country of birth UK	0.88	0.93	0.90	0.88	0.75
Language English	0.93	0.95	0.94	0.93	0.93
Household size	3.98	3.65	3.97	3.80	0.20
Number of children	2.02	1.79	2.02	1.88	0.43
Spouse or cohabiting partner	0.89	0.88	0.88	0.92	0.81
Yearly income per adult equivalent	14.27	14.73	15.06	15.48	0.65
Yearly household income	27.85	27.78	29.17	29.72	0.66
Material Deprivation	-0.03	0.07	0.04	-0.05	0.56
Perceived SES (1-10 ladder)	4.81	4.76	4.76	4.92	0.91
Parent is employed	0.53	0.56	0.64	0.64	0.30
Spouse is employed	0.72	0.75	0.76	0.76	0.94
Any payments received in past month	0.61	0.71	0.67	0.58	0.27
Any payments received in past month (spouse)	0.59	0.77	0.70	0.54	0.02
Days since last payment	12.50	11.48	13.47	13.33	0.66
Has a credit card	0.68	0.74	0.64	0.69	0.61

Note: Columns (1) - (4) show the means across treatment arms. Column (5) displays the p-value associated with the F test of join orthogonality across treatment arms. Easy indicates participants exposed to easy scenarios. Hard indicates participants exposed to hard scenarios. Discount indicates participants who received a 50% discount on child investment goods after being exposed to easy scenarios. Hard Discount indicates participants who received a 50% discount on child investment goods after being exposed to hard scenarios. Yearly household income is computed by dividing total yearly household income by the square root of household size. Material Deprivation is computed by averaging and standardizing the incidence of several income shocks in the previous year (not able to pay bills, rent, to afford heating, skipped meals, took loans from payday lenders, sought financial help from family or friends).

The last column of Table 1 displays the p-value associated with the F-test for the joint equality of averages across the treatment arms. Out of the 22 variables considered, three have differences statistically significant at the 10% or 5% levels: the percentage of fathers (in the Easy vs. Hard groups); of students (in the Easy vs. other treatments) and of spouses who received payments in the past month (Hard vs. Discount treatments).

Given that the main results of the paper are reported for income subgroups, we also report balance checks separately for the lower and the higher income groups in Table A.2 in Appendix A. We find that the unbalanced variables are driven by differences across treatment arms within the higher income group. To address such imbalance and improve the precision of our estimates, we include controls for the variables reported in Table 1 in our data analyses.

Selective attrition can be of particular concern in online experiments, given lower social and psychological costs from dropping out than in lab experiments (Zhou and Fishbach, 2016; Horton et al., 2011). Fortunately, we find no evidence of selective attrition by treatment status, based on a regression analysis. (See Table A.1). The attrition rate of 11 % (39 participants) is remarkably low for an online experiment (Zhou and Fishbach, 2016) and does not differ across treatment arms (Column (1), Table A.1). These differences are even smaller if we account for attrition based on technical incompatibility of participants' browsers (column 2, Table A.1).⁹

4 Results: How Financial Concerns affect Parents' Household Purchase Decisions

We begin this section by verifying the effect of our experimental treatments on participants' worries about money, as a function of their level of financial challenge (Subsection 4.1). Subsection 4.2 then presents our main results on parental purchase decisions. Subsection 4.2 describes the heterogeneity of treatment effects, to further articulate the key mechanism of interest.

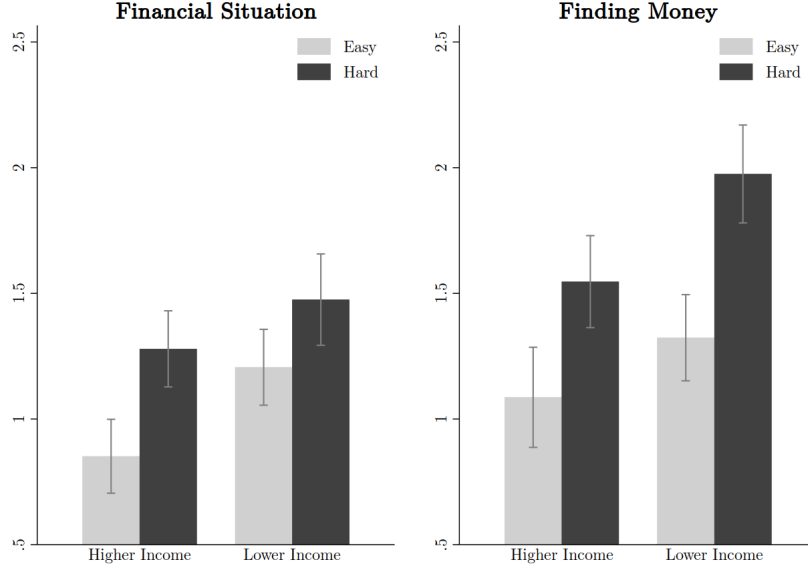
4.1 Effects of Hypothetical Scenarios on Financial Worries

Two of our four treatments arms (Hard and Hard Discount) ask participants how they would respond to challenging financial scenarios. Our aim here was to trigger worries commonly experienced by poor parents in their every day lives, in order to then examine how such worries affect their family resource allocation decisions. Participants' free-form responses on how they would cope with them provide qualitative evidence that the scenarios were perceived to be hard to overcome, requiring difficult sacrifices.

Following their free-form responses, we also tried to quantify the effect of these treatments, by asking participants how worried they were about (i) their financial situation and (ii) not being able to find money for an unanticipated expense, on a scale of 0 to 3 (with 0 representing 'not worried at all' to 3 representing 'desperately worried'). Figure 1 plots the response means with 95% confidence intervals for participants exposed to easy versus hard financial scenarios, split by median income (i.e. below and above median UK income, per adult equivalent).

⁹Participants were informed that the survey application was tested only on the five major browsers and that they should not participate if using other browsers. However, the platform did not allow us to screen out participants based on the browser or operating system used.

Figure 1: Impact of Hard vs. Easy Hypothetical Scenarios on Financial Worries



Notes: The outcome variables in the figures are responses to the question (left figure): "How worried do you feel about your financial situation?" and (right figure): "How worried do you feel about not being able to find money in case you really need it?". Both variables are coded as: 0 "not worried as all", 1 "somewhat worried", 2 "very worried" and 3 "desperately worried". The bars indicate the means and the brackets indicate 95% confidence intervals. Easy/Hard indicates mean responses of individuals assigned to easy/hard financial scenarios respectively.

As seen in Figure 1, responses to both questions show a clear increase in worries among the participants exposed to the hard financial scenarios relative to the easy scenarios, that is significant at the 1% level.¹⁰ Although there is a rise in self-reported worries among both lower and higher income participants, the *level* of worries are consistently higher for the lower income group. In fact, with regard to their financial situation, we note that the worry levels of lower-income participants *not* exposed to the hard financial scenarios are already close to those of higher-income participants exposed to them. Given this, it is not so surprising that the increase in worry from being exposed to the hard scenario is not significantly higher for the lower income group than the higher income group.

4.2 Parental Purchase Decisions

To identify the causal impact of the the different treatments on the demand for the three types of household goods (investments, groceries and luxuries), we estimate the following model:

$$Y_i = \beta_0 + \beta_1 Hard_i + \beta_2 Discount_i + \beta_3 HardDiscount_i + \theta + X_i' \gamma + \epsilon_i \quad (1)$$

where Y_i is the amount (in pounds) expressed at baseline (i.e. no discount) prices, allocated by parent i on goods of a particular type. $Hard_i$ indicates being exposed to the hard financial scenarios and offered no discount. $Discount_i$ and $HardDiscount_i$ indicate being offered a 50% discount on

¹⁰Table A.3 in Appendix provides regression estimates for the impact of hard financial scenarios on worries across both income groups, controlling for child and household characteristics.

child investment goods after being exposed to easy and hard scenarios, respectively. The Control (omitted) arm is exposure to easy financial scenarios with no discount (Easy condition). Note that $\widehat{\beta}_3$ indicates the difference in the outcomes between the Hard Discount condition and the Easy condition, therefore it should not be interpreted as an interaction term but as a separate treatment arm. θ are fixed effects for the order in which the categories of goods appeared on participants' screens during the task, while X_i is a vector of the parent, child and household characteristics listed in Table 1.¹¹ Throughout the analysis we use robust standard errors.

Table 2 presents ordinary least squares results, separately for the lower and higher income groups (below and above median income). The dependent variable in each column is the expenditure on one of the three types of goods in the household purchase task.¹² Some striking patterns emerge in these expenditures.

We begin by discussing the findings for the lower-income group (columns (1)-(3)). Participant responses in some treatments are perfectly consistent with rationality, but not in others. For instance, in row 2, participants respond rationally to discounts on the educational (investment) goods for children: with a 50% discount they allocate over £7 *more* to child investment goods – an increase roughly equal to the control group's entire spending on such goods (with no discount). There is no reallocation of the increased purchasing power from this discount to groceries or luxury goods. In contrast, low-income participants become non-responsive to this same 50% discount (subsidy) if they are exposed to worry-inducing Hard financial scenarios (row 3). They reallocate their increased purchasing power from the discount to basic family needs (i.e. (£3.79 more on groceries) and cut back on luxuries for themselves (£1.37). The modest increase of £1.90 on educational (investment) goods is not statistically significant. The p-values reported at the bottom of the table (row 1, testing D=HD within income group) confirm this difference in the purchase decisions of the lower income group when exposed to Hard financial scenarios (p=0.078, 0.005 and 0.053 for child investment goods, groceries and luxuries respectively). Going from row 2 to row 3, the change in poorer parents' response is not rational: their choices are altered by purely hypothetical financial scenarios that carry no added informational content.¹³ Let us contrast this with the purchase behavior of higher income parents across treatments (columns (4)-(6)). Their response to the discount is consistently rational, irrespective of exposure to Easy versus Hard financial scenarios (i.e. rows 2 and 3): in both cases, they spend much more on child investment

¹¹The following variables from Table 1 were excluded due to high correlation or collinearity: number of children (Pearson correlation coefficient with household size = 0.93); nationality and language – highly collinear with country of birth.

¹²We estimate the equations for each of the three types of products as separate OLS regressions rather than as a Seemingly Unrelated regression (SUR). There is no efficiency gain from the latter approach in our context, since the set of regressors is identical across regressions (Wooldridge, 2013), chapter 16.)

¹³There is also no discernible impact of being exposed to the Hard versus Easy financial scenarios on purchases in any of the three categories in either income group (row 1, columns (1)-(3) and (4-6)). This could be partly explained by floor effects. Nearly half (47%) of low-income parents did not choose any investment goods at all. Negative treatment effects cannot be observed for participants who, in the absence of the treatment too, would have invested nothing on these goods.

Table 2: Treatment effects on demand for child investment goods, groceries and luxury goods

	Lower Income			Higher Income		
	(1)	(2)	(3)	(4)	(5)	(6)
	Investment	Groceries	Luxuries	Investment	Groceries	Luxuries
Hard (H)	-0.57 (1.93)	-0.44 (2.02)	1.11 (1.38)	3.14 (2.32)	-2.40 (2.33)	-1.19 (1.19)
Discount (D)	7.39*** (2.73)	-1.57 (1.99)	0.71 (1.21)	5.38* (3.02)	0.44 (2.27)	0.0095 (1.29)
Hard Discount (HD)	1.90 (2.51)	3.79** (1.71)	-1.37 (0.84)	7.82*** (2.54)	-2.74 (2.07)	1.61 (1.43)
Easy Mean	7.14	20.00	1.95	6.40	20.59	2.13
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.04	0.07	0.01	0.02	0.07	0.14
Observations	182	182	182	167	167	167
<i>p-values - Tests:</i>						
$D = HD$	0.078	0.005	0.053	0.454	0.166	0.301
$H^{LI} = H^{HI}$	0.220	0.526	0.207			
$D^{LI} = D^{HI}$	0.621	0.506	0.695			
$HD^{LI} = HD^{HI}$	0.099	0.016	0.073			

Note: Estimates are obtained via OLS regressions. Robust standard errors in parentheses. *, **, *** denote significance at the 10%, 5% and 1% levels respectively. Outcome variables are expenditure on child investment goods, groceries and luxury goods, expressed in pounds at baseline prices. Higher/lower income group denote the upper/lower 50% of the sample income per adult equivalent distribution. All models control for individual and household characteristics, and for order in which the three types of goods appeared in the investment task. Hard indicates participants exposed to hard scenarios. Discount indicates participants who received a 50% discount on child investment goods after being exposed to easy scenarios. Hard Discount indicates participants who received a 50% discount on child investment goods after being exposed to hard scenarios. The first listed p-value is associated to the t-test of equality of the coefficients on the Discount group and the Hard Discount group. The p-values listed with the subscripts LI and HI test the equality of the coefficients from the regression on the lower income group (LI) and the higher income group (HI) estimated from models where each treatment assignment variable and each covariate is interacted with the income group dummy.

goods (by £5.38 and £7.82 respectively). Also, they do not change their expenditure on groceries or luxuries much; if anything, exposure to hard financial scenarios reduces their expenditure on groceries (by £2.74), but this is not statistically significant.

The contrast in the response of the lower versus higher income groups within the Hard Discount treatment is striking.¹⁴ It shows that financial worries can make poorer parents non-responsive to a financial subsidy for longer-term investments, because they trigger a *scarcity* mindset (Shah et al. (2015): parents' attention is captured by immediate priorities (basic needs) over less urgent (even if more important) ones such as their child's development. Higher income parents' remain rational and responsive to subsidies because greater slack in their financial budget

¹⁴This is confirmed by the p-values for tests of equality in their coefficients (bottom row, $HD^{LI} = HD^{HI}$; $p = 0.099, 0.016$ and 0.073 for child investment goods, groceries and luxuries respectively).

mitigates their worries.¹⁵

4.3 Heterogeneous Effects by Days Since Last Payment

According to Britain’s Office of National Statistics (ONS) Wealth and Assets Survey for the period April 2018-September 2019, 52% of Britons looking after family and home reported being unable to make ends meet for a full month. It is thus likely that people in our sample too experience greater financial strain further away from their last payday. As a further test of our hypothesis, we therefore examine how the impact of our experimental treatments differ by the time elapsed since participants’ last payday.¹⁶

For our analysis, we use a modified version of Equation (1) as the specification. We introduce an additional variable, the number of days elapsed since a respondent’s last paycheck, and also include interaction terms with each of the treatment arms.

Our results are reported in Table 3. The Easy condition remains the control condition, omitted from the regression. In this modified specification, the coefficient for the treatment dummy for any product category represents the average expenditure (in pounds) on such products, by parents who participated *on their payday*. In any given column, the coefficient on the variable ‘Days since last payment’ represents the change in expenditure on a specific product category for each additional day since the last payday, for parents in the Easy (control) condition. The interaction terms report the same change in expenditure effect under the other three treatments, relative to the Easy condition. Our sample sizes in this table are lower because some parents reported not having received any payments in the past month.¹⁷

Columns (1) to (3) in Table 3 report our findings for the lower income group. Note the similar magnitudes of the coefficients for child investment goods under the Discount and Hard Discount treatments(rows (2) and (3), column (1)). They indicate that exposure to financial worries does not affect how lower income parents respond to the discount *if they participated in the study on their payday*, when they are financially better off. Furthermore, in the absence of worry triggers (i.e. in the ‘Discount’ treatment) lower income parents remain responsive to discounts on

¹⁵In Appendix A, Table A.5, we report a couple of robustness checks. First, we estimate the main model interacting treatment with a continuous measure of income. Results remain qualitatively similar to those reported above, although precision is lower. Second, since the dependent variable is censored, we run the main analysis using a Tobit model as a robustness check. The results are qualitatively similar and stronger in magnitude – see Table A.4 in Appendix A for details.

¹⁶As seen in Table 1, the distance to the last payday variable is balanced across the four treatment arms. This pattern holds for the lower and higher income group sub-samples as well (Please refer to Appendix Table A.2)

¹⁷We consider the possibility parents reporting no payments interpreted the survey question as referring to payments in the current *calendar* month and not the past 30 days (the experiment was conducted between the 21st and 25th of June, 2018). To account for the latter possibility, we assign several alternative values (25, 30, 35 and 40 days) for the ‘days since last paycheck’ variable for these parents, as a robustness check. Our results remain robust to this approach. Please refer to Appendix A, Table A.6 for these results. We note also that the variables reported in Table 1 are balanced for this smaller sub-sample of lower income participants too. Results available upon request.

Table 3: Heterogenous treatment effects by days since last payment

	Lower Income			Higher Income		
	(1)	(2)	(3)	(4)	(5)	(6)
	Investment	Groceries	Luxuries	Investment	Groceries	Luxuries
Hard (H)	-1.68 (2.49)	-1.47 (2.86)	3.44 (2.43)	3.58 (4.44)	-2.68 (4.57)	-1.50 (2.85)
Discount (D)	13.2*** (4.45)	-8.13** (3.41)	3.41* (1.93)	10.9 (7.14)	0.91 (5.73)	-3.41 (3.41)
Hard Discount (HD)	11.6** (5.15)	-3.50 (3.08)	-0.18 (1.20)	7.45 (7.04)	-2.16 (6.37)	1.87 (3.79)
Days since last payment (Pay)	-0.014 (0.22)	-0.039 (0.21)	0.011 (0.12)	-0.10 (0.21)	0.20 (0.21)	-0.081 (0.10)
H \times Pay	0.23 (0.23)	-0.092 (0.25)	-0.12 (0.16)	-0.22 (0.28)	0.14 (0.28)	0.059 (0.15)
D \times Pay	-0.31 (0.29)	0.44* (0.25)	-0.24* (0.14)	-0.16 (0.36)	-0.13 (0.30)	0.22 (0.20)
HD \times Pay	-0.66** (0.30)	0.39* (0.23)	-0.0043 (0.12)	-0.038 (0.39)	0.040 (0.34)	-0.045 (0.18)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.12	0.04	0.02	-0.04	-0.01	0.06
Observations	130	130	130	123	123	123
<i>p-values - Tests:</i>						
$D = HD$	0.781	0.187	0.042	0.687	0.638	0.126
$D \times Pay = HD \times Pay$	0.284	0.848	0.041	0.798	0.614	0.148
$HD_{LI} = HD_{HI}$	0.631	0.849	0.606			
$(HD \times Pay)_{LI} = (HD \times Pay)_{HI}$	0.211	0.394	0.854			

Note: Estimates are obtained via OLS regressions. Robust standard errors in parentheses. *, **, *** denote significance at the 10%, 5% and 1% levels respectively. Outcome variables are expenditure on child investment goods, groceries and luxury goods, expressed in pounds at baseline prices. Higher/lower income group denote the upper/lower 50% of the sample income per adult equivalent distribution. All models control for individual and household characteristics and for order in which the three types of goods appeared in the investment task. Hard indicates participants exposed to hard scenarios. Discount indicates participants who received a 50% discount on child investment goods after being exposed to easy scenarios. Hard Discount indicates participants who received a 50% discount on child investment goods after being exposed to hard scenarios. The p-values with the subscripts LI and HI test the equality of the coefficients from the regression on the lower income group (LI) and the higher income group (HI) estimated from models where each treatment assignment variable and each covariate is interacted with the income group dummy.

child investment goods even farther away from payday. They sacrifice fewer resources for their child’s development but cut back on luxuries for themselves to buy more groceries.

However, the coefficient for the interaction term (Hard Discount x Pay) shows that, for each additional day since their last payday, parents primed with financial worries cut back their spending on educational goods for their child by 66 pence and allocate 39 pence more to groceries instead, on average (row 7, columns (1) and (2)).¹⁸ We note that low-income parents in the Discount treatment too increase their spending on groceries by 44p over each additional day since their last payday. Their response is consistent with the financial tightening they naturally experience over the payday cycle, even in the absence of the experimental worry prime; however, we find no significant adverse effect their spending on child products. In other words, it is the combination of financial strain and worries that makes poorer parents non-responsive to financial subsidies for longer term (child development) priorities because their attention is captured by immediate needs (a phenomenon referred to as ‘tunneling’). As for higher income parents their purchase decisions remain unaffected by the time since their last pay check (columns (4) to (6)).

The results in this sub-section lend further support to the conclusion that it is worries associated with tight financial constraints (rather than any unobserved attributes of low income parents) that hinder their ability to prioritize their children’s needs. This cognitive burden of poverty that makes them non-responsive to financial subsidies, rather than the (lack of) salience or complexity of the subsidies themselves.

The above results for low-income families in the UK also accord with documented evidence of worse outcomes in the days preceding payday (or welfare assistance) among residents of low income neighborhoods in the US: poorer cognitive function (Mani et al., 2020), more crime (Foley, 2011; Carr and Packham, 2019), less parental attention and a higher rate of disciplinary events among middle school children (Gennetian et al., 2013).

5 Discussion

In this paper, we have examined how worries from financial strain may distort parents’ perceived trade-off between immediate family needs versus longer term ones like child development. We have shown evidence that such worries cause them to allocate more resources for immediate needs over child learning products, despite financial subsidies for the latter. Such everyday parenting choices correlate with lower skills among children of low-income households, which may perpetuate poverty across generations.

Our results highlight a distinct cognitive mechanism (i.e. worries under financial strain) for non-responsiveness to financial subsidies among the poor. They suggest two policy responses

¹⁸Since low-income parents in the Hard Discount treatment are, on average, 9.61 days away from their last payday (see Appendix Table A.2), this implies a reduction of £6.34 on child investment products and an increase of £3.74 on groceries within this group due to greater financial worries.

to mitigate such non-responsiveness: better alignment of the *timing* of such subsidies to parental income subsidies, and the use of other *behavioral* interventions (such as setting and tracking goals, text reminders for activities with children and social rewards) to increase poor parents' engagement(Mayer et al. (2019)). However, behavioral solutions may not always work, especially when prioritizing immediate needs is the efficient response to financial challenges. Social safety nets that make financial strain less cognitively burdensome may be needed to ensure better parenting outcomes for children from poorer families.

References

- Attanasio, O. P. (2015). The determinants of human capital formation during the early years of life: Theory, measurement, and policies. *Journal of the European Economic Association* 13(6), 949–997.
- Burlacu, S., A. Kažemekaitytė, P. Ronzani, and L. Savadori (2020). Blinded by worries: sin taxes and demand for temptation under financial worries. *Mimeo*.
- Carr, J. and A. Packham (2019). Snap benefits and crime: Evidence from changing disbursement schedules. *Review of Economics and Statistics* 101(2), 310–325.
- Carvalho, L. S., S. Meier, and S. W. Wang (2016). Poverty and economic decision-making: Evidence from changes in financial resources at payday. *The American economic review* 106(2), 260–284.
- Chetty, R., A. Looney, and K. Kroft (2009). Salience and taxation: Theory and evidence. *American economic review* 99(4), 1145–77.
- Das, J., S. Dercon, J. Habyarimana, P. Krishnan, K. Muralidharan, and V. Sundararaman (2013). School inputs, household substitution, and test scores. *American Economic Journal: Applied Economics*, 29–57.
- Evans, G. W. (2004). The environment of childhood poverty. *American psychologist* 59(2), 77.
- Feldman, N. E., P. Katuscak, and L. Kawano (2016). Taxpayer confusion: Evidence from the child tax credit. *American Economic Review* 106(3), 807–835.
- Foley, C. F. (2011). Welfare payments and crime. *Review of Economics and Statistics* 93(1), 97–112.
- Garces, E., D. Thomas, and J. Currie (2002, September). Longer-term effects of head start. *American Economic Review* 92(4), 999–1012.
- Gennetian, L., M. Darling, and J. Lawrence Aber (2017, 01). Behavioral economics and developmental science: A new framework to support early childhood interventions. 7.
- Gennetian, L., R. Seshadri, N. Hess, A. Winn, and R. George (2013). Running out and acting out: food stamp benefit cycles and school disciplinary events among chicago public school students. Technical report, Working paper.
- Goldin, J. and T. Homonoff (2013). Smoke gets in your eyes: cigarette tax salience and regressivity. *American Economic Journal: Economic Policy* 5(1), 302–36.
- Heckman, J., R. Pinto, and P. Savelyev (2013). Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *The American economic review* 103(6), 2052–2086.

- Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science* 312(5782), 1900–1902.
- Heckman, J. J., J. Stixrud, and S. Urzua (2006). The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor economics* 24(3), 411–482.
- Hoff, E. (2003). The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech. *Child Development* 74, 1368–1378.
- Horton, J. J., D. G. Rand, and R. J. Zeckhauser (2011). The online laboratory: Conducting experiments in a real labor market. *Experimental economics* 14(3), 399–425.
- Kaur, S., S. Mullainathan, S. Oh, and F. Schilbach (2021). Do financial concerns make workers less productive? *NBER Working paper* (28838).
- Madeira, R., E. Bettinger, N. Cunha, and G. Lichand (2020). The psychological effects of poverty on investments in children’s human capital. *Working paper no. 349, Department of Economics – UZH*, 1–94.
- Mani, A., S. Mullainathan, E. Shafir, and J. Zhao (2013). Poverty impedes cognitive function. *science* 341(6149), 976–980.
- Mani, A., S. Mullainathan, E. Shafir, and J. Zhao (2020). Scarcity and cognitive function around payday: A conceptual and empirical analysis. *Journal of the Association for Consumer Research* 5(4), 365–376.
- Mayer, S. E., A. Kalil, P. Oreopoulos, and S. Gallegos (2019). Using behavioral insights to increase parental engagement the parents and children together intervention. *Journal of Human Resources* 54(4), 900–925.
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American psychologist* 53(2), 185.
- Miller, B. and K. Mumford (2015). The salience of complex tax changes: Evidence from the child and dependent care credit expansion. *National Tax Journal* 68(3), 477–510.
- Mullainathan, S. and E. Shafir (2013). *Scarcity: Why having too little means so much*. Macmillan.
- Palan, S. and C. Schitter (2017). Prolific. ac—a subject pool for online experiments. *Journal of Behavioral and Experimental Finance* 17, 22–27.
- Peer, E., L. Brandimarte, S. Samat, and A. Acquisti (2017). Beyond the turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology* 70, 153–163.
- Shah, A. K., E. Shafir, and S. Mullainathan (2015). Scarcity frames value. *Psychological Science* 26(4), 402–412.

- Shah, A. K., J. Zhao, S. Mullainathan, and E. Shafir (2018). Money in the mental lives of the poor. *Social Cognition* 36(1), 4–19.
- Steele, C. and J. Aronson (1995). Stereotype threat and the intellectual test performance of african americans. *Journal of Personality and Social Psychology* 69(5), 797–811.
- Wooldridge, J. M. (2013). *Introductory Econometrics: A Modern Approach*. South-Western Cengage Learning.
- Zhou, H. and A. Fishbach (2016). The pitfall of experimenting on the web: How unattended selective attrition leads to surprising (yet false) research conclusions. *Journal of personality and social psychology* 111(4), 493.

Appendices

A Appendix A

Table A.1: Attrition by treatment status

	Completed the study	
	(1)	(2)
Hard	-0.011 (0.046)	0.029 (0.035)
Discount	0.0059 (0.043)	-0.0089 (0.039)
Hard Discount	0.055 (0.039)	0.021 (0.035)
Easy Mean	0.89	0.92
Observations	387	374
Exclude page with technical error on some OS	No	Yes

Note: Estimates are obtained via OLS regressions. Robust standard errors in parentheses. *, **, *** denote significance at the 10%, 5% and 1% levels respectively. The outcome variables is 1 if the participant completed the experiment. Hard indicates participants exposed to hard scenarios. Discount indicates participants who received a 50% discount on child investment goods after being exposed to easy scenarios. Hard Discount indicates participants who received a 50% discount on child investment goods after being exposed to hard scenarios. The constant gives the share of participants completing the experiment. Column (2) excludes participants who dropped out on a specific page of the experiment, coming after the scenarios or the main task, with technical errors due on some operating systems or browsers. The app was tested on all major browsers and operating systems, this was communicated to all participants, but in practice we could not screen out participants using other browsers or operating systems.

Table A.2: Descriptive statistics and balance checks by income group

	Lower Income					Higher Income				
	Easy (1)	Hard (2)	Discount (3)	Hard Discount (4)	p-value (5)	Easy (1)	Hard (2)	Discount (3)	Hard Discount (4)	p-value (5)
Child gender (Male)	0.41	0.53	0.50	0.41	0.54	0.46	0.51	0.38	0.57	0.33
Age in months	22.22	24.00	22.70	22.16	0.83	19.95	21.84	22.98	25.04	0.14
No formal childcare	0.43	0.47	0.48	0.38	0.82	0.51	0.35	0.43	0.49	0.49
Any sibling bellow 4	0.36	0.35	0.34	0.35	1.00	0.33	0.30	0.38	0.33	0.89
Age of parent	31.41	31.37	31.59	30.31	0.75	30.18	32.70	31.90	32.20	0.07
Gender of parent (male)	0.09	0.14	0.18	0.22	0.32	0.10	0.14	0.31	0.24	0.07
Completed higher education	0.47	0.35	0.41	0.32	0.50	0.56	0.57	0.52	0.71	0.26
Student	0.16	0.07	0.07	0.08	0.39	0.08	0.05	0.00	0.02	0.25
Nationality UK	0.84	0.95	0.93	0.95	0.18	0.95	0.95	0.86	0.90	0.43
Country of birth UK	0.86	0.93	0.93	0.92	0.57	0.90	0.92	0.86	0.86	0.78
Language English	0.93	0.95	0.93	0.95	0.96	0.92	0.95	0.95	0.92	0.90
Household size	4.22	3.65	4.20	3.95	0.14	3.62	3.65	3.71	3.69	0.95
Number of children	2.31	1.88	2.25	2.03	0.30	1.59	1.68	1.79	1.78	0.72
Spouse or cohabiting partner	0.83	0.77	0.80	0.84	0.84	0.97	1.00	0.98	0.98	0.83
Yearly income	9.99	9.74	9.71	9.44	0.89	20.65	20.53	20.65	20.04	0.89
Yearly household income	20.33	18.30	19.62	18.64	0.48	39.03	38.80	39.18	38.10	0.93
Material Deprivation	0.07	0.29	0.30	0.15	0.28	-0.18	-0.19	-0.24	-0.19	0.91
Perceived SES (1-10 ladder)	4.66	4.42	4.36	4.41	0.82	5.05	5.16	5.17	5.31	0.86
Parent is employed	0.45	0.51	0.52	0.57	0.71	0.64	0.62	0.76	0.69	0.54
Spouse is employed	0.66	0.60	0.66	0.57	0.80	0.82	0.92	0.86	0.90	0.57
Any payment received in past month	0.55	0.74	0.66	0.59	0.23	0.69	0.68	0.69	0.57	0.57
Any payments received in past month (spouse)	0.52	0.73	0.69	0.58	0.22	0.68	0.81	0.71	0.52	0.04
Days since last payment	11.82	11.08	10.06	9.61	0.81	13.35	12.00	17.09	16.10	0.15
Has a credit card	0.59	0.63	0.59	0.57	0.96	0.82	0.86	0.69	0.78	0.27

Note: Columns (1) - (5) and (6) - (10) show the means across treatment arms. Columns (5) and (11) displays the p-values associated with the F test of join orthogonality across treatment arms. Easy indicates participants exposed to easy scenarios. Hard indicates participants exposed to hard scenarios. Discount indicates participants who received a 50% discount on child investment goods after being exposed to easy scenarios. Hard Discount indicates participants who received a 50% discount on child investment goods after being exposed to hard scenarios. Yearly household income is computed by dividing total yearly household income by the square root of household size. Material Deprivation is computed by averaging the incidence of several income shocks in the previous year (not able to pay bills, rent, to afford heating, skipped meals, took loans from payday lenders, sought financial help from family or friends). The sample used in the analysis are participants with yearly household income below the sample median in Columns (2)-(6) and above the sample median in Columns (7) to (11).

Table A.3: Manipulation check - treatment effects on financial worries

	(1)	(2)	(3)
	Financial situation	Finding money	Index
Hard	0.427*** (0.105)	0.451*** (0.134)	0.535*** (0.128)
Lower Income \times Hard	-0.187 (0.150)	0.158 (0.180)	-0.0364 (0.177)
Controls	Yes	Yes	Yes
Adj. R^2	0.126	0.161	0.168
Observations	349	349	349

Note: Estimates are obtained via OLS regressions. Robust standard errors in parentheses. *, **, *** denote significance at the 10%, 5% and 1% levels respectively. The dependent variables are worries about the financial situations: *How worried do you feel about your financial situation?* and worries about finding money in case of need: *How worried do you feel about not being able to find money in case you really need it?*. Both variables are coded as: 0 not worried at all, 1 somewhat worried, 2 very worried and 3 desperately worried. The index variable in the last column is computed the average of the z scores of the previous two dependent variables. The z scores are computed by subtracting the mean of the control group and then dividing by the standard deviation of the control group. Higher/lower income group denote the upper/lower 50% of the sample income per adult equivalent distribution. All models control for individual and household characteristics. Hard indicates participants exposed to hard scenarios.

Table A.4: Tobit regressions of treatment effects on demand for investment goods, groceries and luxury goods

	Lower Income			Higher Income		
	(1)	(2)	(3)	(4)	(5)	(6)
	Investment	Groceries	Luxuries	Investment	Groceries	Luxuries
Hard (H)	3.36 (3.73)	0.53 (2.48)	5.42 (7.54)	4.52 (3.26)	-2.40 (2.79)	-10.6** (5.34)
Discount (D)	13.5*** (4.00)	-1.84 (2.40)	6.23 (7.50)	4.66 (3.55)	0.85 (2.60)	-3.62 (5.14)
Hard Discount (HD)	3.09 (3.97)	4.65** (2.16)	-19.7** (9.06)	10.3*** (3.15)	-3.61 (2.41)	2.07 (4.90)
Easy Mean	7.14	20.00	1.95	6.40	20.59	2.13
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.04	0.03	0.12	0.04	0.03	0.14
Observations	182	182	182	167	167	167
<i>p-values - Tests:</i>						
$D = HD$	0.013	0.008	0.014	0.105	0.089	0.190
$H^{LI} = H^{HI}$	0.742	0.430	0.057			
$D^{LI} = D^{HI}$	0.124	0.448	0.264			
$HD^{LI} = HD^{HI}$	0.109	0.011	0.048			

Note: Estimates are obtained via Tobit regressions with left and right censoring. Robust standard errors in parentheses. *, **, *** denote significance at the 10%, 5% and 1% levels respectively. Outcome variables are expenditure on child investment goods, groceries and luxury goods, expressed in pounds at baseline prices. Order effects represent the randomized order in which the three types of goods appeared in the investment task. Higher/lower income group denote the upper/lower 50% of the sample income per adult equivalent distribution. All models control for individual and household characteristics. Hard indicates participants exposed to hard scenarios. Discount indicates parents who received a 50% discount on child investment goods. The first listed p-value is associated to the t-test of equality of the coefficients on the Discount group and the Hard Discount group. The p-values listed with the subscripts LI and HI test the equality of the coefficients from the regression on the lower income group (LI) and the higher income group (HI) estimated from models where each treatment assignment variable and each covariate is interacted with the income group dummy.

Table A.5: Treatment effects on demand for investment goods, groceries and luxury goods interacted with income

	Investment		Groceries		Luxuries	
	(1)	(2)	(3)	(4)	(5)	(6)
Hard	-1.38 (3.37)	-0.097 (3.53)	0.83 (3.89)	-1.34 (3.76)	0.51 (2.44)	1.72 (2.45)
Discount	3.01 (4.05)	7.51* (4.44)	2.11 (3.63)	-3.07 (3.69)	-0.28 (2.56)	1.57 (2.61)
Hard Discount	-3.45 (4.57)	-1.22 (4.41)	8.80** (3.50)	6.20* (3.43)	-3.80* (2.09)	-2.75 (2.12)
Yearly income	0.016 (0.13)	-0.024 (0.15)	0.049 (0.17)	0.047 (0.17)	-0.060 (0.11)	-0.037 (0.13)
Hard \times Yearly income	0.13 (0.22)	0.071 (0.23)	-0.10 (0.25)	0.012 (0.24)	-0.021 (0.14)	-0.11 (0.14)
Discount \times Yearly income	0.11 (0.24)	-0.12 (0.26)	-0.13 (0.23)	0.17 (0.23)	0.080 (0.16)	-0.042 (0.16)
Hard Discount \times Yearly income	0.46 (0.29)	0.37 (0.28)	-0.52** (0.23)	-0.37 (0.23)	0.29** (0.14)	0.21 (0.14)
Controls	No	Yes	No	Yes	No	Yes
Adj. R^2	0.03	0.07	0.01	0.07	-0.00	0.02
Observations	349	349	349	349	349	349

Note: Estimates are obtained via OLS regressions. Robust standard errors in parentheses. *, **, *** denote significance at the 10%, 5% and 1% levels respectively. Outcome variables are expenditure on child investment goods, groceries and luxury goods, expressed in pounds at baseline prices. Order effects represent the randomized order in which the three types of goods appeared in the investment task. Yearly income is divided by the square root of the household size. All models control for individual and household characteristics. Hard indicates participants exposed to hard scenarios. Discount indicates participants who received a 50% discount on child investment goods after being exposed to easy scenarios. Hard Discount indicates participants who received a 50% discount on child investment goods after being exposed to hard scenarios.

Table A.6: Sensitivity analysis: heterogeneous treatment effects by days since last payment imputing the number of days since payment to participants reporting having received no payment in the last month

	Lower Income			Higher Income		
	(1)	(2)	(3)	(4)	(5)	(6)
	Investment	Groceries	Luxuries	Investment	Groceries	Luxuries
Value imputed = 25 days since last payment						
Discount \times Days since last payment	-0.33 (0.23)	0.42** (0.18)	-0.19 (0.12)	-0.19 (0.30)	-0.12 (0.25)	0.22 (0.16)
Hard Discount \times Days since last payment	-0.58** (0.24)	0.39** (0.16)	-0.037 (0.080)	0.16 (0.31)	-0.19 (0.27)	0.099 (0.17)
p-value: $D \times Pay = HD \times Pay$	0.385	0.848	0.136	0.362	0.799	0.496
p-value: $(HD \times Pay)_{LI} = (HD \times Pay)_{HI}$	0.060	0.066	0.471			
Value imputed = 30 days since last payment						
Discount \times Days since last payment	-0.29 (0.21)	0.37** (0.16)	-0.15 (0.11)	-0.23 (0.27)	-0.058 (0.22)	0.17 (0.14)
Hard Discount \times Days since last payment	-0.50** (0.21)	0.34** (0.14)	-0.036 (0.070)	0.14 (0.26)	-0.21 (0.23)	0.13 (0.16)
p-value: $D \times Pay = HD \times Pay$	0.427	0.885	0.202	0.261	0.540	0.796
p-value: $(HD \times Pay)_{LI} = (HD \times Pay)_{HI}$	0.056	0.039	0.333			
Value imputed = 35 days since last payment						
Discount \times Days since last payment	-0.26 (0.19)	0.31** (0.14)	-0.12 (0.097)	-0.24 (0.24)	-0.015 (0.20)	0.13 (0.12)
Hard Discount \times Days since last payment	-0.42** (0.18)	0.30** (0.12)	-0.032 (0.061)	0.11 (0.21)	-0.20 (0.19)	0.14 (0.14)
p-value: $D \times Pay = HD \times Pay$	0.463	0.920	0.273	0.201	0.376	0.958
p-value: $(HD \times Pay)_{LI} = (HD \times Pay)_{HI}$	0.058	0.026	0.262			
Value imputed = 40 days since last payment						
Discount \times Days since last payment	-0.23 (0.17)	0.27** (0.12)	-0.095 (0.087)	-0.24 (0.21)	0.013 (0.17)	0.10 (0.11)
Hard Discount \times Days since last payment	-0.36** (0.16)	0.26** (0.11)	-0.028 (0.054)	0.086 (0.18)	-0.18 (0.16)	0.13 (0.12)
p-value: $D \times Pay = HD \times Pay$	0.490	0.954	0.343	0.166	0.275	0.781
p-value: $(HD \times Pay)_{LI} = (HD \times Pay)_{HI}$	0.062	0.020	0.225			
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	182	182	182	167	167	167

Note: Estimates are obtained via OLS regressions. Robust standard errors in parentheses. *, **, *** denote significance at the 10%, 5% and 1% levels respectively. Outcome variables are expenditure on child investment goods, groceries and luxury goods, expressed in pounds at baseline prices. Higher/lower income group denote the upper/lower 50% of the sample income per adult equivalent distribution. All models control for individual and household characteristics and for order in which the three types of goods appeared in the investment task. Hard indicates participants exposed to hard scenarios. Discount indicates participants who received a 50% discount on child investment goods after being exposed to easy scenarios. Hard Discount indicates participants who received a 50% discount on child investment goods after being exposed to hard scenarios. The first listed p-value is associated to the t-test of equality of the coefficients on the Discount group and the Hard Discount group interacted with the number of days since the last paycheck. The p-value with the subscripts LI and HI tests the equality of the coefficients from the regression on the lower income group (LI) and the higher income group (HI) estimated from models where each treatment assignment variable and each covariate is interacted with the income group dummy.

B Appendix B

B.1 Experimental Task

B.1.1 Financial Scenarios

Instructions - In the following section you will be presented 3 scenarios and asked to answer how you would go about dealing with the situations if they were to happen to you. Please take your time answering the questions. Try to have at least 3 sentences in your open question answers.

1. Imagine that an unforeseen event requires of you an immediate (£2000/£100) expense. You need to raise the money in less than a week.
 - Are there ways in which you may be able to come up with that amount of money on a very short notice? (yes/no)
 - How would you go about getting (£2000/£100) on a very short notice? Three sentences should be enough. (open)
 - To what extent do you agree with the following statements? (4 item Likert: strongly disagree - strongly agree)
 - (a) "Coming up with (£2000/£100) on a very short notice would cause me longlasting financial hardship."
 - (b) "Coming up with (£2000/£100) on a very short notice would require me to make sacrifices that have long-term consequences."
2. Due to a national policy change, there is an increase in the monthly cost of childcare by (£200/£10), which amounts to a total cost increase of (£2400/£120) a year. This increase is not reimbursable by any government funding scheme and it applies to all forms of childcare (nursery, kindergarten, childminder, nanny, au pair etc.).
 - Would it be difficult to afford childcare after the policy change? (yes/no)
 - How would you go about covering the cost of childcare after the policy change? Would you need to make any sacrifices and budget cuts every month? Three sentences should be enough. (open)
 - To what extent do you agree with the following statements? (4 item Likert: strongly disagree - strongly agree)
 - (a) "Paying additional (£200/£10) a month for childcare would require difficult budget cuts and sacrifices every month."
 - (b) "Paying additional (£200/£10) a month for childcare would be too costly and it would probably require leaving the child in the care of relatives or becoming a stay-at-home parent."

3. Imagine that the economy is going through difficult times. Your household's monthly expenses increase by (£300/£15) due to higher food, energy and housing prices.

- Please indicate to what extent do you agree with the following statement: "Given my situation, I would be able to maintain roughly the same lifestyle under those new circumstances." (4 item Likert: strongly disagree - strongly agree)
- In what ways would the (£300/£15) increase in your monthly expenses would impact your leisure, housing or travel plans? What changes would you need to make? Three sentences should be enough. (open)
- To what extent do you agree with the following statement: "The (£300/£15) increase in our monthly expenses would strongly impact our leisure, housing, or travel plans." (4 item Likert: strongly disagree - strongly agree)

B.1.2 Investment Task

Instructions: In the following task you have to choose what goods to purchase with a budget of £30 .

You will see a list of available goods, with a picture, title and the price displayed for each of them. The price of the goods is the retail price including the discounts offered by the retailer. If you need additional information on the goods, by clicking on the picture a new window will open with further details from the website of the retailer.

Some of the goods have a **discount of 50%** in addition to any discount of the retailer. These goods are the ones with two prices listed - one black and crossed out which is the retail store price and one red which is the price in the task.

By clicking on the **ADD button**, the goods will be added to the shopping cart. You can edit the shopping cart content at any time by clicking on the **Shopping Cart** section in the top-right side of your screen.

A new window will open with the goods already selected. You can modify the quantities of each good or remove them from the shopping cart. You can return to the main window at anytime by clicking on close, or anywhere outside the shopping cart window.

When you are satisfied with your selection, click on **Checkout** in the shopping cart window to proceed to the next page. Try to spend as close to the £30 budget as possible. To proceed to the next page you need to spend a minimum of £28. Any remainder will be added as bonus payment on Prolific.

You can access these instructions at any time by clicking on the **Instructions** section in the top-left side of the page.

1 out of every 100 participants will be selected for payment. If you are selected, the goods will be delivered to a collection location of your choice at a date and time that is

convenient for you. You can pick up your goods with the code we will send you.

Figure B.1: Main screen of the investment task

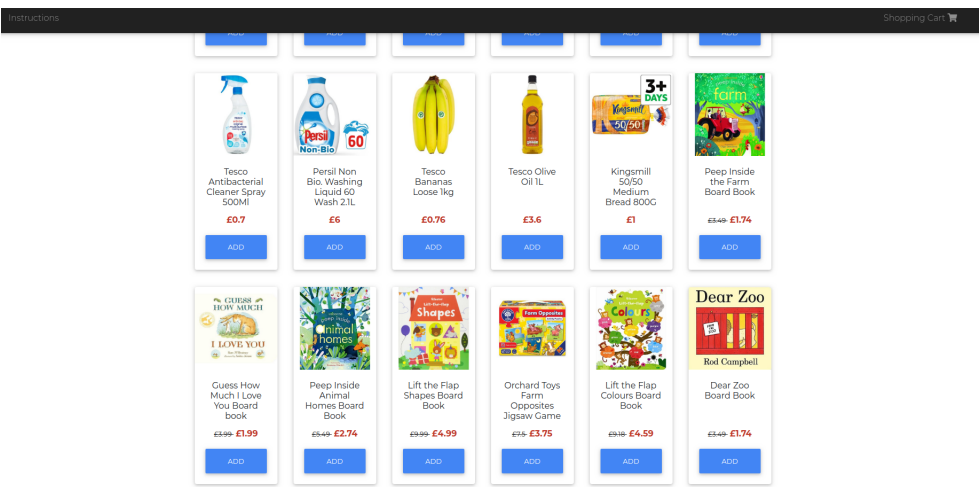


Figure B.2: Checkout screen of the investment task

