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The Cost of Anchoring on Credit Card Minimum Payments

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About three quarters of credit card accounts attract interest charges. In the US, credit card debt is $951.7 billion of a total of $2,539.7 billion of consumer credit. In the UK, credit card debt is £55.1 billion of £174.4 billion of consumer credit. The 2005 US Bankruptcy Abuse Prevention and Consumer Protection Act and the 2003 UK Treasury Select Committee's report require lenders to collect a minimum payment of at least the interest accrued each month. Thus people are protected from the effects of compounding interest. But including minimum payment information has an unintended negative effect, because minimum payments act as psychological anchors.

In anchoring, arbitrary and irrelevant numbers bias people's judgments (Tversky & Kahneman, 1974) and decisions (Ariely, Lowenstein, & Prelec, 2003), even when participants know that anchors are random or implausible (Chapman & Johnson, 1994). Meaningful anchors also bias judgments (e.g., Mussweiler & Strack, 2000). If decisions about credit card repayments are anchored upon minimum payment information then people will repay less than they otherwise would and incur greater interest charges (Thaler & Sunstein, 2008, independently made the same suggestion). Consistent with this hypothesis I find a strong correlation between minimum payment size and actual repayment size in a survey of credit card payments. A subsequent experiment demonstrates a causal link.

Survey

248 UK credit card holders (50% male, 50% female; aged 18-65) reported their outstanding balance, their most recent repayment, and the size of minimum payment required. 196 respondents had non-zero balances (mean = £1,284, median = £516). 113

paid the balance in full. 83 made a smaller payment (mean = 17% of the balance, median = 8%), including 13 who made only the minimum repayment. The proportions making full, part, and minimum repayments match UK credit card industry statistics quite closely. 165 reported the presence of minimum payment information (mean = 6.4% of the balance, median = 3.3%).

Logistic regression finds, unsurprisingly, that smaller balances more likely to be repaid in full [$\chi^2(1) = 33.26$, $p < .0001$, $p_{rep} = 1.000$, $R^2 = .78$]. But minimum payment size does not further predict the probability of making a full repayment [$\chi^2(1) = 0.00$, $p = 1.000$, $p_{rep} = .509$, change in $R^2 = .00$].

For those making partial repayments, there was a significant positive correlation between the minimum payment and the actual repayment (with both as a fraction of the overall balance) [Spearman's $\rho = .57$, $n = 75$, $p < .0001$, $p_{rep} = 1.000$]. The correlation remains significant when (a) the size of the balance is partialled out [Spearman's $\rho = .42$, $n = 75$, $p = .0002$, $p_{rep} = .995$], (b) those who make only the minimum payment are omitted [Spearman's $\rho = .57$, $n = 63$, $p < .0001$, $p_{rep} = 1.000$], and (c) those with balances less than £500 (who may have fixed-sum minimum payments) are omitted [Spearman's $\rho = .48$, $n = 57$, $p = .0002$, $p_{rep} = .996$].

Experiment

To investigate the causality in the link between minimum payment information and smaller repayments I ran a hypothetical bill payment experiment manipulating the inclusion of minimum payment information.

Method

Similar data are collapsed across 97 campus visitors, 215 web page visitors, and

101 participants recruited by a market research company (54% female, 46% male; aged 18-68). Participants received a mock credit card statement with a balance of £435.76. They were asked to imagine that the bill had arrived that morning, to consider how much they could afford to repay, and then to state how much they would repay. Participants saw either a statement that included a minimum payment of £5.42 or an otherwise identical statement that omitted this information.

Results

The proportion of people making full repayments was not significantly affected by including minimum payment information [54.8% without vs. 55.1% with, two-tailed Fisher's exact $p = 1.000$, $p_{rep} = .500$, effect size $w = .003$]. When minimum payment information was present, the distribution of partial repayments matched the real-world distribution from the survey. Removing minimum payment information had a dramatic effect (Figure 1): Mean repayments rose by 70% from £99 (23% of the balance) to £175 (40% of the balance) [Wilcoxon rank $p < .0001$, $p_{rep} = 1.000$, Cliff's effect size $d = .51$]. Minimum payment information reduces repayments of all sizes. For example, the peak in the £200-£250 bin---caused by a preference to make round repayments of £200---is reduced by minimum payment information.

Discussion

The survey and experiment provide converging evidence that, although minimum payment information does not reduce the probability of paying the bill in full, minimum payment information does reduce the size of partial repayments. Generalizing the survey to a typical scenario of an average debt of $4,000 and an APR of 20% shows that a 2% reduction in minimum payments roughly quadruples interest charges: A first quartile

minimum payment of 2.04% is associated with repayments of $193 (4.08% of the balance) and $762 of interest charges. A third quartile minimum payment of 3.92% is associated with a repayment of $570 (14.24% of the balance) and $197 of interest charges. Generalizing the experiment to the same scenario predicts that including minimum payment information roughly doubles interest charges: With minimum payment information repayments of $909 (23% of the balance) lead to $109 of interest charges. Without minimum payment information repayments of $1603 (40% of the balance) lead to $49 of interest charges. Though the two estimates are different (one is based on altering the minimum payment and the other on omitting the minimum payment), both suggest anchoring on minimum payment information may be costly.

Warnings about the dangers of making only minimum payments (as discussed by the UK Treasury Select Committee and the US Senate Committee on Banking, Housing, and Urban Affairs) are likely to lead to disengagement rather than behavior adjustment (cf. Loewenstein & O'Donoghue, 2006). Warnings about anchoring are ineffective in other domains (Wilson, Houston, Etling, & Brekke, 1996) and may fail here. Understanding of compound interest is poor (Lee & Hogarth, 1999), but manipulations that reduce uncertainty also reduce anchoring (Mussweiler & Strack, 2000), so methods like providing a table of alternative repayment scenarios should attenuate anchoring.

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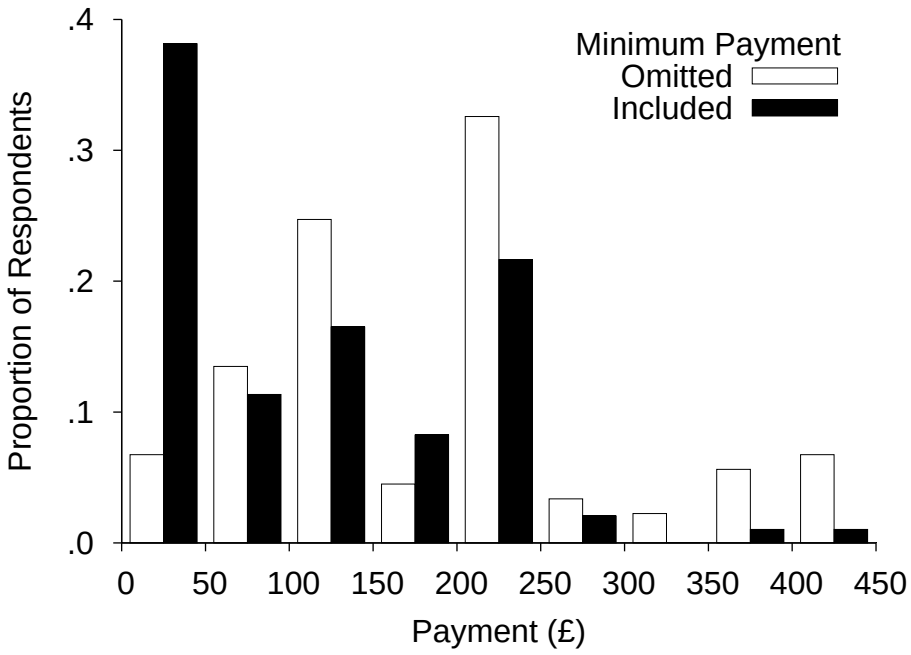
Figure Captions

Figure 1. The distribution of repayments in the hypothetical credit card bill experiment.

Figure 1


.4
.3
.2
.1
.0
Proportion of Respondents
Minimum Payment
Omitted
Included
0
50
100
150
200
250
300
350
400
450
Payment (£)