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The conflict between consumer intentions, beliefs and actions to pay down credit card debt

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Abstract

We attempt to increase credit card payments through behaviourally-informed disclosures tested in experiments across 3 UK lenders. The first experiment finds no effect of adding disclosures to credit card statements. The second experiment targets credit card users paying their bills via automatic minimum payments. This group commonly and repeatedly only make minimum payments. Few consumers respond to the intervention. The treatment causes an average reduction in consumers paying only the minimum and a reduction in credit card debt that is not sustained. Adding cost information to the disclosures does not significantly change responses, however, adding a reminder does increase response rates. Effects are primarily driven by the subgroup of consumers with 0% balance transfer debts. The continuing patterns of repeated minimum payments among consumers with automatic minimum payments do not appear to be explained by liquidity constraints. They are also inconsistent with the majority of stated preferences showing intentions for debt reduction. An explanation appears to be that consumers have mistaken beliefs. They under-estimate how long debt will take to amortise whilst only making minimum payments and avoid information telling them otherwise.

1 Introduction

Public bodies have, for a long time, been using information disclosure to reduce information asymmetries intended to help consumers to make better choices. The rise of behavioural economics led to increased testing of the effectiveness of such disclosures and innovations in their design (Madrian et al., 2017). Many disclosures appear ineffective (Egan, 2018). Behaviourally-informed disclosures – a form of '*nudge'* intervention - often making seemingly small variations in how information is presented to consumers, frequently offer cost-effective ways to change consumer behaviour while preserving consumer choice (Sunstein & Thaler, 2008; Sunstein, 2014). Yet nudges often only have small absolute effects (Egan, 2018; Sunstein, 2017).

Nudges have had mixed success at changing borrowing behaviour. Disclosures which clearly display the cost of borrowing have been found to be effective at reducing use of high-cost payday loans in the US (Bertrand & Morse, 2011). In contrast, similar disclosures added to credit card statements in the US, through the CARD Act, have been evaluated to have had little or no impact (Agarwal, Chomsisengphet, Mahoney, & Stroebel, 2015; Hershfield & Roese, 2015; Salisbury, 2014; Keys & Wang, 2016).¹ The US CARD Act disclosure contains a table of information showing the hypothetical time and cost to pay debt if they only make minimum payments (assuming no further spending on the card) compared to the payment required (and cost savings) to pay off debt in 3 years.

Such CARD Act-type disclosures are potentially attractive regulatory interventions because the information appears intuitively helpful for consumers and has a low cost for lenders to implement. We conducted a field experiment with 1 lender to examine whether adding disclosure to UK statements, similar to that required in the US, over a 6 month period would also be ineffective at changing payment behaviour. An RCT approach provides clean identification to build on the previous literature which evaluated the US disclosures after-the-fact. We refine the CARD Act disclosure by displaying information on 1 and 2 year repayment times and include information in graphical rather than tabular form in an attempt to make it more visually arresting. We also target the disclosure at consumers who do not have automatic payments set up to pay their credit card each month. This is because these consumers must manually make a credit card payment each month which provides a regular window of opportunity to engage with them. Despite these modifications our experiment shows a CARD-like precise zero effect of the intervention on reducing credit card debt and other outcomes.

Given previous literature we expected there to be a high chance of statement disclosure being ineffective (even with our refinements). We designed bespoke behaviourallyinformed disclosures in an attempt to increase UK credit card payments learning from what works in payday lending and potential explanations for the limited effects of past disclosures on US credit cards.

¹ Credit Card Accountability Responsibility and Disclosure (CARD) Act of 2009

While the US CARD Act disclosure applied to credit card statements, where information is easily missed if such statements are not opened (or even if opened, not read), we create personalised communications to prompt action. These communications were targeted at consumers with cards open for at least 6 months at the point of randomisation and who had automatic payments set up (known as 'Direct Debits' in the UK or 'autopay' in the US) to pay only the contractual minimum each month - 'automatic minimum payments'. We target consumers with automatic minimum payments as such borrowers rarely pay off their credit card debt in full and commonly, repeatedly only make minimum payments and therefore incur high interest costs and barely reduce their debt (Financial Conduct Authority, 2016; Sakaguchi, Stewart, & Gathergood, 2018). In our experimental data, over 30 percent of consumers with automatic minimum payments had only made minimum payments for every month of the 12 months leading up to the start of the trial. Using automatic minimum payments means that without our communications such consumers normally have little or no occasion to engage with their credit card debt.

Our communications show personalised information on the time to repay debt if a consumer only pays the contractual minimum each month compared to alternative scenarios for the monthly payment they would need to make to repay debt in 1, 2 or 3 years. Unlike the CARD Act this is graphically displayed. We also test whether adding information on the cost of borrowing under these scenarios would change behaviour. In addition we test the effectiveness of sending a reminder (with updated scenarios) a few months after the initial communication. These trials were conducted across 3 UK lenders (2 sending communications via letters and 1 via emails) helping us to evaluate whether trial results are likely to be lender-specific or generalisable.

We find that only a small proportion of consumers initially react to the communications. Consumers mainly respond by changing from an automatic minimum payment to an automatic fixed payment. Adding cost information to the scenarios does not change the response rates. Sending a reminder does help slightly to reduce the likelihood of making minimum payments. These results are consistent across lenders.

The disclosures make consumers less likely to make minimum payments. Initially the intervention causes a slight reduction in debt. This is driven by some consumers initially making a payment in addition to their automatic payments. Such payments are small and one-off. We observe that the intervention does not reduce credit card debt over longer time horizons. It appears that the intervention brings forward the timing of such additional payments rather than increasing the total value of payments.

Would targeting the disclosures at a subset of consumers on automatic minimum payments be much more effective? We do not find much variation in consumer responses to the intervention based on credit score or past patterns of credit card payments (number of minimum and full payments in the last 12 months) and conclude that targeting a subset of consumers on such factors would likely produce a similar outcome to the average effects found here. The 1 dimension where consumers appear more likely to react to the disclosures is if they have a 0% balance transfer debt on their credit card. This shows that the subset of consumers who could potentially benefit the most by generating interest savings from paying down their debt faster (those without 0% balance transfer debt), are not reacting at all to the disclosures.

Our results pose an interesting further research question. Why do only a small subset of consumers respond to this disclosure given the costs of repeatedly making minimum

payments? Answering this question may also help us design future interventions to reduce credit card debt. They may also inform the broader literature addressing the challenges of estimating consumer preferences (Beshears, Choi, Laibson, & Madrian, 2008; Fuster, Kaplan, & Zafar, 2018; Parker & Souleles, 2017), and evaluating the welfare effects of interventions (Allcott & Kessler, 2015; Brandon et al., 2017; Butera, Metcalfe & Taubinsky, 2018).

We attempt to better understand the reasons for continued use of automatic minimum payments and repeated minimum payments through a bespoke consumer survey of people in the automatic minimum payment trial. This shows that most respondents use automatic payments primarily as a safety net to prevent forgetting to make a payment which could lead to harm to their credit score or incurring a late fee. They use automatic minimum payments instead of automatic fixed payments for a variety of reasons. The most common being that approximately 4 in 10 respondents simply preferred the control of making automatic minimum payments and making additional payments manually rather than having higher automatic payments. Though it appears many respondents chose automatic minimum payments because it was easy or because they were not being aware of an automatic fixed payment option.

Our survey responses show, using a variety of measures, that consumers with automatic minimum payments are typically not financially distressed. We infer that such payment patterns are not primarily due to temporary liquidity constraints (though these do affect a subset of consumers). Consumers report strong preferences for repaying their debt which is inconsistent with their actual patterns of payments where there is little or no reduced debt over time.

Finally, we observe that consumers dramatically under-estimate the time credit card debt takes to amortise if they only make minimum payments. We conclude that such mistaken beliefs are the primary explanation for such costly payment patterns. Our disclosures appear contrary to consumers' prior beliefs. The information in the disclosures could be uncomfortable for consumers leading them to avoid engaging with such information - psychological phenomena known as 'selective exposure' and 'cognitive dissonance' (Barkan, Ayal, & Ariely; 2016; Festinger, 1957; Gabaix, 2017; Karlsson, Loewenstein, & Seppi, 2009; Krijnen, Tannenbaum, & Fox, 2017; Sharot et al., 2012) or possibly even avoiding reading the information as they do not want to think about their card debt (Golman, Hagmann, & Loewenstein, 2017).

In this paper Section 2 describes the design of our experiments, Section 3 shows our experimental results, Section 4 has survey evidence from our nudge targeted at consumers on automatic minimum payments and Section 5 our conclusions. Annex 1 contains main tables of results. Annex 2 contains supplementary tables and Annex 3 a bibliography.

2 Experimental design

Credit card payments

Approximately 1 in 4 payments on credit cards are at or close to the contractual minimum in the UK (FCA, 2016) with similar findings in the US (Keys & Wang, 2016). The majority of payments are made 'manually' – typically online – where consumers need to actively make a payment against their credit card each month. This pattern of payments appears to be largely driven by the presence of minimum payment information which acts as a psychological anchor (or possibly target as suggested by Bartels and Sussman, 2016) weighing down the amount consumers manually select to pay on their credit card each month (Adams, Hayes, Guttman-Kenney, Hunt, & Stewart, 2018; Agarwal et al., 2015; Guttman-Kenney, Leary, & Stewart, 2018; Jiang & Dunn, 2013; Keys & Wang, 2016; Medina & Negrin, 2017; Navarro-Martinez, Salisbury, Lemon, Stewart, Matthews, & Harris, 2011; Salisbury, 2014; Stewart, 2009).

A subset of consumers have automatic payments (termed 'Direct Debits' in the UK or 'autopay' in the US) set up to pay their credit card bill each month by attempting a payment directly from a consumer's bank account. Doing so prevents a consumer from incurring a late fee or adverse credit file impact from forgetting to make a payment (Agarwal et al., 2013; Medina, 2017; Gathergood, Sakaguchi, Stewart, & Weber, 2018). The most popular type of automatic payment option selected by credit card customers are for 'automatic minimum payments' which are set to cover the contractual minimum each month.²

While consumers with automatic minimum payments can make additional manual payments, such payments are infrequent. Without a need to actively engage with their credit card debt a subset of consumers on automatic minimum payments repeatedly only make minimum payments (Sakaguchi et al., 2018). Despite high interest costs of approximately 20% on average in 2018, it is easy for consumers to not notice the build up of costs of such payment patterns. This is because interest costs are much less salient than other costly events (e.g. missed payment fees) which result in fees and alerts. By making repeated low payments, consumption benefits from past spending may have long since passed but interest costs continue (Ausubel, 1991; Bertola, Disney, & Grant, 2006).

Persistently carrying credit card debt can also adversely limit the amount and price consumers are able to borrow at (especially if an economic shock results in them defaulting on their credit card debt). Aside from the financial costs, survey measures of struggling to repay debts have been found to have a strong negative relationship with psychological well-being when following individuals over-time and controlling for a broad range of socio-economic factors (Gathergood, 2012; Gathergood & Guttman-Kenney

 $^{^{2}}$ All automated payments are subject to the card-holder having sufficient funds in their checking account for an automated payment request transaction to be fulfilled. There are processing time lags in UK automated payments which means that if a manual payment is made shortly before an automated payment is already due to go through it would not replace it.

2016; Richardson, Elliot, & Roberts, 2013). Given these impacts there appears to be a strong motivation for interventions to help move consumers away from making repeated minimum payments and help them to pay down their credit card debt.

Design of experiment 1: Statement disclosure

The first experiment, with 1 UK lender, adds information to statements in a similar way to that required in the US through the CARD Act. The CARD Act added personalized information to credit card statements showing the time and cost to pay off credit card debt if the consumer only paid the contractual minimum compared to the payment required to pay off their debt in 3 years. We wanted to test whether similar disclosure would achieve similar results on UK cards. If we found it to be effective in the UK it could offer a low-cost way to help consumers pay off their credit card debt.

We trialled this using a field experiment with an RCT design with 1 lender targeted at 29,683 consumers without automatic payments (summary statistics displayed in Table 1). This group of consumers instead make manual payments through a variety of methods including online payment systems and over the phone. We targeted these consumers as we assumed those with automatic payments would not typically read their statements.

In this experiment the control group received their normal credit card statements. The treatment groups received new, graphical information added to the front page of their normal credit card statements. The first treatment displayed a graphic of the time to repay credit card debt if the consumer only made minimum payments along with alternative scenarios for the monthly payment required to repay debt in 1, 2 or 3 years. We used three scenarios to attempt to provide a range of options to consumers given their different circumstances and try to mitigate the small, unintended effects of the CARD Act's disclosure that reduced payments for a small group of consumers who were attracted to the single scenario amount (Agarwal et al., 2015; Keys & Wang, 2016). An example of this is displayed in Figure 1, Panel A. The second treatment - illustrated in Figure 1, Panel B - displayed the same graphic but added information on the cost of borrowing under these 4 scenarios. These treatments were calculated based on balances closest to a customer's actual credit card balance but were not able to be personalised to each customer's precise balance.

Figure 1: Statement disclosures – Designs of 'Time to Repay' (Panel A) 'Time + Cost to Repay' (Panel B) treatments

A. Time to Repay

Clear your balance faster

Did you know that if you pay a little over your minimum payment amount each month, you can pay off your credit card a lot faster?

See the example on the right

The easiest way is to set up a direct debit for a fixed amount. Use our payment calculator to work out the best amount, based on what you can afford. Then just sign in to online service to set up your direct debit - it's easy to amend at any time.





of £3,000 and at an average interest rate of 17.48% and assumes no further spending.



B. Time + Cost to Repay

Clear your balance faster Illustrative example This example shows how Monthly repayment Time and cost to repay Did you know that if you pay a little over your increasing your monthly minimum payment amount each month, you can year and paying payment above your pay off your credit card a lot faster? £332 £274 in interest contractual minimum can See the example on the right mean you repay your credit 2 vears and paying £160 The easiest way is to set up a direct debit for a fixed card balance years earlier. £568 in interest amount. Use our payment calculator to work out It is based on a balance years and paying the best amount, based on what you can afford. £113 of £3,000 and at an £867 in interest Then just sign in to online service to set up your average interest rate of direct debit - it's easy to amend at any time. 17,48% and assumes 14+ years and paying Contractual £3,494 in interest no further spending. minimum payment

Design of experiment 2: Automatic minimum payment nudge

Our second experiment is targeted at consumers on automatic minimum payments. We conduct large randomised controlled trials (RCT) in the field between 2016 and 2018 on 153,758 credit cards issued by 3 UK lenders. This sample size at each lender was chosen to have sufficient statistical power to differentiate economically meaningful effects from null results.

All these cards had been open for at least 6 months and had automatic minimum payments at the time of randomisation. Exclusions were applied for accounts in arrears or collections, with very low balances or who had recently paid off their debt in full. In the absence of our communication, these consumers do not have a salient event to prompt them to engage with their credit card debt.³

Table 1 displays summary statistics on these cards as well as some variables to compare against the population of cards held in the UK during this time. Average credit card debts across lenders are between 3 and 4 thousand pounds. And just over three-quarters of these consumers only made a payment at the contractual minimum in the month

³ Cards receive a communication after six consecutive minimum payments but there are no detailed requirements for what information this communication should detail.

preceding the trial's start. This is remarkably consistent across the 3 lenders in spite of other differences in characteristics.

It is very common for consumers to repeatedly only make minimum payments. Across the 3 lenders 31%, 35% and 54% of consumers have only made minimum payments for every 1 of the 12 months leading up to the start of the trial. The average number of minimum payments in the last 12 months is high across all three lenders (8.2, 8.9 and 10.3). Only a minority of consumers have repaid their debt in full at any point in the last 12 months – although the proportions do noticeably vary across our 3 lenders (34%, 26% and 17%).

Before putting the RCTs into the field we carried out qualitative consumer testing and gathered feedback from lenders and consumer organisations to ensure people would understand how to navigate our new communications. We also conducted an ethical review to consider potential for unintended consumer detriment.

We designed this intervention to shock people into actively engaging with their credit card debt – hopefully resulting in them increasing their credit card payments and reducing such debt. Consumers could respond by making manual payments. But we particularly highlight to consumers the 'automatic fixed payment' option as this offers a relatively hassle-free way for them to permanently increase their payments. Automatic fixed payments are set for a pound amount of the consumer's choice. Once set up that fixed payment amount is automatically attempted to be taken each month. However, a helpful feature of automatic fixed payments is that in months where the contractual minimum is greater than the fixed amount chosen, the contractual minimum rather than the fixed payment set up for £25 this would be the amount taken if the contractual minimum was £25 or below. If the contractual minimum was higher, say £50, the automatic fixed payment would attempt £50 rather than £25.

The rationale of encouraging people to move from an automatic minimum payment to an automatic fixed payment is that it significantly shortens the hypothetical amortisation schedule if no other changes in behaviour are observed (eg changes in spending).⁴ This is because while the contractual minimum payment (and automatic minimum payment) typically declines with balances, a fixed payment stays the same. For example, a typical credit card balance of £1,000 would take 18 years and 6 months to pay off if only the minimum was paid each month (which would start around £25 and then reduce to £5). However, by fixing to £25 each month it could be dramatically reduced to 5 years and 1 month saving over £750 in interest costs. Therefore, holding all else constant, we would expect higher automatic payments to yield lower debt and borrowing costs.

In our experiment the control group received no communications regarding their credit card beyond what they would normally receive from their lender. The treatment groups received new, personalised communications on their credit card debt. For Lender 3 these communications were via email and for Lender 1 and Lender 2 via letter.

The first treatment group received a 'Time to Repay' communication which graphically displayed information showing a personalised disclosure on how many years and months a consumer's credit card debt would take to pay off if they only made minimum

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⁴ This is unless the contractual minimum payment constantly binds to the card-holders' budget constraint in which case they would be equivalent. As the contractual minimum payment calculation applies in the same way across card-holders and the contractual minimum payment amount varies each month it appears highly improbable that such a scenario would occur except in rare cases.

payments and no longer spent on the card. This was displayed alongside alternative scenarios for the monthly payment to pay off such debt in 1, 2 or 3 years respectively. Figure 2 displays these disclosures sent by the 3 lenders. This information was presented in a visually arresting graphic which consumers in our qualitative research described as 'shocking'.

We also wanted to test whether adding cost information would produce a more impactful communication. The second treatment 'Time + Cost to Repay' – illustrated in Figure 3 - therefore added information on the projected interest costs under the scenarios presented in the first treatment (only minimum payments, pay off in 1, 2 and 3 years).

Both 'Time to Repay' and 'Time + Cost to Repay' communications also showed how consumers could make higher payments. This included highlighting how to change their automatic minimum payment to an automatic fixed payment. Automatic fixed payments are already offered to consumers, however, they are less commonly taken up than automatic minimum payments. We designed the disclosures to explain what automatic fixed payments were in case people were not aware (or did not understand) such a payment option.

In the final part of our testing we randomly selected half of the people who received letters in the treatment groups from 2 lenders to receive a further reminder. These reminders had the same designs as the initial communications but added a reference to the earlier communication sent. The scenarios used in the reminders were based on more recent data than those used to construct the scenarios sent in the initial communications to account for subsequent changes in credit card debts.

Structure for assessing statistical significance

Before analysing results, we pre-registered our empirical methodology following best practice in conducting field experiments (Harrison & List, 2004; Levitt & List, 2009; Duflo & Banerjee, 2017).⁵ This pre-registration outlined the structure of analysis including the regression specifications and statistical significance tests we planned to run. In line with Benjamin et al. (2018), we regard a p value of 0.005 as the threshold for statistical significance but also highlight where results are 'suggestively significant' at the 0.05 and 0.01 levels. This approach reduces false positive rates and aligns hypothesis testing with Bayes factors of 14+ considered to be substantial evidence for a hypothesis. This is a stricter test than the typical 0.05 significance level and acts similarly to applying a Bonferroni or familywise error corrections for testing multiple hypotheses. We structured our analysis in 3 parts – primary, secondary and tertiary. This structure limits the potential issues for data mining or p-hacking (Simmons et al., 2011).

The primary analysis focuses on 10 outcomes measuring the effects on: any minimum payment, any full payment, any missed payment and outstanding debt as a percent of statement balance (to normalise to deal with 'fat tails' to credit card balances) for both the card in the trial and peoples' portfolio of credit cards – the final 2 primary outcomes were the cost of borrowing and purchases for cards both as a percent of statement balance and were only observable for cards in the trial.⁶

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⁵ As this research was designed to inform potential Financial Conduct Authority rule-making legal constraints meant we were unable to externally pre-register. Instead we documented this via a PDF time-stamped document stored on the FCA's file storage system.

⁶ Variables as a percent of statement balance are bounded between zero and one.

Figure 2: Automatic minimum payment nudge – Designs of 'Time to Repay' treatments

A. Lender 1 (Letter)		B. Lender 2 (Letter)	C. Lender 3 (Email)			
YOUR BANK		YOUR BANK	Clear your balance faster			
four credit card number		Your credit card number				
A quicker way to repay your balance Dear to use currently set up to bay the minimum payment for your credit, card by Direct. Debt every month. This can be suseful way to manage your monthly budget, but if our continue to pay just the minimum enround. It can take much longer to clear your advance and it will locaty ou more in intrest. See the difference an increased fixed payment could make who as maline cases in the amount you any cosh month can speed up how curckly our repay your barnew. The examples he oware based on your September statement balance of 63,127.43 ing your minimum payment of 689.23 . It shows how different monthly payments used is reduce the time it laises ap yoiff your card.	See the chart • To see how quickly your batance could come down It's easy to increase your monthly payments: • Log on to Internet Banking • Ask in branch • Cori 0800 111 1122 Lines are open 24 hours a day, 7 days a week	Set your goal to repay your credit card years faster Heio It could take your blance more quickly you carly on paying the minimum emount each minimum your blance more quickly you could save money too You could still be paying off your balance in 38 years' time have blanced and your blance more quickly you could save money too When the out blance more quickly you could save money too When the out blance more quickly you could save money too When the out blance more quickly you could save to pay your minimum payment (when reduces as you cear your blance and minimum payment the out blance your balance so come Witch to a fixed Direct Debit to clear your balance so come Direct, Debit could help you pay out painter in may the so below - to showyou how changing to a fixed Direct, Debit could help you painter in may too or three years. We've exclaimed the assumptors we've made aboxy to blance and minimum payments over the page.	Dear Did you know that if you pay a little over your minimum payme amount each month, you can pay off your credit card balance faster? The personalised example below shows you how. Current balance amount £5,000 at 31 October Time to repay	ient e a lot		
Monthly direct debit amount £292 1 years to repay balance £162 2 years to repay balance £119 3 years to repay balance £119 5 years to repay balance Corepay 5 years to repay balance 1 5 years to repay balance 1	B years the ance	Your outstanding balance was €10,104 on your December 2016 statement 99 1 years to repay balance 99 2 years to repay balance 99 2 years to repay balance 90 Whinnum Over 38 years to repay your balance 90 Whinnum Over 38 years to repay your balance 90 You can switch to a fixed Direct Debt through on ne account servicing or by caling us on 0800 1111121 you'ifind all the information of the direct Debt. No dars switch to a fixed Direct Debt. Kindregerds	1 year 2 years Monthly repayment Monthly repayment 6567 6270			
		I lead of Customer Services	The above numbers are based on your balance as at 31 Octo assumes no further transfers or spendiing on your account.	ober and		
		Turn over to see how to fix your Direct Debit so you can pay off your balance sooner	Based on your balance of \$5000 as at 31 October , it will take	more		

Based on your balance of **£5000** as at **31 October**, it will take more than **19** years to clear your debt if you pay just the contractual minimum each month. That's because your minimum payment reduces each month as your balance fails. Paying just a bit more each month means you can clear your balance years earlier.

Figure 3: Automatic minimum payment nudge – Designs of 'Time + Cost to Repay' treatments



The secondary analysis considers a broader set of approaches to check the robustness of the primary results and understand the mechanisms driving the results in greater detail. Conducting secondary analysis was contingent on the results from the primary outcomes. Finally, the tertiary analysis was designed after examining the data.

For Experiment 1 we focus on primary outcomes after 6 statement cycles as this is when the monthly statement disclosure ended. For Experiment 2 we focus on primary outcomes after 9 statement cycles as this is the latest point observed across all 3 lenders.

Data

The data for both experiments was gathered by the UK financial regulator – the Financial Conduct Authority (FCA). These contain detailed microdata on every credit card in the 4 experiments. We observe data recorded at card origination (eg opening date, interest rates, initial credit limit) and for each statement (eg statement balances, transactions, borrowing costs). For all cards we observe 9 statements since the start of the experiment and up to fifteen statements for cards from 1 lender. As effects of interventions can often vary over time it is important to have a long time series of data such as this (Huang, Reiley, & Riabov, 2018). We also observe up to 6 years of credit card statements between card origination and the start of the experiment. Each payment made against these statements is observed including the date, amount and channel (eg automatic or manual) of payments.

Credit files were gathered for all the individuals in the trial. This enables us to monitor potential unintended spill-overs and positive externalities of the intervention which could alter our evaluation of its effectiveness (Beshears, Choi, Laibson, Madrian, & Skimmyhorn, 2017). Credit files provide monthly, product-level data on up to 6 years of credit use. These display credit limits, balances, payments and delinquency statuses. In addition, these show binary indicators for whether a card only made a minimum payment thus enabling us to monitor whether our intervention impacts making minimum payments on other credit cards held by consumers (although this was not the direct target of the experiment). Observing the portfolio of credit cards is important because while we may reduce debt on one credit card consumers may simply shift their debt elsewhere. Consumers have also been found to allocate payments on a particular credit card in proportion to their balance on that card relative to their credit card portfolio (Gathergood, Mahoney, Stewart, & Weber, 2017; Ponce, Seira, & Zamarripa, 2017). These UK credit files are especially rich as we observe statement balances and payments made against credit cards unlike US credit files which often only show credit card debt at a point-in-time each month. For 2 points-in-time - the month before the trial started and 9 months afterwards - we also observe credit risk scores and income estimates (where available).

Finally, for the automatic minimum payment nudge trial we also ran a short, bespoke consumer survey sent via email from 1 lender to its customers. Participation was incentivized through a prize draw and the invitation mentioned the role of the lender and UK financial regulator, the Financial Conduct Authority (FCA), in seeking views and experiences of using credit cards with an email subject line 'Win £500! Help make credit cards better'.¹ The survey is part of the tertiary analysis. It was designed after we observed the results from the administrative data. It particularly focuses on establishing the reasons for payment choices and is not designed for estimating average treatment effects. We ran a small pilot to refine the survey format and do not use those responses in our analysis. This survey went to 1 lender's cardholders achieving 1,716 responses which is a 3% response rate.

Empirical methodology

Allocation to control and treatment groups was conducted using a random number generator. Table 2 displays balance checks showing the randomisation was successful with control and treatment groups being balanced on observable credit card characteristics. For Lender 3 the treatment groups are balanced with the control group based on card-level characteristics, however, using credit file data we observe a difference between the groups in total credit card debt net of payments. This shows the importance of considering balance across a range of variables in RCTs (Deaton & Cartwright, 2017). We use controls to recover balance between control and treatment groups – tests of differences in unconditional means are shown in Annex 2, Table 10 where results are consistent with the more robust conditional regression analysis.

We construct an unbalanced panel with 1 observation for each credit card (i) for each statement cycle (t) observed. This panel is unbalanced as some cards are closed during the trial. Our primary analysis is conducted separately lender-by-lender. We compare unconditional means of outcomes between control and treatment groups for each cycle of data observed. We gain more precise estimates through an OLS regression with standard errors clustered at the card-level. The regression specification used to derive average treatment effects (ATEs) is displayed in **Equation 1**.

Equation 1

$$y_{i,t} = \alpha_0 + \sum_{k=1}^{K} \beta_k TI_CONTROLS_{k,i} + \sum_{\nu=1}^{V} \theta_\nu MONTH_{\nu} + \sum_{t=1}^{T} (\gamma_t CYCLE_t + \delta_t TREATMENT_i CYCLE_t) + \varepsilon_{i,t}$$

This regression includes a constant (α_0) a series of (K) time-invariant control variables $(TI_CONTROLS_{k,i})$ constructed using information on the target credit card and card-holder from before the start of the trial and dummies for the month and year $(MONTH_v)$ the outcome is observed.² In this specification δ_t shows the average treatment effect t cycles $(CYCLE_t)$ since the start of a trial. We hypothesised that treatment effects will vary over time but we did not impose a functional form on these as it was unclear what the appropriate functional form would be.

The following controls were constructed from the month preceding the experiment's start: Gender, Age, Age squared, Log Estimated Income, Credit Score, Unsecured Debt-to-Income (DTI) Ratio, Any Mortgage Debt, Log Credit Card Credit Limit, Credit Card Purchases Rate, Subprime Credit Card, Any Credit Card Promotional Rate, Any Credit Card Balance Transfer, Credit Card Open Date, Credit Card Statement Day and Any

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¹ The prize draw offered 2 £500 Amazon gift vouchers and 15 £100 Amazon gift vouchers. Due to UK marketing research regulations entry into this prize draw was not conditional on completing the survey.

² CYCLE and MONTH are both included because statement cycles do not perfectly align with calendar months and trials went into the field at different points-intime.

Credit Card Secondary Cardholder. We also included dummies for lags of outcomes for up to 11 months preceding the start of the trial.

For the automatic minimum payment nudge trial with Lender 3 there were some technical issues putting the experiment into the field. This resulted in the exclusion criteria being re-applied several months after randomisation and also excluding consumers who would be expected to repay their debt in less than three years. As a result not all consumers in the treatment groups received the nudge – 73.82% did. 100% of consumers in the control group did not receive the email (as originally intended). We account for this by using an instrumental variables approach whereby assignment to a particular treatment group is an instrument for whether an individual actually received that treatment email (doing so ensures we are estimating an 'Average Treatment Effect' rather than an 'Intention to Treat Effect'). The rest of the analytical approach previously described remains unchanged.

3 Experimental results

Experiment 1: Statement disclosure

We found neither of the treatments (displaying time information or time and cost information) had any significant effects upon consumer outcomes. They did not have any effects on our primary outcomes which we pre-registered to evaluate this experiment on. As displayed in Table 3, we found no effects of the intervention changing the likelihood of paying off debt in full, making minimum payments, missing payments, costs of borrowing, transactional use of cards or outstanding debt net of payments. Our tests were well-powered such that we can be confident that there is either no effect of either treatment or any effects are so small that they would not be economically meaningful. Unfortunately, the lender was unable to record whether consumers had opened their statements so we cannot distinguish between whether consumers did not read the statements or that they read them but did not take action. From anecdotal evidence we expect the former to be the primary explanation. As our results were unambiguous we did not pursue more detailed analysis of this experiment except for a couple of simple robustness checks which also found precise zero effects (debts and repayments in pounds shown in Annex 2, Table 8 and unconditional mean comparison of outcomes in Annex 2, Table 9). The rest of this paper therefore focuses on our second experiment.

Experiment 2: Automatic minimum payment nudge

Initial effects

We expected the primary mechanism for the nudge targeted at consumers on automatic minimum payments to affect payments would be through people changing from an automatic minimum payment to an automatic fixed payment. We find that it does cause such a change consistently across lenders and the treatments. Adding cost information appears to have no effect. Average treatment effects initially reduce automatic minimum payment use by 0.9-2.0 percentage points 2 statement cycles after the disclosures were sent (Figure 4, Panel A).³ These are mainly consumers who change to automatic fixed payments – with 1.1 to 1.6 percent point increase in people making this choice (Figure 4, Panel B).⁴ Most changes in automatic payments occur in the first few days after receiving the communications. The effect sizes are similar across lenders despite 1 lender sending disclosures via emails rather than letters. We found sending reminder letters produces a larger overall effect, though fewer people respond to the reminder than the initial letter.

How should the sizes of such initial effects be interpreted? The effects initially appear "small" since fewer than 2 in a 100 people on automatic minimum payments are changing their method of payment to an automatic fixed payment as a result of the

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³ We focus on 2 rather than 1 statement cycle because automatic payments can take a few weeks to become operational so may not be active in time for the first statement received post-disclosure.

⁴ Independent of our experiment another lender trialled similar disclosures on a different cohort of consumers at a different pointin-time and achieved similarly-sized effects.

disclosures. An alternative interpretation is that, as this is a group of highly inert consumers where almost no one is naturally changing to automatic fixed payments, the impact of the interventions are not as small as it first appears: on average causing

Figure 4: Automatic minimum payment nudge - treatment effect on sign up to automatic minimum payments (Panel A) and automatic fixed payments (Panel B) after 2 statement cycles

Treatment Effects on Pr(Automatic Minimum Payment) at Cycle 2, **Percentage Points** 2 Time to Repay Time + Cost to Repay 0 -2 -4 -6 Lender 1 Lender 3 Lender 2







Treatment Effects on Pr(Automatic Fixed Payment) at Cycle 2,

Error bars are 95% confidence intervals.

increased take up of automatic fixed payments by around 61-67% at Lender 1, 171-186% at Lender 2 and 19-26% at Lender 3 relative to each of their respective control groups.⁵ These results are slightly more encouraging when set again the low costs of sending the disclosures – particularly if they are sent via emails rather than letters. So even relatively small effects could be net beneficial overall.

We observed some phone calls made to lenders' call centres from consumers in the treatment groups who switched to automatic fixed payments. The language used in these calls was consistent with the qualitative research used to design the disclosures where consumers described the graphical disclosure as 'shocking'.

Examining payment amounts and automatic fixed payment reveals a slight increase in consumers in the treatment groups selecting the amounts in the personalised disclosures (relative to the control groups). But these affect a trivially small proportion of consumers. A small collection of round numbers dominate automatic fixed payment choices in both control and treatment groups. Because the effects are so small there is not a clear directional impact of these communications pulling actual payments up or down to the amounts in the communications. This slightly contrasts with the findings in the CARD Act where disclosures acted like target values dragging repayment choices of some consumers closer to the values (Agarwal et al., 2015; Hershfield & Roese, 2015; Keys & Wang, 2016; Salisbury, 2014).

There are other ways for consumers to react to the disclosures. For example, they may not change their automatic payment but may make 1 or more additional manual payments. So, we investigate the effects on the likelihood of making exactly minimum contractual payments (which depends on the combination of automatic and manual payments). The effect on making exactly the minimum contractual payments are broadly similar in magnitude to the effects on automatic payment choices but slightly larger. The treatments reduce the likelihood of making exactly the minimum payment by between 1.1 and 2.3 percentage points 2 statement cycles after sending the disclosures (Figure 5, Panel A). Adding cost information does not appear to produce any significant difference.

Longer-term effects

After 9 statements the effects of the initial disclosures on making minimum payments appear to reduce towards zero for some of the lender-treatment combinations but differences are not statistically significant from those initially found (Figure 5, Panel B). Adding reminders appears to help to reduce the number of consumers making minimum payments at Lender 2 but has a limited impact for Lender 1.

We explore the temporal effects of the intervention in more detail in Figure 6. This pools observations across Lender 1 and Lender 2 - who both sent nudges via letters and where we found near-identical initial effects - and displays the treatment effects on minimum payments for the initial communications (without reminders) over the first 9 statement cycles since the intervention. We do not pool Lender 3 primarily because the communications were sent via email but also because this smaller portfolio appears quite different to that of Lenders 1 and 2 (having higher credit limits, balances and use of balance transfer offers as displayed in Table 1). Pooling observations across lenders is tertiary analysis conducted to give us greater statistical power to increase the precision

⁵ In the control groups (for lenders 1, 2 and 3), 1.8%, 0.7% & 6.2% of consumers in our experiment have naturally switched from automatic minimum payments to automatic fixed payments from the time of randomisation to the second statement cycle post-treatment.

of our estimates and enable us to reduce the number of permutations of lenders & treatments to enable us to visualise results in a more readable fashion.⁶ We find little change in this initial effect on minimum payments over time for either treatment.

Figure 5: Automatic minimum payment nudge – treatment effect on minimum payments after 2 (Panel A) and nine (Panel B) completed statement cycles



A. Two cycles

B. Nine cycles

Treatment Effects on Pr(Minimum Payment) at Cycle 9, Percentage Points



Error bars are 95% confidence intervals.

 $^{\rm 6}$ Equation 1 is used to estimate these. An additional control <code>`FIRM'</code> is included.

Figure 6: Automatic minimum payment nudge – treatment effect of initial disclosures on minimum payments over time (Lender 1 and Lender 2 pooled)



Treatment Effects on Pr(Minimum Payment), Percentage Points

Error bars are 95% confidence intervals.

We do not observe any other significant effects in our primary outcomes (shown in Table 4) after 9 statement cycles and across lenders. This is consistent with results from secondary outcomes shown in Annex 2, Table 11. On average, consumers do not reduce their credit card spending in response to the intervention. For Lender 2 we observe reduced outstanding debt net of payments for the treatment without cost information and with a reminder, but this result is only weakly statistically significant (Figure 7). In general, we find, typically precisely estimated, zero effects on borrowing costs, missed payments, full payments, average payments or outstanding debt net of payments. A potential consumer reaction to the intervention is, as well as or instead of changing payments, consumers reduce their credit card spending. We find no evidence of such a consumer response – across lenders & treatments credit card spending appears unaffected by the disclosures.

Pooling observations across Lender 1 and Lender 2 (as before) we examine the effect on outstanding debt on the card in the trial (net of payments) over time. Figure 8 shows how the intervention initially produces a statistically significant reduction in debt - peaking at £36.88 for 'Time to Repay' treatment and £59.45 for 'Time + Cost to Repay' treatment 4 statement cycles after the intervention but after this the effect then declines. This temporary debt reduction equates to a reduction of 1.2% and 2.0% relative to the average debt in the control group by the fourth statement. Part of the driver for this temporary reduction in debt is a small proportion of people (under 0.5%) react to the intervention by making a manual payment in the first statement cycle. Such manual payments are a one-off reaction not maintained over time. It seems that the disclosure

Figure 7: Automatic minimum payment nudge - treatment effect on credit card debt net of payments after nine completed statement cycles



Treatment Effects on Statement Balance Net of Payments at Cycle 9,

Error bars are 95% confidence intervals.

Figure 8: Automatic minimum payment nudge - treatment effect of initial disclosures on credit card debt net of payments over time (Lender 1 and Lender 2 pooled)



Error bars are 95% confidence intervals.

brings forward the timing of the manual payment rather than noticeably increasing the frequency or amount of manual payments. Figure 9 shows that the effect of the intervention on the cumulative value of manual payments does not increase over time but has similar point estimates that are insignificantly different from zero (as well as from the peak effect in the fourth statement) from the fifth statement onwards after the disclosure was sent.

Figure 9: Automatic minimum payment nudge – treatment effect of initial disclosures on cumulative manual payments over time (Lender 1 and Lender 2 pooled)



Error bars are 95% confidence intervals.

Unsurprisingly given these results, we do not find significant results when examining our primary credit file outcomes on the portfolio of borrowing beyond the effect of the likelihood of making minimum payments. We do not observe positive or negative spill overs: The slight reduction in minimum payments on the card in the trial has no discernible effect on the frequency of minimum payment use on other cards held by consumers.

Heterogeneous effects

We wanted to understand which consumers are (and are not) reacting to the intervention. This could indicate whether focusing such disclosures on a subset of consumers on automatic minimum payments may offer a more efficient approach. We look at how treatment effects vary by credit score, the number of minimum payments in the 12 months preceding the trial, number of full payments in the 12 months preceding the trial, number of full payments in the 12 months preceding the trial. This is done using the pooled data from Lender 1 and Lender 2 as previously. Credit score is chosen as the covariate from **Equation 1** which best predicts minimum payment usage. The numbers of minimum and full payments are chosen as they are forms of consumer payment behaviour lenders easily observe and regulators could apply rules to (unlike other demographic factors). The effects on the

likelihood of making minimum payments and outstanding debt net of repayments are shown in Table 5 and Table 6 respectively.

We find no statistically significant, heterogeneous effects of the disclosures by deciles of credit score on the likelihood of making minimum payments. We find effects of the 'Time to Repay' intervention are concentrated among those who made a minimum payment in every 1 of the last 12 months, effects adding cost information appear less clearly focused among this group of consumers. No clear pattern emerges examining consumers who have made 1 or more full payments. Similarly no clear patterns emerge looking at the treatment effects on outstanding debt (net of payments) across these covariates so it does not appear targeting subgroups of consumers would be much more effective.

The final cut, by 'balance transfer' where consumers incur 0% interest on debts transferred onto the card for a promotional fixed period after paying an initial up-front fee, is selected to evaluate whether consumers who are incurring interest are more likely to react to the intervention, and whether our disclosure adding cost information changes such reactions. Consumers with balance transfer debts may still be incurring interest on their non-balance transfer credit card debt (e.g. purchases). Balance transfer debt offers are temporary and contingent upon consumers meeting criteria such as not missing payments. While we were primarily aiming to help consumers incurring interest to pay down their credit card debt there are also potential benefits to consumers not incurring interest doing so. This is because a significant minority of consumers do not pay down their credit card debt during their interest-free balance transfer period on that card (Financial Conduct Authority, 2015) and it is common for consumers to cycle debt from 1 product to another rather than paying it off (Guttman-Kenney, Kirwin, & Shah, 2018, January 8). Consumers with balance transfer debt are typically 'prime' consumers with relatively larger balances and higher credit scores (Guttman-Kenney, Kirwin, & Shah, 2018, January 8) than other credit card holders. Anecdotally they are sometimes considered as more financially sophisticated than other credit card users as they take up promotional offers. Persistently carrying debt can also potentially have broader financial impacts (eq adversely affecting credit scores) and non-financial impacts (eq harming mental health).

We find that the disclosures mostly affect consumers with balance transfer credit card debt as shown in Figure 9, Panel A. The 'Time to Repay' treatment causes a 3.0 percentage point decrease in minimum payments compared to 0.8% for those without balance transfers. The effect of the 'Time + Cost to Repay' treatment is similar: 2.7 percentage point decrease for those with balance transfer debt compared to 0.2 for those without. We infer that adding cost information to the disclosure does not appear to make consumers with automatic minimum payments who are incurring interest more likely to reduce the frequency of only making minimum payments. When we look at results for Lender 3, where 52% of borrowers are on balance transfer offers compared to 11% when Lender 1 and Lender 2 are pooled together, we also find results to be mainly driven by the sub-sample of consumers with balance transfer debt (where there is a 2.3 percentage point reduction) though the confidence intervals for estimating the effect for Lender 3's consumers without balance transfer debt are far wider so we can be less certain of this.

Effects on outstanding credit card debt (net of payments) in our pooled sample (Lender 1 and Lender 2) are statistically insignificant irrespective of whether consumers have

balance transfer debt or the variant of the treatment received (Figure 9, Panel B). We caveat this result by noting that the confidence intervals are wide (\sim £300) for the balance transfer group of consumers. This means that there may potentially be an effect which we cannot detect as being statistically significantly different from zero but, if present, we can rule out it being larger than an 8 percentage point average reduction in debt relative to the control group (with 95% confidence). We can precisely rule out any average effect of economic importance for the larger group of consumers who incur interest on their cards given the far tighter confidence intervals (under £100) and balance in these either side of zero. We reach similar conclusions for Lender 3's results: ruling out an effect larger than 6 percentage points for those with balance transfer debt and 9 percentage points for those incurring interest but being confident that adding cost information to the disclosures does not help the latter group. Yet the confidence intervals are far wider for Lender 3 so we can be less certain in the precise effect.

Figure 10: Automatic minimum payment nudge –heterogeneous treatment effect of initial disclosures by whether consumers had balance transfer debt (Lender 1 and Lender 2 pooled)



Panel A. Treatment effects on minimum payments





Error bars are 95% confidence intervals.

4 Survey evidence evaluating consumer choices

Why are these 'shocking' disclosures only causing a few consumers to shift away from using automatic minimum payments?

We designed a consumer survey to attempt to understand the reasons consumers select automatic minimum payments and do not change to automatic fixed payments. Given the low response rate to the automatic minimum payment nudge we do not attempt to use the survey to detect differences between control and treatments. Instead we simply summarise data on the survey responses – focusing on the 1,145 respondents who confirm they have an automatic minimum payment at the time of the survey. These results are summarised in Table 7.

We find that the majority (over 55%) of respondents with automatic minimum payments report using automatic payments because it helps prevent them from missing a payment which would harm their credit score or result in them incurring a late fee. Some respondents report preferring to make payments in this way for a couple of other reasons: Just over 25% simply prefer the control of making payments automatically, just under 8% say it helps them manage their unstable financial situation. 18% of respondents just do it because it is easy to set up – variations in easiness to set up automatic payments can possibly explain why rates of sign up to automatic payments vary across UK lenders.

We asked respondents why they had automatic minimum payments rather than automatic fixed payments. The most common response, by just under 40% of respondents, was that they simply preferred the control of making automatic minimum payments and additional payments manually rather than higher automatic payments. There was a mixture of other responses to this question. Similar numbers of respondents reported that they did not know they could set up an automatic payment option, that they did it because it was easy, or that they could only afford the minimum. So it seems efforts to increase awareness or ease of selecting automatic fixed payments may, at best, only lead to a minority of consumers currently using automatic minimum payments to instead use automatic fixed payments. As our experiments have shown, disclosure appears a fairly ineffective way for getting consumers to engage and take action over financial decisions. This finding is consistent with other research on consumer financial products (Adams, Baker, Hunt, Kelly, & Nava, 2015; Adams, Hunt, Palmer, & Zaliauskas, 2016; Andersen, Campbell, Meisner-Nielson, & Ramadorai, 2017; Hundtofte, 2018; Smart, 2016).

Our automatic minimum payment nudge was specifically designed to try to provide informative disclosure on the implications of repeated minimum payments, in a shocking way to try to prompt action. Why are these consumers still repeatedly only making minimum payments?

It could be that consumers want to make higher payments but this is unachievable due to liquidity constraints (Agarwal, Liu, & Souleles, 2007; Carroll, 2001; Gross & Souleles, 2002; Leth-Petersen, 2010). Another possibility is that revealed preferences from actual

payments are truly a reflection of consumers' stated preferences (Bernheim & Rangel, 2007; Beshears, Choi, Laibson, & Madrian, 2008; Fuster, Kaplan, & Zafar, 2018; Parker & Souleles, 2017) ie they simply do not want to make higher payments. Neither of these necessarily means that there is anything mistaken with their choices. Both *could* align with their true preferences.

But such decisions may be mistaken (Campbell, 2006; Campbell, 2016; Campbell, Jackson, Madrian, & Tufano, 2011). Consumers may state they want to reduce their debt but not do so - possibly because of present bias (Laibson, 1997; Heidhues, & Koszegi, 2010; Kuchler & Pagel, 2017; Meier & Sprenger, 2010; Shui & Ausubel, 2005), inertia (Andersen et al., 2017) or self-control problems (O'Donoghue & Rabin, 1999). It may also be that consumers have low financial capability or literacy which makes it difficult for them to manage their finances (Agarwal, Driscoll, Gabaix, & Laibson, 2009; Disney & Gathergood, 2013; Lee & Hogarth, 1999; Lusardi & Mitchell, 2013; Raynard & Craig, 1993; Soll, Keeney, & Larrick, 2013; Stango & Zinman, 2007, 2009, 2015). This may be exhibited through mistaken beliefs that their pattern of spending and payments, eg only making repeated minimum payments, would amortise their debts in a reasonable time period (Kinsey & McAlister, 1981; Raynard & Craig, 1993; Soll, Keeney, & Larrick, 2013; Which?, 2015). A UK survey of consumers self-reporting to make minimum payments on credit cards found noticeable misperceptions in what minimum payments are: approximately 50% regarded the minimum payment as a recommendation from their credit card provider (Which?, 2015).

It does not seem that most of this group of consumers are, on average, severely financially distressed. We find 19% of people report that that they are either keeping up with payments but facing a constant struggle to do so or are falling behind. This is consistent with another question in the survey asking people why they have an automatic minimum payment rather than an automatic fixed payment where 20% state that they can only afford the minimum. While liquidity constraints are clearly important it does not appear to explain why many consumers with automatic minimum payments are repeatedly making minimum payments.

We investigate whether consumers understand the implications of making repeated minimum payments. In our survey, we presented a hypothetical scenario based on a typical UK credit card statement balance (£1,029.90) and interest rate (18.9%) and asked respondents how long they expected it to take to pay if they only repay the minimum each month and spend no more on the card (question in footnote).⁷ Respondents had a free text box to input their answer so as to not to steer them towards a particular response (Schwarz, Hippler, Deutsch, & Strack, 1985). The correct answer is 18 years and 9 months. This is a hard question and we do not expect respondents to get this precise number. Instead we are more interested in the distribution of responses – does it appear that many consumers' expectations are broadly consistent with actual repayment periods. For example, do they expect it to take a few (1-3) years or 10+ years?

⁷ Imagine a credit card statement balance of £1,029.90 with an interest rate of 18.9%. If someone only repays the minimum each month and spends no more on the card approximately how long would you expect it to take them to repay?

It doesn't matter whether the answer you give is right or wrong. We just want to find out what people understand and the question after this one lets you indicate how confident you are in your answer.

We found that 34% of respondents with automatic minimum payments expected that repeatedly only paying the minimum would result in debt being paid off within 3 years. 59% expected it to be repaid within 5 years. 84% expected it to take no more than 10 years. Almost all respondents, 94%, under-estimated the actual time it would take to repay (Figure 10). When asked, there seems to be some self-awareness of this poor knowledge – respondents report low confidence, averaging below 4 out of 10, in their estimates with approximately a quarter stating they are not at all confident in their estimate. And even if we focus on the 738 respondents who received the disclosures as part of the experiments, our results are similar: 24% reporting being not at all confident and an average confidence of 3.8 out of 10. It appears that these mistaken beliefs are a strong explanation for why there is a group of consumers using automatic minimum payments and repeatedly only making minimum payments. Our disclosure is not powerful enough to overcome this. Such a finding is consistent with the broader literature on the ineffectiveness of financial literacy initiatives (Gale & Levine, 2010; Fernandes, Lynch, & Netemeyer, 2014; Willis, 2008).

Our disclosures appear contrary to consumers' prior beliefs. The new information in the disclosures could be uncomfortable for consumers, so they avoid engaging with them. This is related to psychological phenomena known as 'selective exposure' and 'cognitive dissonance' (Barkan, Ayal, & Ariely; 2016; Festinger, 1957; Gabaix, 2017; Karlsson, Loewenstein & Seppi, 2009; Krijnen, Tannenbaum, & Fox, 2017; Sharot et al., 2012). Another possible explanation is 'information avoidance' that consumers avoid even reading the information as they do not want to think about their card debt (Golman, Hagmann, & Loewenstein, 2017).

Do people actually want to repay their debt? We investigate this using 2 methods. The first asks for their preferences – would they rather spend more, save more or reduce debt over the next 12 months? The second repeats the hypothetical example but instead of asking how long they would expect it to take to amortise, how long would they *want* it to take.

The first method finds a strong stated preference for debt reduction. 71% of respondents prefer to reduce their debt compared to 27% who want to save more and almost no one preferring to spend more. We caveat this by noting that this is a very simple survey question. The questions proxies for rather than attempts to capture the detail of how changing credit card payments would affect the rest of a household's finances.

These responses appear consistent with the other survey responses. We asked respondents a follow-up question to the hypothetical scenario asking them to consider how much money they actually have and imagine the same scenario (£1029.90 at an interest rate of 18.9%) was their actual credit card balance. If so, how long would they want it to take to pay back if they only paid the minimum each month and spent no more on the card. On average, respondents reported wanting debt to amortize in approximately 3 years (and 2 years for the median response) if they only made minimum payments. 71% of respondents wanted only paying the minimum to result in debt amortizing faster than their own (typically vastly under-estimated) expectation of how long they thought it would take. 15% and 10% of respondents want it to be paid back in the same or shorter duration than their own expectation respectively and the remaining 4% saying they could not afford to pay off such debt.

It seems clear that although there is the desired intention for consumers with automatic minimum payments to repay their debt quicker, and the majority appear financially unconstrained, they do not take action to do so. This lack of action is in spite of targeted disclosures. Continued use of automatic minimum payments, and patterns of repeated minimum payments, appears to be largely due to consumers mistakenly believing that by making minimum payments their debt will amortise in no more than a few years. Disclosures seem ineffectively powerful to overcome such mistaken beliefs.

Figure 11: Automatic minimum payment nudge – distribution of respondents' expectations of time to repay hypothetical credit card debt (scenario balance of £1029.90 with an interest rate of 18.9%) if borrower only made repeated minimum payments and spent no more their card



Responses for greater than thirty years are grouped at '30+'.

5 Concluding discussion

To conclude, our first experiment provides further supportive evidence of statement disclosure information being an ineffective way to give information to consumers. In our second experiment we find important new evidence on the difficulty of using nudge disclosures to change credit card borrowing behaviour. Our ability to replicate findings across lenders shows the robustness of these results. Given similar magnitudes of treatment effects of email communications and letters, this indicates the former can be a more cost-effective route to give information to consumers. We find that adding cost information does not make consumers more responsive to the intervention, however, reminders do seem to prompt more action. The disclosures only temporarily reduce debt, and by a small amount as consumers make one-off, additional, small manual payments which are not sustained. It does not appear as though further targeting disclosures on sub-samples of consumers based on their payment behaviour would yield results that are much different. Those who do respond to the disclosures appear to mainly have balance transfer offers – a group who arguably may be of some, but relatively less, concern than those who are incurring interest on their credit card debt.

It remains a challenge to actively engage consumers on automatic minimum payments about their credit card debt – in a similar way as inertia affects other financial markets. It is possible that more consumers would react if the intervention made it even easier to act upon. For example, when designing this experiment we considered sending disclosures via email with a button enabling consumers to change their automatic payments but decided against such an approach due to concerns that emails with links could be part of a phishing scam. Technology has since developed such that push notifications on mobile apps may offer a more secure solution, however, they would only affect consumers with these apps installed. Yet, given our findings on credit card disclosures, and elsewhere on financial products, we are sceptical as to whether such an approach could achieve large, long-term reductions in credit card debt.

Adams, Guttman-Kenney, Hayes, Hunt, Laibson and Stewart (2018) attempted to use choice architecture to increase payments via increasing automatic payments. This proved surprisingly unsuccessful as, despite causing a large initial effect on consumer choices and increasing automatic payments, consumers offset the intervention by making lower manual payments. Automatic minimum payments reduce but debt remains unchanged. Also some consumers drop out of having any automatic payments set up at all. A small minority of those consumers with automatic payments set up make additional manual payments. But in the months when they do such manual payments are large. So it appears that interventions to reduce credit card debt may need to focus on increasing manual payments to be effective. Building on Stewart (2009), the research by Adams, Guttman-Kenney, Hayes, Hunt and Stewart (2018) and Guttman-Kenney, Leary and Stewart (2018) provides evidence that choice architecture interventions targeted at deanchoring manual payments from minimum payment information appear likely to be the most effective way to increase payments.

Our more fundamental contribution is to better understand why consumers on automatic minimum payments are repeatedly making minimum payments on credit cards. Liquidity constraints affect a subset of these consumers but do not appear to be the primary explanation for consumers making repeated, minimum payments. Consumers report strong desires to pay down their debt quickly. But they do not do so – even with targeted, personalized disclosures. These intentions and actions appear in conflict. It appears to be partially reconciled by consumers commonly, mistakenly expecting that paying the minimum will lead their credit card debt to amortize dramatically faster than it actually will. New information on amortization durations is not acted upon – possibly because it uncomfortably does not match their prior beliefs and action requires effort or simply because people avoid reading information about their credit card debt.

Annex 1: Main tables

Table 1: Summary statistics for statement disclosure and automatic minimum payment nudge

	Statement Disclosure	Automatic	Credit		
Outcome	Mean (Lender 3)	Mean (Lender 1)	Mean (Lender 2)	Mean (Lender 3)	Card Market
Age (years)	46.9	45.79	42.06	44.41	42
Female (% cards)	45.66	40.54	42.90	40.60	
Credit Limit (£)	7,862.74	5,987.56	6,656.97	8,517.67	4,010
Credit Score (0-100)	69.91	66.42	63.80	69.24	
Purchases Rate (%)	17.97	21.82	22.62	17.75	
Balance Transfer (% cards)	48.73	10.51	11.86	52.73	
Any Automatic Payment Set-up (% cards)	3.11	99.95	98.73	96.71	
Any Automatic Full Payment Set-up (% cards)	0.01	0.00	0.07	0.18	
Any Automatic Fixed Payment Set-up (% cards)	1.43	0.02	0.46	5.17	
Any Automatic Minimum Payment Set-up (% cards)	1.67	99.93	98.20	91.37	
Credit Card Statement Balance (£)	3,532.11	3,423.11	3,630.27	4,430.29	
Credit Card Statement Balance Net of Payments (£)	3,236.41	3,191.47	3,352.93	4,186.83	
Full Payment in Preceding Cycle (% cards)	13.78	1.80	3.41	9.43	
Minimum Payments in Preceding Cycle (% cards)	15.22	76.82	78.46	75.86	
Number of Full Payments in Prior 12 Cycles	0.68	1.15	0.77	0.38	
Number of Minimum Payments in Prior 12 Cycles	2.03	8.24	8.91	10.33	
Any Full Payments In Prior 12 Cycles (% cards)	31.05	34.40	25.57	16.78	
All Minimum Payments in Prior 12 Cycles (% cards)	3.01	30.99	34.97	54.23	
Credit Card Statement Balance Net of Payments (% Statement Balance)	79.09	91.91	90.55	86.53	
Total Credit Card Statement Balances (£)	8,916.96	8,834.78	7,979.41	11,664.54	
Total Credit Card Statement Balances Net of Payments (£)	7,946.98	8,215.13	7,456.34	10,633.98	1,001

'Credit Card Market' is calculated using a representative sample of credit reference agency (CRA) data to illustrate the characteristics of the population of credit cards open at the end of 2017.

Statement Disclosure									
Variable	Treatment	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Age (years)	Time To Repay	46.86	46.82	-0.04	-0.09	-0.37	0.29	0.812	0.238
Female (% cards)		46.08	45.07	-1.01	-2.20	-2.40	0.38	0.153	1.428
Credit Limit (£)		7,889.24	7,802.36	-86.88	-1.10	-218.95	45.20	0.197	1.289
Credit Score (0-100)		70.03	69.75	-0.28**	-0.39	-0.48	-0.07	0.009	2.614
Purchases Rate (%)		17.95	18.02	0.07	0.38	-0.02	0.16	0.129	1.520
Balance Transfer (% cards)		48.75	48.61	-0.14	-0.30	-1.54	1.25	0.840	0.202
Total Credit Card Statement Balances Net of Payments (f)		7,833.88	8,076.06	242.18	3.09	-3.70	488.07	0.054	1.931
Age (years)	Time+Cost To Repay	46.86	47.02	0.16	0.35	-0.17	0.50	0.334	0.966
Female (% cards)		46.08	45.85	-0.23	-0.50	-1.62	1.16	0.744	0.327
Credit Limit (£)		7,889.24	7,920.02	30.78	0.39	-101.76	163.33	0.649	0.455
Credit Score (0-100)		70.03	70.01	-0.02	-0.02	-0.22	0.19	0.880	0.151
Purchases Rate (%)		17.95	17.94	-0.01	-0.03	-0.09	0.08	0.907	0.117
Balance Transfer (% cards)		48.75	48.84	0.09	0.18	-1.31	1.48	0.904	0.121
Total Credit Card Statement Balances Net of Payments (£)		7,833.88	7,929.44	95.56	1.22	-148.72	339.85	0.443	0.767

Table 2: Balance checks between control and treatments for statement disclosure and automatic minimum payment nudge

N (control) = 9,807, N (Time To Repay) = 9,943, N (Time+Cost To Repay) = 9,933 . *** P value < 0.005, ** < 0.01, * < 0.05.
				Auto	matic Minimum Pay	ment Nudge				
Variable	Lender	Treatment	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Age (years)	1	Time To Repay	45.75	45.80	0.05	0.10	-0.24	0.34	0.747	0.322
Female (% cards)			39.99	40.46	0.47	1.18	-0.66	1.60	0.413	0.819
Credit Limit (£)			6,004.57	6,074.31	69.74	1.16	-29.63	169.11	0.169	1.376
Credit Score (0-100))		66.32	66.50	0.18	0.27	-0.01	0.36	0.063	1.856
Purchases Rate (%))		21.80	21.86	0.06	0.28	-0.04	0.16	0.223	1.218
Balance Transfer (% cards)	6		10.43	10.69	0.25	2.43	-0.45	0.96	0.482	0.703
Total Credit Card Statement Balances Net of Payments (£	s)		8,202.67	8,261.42	58.75	0.72	-160.59	278.10	0.600	0.525
Age (years)	1	Time+Cost To Repay	45.75	45.71	-0.04	-0.09	-0.33	0.25	0.792	0.264
Female (% cards)			39.99	41.43	1.44	3.60	0.31	2.57	0.013	2.492
Credit Limit (£)			6,004.57	5,957.92	-46.66	-0.78	-145.51	52.20	0.355	0.925
Credit Score (0-100))		66.32	66.42	0.10	0.15	-0.09	0.29	0.298	1.041
Purchases Rate (%))		21.80	21.81	0.01	0.06	-0.08	0.11	0.792	0.264
Balance Transfer (% cards)	6		10.43	10.11	-0.33	-3.12	-1.02	0.37	0.360	0.915
Total Credit Card Statement Balances Net of Payments (£	5)		8,202.67	8,156.01	-46.66	-0.57	-265.60	172.28	0.676	0.418

N (Lender 1, control) = 22,056, N (Lender 1, Time To Repay) = 10,808, N (Lender 1, Time+Cost To Repay) = 10,814. *** P value < 0.005, ** < 0.01, * < 0.05.

Variable	Lender	Treatment	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Age (years)	2	Time To Repay	42.02	42.13	0.11	0.26	-0.16	0.38	0.425	0.798
Female (% cards)			42.55	42.37	-0.18	-0.42	-1.37	1.01	0.769	0.294
Credit Limit (£)			6,767.64	6,763.41	-4.23	-0.06	-115.48	107.01	0.941	0.075
Credit Score (0-100))		63.76	63.69	-0.06	-0.10	-0.28	0.16	0.590	0.538
Purchases Rate (%)			22.62	22.58	-0.04	-0.17	-0.18	0.10	0.592	0.536
Balance Transfer (% cards))		11.97	11.99	0.02	0.13	-0.76	0.80	0.968	0.040
Total Credit Card Statement Balances Net of Payments (£))		7,503.18	7,627.91	124.73	1.66	-85.52	334.98	0.245	1.163
Age (years)	2	Time+Cost To Repay	42.02	42.05	0.03	0.08	-0.24	0.31	0.818	0.231
Female (% cards)			42.55	43.22	0.68	1.59	-0.52	1.87	0.266	1.112
Credit Limit (£)			6,767.64	6,746.39	-21.25	-0.31	-132.30	89.80	0.708	0.375
Credit Score (0-100))		63.76	63.93	0.18	0.28	-0.04	0.40	0.113	1.585
Purchases Rate (%)			22.62	22.59	-0.03	-0.15	-0.18	0.11	0.637	0.472
Balance Transfer (% cards))		11.97	12.17	0.20	1.70	-0.58	0.99	0.611	0.509
Total Credit Card Statement Balances Net of Payments (£))		7,503.18	7,435.31	-67.87	-0.90	-274.35	138.62	0.519	0.644

N (Lender 2, control) = 20,000, N (Lender 2, Time To Repay) = 9,970, N (Lender 2, Time+Cost To Repay) = 9,956. *** P value < 0.005, ** < 0.01, * < 0.05.

Variable	Lender	Treatment	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Age (years)	3	Time To Repay	44.38	44.49	0.11	0.26	-0.19	0.42	0.467	0.728
Female (% cards)			40.90	40.37	-0.53	-1.30	-1.93	0.87	0.455	0.747
Credit Limit (£)			8,569.28	8,543.40	-25.88	-0.30	-168.29	116.54	0.722	0.356
Credit Score (0-100))		69.18	69.43	0.24	0.35	0.04	0.44	0.017	2.389
Purchases Rate (%)			17.78	17.74	-0.05	-0.26	-0.13	0.03	0.262	1.122
Balance Transfer (% cards))		52.39	52.89	0.50	0.95	-0.92	1.92	0.491	0.688
Total Credit Card Statement Balances Net of Payments (£)	1		10,881.92	10,475.12	-406.79**	-3.74	-699.38	-114.20	0.006	2.725
Age (years)	3	Time+Cost To Repay	44.38	44.36	-0.02	-0.04	-0.33	0.29	0.902	0.124
Female (% cards)			40.90	40.55	-0.35	-0.84	-1.75	1.06	0.629	0.482
Credit Limit (£)			8,569.28	8,445.59	-123.69	-1.44	-266.83	19.45	0.090	1.694
Credit Score (0-100))		69.18	69.11	-0.07	-0.10	-0.27	0.13	0.488	0.693
Purchases Rate (%)			17.78	17.75	-0.04	-0.21	-0.12	0.04	0.374	0.889
Balance Transfer (% cards))		52.39	52.91	0.52	1.00	-0.90	1.95	0.472	0.719
Total Credit Card Statement Balances Net of Payments (£)	1		10,881.92	10,548.56	-333.36*	-3.06	-626.01	-40.71	0.026	2.233

N (Lender 3, control) = 9,367, N (Lender 3, Time To Repay) = 9,528, N (Lender 3, Time+Cost To Repay) = 9,469. *** P value < 0.005, ** < 0.01, * < 0.05.

Outcome	Treatment	Estimate	95% Confidence Interval	P Value	Adjusted R Squared
Any minimum payment	Time To Repay	0.0038 (0.0047)	[-0.0054, 0.0129]	0.4229	0.3581
	Time+Cost To Repay	-0.0052 (0.0046)	[-0.0142, 0.0039]	0.2634	0.3581
Any full payment	Time To Repay	-0.0061 (0.0056)	[-0.0170, 0.0049]	0.2756	0.1424
	Time+Cost To Repay	0.0024 (0.0056)	[-0.0086, 0.0135]	0.6650	0.1424
Any payment less than minimum payment	Time To Repay	-0.0026 (0.0033)	[-0.0092, 0.0039]	0.4334	0.195
	Time+Cost To Repay	-0.0001 (0.0033)	[-0.0066, 0.0065]	0.986	0.195
Statement balance net of payments (% statement balance)	Time To Repay	0.0045 (0.0053)	[-0.0060, 0.0150]	0.4022	0.2031
	Time+Cost To Repay	-0.0009 (0.0054)	[-0.0115, 0.0096]	0.8656	0.2031
Costs (% statement balance)	Time To Repay	-0.0013 (0.0018)	[-0.0049, 0.0023]	0.4925	0.005
	Time+Cost To Repay	0.0007 (0.0019)	[-0.0030, 0.0045]	0.6942	0.005
Transactions (% statement balance)	Time To Repay	0.0070* (0.0035)	[0.0003, 0.0138]	0.0418	0.1496
	Time+Cost To Repay	-0.0008 (0.0034)	[-0.0075, 0.0058]	0.8087	0.1496
CRA share of credit cards only paying minimum	Time To Repay	-0.0026 (0.0028)	[-0.008, 0.0029]	0.3538	0.455
	Time+Cost To Repay	-0.0024 (0.0028)	[-0.0078, 0.0030]	0.3753	0.455
CRA share of credit cards making full payment	Time To Repay	0 (0.0034)	[-0.0067, 0.0068]	0.9905	0.5323
	Time+Cost To Repay	-0.0025 (0.0034)	[-0.0092, 0.0042]	0.4654	0.5323
CRA share of credit cards missing payment	Time To Repay	0.0001 (0.0011)	[-0.0020, 0.0022]	0.9194	0.2318
	Time+Cost To Repay	-0.0007 (0.001)	[-0.0027, 0.0013]	0.4763	0.2318
CRA total credit card statement balances net of payments (% statement balances)	Time To Repay	0.0020 (0.0038)	[-0.0054, 0.0094]	0.5955	0.3011
	Time+Cost To Repay	0.0019 (0.0038)	[-0.0056, 0.0093]	0.6241	0.3011

Table 3: Statement disclosure - treatment effects on primary outcomes after six completed statement cycles

Degrees of Freedom 254,104. *** P value < 0.005, ** < 0.01, * < 0.05. OLS with controls and standard errors clustered at the card-level.

1. Any minimum payment									
Treatment	Lender	Estimate	95% Confidence Interval	P Value	Cards	Degrees of Freedom	Adjusted R Squared		
Time To Repay	1	-0.0144* * (0.0055)	[-0.0251, -0.0037]	0.0086	43678	598379	0.1641		
	2	-0.0080 (0.0055)	[-0.0188, 0.0028]	0.1473	39926	478265	0.1756		
	3	-0.0246* * (0.0089)	[-0.0420, -0.0071]	0.0058	28364	225842	0.2944		
Time+Cost To Repay	1	-0.0037 (0.0054)	[-0.0143, 0.0070]	0.5000	43678	598379	0.1641		
	2	-0.0041 (0.0055)	[-0.0149, 0.0068]	0.463	39926	478265	0.1756		
	3	-0.0112 (0.0089)	[-0.0286, 0.0062]	0.2065	28364	225842	0.2944		
Reminder - Time To Repay	1	-0.0136* (0.0054)	[-0.0243, -0.0029]	0.0125	41968	382792	0.1362		
	2	-0.0282* * * (0.0056)	[-0.0391, -0.0173]	0.0000	40074	319775	0.1417		
Reminder - Time+Cost To Repay	1	-0.0169* * * (0.0055)	[-0.0276, -0.0062]	0.002	41968	382792	0.1362		
	2	-0.0216* * * (0.0056)	[-0.0325, -0.0107]	0.0001	40074	319775	0.1417		
			2. Any full paym	ent					
Time To Repay	1	0.0047 (0.0039)	[-0.0030, 0.0124]	0.2357	43678	598379	0.0591		
	2	-0.0033 (0.0044)	[-0.0119, 0.0053]	0.4556	39926	478265	0.0725		
	3	0.0007 (0.0065)	[-0.0119, 0.0134]	0.909	28364	225842	0.1473		
Time+Cost To Repay	1	0.0053 (0.0039)	[-0.0024, 0.0130]	0.1741	43678	598379	0.0591		
	2	0.0004 (0.0045)	[-0.0084, 0.0091]	0.9356	39926	478265	0.0725		
	3	0.0120 (0.0066)	[-0.0009, 0.0248]	0.0673	28364	225842	0.1473		
Reminder - Time To Repay	1	-0.0014 (0.0039)	[-0.0089, 0.0062]	0.724	41968	382792	0.0571		
	2	0.0113* (0.0045)	[0.0024, 0.0201]	0.0127	40074	319775	0.0497		
Reminder - Time+Cost To Repay	1	0.0019 (0.0039)	[-0.0057, 0.0096]	0.6256	41968	382792	0.0571		
	2	0.0047 (0.0045)	[-0.0041, 0.0134]	0.2938	40074	319775	0.0497		

Table 4: Automatic minimum payment nudge - treatment effects on primary outcomes after nine completed statement cycles

3. Any payment less than minimum payment											
Treatment	Lender	Estimate	95% Confidence Interval	P Value Cards	Degrees of Freedom	Adjusted R Squared					
Time To Repay	1	0.002 (0.0018)	[-0.0015, 0.0055]	0.2649 43678	598379	0.0286					
	2	0.0014 (0.0024)	[-0.0034, 0.0062]	0.5757 39926	478265	0.0554					
	3	0.0048 (0.0034)	[-0.0018, 0.0114]	0.1531 28364	225842	0.255					
Time+Cost To Repay	1	-0.0024 (0.0017)	[-0.0057, 0.0009]	0.1552 43678	598379	0.0286					
	2	-0.0009 (0.0024)	[-0.0056, 0.0038]	0.7014 39926	478265	0.0554					
	3	0.0007 (0.0033)	[-0.0057, 0.0071]	0.8313 28364	225842	0.255					
Reminder - Time To Repay	1	0.0016 (0.0018)	[-0.0019, 0.0051]	0.3645 41968	382792	0.0331					
	2	0.0013 (0.0024)	[-0.0035, 0.006]	0.5935 40074	319775	0.0487					
Reminder - Time+Cost To Repay	1	-0.0008 (0.0017)	[-0.0042, 0.0025]	0.6223 41968	382792	0.0331					
	2	-0.0012 (0.0024)	[-0.0059, 0.0035]	0.6087 40074	319775	0.0487					
	4. Sta	tement balan	ce net of payments	s (% statement ba	lance)						
Time To Repay	1	-0.0047 (0.004)	[-0.0124, 0.0031]	0.2408 43678	598379	0.0947					
	2	0.0016 (0.0043)	[-0.0068, 0.0101]	0.7028 39926	478265	0.0959					
	3	-0.0065 (0.0065)	[-0.0193, 0.0063]	0.3200 28364	225842	0.1772					
Time+Cost To Repay	1	-0.0024 (0.0039)	[-0.0101, 0.0054]	0.5458 43678	598379	0.0947					
	2	0.0001 (0.0044)	[-0.0084, 0.0087]	0.9772 39926	478265	0.0959					
	3	-0.0145* (0.0066)	[-0.0274, -0.0016]	0.0275 28364	225842	0.1772					
Reminder - Time To Repay	1	-0.0014 (0.0039)	[-0.0091, 0.0062]	0.7125 41968	382792	0.0878					
	2	-0.0126* * * (0.0044)	[-0.0212, -0.0039]	0.0045 40074	319775	0.0695					
Reminder - Time+Cost To Repay	1	-0.0014 (0.0039)	[-0.0091, 0.0064]	0.7299 41968	382792	0.0878					
	2	-0.0066 (0.0044)	[-0.0152, 0.002]	0.1312 40074	319775	0.0695					

5. Costs (% statement balance)										
Treatment	Lender	Estimate	95% Confidence Interval	P Value Cards	Degrees of Freedom	Adjusted R Squared				
Time To Repay	1	-0.0002 (0.0014)	[-0.0031, 0.0026]	0.8818 43678	598379	0.0061				
	2	0.0005 (0.0008)	[-0.0011, 0.0021]	0.5211 39926	478265	0.0092				
	3	-0.0032 (0.0025)	[-0.0082, 0.0018]	0.2047 28364	225842	0.0147				
Time+Cost To Repay	1	-0.0006 (0.0014)	[-0.0034, 0.0022]	0.6797 43678	598379	0.0061				
	2	0.0003 (0.0008)	[-0.0013, 0.0019]	0.7318 39926	478265	0.0092				
	3	0.0002 (0.0026)	[-0.005, 0.0054]	0.9346 28364	225842	0.0147				
Reminder - Time To Repay	1	0.0007 (0.0015)	[-0.0022, 0.0035]	0.6533 41968	382792	0.0051				
	2	-0.0004 (0.0008)	[-0.0019, 0.0011]	0.6019 40074	319775	0.0074				
Reminder - Time+Cost To Repay	1	0.0014 (0.0015)	[-0.0016, 0.0043]	0.3556 41968	382792	0.0051				
	2	0.0004 (0.0008)	[-0.0012, 0.002]	0.6321 40074	319775	0.0074				
		6. Trai	nsactions (% statem	ent balance)						
Time To Repay	1	0.0032 (0.0031)	[-0.0029, 0.0093]	0.3087 43678	598379	0.1273				
	2	-0.0008 (0.0026)	[-0.006, 0.0044]	0.7627 39926	478265	0.1192				
	3	0.0054 (0.0037)	[-0.0018, 0.0127]	0.1414 28364	225842	0.122				
Time+Cost To Repay	1	-0.0003 (0.0031)	[-0.0063, 0.0057]	0.9254 43678	598379	0.1273				
	2	0.0035 (0.0027)	[-0.0018, 0.0088]	0.1976 39926	478265	0.1192				
	3	0.0049 (0.0037)	[-0.0024, 0.0121]	0.1873 28364	225842	0.122				
Reminder - Time To Repay	1	0.0002 (0.0031)	[-0.0058, 0.0062]	0.9434 41968	382792	0.1148				
	2	0.0049 (0.0027)	[-0.0005, 0.0102]	0.0746 40074	319775	0.1049				
Reminder - Time+Cost To Repay	1	0.0003 (0.0031)	[-0.0057, 0.0063]	0.928 41968	382792	0.1148				
	2	0.0016 (0.0027)	[-0.0037, 0.0068]	0.5634 40074	319775	0.1049				

7. CRA share of credit cards only paying minimum											
Treatment	Lender	Estimate	95% Confidence Interval	P Value	Cards	Degrees of Freedom	Adjusted R Squared				
Time To Repay	1	-0.0100* * (0.0037)	[-0.0173, -0.0026]	0.0078	43678	598379	0.5331				
	2	-0.0063 (0.0038)	[-0.0137, 0.0011]	0.0964	39926	478265	0.4969				
	3	-0.0074 (0.0052)	[-0.0177, 0.0029]	0.1581	28364	225842	0.5015				
Time+Cost To Repay	1	-0.0040 (0.0037)	[-0.0113, 0.0033]	0.2842	43678	598379	0.5331				
	2	-0.0078* (0.0038)	[-0.0152, -0.0005]	0.0374	39926	478265	0.4969				
	3	0.0008 (0.0053)	[-0.0096, 0.0111]	0.8844	28364	225842	0.5015				
Reminder - Time To Repay	1	-0.0090* (0.0039)	[-0.0167, -0.0014]	0.0209	41968	382792	0.5551				
	2	-0.0139* * * (0.0038)	[-0.0214, -0.0063]	0.0003	40074	319775	0.4896				
Reminder - Time+Cost To Repay	1	-0.0098* (0.0039)	[-0.0174, -0.0022]	0.0117	41968	382792	0.5551				
	2	-0.0137* * * (0.0038)	[-0.0213, -0.0062]	0.0003	40074	319775	0.4896				
		8. CRA share	of credit cards ma	king full	paymen	t					
Time To Repay	1	0.0016 (0.003)	[-0.0043, 0.0076]	0.5889	43678	598379	0.7414				
	2	-0.0038 (0.0032)	[-0.0100, 0.0025]	0.2405	39926	478265	0.663				
	3	-0.0025 (0.0048)	[-0.0119, 0.0070]	0.6100	28364	225842	0.5536				
Time+Cost To Repay	1	0.0007 (0.003)	[-0.0051, 0.0066]	0.8035	43678	598379	0.7414				
	2	0.0033 (0.0033)	[-0.0031, 0.0097]	0.3143	39926	478265	0.663				
	3	-0.0028 (0.0048)	[-0.0123, 0.0067]	0.5677	28364	225842	0.5536				
Reminder - Time To Repay	1	-0.0033 (0.0031)	[-0.0094, 0.0028]	0.2908	41968	382792	0.7604				
	2	0.0054 (0.0033)	[-0.0011, 0.0118]	0.1045	40074	319775	0.6705				
Reminder - Time+Cost To Repay	1	-0.0025 (0.0031)	[-0.0086, 0.0036]	0.4264	41968	382792	0.7604				
	2	0.0016 (0.0033)	[-0.0048, 0.0081]	0.6175	40074	319775	0.6705				

9. CRA share of credit cards missing payment										
Treatment	Lender	Estimate	95% Confidence Interval	P Value Cards	Degrees of Freedom	Adjusted R Squared				
Time To Repay	1	0.0008 (0.0012)	[-0.0015, 0.0030]	0.5094 43678	598379	0.0962				
	2	0.0016 (0.0018)	[-0.0018, 0.0050]	0.3634 39926	478265	0.1513				
	3	0.0025 (0.0017)	[-0.0009, 0.0058]	0.1538 28364	225842	0.2354				
Time+Cost To Repay	1	-0.0010 (0.0011)	[-0.0031, 0.0012]	0.3832 43678	598379	0.0962				
	2	-0.0002 (0.0017)	[-0.0035, 0.0032]	0.9271 39926	478265	0.1513				
	3	0.0002 (0.0017)	[-0.0031, 0.0035]	0.8905 28364	225842	0.2354				
Reminder - Time To Repay	1	-0.0002 (0.0011)	[-0.0024, 0.0021]	0.8871 41968	382792	0.0654				
	2	0.0009 (0.0017)	[-0.0026, 0.0043]	0.6229 40074	319775	0.1174				
Reminder - Time+Cost To Repay	1	0.0012 (0.0012)	[-0.0012, 0.0035]	0.3308 41968	382792	0.0654				
	2	0.0004 (0.0017)	[-0.0030, 0.0038]	0.8052 40074	319775	0.1174				
10. CRA	total cred	lit card state	ment balances net	of payments (% s	tatement balan	ces)				
Time To Repay	1	-0.0018 (0.003)	[-0.0077, 0.0041]	0.5422 43678	598379	0.7902				
	2	0.0043 (0.0032)	[-0.0019, 0.0106]	0.1734 39926	478265	0.6998				
	3	-0.0056 (0.0047)	[-0.0147, 0.0036]	0.2351 28364	225842	0.2909				
Time+Cost To Repay	1	0.0002 (0.003)	[-0.0056, 0.0060]	0.9419 43678	598379	0.7902				
	2	-0.0050 (0.0033)	[-0.0114, 0.0014]	0.1256 39926	478265	0.6998				
	3	-0.0062 (0.0047)	[-0.0154, 0.0029]	0.1829 28364	225842	0.2909				
Reminder - Time To Repay	1	0.0002 (0.003)	[-0.0058, 0.0061]	0.9520 41968	382792	0.8223				
	2	-0.0035 (0.0033)	[-0.0099, 0.0030]	0.2903 40074	319775	0.7301				
Reminder - Time+Cost To Repay	1	0.0023 (0.003)	[-0.0036, 0.0082]	0.4359 41968	382792	0.8223				
	2	-0.0042 (0.0033)	[-0.0106, 0.0022]	0.1989 40074	319775	0.7301				

Effect By	Levels	Treatment	Lender	Estimate	95% Confidence Interval	P Value
Balance Transfer	None	Time To Repay	1+2	-0.0082 (0.0044)	[-0.0168, 0.0003]	0.0593
Debt		Time+Cost To Repay	1+2	-0.0022 (0.0044)	[-0.0107, 0.0064]	0.6177
		Time To Repay	3	-0.0170 (0.0171)	[-0.0505, 0.0164]	0.3186
		Time+Cost To Repay	3	-0.0036 (0.0170)	[-0.0370, 0.0298]	0.8331
	Any	Time To Repay	1+2	-0.0300* (0.0120)	[-0.0534, -0.0065]	0.0122
		Time+Cost To Repay	1+2	-0.0274* (0.0121)	[-0.0511, -0.0037]	0.0237
		Time To Repay	3	-0.0266* (0.0118)	[-0.0498, -0.0034]	0.0245
		Time+Cost To Repay	3	-0.0036 (0.0117)	[-0.0265, 0.0193]	0.7554

Table 5: Automatic minimum payment nudge – heterogeneous treatment effects on any minimum payment after nine completed statement cycles

Effect By	Levels	Treatment	Lender	Estimate	95% Confidence Interval	P Value
Credit Score Buckets	0	Time To Repay	1+2	-0.0418 (0.0286)	[-0.098, 0.0143]	-0.0418 (0.0286)
score,10=high score)		Time+Cost To Repay		-0.0239 (0.0290)	[-0.0808, 0.033]	-0.0239 (0.0290)
	1	Time To Repay		-0.0256 (0.0132)	[-0.0514, 0.0002]	-0.0256 (0.0132)
		Time+Cost To Repay		0.0019 (0.0135)	[-0.0246, 0.0284]	0.0019 (0.0135)
	2	Time To Repay		-0.0015 (0.0131)	[-0.0272, 0.0242]	-0.0015 (0.0131)
		Time+Cost To Repay		-0.0077 (0.0129)	[-0.03300, 0.0176]	-0.0077 (0.0129)
	3	Time To Repay		-0.0040 (0.0133)	[-0.0300, 0.0220]	-0.0040 (0.0133)
		Time+Cost To Repay		0.0148 (0.0133)	[-0.0113, 0.0410]	0.0148 (0.0133)
	4	Time To Repay		-0.0436* * * (0.013)	[-0.0691, -0.0181]	-0.0436* * * (0.0130)
		Time+Cost To Repay		0.0030 (0.0125)	[-0.0215, 0.0275]	0.0030 (0.0125)
	5	Time To Repay		0.0028 (0.0132)	[-0.0231, 0.0286]	0.0028 (0.0132)
		Time+Cost To Repay		-0.0079 (0.0134)	[-0.0342, 0.0183]	-0.0079 (0.0134)
	6	Time To Repay		-0.0078 (0.013)	[-0.0333, 0.0176]	-0.0078 (0.0130)
		Time+Cost To Repay		0.0104 (0.0128)	[-0.0147, 0.0355]	0.0104 (0.0128)
	7	Time To Repay		-0.0141 (0.013)	[-0.0395, 0.0113]	-0.0141 (0.0130)
		Time+Cost To Repay		-0.0146 (0.0128)	[-0.0397, 0.0106]	-0.0146 (0.0128)
	8	Time To Repay		0.0023 (0.0128)	[-0.0229, 0.0274]	0.0023 (0.0128)
		Time+Cost To Repay		-0.0100 (0.013)	[-0.0356, 0.0156]	-0.0100 (0.0130)
	9	Time To Repay		-0.0057 (0.0129)	[-0.0311, 0.0197]	-0.0057 (0.0129)
		Time+Cost To Repay		-0.0107 (0.0129)	[-0.0360, 0.0146]	-0.0107 (0.0129)
	10	Time To Repay		-0.0003 (0.0136)	[-0.0270, 0.0264]	-0.0003 (0.0136)
		Time+Cost To Repay		-0.026 (0.0137)	[-0.0528, 0.0009]	-0.0260 (0.0137)

Effect By	Levels	Treatment	Lender	Estimate	95% Confidence Interval	P Value
Number Full Payments (0-12)	0	Time To Repay	1+2	-0.0133* * (0.0048)	[-0.0227, -0.0039]	0.0054
		Time+Cost To Repay		-0.0079 (0.0048)	[-0.0173, 0.0014]	0.0961
	1	Time To Repay		-0.0097 (0.0150)	[-0.0391, 0.0197]	0.5165
		Time+Cost To Repay		0.0127 (0.0150)	[-0.0166, 0.042]	0.3958
	2	Time To Repay		-0.0056 (0.0170)	[-0.039, 0.0278]	0.741
		Time+Cost To Repay		-0.0021 (0.0174)	[-0.0362, 0.032]	0.9049
	3	Time To Repay		-0.0124 (0.0204)	[-0.0523, 0.0275]	0.5418
		Time+Cost To Repay		-0.0032 (0.0201)	[-0.0426, 0.0363]	0.8754
	4	Time To Repay		0.0209 (0.0241)	[-0.0262, 0.0681]	0.3840
		Time+Cost To Repay		0.0388 (0.0236)	[-0.0074, 0.0849]	0.0997
	5	Time To Repay		0.0029 (0.0247)	[-0.0455, 0.0513]	0.9062
		Time+Cost To Repay		-0.0147 (0.0251)	[-0.0638, 0.0345]	0.5587
	6	Time To Repay		-0.0231 (0.0289)	[-0.0797, 0.0336]	0.4251
		Time+Cost To Repay		-0.0277 (0.0295)	[-0.0855, 0.0301]	0.3478
	7	Time To Repay		-0.0230 (0.0318)	[-0.0853, 0.0392]	0.4684
		Time+Cost To Repay		-0.0268 (0.0316)	[-0.0887, 0.0352]	0.3969
	8	Time To Repay		-0.0298 (0.0523)	[-0.1324, 0.0728]	0.5689
		Time+Cost To Repay		-0.0692 (0.0514)	[-0.1700, 0.0316]	0.1783
	9	Time To Repay		0.0456 (0.0628)	[-0.0775, 0.1686]	0.4677
		Time+Cost To Repay		-0.0304 (0.0615)	[-0.151, 0.0902]	0.6210
	10	Time To Repay		-0.2068 (0.2273)	[-0.6524, 0.2388]	0.363
		Time+Cost To Repay		-0.3280* (0.1620)	[-0.6455, -0.0106]	0.0429
	11	Time To Repay		-0.4270 (0.2764)	[-0.9688, 0.1148]	0.1224
		Time+Cost To Repay		-0.4453 (0.2763)	[-0.9868, 0.0962]	0.1070

*** P value < 0.005, ** < 0.01, * < 0.05. OLS with controls and standard errors clustered at the card-level. Zero observations for 12 full payments.

Effect By	Levels	vels Treatment Lender Est		Estimate	95% Confidence Interval	P Value
Number Minimum Payments (0-12)	0	Time To Repay	1+2	-0.0105 (0.0140)	[-0.0379, 0.0169]	0.4518
		Time+Cost To Repay		0.0042 (0.0139)	[-0.0231, 0.0315]	0.7633
	1	Time To Repay		0.0000 (0.0220)	[-0.0432, 0.0431]	0.9990
		Time+Cost To Repay		-0.0354 (0.0216)	[-0.0777, 0.007]	0.1015
	2	Time To Repay		-0.0233 (0.0237)	[-0.0698, 0.0231]	0.3254
		Time+Cost To Repay		-0.0155 (0.0231)	[-0.0607, 0.0298]	0.5031
	3	Time To Repay		-0.0287 (0.0232)	[-0.0742, 0.0169]	0.2172
		Time+Cost To Repay		-0.0445 (0.0229)	[-0.0894, 0.0003]	0.0515
	4	Time To Repay		-0.0232 (0.0225)	[-0.0673, 0.021]	0.3037
		Time+Cost To Repay		-0.0209 (0.0224)	[-0.0648, 0.023]	0.3499
	5	Time To Repay		0.0106 (0.0204)	[-0.0293, 0.0505]	0.6016
		Time+Cost To Repay		0.0464*	[0.0062, 0.0866]	0.0236
	6	Time To Repay		-0.0097 (0.0195)	[-0.0479, 0.0285]	0.6191
		Time+Cost To Repay		0.0038 (0.0195)	[-0.0344, 0.0421]	0.8443
	7	Time To Repay		-0.0256 (0.0187)	[-0.0623, 0.0111]	0.1723
		Time+Cost To Repay		-0.0207 (0.0188)	[-0.0576, 0.0162]	0.2709
	8	Time To Repay		0.0021 (0.0177)	[-0.0327, 0.0368]	0.9077
		Time+Cost To Repay		0.0101 (0.0179)	[-0.0249, 0.0451]	0.5723
	9	Time To Repay		-0.0138 (0.0155)	[-0.0442, 0.0166]	0.3735
		Time+Cost To Repay		0.0110 (0.0156)	[-0.0196, 0.0417]	0.4806
	10	Time To Repay		-0.0045 (0.0137)	[-0.0313, 0.0223]	0.7420
		Time+Cost To Repay		0.0192 (0.0136)	[-0.0074, 0.0457]	0.1572
	11	Time To Repay		-0.0112 (0.0104)	[-0.0316, 0.0092]	0.2833
		Time+Cost To Repay		-0.0187 (0.0106)	[-0.0395, 0.002]	0.077
	12	Time To Repay		-0.0129* (0.0061)	[-0.0248, -0.001]	0.0331
		Time+Cost To Repay		-0.0087 (0.0060)	[-0.0204, 0.0031]	0.1496

Effect By	Levels	Treatment	Lender	Estimate	95% Confidence Interval	P Value
Balance Transfer Debt	None	Time To Repay	1+2	-6.12 (23.97)	[-53.10, 40.86]	0.7986
		Time+Cost To Repay	1+2	-9.51 (23.64)	[-55.84, 36.82]	0.6873
		Time To Repay	3	-109.32 (117.67)	[-339.95, 121.31]	0.3529
		Time+Cost To Repay	3	5.65 (115.79)	[-221.29, 232.59]	0.9611
	Any	Time To Repay	1+2	-90.37 (73.07)	[-233.58, 52.85]	0.2162
		Time+Cost To Repay	1+2	-60.40 (76.72)	[-210.77, 89.97]	0.4311
		Time To Repay	3	-92.77 (77.60)	[-244.86, 59.32]	0.2319
		Time+Cost To Repay	3	-112.52 (77.74)	[-264.9, 39.85]	0.1478

Table 6: Automatic minimum payment nudge - heterogeneous treatment effects or
outstanding debt net of payments after nine completed statement cycles

Effect By	Levels	Treatment	Lender	Estimate	95% Confidence Interval	P Value
Credit Score Buckets	0	Time To Repay	1+2	-437.39* (185.11)	[-800.21, -74.57]	0.0181
score,10=high score)		Time+Cost To Repay		-89.16 (188.63)	[-458.88, 280.56]	0.6365
	1	Time To Repay		-2.40 (48.33)	[-97.13, 92.32]	0.9603
		Time+Cost To Repay		90.79 (48.55)	[-4.37, 185.94]	0.0615
	2	Time To Repay		-20.22 (53.45)	[-124.97, 84.53]	0.7052
		Time+Cost To Repay		-40.87 (52.89)	[-144.54, 62.80]	0.4397
	3	Time To Repay		-5.17 (63.68)	[-129.98, 119.64]	0.9353
		Time+Cost To Repay		89.01 (62.91)	[-34.30, 212.32]	0.1571
	4	Time To Repay		26.91 (69.43)	[-109.18, 162.99]	0.6984
		Time+Cost To Repay		1.41 (66.48)	[-128.89, 131.7]	0.9831
	5	Time To Repay		64.99 (78.03)	[-87.96, 217.94]	0.4049
		Time+Cost To Repay		-112.21 (80.27)	[-269.53, 45.12]	0.1621
	6	Time To Repay		-8.89 (84.34)	[-174.19, 156.41]	0.9160
		Time+Cost To Repay		-20.78 (82.22)	[-181.93, 140.36]	0.8004
	7	Time To Repay		-23.93 (86.90)	[-194.26, 146.4]	0.783
		Time+Cost To Repay		-64.42 (85.23)	[-231.47, 102.63]	0.4497
	8	Time To Repay		-33.72 (82.89)	[-196.18, 128.74]	0.6841
		Time+Cost To Repay		-4.45 (83.10)	[-167.32, 158.43]	0.9573
	9	Time To Repay		3.14 (78.20)	[-150.13, 156.40]	0.9680
		Time+Cost To Repay		75.88 (79.21)	[-79.36, 231.13]	0.3380
	10	Time To Repay		-65.53 (71.03)	[-204.75, 73.69]	0.3562
		Time+Cost To Repay		-156.95* (69.92)	[-293.99, -19.90]	0.0248

Effect By	Levels	Treatment	Lender	Estimate	95% Confidence Interval	P Value
Number Full Payments (0-12)	0	Time To Repay	1+2	-3.22 (27.95)	[-58.01, 51.57]	0.9084
		Time+Cost To Repay		-30.64 (27.69)	[-84.90, 23.63]	0.2685
	1	Time To Repay		-9.62 (79.93)	[-166.29, 147.05]	0.9042
		Time+Cost To Repay		-74.37 (82.67)	[-236.40, 87.66]	0.3683
	2	Time To Repay		-81.87 (86.71)	[-251.84, 88.09]	0.3451
		Time+Cost To Repay		8.63 (88.93)	[-165.67, 182.92]	0.9227
	3	Time To Repay		-15.15 (102.07)	[-215.20, 184.91]	0.8820
		Time+Cost To Repay		191.71* (97.74)	[0.150, 383.28]	0.0498
	4	Time To Repay		-166.65 (112.45)	[-387.05, 53.74]	0.1383
		Time+Cost To Repay		58.02 (106.19)	[-150.10, 266.15]	0.5848
	5	Time To Repay		42.14 (111.18)	[-175.78, 260.06]	0.7047
		Time+Cost To Repay		-80.78 (111.79)	[-299.89, 138.33]	0.4699
	6	Time To Repay		-206.25 (131.96)	[-464.89, 52.39]	0.1181
		Time+Cost To Repay		53.32 (135.92)	[-213.09, 319.73]	0.6949
	7	Time To Repay		-9.48 (137.66)	[-279.29, 260.33]	0.9451
		Time+Cost To Repay		14.16 (132.24)	[-245.03, 273.36]	0.9147
	8	Time To Repay		20.46 (243.45)	[-456.7, 497.61]	0.9330
		Time+Cost To Repay		273.60 (243.45)	[-203.56, 750.76]	0.2611
	9	Time To Repay		7.78 (273.00)	[-527.3, 542.87]	0.9773
		Time+Cost To Repay		-332.51 (300.02)	[-920.55, 255.53]	0.2677
	10	Time To Repay		-2387.27* * *	[-3499.40, -1275.14]	0.0000
		Time+Cost To Repay		-227.98 (781 25)	[-1759.23, 1303.27]	0.7704
	11	Time To Repay		(788.47* (375.71)	[52.07, 1524.86]	0.0359
		Time+Cost To Repay		-485.36 (376.53)	[-1223.36, 252.63]	0.1974

*** P value < 0.005, ** < 0.01, * < 0.05. OLS with controls and standard errors clustered at the card-level. Zero observations for 12 full payments.

Effect By	Levels	Treatment	Lender	Estimate	95% Confidence Interval	P Value
Number Minimum Payments (0-12)	0	Time To Repay	1+2	10.39 (93.43)	[-172.74, 193.51]	0.9115
		Time+Cost To Repay		-106.03 (86.17)	[-274.92, 62.86]	0.2185
	1	Time To Repay		-85.46 (111.73)	[-304.46, 133.53]	0.4443
		Time+Cost To Repay		17.21 (108.46)	[-195.37, 229.79]	0.8739
	2	Time To Repay		-369.60* * * (112.64)	[-590.38, -148.83]	0.0010
		Time+Cost To Repay		-272.09* (113.13)	[-493.83, -50.36]	0.0162
	3	Time To Repay		-117.35 (109.72)	[-332.39, 97.69]	0.2848
		Time+Cost To Repay		-74.28 (111.04)	[-291.93, 143.37]	0.5036
	4	Time To Repay		-131.87 (104.31)	[-336.31, 72.57]	0.2061
		Time+Cost To Repay		10.05 (108.81)	[-203.21, 223.32]	0.9264
	5	Time To Repay		161.23 (100.68)	[-36.10, 358.57]	0.1093
		Time+Cost To Repay		129.4 (101.46)	[-69.47, 328.27]	0.2022
	6	Time To Repay		-88.74 (96.33)	[-277.55, 100.07]	0.3569
		Time+Cost To Repay		98.07 (94.04)	[-86.24, 282.38]	0.2970
	7	Time To Repay		19.90 (95.10)	[-166.51, 206.3]	0.8343
		Time+Cost To Repay		9.31 (101.95)	[-190.51, 209.13]	0.9272
	8	Time To Repay		32.98 (98.45)	[-159.99, 225.95]	0.7376
		Time+Cost To Repay		70.25 (95.73)	[-117.38, 257.87]	0.4631
	9	Time To Repay		7.22 (88.36)	[-165.98, 180.41]	0.9349
		Time+Cost To Repay		54.22 (89.68)	[-121.56, 229.99]	0.5455
	10	Time To Repay		62.89 (83.45)	[-100.68, 226.45]	0.4511
		Time+Cost To Repay		77.33 (83.67)	[-86.66, 241.32]	0.3554
	11	Time To Repay		83.21 (68.92)	[-51.87, 218.29]	0.2273
		Time+Cost To Repay		-16.47 (70.03)	[-153.72, 120.79]	0.8141
	12	Time To Repay		-52.24 (40.07)	[-130.79, 26.30]	0.1924
		Time+Cost To Repay		-69.86 (39.19)	[-146.67, 6.95]	0.0746

Question	Outcome	Mean	95% Confidence Interval		
Q1: How well are you keeping up	Keeping up, no problem (%)	0 3810	0 3529	0 4091	
with your bills and commitments at	Keeping up, occasional struggle (%)	0.4246	0.3960	0.4532	
the moment?	Keeping up, constant struggle (%)	0.1404	0.1203	0.4552	
	Falling behind with some (%)	0.0366	0.0257	0.1005	
	Having real problems and fallen behind with	0.0500	0.0237	0.0475	
	many (%)	0.0113	0.0052	0.0175	
	No commitments (%)	0.0061	0.0016	0.0106	
Q2: Thinking about your financial	Spend more (%)	0.0087	0.0033	0.0141	
vou most prefer to?	Save more (%)	0.2668	0.2412	0.2924	
<i>y</i> • <i>a</i> • • • • • • • • • • •	Reduce debt (%)	0.7071	0.6807	0.7334	
	Don't know (%)	0.0174	0.0099	0.0250	
Q3: Why do you have an automatic	Never thought why (%)	0.0235	0.0148	0.0323	
payment on your credit card?	Prevents credit score impact (%)	0.5510	0.5222	0.5798	
	Prevents late fee (%)	0.5815	0.5530	0.6101	
	Unstable finances (%)	0.0767	0.0613	0.0921	
	Prefer this control (%)	0.2764	0.2505	0.3023	
	Easy (%)	0.1822	0.1599	0.2046	
	Wanted to cancel, didn't get around to (%)	0.0017	-0.0007	0.0042	
	Other (%)	0.0096	0.0039	0.0152	
	Number of responses to question (#)	1.7027	1.6429	1.7625	
Q4: Why do you have an automatic	Never thought why (%)	0.0488	0.0363	0.0613	
minimum payment rather than an automatic fixed payment?	No benefit (%)	0.0323	0.0220	0.0425	
automatic fixed payment.	Didn't know could (%)	0.1805	0.1582	0.2027	
	Didn't understand (%)	0.0340	0.0235	0.0445	
	Prefer min (%)	0.1744	0.1524	0.1963	
	Easy (%)	0.1613	0.1400	0.1826	
	Prefer this control (%)	0.3976	0.3692	0.4259	
	Unstable finances (%)	0.1046	0.0869	0.1223	
	Wanted to cancel, didn't get around to (%)	0.0078	0.0027	0.01300	
	Only afford min (%)	0.1988	0.1757	0.2219	
	Faster amortisation (%)	0.0148	0.0078	0.0218	
	Other (%)	0.0174	0.0099	0.02500	
	Number of responses to question (#)	1.3723	1.3312	1.4133	
Q5: Imagine a credit card statement	Expected Amortisation (months)	78.2816	73.6432	82.9200	
balance of $\pounds 1,029$ with an interest	Confidence in Expected Amortisation (1-10)	3.8413	3.7019	3.9807	
repays the minimum each month	Actual Amortisation (months)	225			
and spends no more on the card	Expected Amortisation Under 3 years (%)	0.3435	0.3160	0.3710	
approximately how long would you	Expected Amortisation Under 5 years (%)	0.5920	0.5635	0.6204	
expect it to take them to repay?	Expected Amortisation Under Actual [18	- - ·		0	
Of Pageing in mind how much	years & 9 months] (%)	0.9372	0.9232	0.9513	
money you actually have. If you	Desired Amortisation (months)	38.3612	35.1763	41.546	
only repay the minimum each month and spend no more on the card, approximately how long would you want it to take to repay?	Unable to Afford Amortisation (%)	0.0392	0.0280	0.0505	

Table 7: Automatic minimum payment nudge - summary statistics on survey results

N=1,147

Annex 2: Additional tables

 Table 8: Statement disclosure - treatment effects on selected secondary outcomes after

 six completed statement cycles

Outcome	Treatment	Estimate	95% Confidence Interval	P Value	Adjusted R Squared
Statement balance net of payments	Time To Repay	18.6531 (34.9523)	[-49.8535, 87.1596]	0.5936	0.6467
	Time+Cost To Repay	-0.6055 (34.482)	[-68.1902, 66.9792]	0.986	0.6467
Cumulative costs across statements	Time To Repay	0.6142 (1.359)	[-2.0494, 3.2778]	0.6513	0.7542
	Time+Cost To Repay	0.7022 (1.338)	[-1.9204, 3.3247]	0.5997	0.7542
Cumulative payments across statements	Time To Repay	-21.1282 (24.0342)	[-68.2353, 25.9788]	0.3794	0.5879
	Time+Cost To Repay	-21.5765 (24.153)	[-68.9163, 25.7634]	0.3717	0.5879

Degrees of Freedom 254,104. *** P value < 0.005, ** < 0.01, * < 0.05. OLS with controls and standard errors clustered at the card-level.

Outcome	Treatment	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Any minimum payment	Time To Repay	0.160	0.163	0.0028	1.740	-0.008	0.014	0.623	0.491
	Time+Cost To Repay	0.160	0.154	-0.0059	-3.660	-0.017	0.005	0.296	1.044
Any full payment	Time To Repay	0.178	0.170	-0.0084	-4.710	-0.020	0.003	0.151	1.438
	Time+Cost To Repay	0.178	0.181	0.0025	1.420	-0.009	0.014	0.669	0.428
Any payment less than minimum payment	Time To Repay	0.059	0.060	0.0011	1.830	-0.006	0.008	0.767	0.297
	Time+Cost To Repay	0.059	0.060	0.0011	1.910	-0.006	0.008	0.758	0.308
Statement balance net of payments (% statement balance)	Time To Repay	0.750	0.758	0.0082	1.090	-0.003	0.020	0.158	1.413
	Time+Cost To Repay	0.750	0.750	0.0002	0.020	-0.011	0.012	0.976	0.030
Costs (% statement balance)	Time To Repay	0.024	0.022	-0.0013	-5.690	-0.005	0.002	0.468	0.726
	Time+Cost To Repay	0.024	0.024	0.0005	2.320	-0.003	0.004	0.775	0.286
Transactions (% statement balance)	Time To Repay	0.087	0.094	0.0064	7.380	-0.001	0.014	0.083	1.736
	Time+Cost To Repay	0.087	0.086	-0.0013	-1.480	-0.008	0.006	0.723	0.354
CRA share of credit cards only paying minimum	Time To Repay	0.130	0.129	-0.0015	-1.180	-0.009	0.006	0.672	0.423
	Time+Cost To Repay	0.130	0.127	-0.0034	-2.590	-0.010	0.004	0.355	0.925

Table 9: Statement disclosure – unconditional mean comparison of treatment effects on outcomes after six completed statement cycles

Outcome	Treatment	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
CRA share of credit cards making full payment	Time To Repay	0.390	0.387	-0.003	-0.780	-0.012	0.006	0.524	0.638
	Time+Cost To Repay	0.390	0.389	-0.0014	-0.360	-0.011	0.008	0.772	0.290
CRA share of credit cards missing payment	Time To Repay	0.010	0.012	0.0018	17.970	-0.0005	0.004	0.123	1.544
	Time+Cost To Repay	0.010	0.010	0.0001	0.680	-0.002	0.002	0.950	0.062
CRA total credit card statement balances net of payments (% statement balances)	Time To Repay	0.808	0.812	0.004	0.490	-0.005	0.013	0.366	0.904
	Time+Cost To Repay	0.808	0.813	0.0055	0.680	-0.003	0.014	0.213	1.245
Statement balance net of payments	Time To Repay	3,072.600	3,100.508	27.9079	0.910	-77.636	133.452	0.604	0.518
	Time+Cost To Repay	3,072.600	3,081.846	9.2457	0.300	-96.694	115.185	0.864	0.171
Cumulative costs across statements	Time To Repay	161.453	167.762	6.3088	3.910	-2.202	14.819	0.146	1.453
	Time+Cost To Repay	161.453	162.487	1.0334	0.640	-7.365	9.432	0.809	0.241
Cumulative payments across statements	Time To Repay	1,805.397	1,767.665	-37.7326	-2.090	-115.161	39.696	0.340	0.955
	Time+Cost To Repay	1,805.397	1,766.893	-38.5037	-2.130	-115.923	38.916	0.330	0.975

 \overline{N} (Control) = 7,251. N (Time To Repay) = 7,465, N (Time+Cost To Repay) = 7,365. *** P value < 0.005, ** < 0.01, * < 0.05.

 Table 10: Automatic payment nudge – unconditional mean comparison of treatment effects on outcomes after nine completed statement cycles

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Any minimum payment	Time To Repay	1	0.653	0.636	-0.0174* * *	-2.670	-0.029	-0.006	0.003	2.958
		2	0.630	0.626	-0.0032	-0.500	-0.015	0.008	0.593	0.535
		3	0.717	0.697	-0.0201*	-2.800	-0.036	-0.005	0.011	2.536
	Time+Cost To Repay	1	0.653	0.648	-0.0060	-0.920	-0.018	0.006	0.308	1.020
		2	0.630	0.625	-0.0043	-0.680	-0.016	0.007	0.469	0.725
		3	0.717	0.712	-0.0049	-0.680	-0.020	0.010	0.532	0.625
	Reminder - Time To Repay	1	0.653	0.638	-0.0156* *	-2.380	-0.027	-0.004	0.008	2.643
		2	0.630	0.601	-0.0287* * *	-4.550	-0.040	-0.017	0	4.804
	Reminder - Time+Cost To Repay	1	0.653	0.634	-0.0196* * *	-3.000	-0.031	-0.008	0.001	3.323
		2	0.630	0.606	-0.0232* * *	-3.690	-0.035	-0.012	0.0001	3.901
Any full payment	Time To Repay	1	0.122	0.126	0.0047	3.900	-0.003	0.013	0.243	1.168
		2	0.163	0.157	-0.006	-3.670	-0.015	0.003	0.182	1.335
		3	0.103	0.105	0.0023	2.250	-0.008	0.013	0.663	0.436
	Time+Cost To Repay	1	0.122	0.127	0.0053	4.360	-0.003	0.013	0.192	1.304
		2	0.163	0.163	0.0007	0.410	-0.008	0.010	0.883	0.148
		3	0.103	0.113	0.0096	9.320	-0.001	0.020	0.075	1.780

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Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Reminder -									
	Time To Repay	1	0.122	0.120	-0.0014	-1.170	-0.009	0.006	0.722	0.356
		2	0.163	0.174	0.0109*	6.720	0.002	0.020	0.017	2.378
	Reminder -									
	Time+Cost To Repay	1	0.122	0.122	0.0003	0.260	-0.008	0.008	0.937	0.079
		2	0.163	0.168	0.0050	3.080	-0.004	0.014	0.271	1.101
Any payment less than minimum payment	Time To Repay	1	0.021	0.023	0.0018	8.640	-0.002	0.005	0.312	1.011
		2	0.042	0.044	0.002	4.750	-0.003	0.007	0.426	0.796
		3	0.026	0.028	0.0025	9.630	-0.003	0.008	0.378	0.882
	Time+Cost To Repay	1	0.021	0.019	-0.0027	-12.600	-0.006	0.001	0.114	1.582
		2	0.042	0.040	-0.0017	-4.010	-0.006	0.003	0.490	0.691
		3	0.026	0.025	-0.0009	-3.510	-0.006	0.004	0.740	0.332
	Reminder - Time To Repay	1	0.021	0.023	0.0013	5.900	-0.002	0.005	0.486	0.696
		2	0.042	0.042	0.0006	1.490	-0.004	0.005	0.800	0.253
	Reminder -									
	Time+Cost To Repay	1	0.021	0.020	-0.0014	-6.430	-0.005	0.002	0.429	0.791
		2	0.042	0.041	-0.0009	-2.230	-0.006	0.004	0.702	0.383
Statement balance net of payments (% statement balance)	Time To Repay	1	0.816	0.811	-0.0049	-0.610	-0.013	0.003	0.235	1.188
		2	0.783	0.788	0.005	0.640	-0.004	0.014	0.260	1.127
		3	0.856	0.850	-0.0061	-0.710	-0.017	0.004	0.260	1.127

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Time+Cost To Repay	1	0.816	0.813	-0.0029	-0.360	-0.011	0.005	0.483	0.702
		2	0.783	0.783	-0.0001	-0.010	-0.009	0.009	0.981	0.024
		3	0.856	0.846	-0.0101	-1.180	-0.021	0.001	0.064	1.851
	Reminder - Time To Repay	1	0.816	0.814	-0.0014	-0.170	-0.010	0.007	0.730	0.345
	nopuj	2	0.783	0.770	-0.0132* * *	-1.690	-0.022	-0.004	0.004	2.912
	Reminder - Time+Cost To Renay	1	0.816	0.816	-0.0002	-0.030	-0.008	0.008	0.960	0.050
	100000	2	0.783	0.776	-0.0075	-0.960	-0.016	0.001	0.095	1.670
Costs (% statement balance)	Time To Repay	1	0.028	0.028	-0.0003	-1.010	-0.003	0.003	0.846	0.194
		2	0.020	0.020	0.0005	2.470	-0.001	0.002	0.550	0.597
		3	0.023	0.020	-0.0029	-12.610	-0.007	0.001	0.156	1.418
	Time+Cost To Repay	1	0.028	0.027	-0.0006	-1.980	-0.003	0.002	0.701	0.384
		2	0.020	0.020	0.0003	1.310	-0.001	0.002	0.748	0.321
		3	0.023	0.023	-0.0004	-1.800	-0.005	0.004	0.846	0.194
	Reminder - Time To Repay	1	0.028	0.028	0.0006	2.040	-0.002	0.004	0.699	0.387
	1 4	2	0.020	0.020	-0.0004	-2.010	-0.002	0.001	0.608	0.512
	Reminder - Time+Cost To Repay	1	0.028	0.029	0.0011	4.050	-0.002	0.004	0.450	0.756
	r J	2	0.020	0.020	0.0004	2.070	-0.001	0.002	0.611	0.509

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Transactions (% statement balance)	Time To Repay	1	0.114	0.117	0.0029	2.570	-0.004	0.009	0.374	0.889
		2	0.094	0.091	-0.0029	-3.060	-0.008	0.003	0.304	1.028
		3	0.047	0.050	0.0036	7.770	-0.002	0.010	0.239	1.178
	Time+Cost To Repay	1	0.114	0.114	0.0003	0.230	-0.006	0.007	0.936	0.080
		2	0.094	0.096	0.0025	2.720	-0.003	0.008	0.372	0.893
		3	0.047	0.050	0.0027	5.850	-0.003	0.009	0.372	0.893
	Reminder - Time To Repay	1	0.114	0.115	0.0007	0.640	-0.006	0.007	0.822	0.225
		2	0.094	0.099	0.0049	5.180	-0.001	0.010	0.090	1.694
	Reminder - Time+Cost To Repay	1	0.114	0.114	-0.0004	-0.310	-0.007	0.006	0.913	0.109
		2	0.094	0.096	0.0027	2.830	-0.003	0.008	0.351	0.932
CRA share of credit cards only paying minimum	Time To Repay	1	0.450	0.439	-0.0103*	-2.280	-0.019	-0.001	0.023	2.273
		2	0.438	0.433	-0.0046	-1.050	-0.013	0.004	0.302	1.032
		3	0.418	0.411	-0.0071	-1.700	-0.018	0.004	0.188	1.318
	Time+Cost To Repay	1	0.450	0.445	-0.0042	-0.930	-0.013	0.005	0.355	0.924
		2	0.438	0.430	-0.008	-1.830	-0.017	0.001	0.070	1.811
		3	0.418	0.418	0	0	-0.010	0.010	0.999	0.002
	Reminder - Time To Repay	1	0.450	0.441	-0.0088	-1.950	-0.018	0.0001	0.053	1.935
		2	0.438	0.423	-0.0149* * *	-3.410	-0.024	-0.006	0.001	3.366

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Reminder -									
	Time+Cost To Repay	1	0.450	0.442	-0.0079	-1.750	-0.017	0.001	0.080	1.752
		2	0.438	0.421	-0.0163* * *	-3.730	-0.025	-0.008	0.0002	3.687
CRA share of credit cards making full payment	Time To Repay	1	0.316	0.317	0.0012	0.390	-0.007	0.009	0.761	0.304
		2	0.301	0.297	-0.0038	-1.280	-0.012	0.004	0.327	0.979
		3	0.366	0.365	-0.0013	-0.350	-0.011	0.009	0.807	0.245
	Time+Cost To Repay	1	0.316	0.316	0.0005	0.170	-0.007	0.008	0.895	0.132
		2	0.301	0.304	0.0037	1.220	-0.004	0.012	0.359	0.917
		3	0.366	0.364	-0.0013	-0.370	-0.011	0.009	0.794	0.262
	Reminder - Time To Repay	1	0.316	0.312	-0.0036	-1.130	-0.012	0.004	0.380	0.879
		2	0.301	0.308	0.0068	2.250	-0.001	0.015	0.088	1.706
	Reminder - Time+Cost To Repay	1	0.316	0.311	-0.0052	-1.640	-0.013	0.003	0.198	1.286
		2	0.301	0.303	0.0025	0.830	-0.005	0.010	0.532	0.625
CRA share of credit cards missing payment	Time To Repay	1	0.017	0.017	0.0005	2.870	-0.002	0.003	0.692	0.396
		2	0.036	0.038	0.0013	3.690	-0.002	0.005	0.475	0.714
		3	0.012	0.014	0.0017	14.400	-0.001	0.005	0.232	1.195
	Time+Cost To Repay	1	0.017	0.016	-0.0012	-6.900	-0.004	0.001	0.321	0.992
		2	0.036	0.036	-0.0009	-2.590	-0.005	0.003	0.609	0.511
		3	0.012	0.013	0.0005	4.540	-0.002	0.003	0.699	0.387

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Reminder -									
	Time To Repay	1	0.017	0.017	-0.0002	-1.060	-0.002	0.002	0.879	0.152
		2	0.036	0.037	0.0006	1.560	-0.003	0.004	0.758	0.308
	Reminder -									
	Time+Cost To Repay	1	0.017	0.018	0.001	5.870	-0.001	0.003	0.423	0.801
		2	0.036	0.037	0.0002	0.630	-0.003	0.004	0.902	0.123
CRA total credit card										
statement balances net of payments (% statement balances)	Time To Repay	1	0.819	0.816	-0.003	-0.360	-0.010	0.004	0.438	0.776
,		2	0.840	0.844	0.0036	0.430	-0.004	0.011	0.321	0.992
		3	0.864	0.858	-0.0063	-0.730	-0.015	0.002	0.158	1.413
	Time+Cost To Repay	1	0.819	0.821	0.0015	0.190	-0.006	0.009	0.687	0.403
	1 2	2	0.840	0.833	-0.0067	-0.790	-0.014	0.001	0.071	1.805
		3	0.864	0.858	-0.0056	-0.650	-0.014	0.003	0.205	1.268
	Reminder -									
	Time To Repay	1	0.819	0.820	0.001	0.120	-0.006	0.008	0.791	0.265
		2	0.840	0.834	-0.0057	-0.680	-0.013	0.002	0.122	1.545
	Reminder - Time+Cost To	1	0.819	0.825	0.0058	0.710	-0.002	0.013	0.120	1.557
	Repay									
		2	0.840	0.835	-0.0049	-0.580	-0.012	0.002	0.184	1.327
Any automatic payment set- up	Time To Repay	1	0.949	0.945	-0.004	-0.420	-0.009	0.001	0.151	1.437
		2	0.885	0.882	-0.0038	-0.420	-0.012	0.004	0.341	0.952
		3	0.950	0.944	-0.0067	-0.700	-0.014	0.001	0.088	1.709

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Time+Cost To Repay	1	0.949	0.954	0.0046	0.480	-0.001	0.010	0.080	1.749
		2	0.885	0.888	0.0029	0.330	-0.005	0.010	0.453	0.750
		3	0.950	0.943	-0.0075	-0.790	-0.015	0.0001	0.054	1.924
	Reminder - Time To Repay	1	0.949	0.952	0.0032	0.340	-0.002	0.008	0.230	1.200
		2	0.885	0.881	-0.0046	-0.520	-0.012	0.003	0.239	1.177
	Reminder - Time+Cost To Repay	1	0.949	0.951	0.0021	0.220	-0.003	0.007	0.432	0.787
	Керау	2	0.885	0.880	-0.0051	-0.570	-0.013	0.003	0.198	1.286
Any automatic full payment set-up	Time To Repay	1	0.006	0.007	0.0011	19.270	-0.001	0.003	0.253	1.142
		2	0.006	0.006	-0.0003	-4.480	-0.002	0.002	0.768	0.295
		3	0.006	0.005	-0.0013	-21.620	-0.004	0.001	0.309	1.017
	Time+Cost To Repay	1	0.006	0.006	0.0004	7.480	-0.002	0.002	0.646	0.459
		2	0.006	0.007	0.0003	5.220	-0.002	0.002	0.739	0.333
		3	0.006	0.006	-0.0001	-1.190	-0.003	0.002	0.958	0.053
	Reminder - Time To Repay	1	0.006	0.007	0.0013	21.100	-0.001	0.003	0.214	1.244
		2	0.006	0.006	-0.0004	-6.630	-0.002	0.001	0.659	0.441
	Reminder - Time+Cost To Repay	1	0.006	0.006	0.0005	8.630	-0.001	0.002	0.597	0.529
	1 2	2	0.006	0.008	0.0016	24.850	-0.0005	0.004	0.134	1.499

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Any automatic fixed payment set-up	Time To Repay	1	0.032	0.044	0.0118* * *	37.170	0.007	0.016	0	4.913
		2	0.041	0.054	0.0132* * *	32.180	0.008	0.018	0	4.943
		3	0.097	0.114	0.0165* * *	17	0.006	0.027	0.002	3.094
	Time+Cost To Repay	1	0.032	0.045	0.0134* * *	42.150	0.009	0.018	0	5.499
		2	0.041	0.051	0.0105* * *	25.740	0.005	0.016	0.0001	4.019
		3	0.097	0.098	0.0013	1.290	-0.009	0.011	0.808	0.243
	Reminder - Time To Repay	1	0.032	0.049	0.0175* * *	55.270	0.013	0.022	0	6.989
	1 2	2	0.041	0.062	0.0213* * *	52.110	0.016	0.027	0	7.642
	Reminder - Time+Cost To Repay	1	0.032	0.045	0.0133* * *	42.070	0.009	0.018	0	5.500
		2	0.041	0.063	0.022* * *	53.850	0.016	0.028	0	7.869
Any automatic fixed payment set-up for greater than contractual minimum payment that statement	Time To Repay	1	0.029	0.040	0.0111* * *	38.050	0.007	0.016	0	4.810
		2	0.034	0.044	0.0094* * *	27.580	0.005	0.014	0.0001	3.903
		3	0.090	0.105	0.0154* * *	17.120	0.005	0.026	0.003	2.986
	Time+Cost To Repay	1	0.029	0.042	0.0126* * *	43.090	0.008	0.017	0	5.376
		2	0.034	0.041	0.0064* *	18.650	0.002	0.011	0.007	2.704
		3	0.090	0.090	0.0003	0.320	-0.010	0.010	0.954	0.057
	Reminder - Time To Repay	1	0.029	0.045	0.0156* * *	53.510	0.011	0.020	0	6.510
	1 2	2	0.034	0.053	0.0188* * *	55.090	0.014	0.024	0	7.301

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Reminder - Time+Cost To	1	0.029	0.042	0 0131* * *	44 790	0.008	0.018	0	5 575
	Repay	-	0.022	0.012	0.0151		0.000	0.010	Ū	
		2	0.034	0.054	0.0203* * *	59.240	0.015	0.025	0	7.782
Any automatic minimum payment set-up	Time To Repay	1	0.911	0.893	-0.0175* * *	-1.930	-0.025	-0.010	0	4.730
		2	0.838	0.822	-0.0166* * *	-1.980	-0.026	-0.008	0.0003	3.589
		3	0.847	0.825	-0.0219* * *	-2.580	-0.034	-0.009	0.001	3.403
	Time+Cost To Repay	1	0.911	0.901	-0.0092*	-1.010	-0.016	-0.002	0.011	2.551
		2	0.838	0.830	-0.0079	-0.950	-0.017	0.001	0.082	1.737
		3	0.847	0.839	-0.0087	-1.030	-0.021	0.004	0.169	1.376
	Reminder - Time To Repay	1	0.911	0.894	-0.0162* * *	-1.780	-0.024	-0.009	0	4.391
		2	0.838	0.813	-0.0255* * *	-3.050	-0.035	-0.016	0	5.449
	Reminder - Time+Cost To Repay	1	0.911	0.898	-0.0122* * *	-1.340	-0.019	-0.005	0.001	3.339
		2	0.838	0.810	-0.0287* * *	-3.420	-0.038	-0.019	0	6.092
Statement balance net of payments	Time To Repay	1	2,786.820	2,788.558	1.7385	0.060	-71.806	75.283	0.963	0.046
		2	3,092.518	3,122.077	29.5596	0.960	-55.032	114.151	0.493	0.685
		3	4,122.707	4,019.640	-103.0664	-2.500	-232.375	26.243	0.118	1.562
	Time+Cost To Repay	1	2,786.820	2,737.213	-49.6068	-1.780	-122.577	23.363	0.183	1.332
		2	3,092.518	3,065.418	-27.0995	-0.880	-111.077	56.878	0.527	0.632
		3	4,122.707	4,022.037	-100.6698	-2.440	-231.085	29.745	0.130	1.513

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Reminder - Time To Repay	1	2,786.820	2,759.349	-27.4707	-0.990	-100.978	46.036	0.464	0.732
		2	3,092.518	2,941.549	-150.9691* * *	-4.880	-234.421	-67.517	0.0004	3.546
	Reminder - Time+Cost To Repay	1	2,786.820	2,790.169	3.3491	0.120	-70.042	76.740	0.929	0.089
		2	3,092.518	2,998.398	-94.1198*	-3.040	-177.195	-11.045	0.026	2.221
Cumulative costs across statements	Time To Repay	1	333.985	336.736	2.7512	0.820	-7.520	13.022	0.600	0.525
		2	452.510	459.488	6.9782	1.540	-4.284	18.240	0.225	1.214
		3	259.469	254.584	-4.885	-1.880	-19.344	9.574	0.508	0.662
	Time+Cost To Repay	1	333.985	331.232	-2.7527	-0.820	-12.824	7.319	0.592	0.536
		2	452.510	448.284	-4.226	-0.930	-15.176	6.724	0.449	0.756
		3	259.469	253.250	-6.2185	-2.400	-20.687	8.250	0.400	0.842
	Reminder - Time To Repay	1	333.985	333.113	-0.8719	-0.260	-11.033	9.289	0.866	0.168
		2	452.510	435.225	-17.2848* * *	-3.820	-28.194	-6.376	0.002	3.106
	Reminder - Time+Cost To Repay	1	333.985	337.182	3.1965	0.960	-7.010	13.402	0.539	0.614
		2	452.510	444.922	-7.5882	-1.680	-18.486	3.310	0.172	1.365

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
Cumulative purchases across statements	Time To Repay	1	1,521.756	1,518.902	-2.8544	-0.190	-85.647	79.939	0.946	0.068
		2	1,475.760	1,483.611	7.8508	0.530	-61.311	77.013	0.824	0.222
		3	538.215	526.947	-11.2684	-2.090	-67.660	45.123	0.695	0.392
	Time+Cost To Repay	1	1,521.756	1,527.328	5.5713	0.370	-76.276	87.419	0.894	0.133
		2	1,475.760	1,478.690	2.93	0.200	-62.916	68.776	0.930	0.087
		3	538.215	510.170	-28.045	-5.210	-83.537	27.447	0.322	0.991
	Reminder -	1	1 501 756	1 400 400	21.2566	2 0 6 0	110 741	51.020	0.456	0.746
	Repay	1	1,521.756	1,490.400	-31.3566	-2.060	-113./41	51.028	0.456	0.746
		2	1,475.760	1,456.899	-18.8604	-1.280	-86.318	48.597	0.584	0.548
	Reminder - Time+Cost To Repay	1	1,521.756	1,526.006	4.2495	0.280	-74.956	83.455	0.916	0.105
	1.1.5	2	1,475.760	1,489.945	14.185	0.960	-50.550	78.919	0.668	0.430
Cumulative payments across statements	Time To Repay	1	2,542.261	2,606.586	64.3252	2.530	-27.363	156.014	0.169	1.375
		2	2,397.563	2,419.064	21.5004	0.900	-60.659	103.659	0.608	0.513
		3	2,044.988	1,987.112	-57.8757	-2.830	-162.669	46.917	0.279	1.083
	Time+Cost To Repay	1	2,542.261	2,533.015	-9.2454	-0.360	-100.448	81.957	0.842	0.199
		2	2,397.563	2,411.410	13.8462	0.580	-66.501	94.193	0.736	0.338
		3	2,044.988	2,023.895	-21.0924	-1.030	-127.096	84.912	0.696	0.390
	Reminder - Time To Repay	1	2,542.261	2,520.076	-22.1842	-0.870	-113.521	69.152	0.634	0.476
	1 2	2	2,397.563	2,409.646	12.0831	0.500	-69.722	93.889	0.772	0.290

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Reminder - Time+Cost To Renay	1	2,542.261	2,579.812	37.5515	1.480	-51.948	127.051	0.411	0.822
	Керау	2	2,397.563	2,412.041	14.4774	0.600	-65.016	93.971	0.721	0.357
Cumulative automatic payments across statements	Time To Repay	1	525.006	528.852	3.8466	0.730	-14.800	22.494	0.686	0.404
		2	685.201	703.320	18.1188	2.640	-2.467	38.704	0.084	1.725
		3	722.080	717.555	-4.5249	-0.630	-32.570	23.520	0.752	0.316
	Time+Cost To Repay	1	525.006	523.297	-1.7085	-0.330	-20.531	17.114	0.859	0.178
		2	685.201	685.781	0.5797	0.080	-19.518	20.678	0.955	0.056
		3	722.080	709.500	-12.5797	-1.740	-40.495	15.336	0.377	0.883
	Reminder - Time To Repay	1	525.006	535.429	10.4228	1.990	-8.969	29.815	0.292	1.054
	1 0	2	685.201	667.929	-17.272	-2.520	-37.441	2.897	0.093	1.679
	Reminder - Time+Cost To Repay	1	525.006	525.600	0.5944	0.110	-17.341	18.530	0.948	0.065
		2	685.201	687.408	2.2062	0.320	-18.267	22.679	0.833	0.211
Cumulative manual payments across statements	Time To Repay	1	2,021.569	2,082.780	61.2104	3.030	-28.116	150.537	0.179	1.343
		2	1,716.945	1,720.360	3.4146	0.200	-75.986	82.815	0.933	0.084
		3	1,330.406	1,274.603	-55.8031	-4.190	-153.540	41.934	0.263	1.119
	Time+Cost To Repay	1	2,021.569	2,014.627	-6.9422	-0.340	-95.805	81.921	0.878	0.153
		2	1,716.945	1,730.226	13.2814	0.770	-64.725	91.288	0.739	0.334
		3	1,330.406	1,320.226	-10.1796	-0.770	-109.159	88.800	0.840	0.202

Outcome	Treatment	Lender	Mean (Control)	Mean (Treatment)	Mean Difference (Treatment- Control)	Percentage Difference Relative to Control	CI Lower (Treatment- Control)	CI Upper (Treatment- Control)	P Value	T Statistic
	Reminder - Time To Repay	1	2,021.569	1,989.385	-32.1844	-1.590	-120.922	56.554	0.477	0.711
		2	1,716.945	1,746.645	29.7005	1.730	-49.565	108.966	0.463	0.734
	Reminder -									
	Time+Cost To Repay	1	2,021.569	2,059.122	37.5531	1.860	-49.981	125.088	0.400	0.841
		2	1,716.945	1,730.297	13.3519	0.780	-63.272	89.976	0.733	0.342
Payments via both automatic AND manual	Time To Repay	1	0.066	0.064	-0.0023	-3.440	-0.008	0.004	0.452	0.753
		2	0.051	0.054	0.0034	6.640	-0.002	0.009	0.220	1.226
		3	0.083	0.087	0.0045	5.510	-0.005	0.014	0.348	0.939
	Time+Cost To Repay	1	0.066	0.065	-0.001	-1.480	-0.007	0.005	0.748	0.322
		2	0.051	0.048	-0.0023	-4.520	-0.008	0.003	0.388	0.863
		3	0.083	0.079	-0.0035	-4.280	-0.013	0.006	0.456	0.746
	Reminder - Time To Repay	1	0.066	0.066	0.0002	0.340	-0.006	0.006	0.941	0.074
		2	0.051	0.053	0.0021	4.230	-0.003	0.008	0.431	0.788
	Reminder -									
	Time+Cost To Repay	1	0.066	0.066	0.0001	0.160	-0.006	0.006	0.972	0.035
		2	0.051	0.056	0.0057*	11.170	0.0002	0.011	0.042	2.039

*** P value < 0.005, ** < 0.01, * < 0.05

Outcome	Treatment	Lender	Estimate	95% Confidence Interval	P Value	Adjusted R Squared											
Any automatic payment set-up	Time To Repay	1	-0.0042 (0.0027)	[-0.0095, 0.0012]	0.1278	0.0351											
		2	-0.002 (0.0037)	[-0.0094, 0.0053]	0.5899	0.1208											
		3	-0.0102* (0.0044)	[-0.0188, - 0.0016]	0.0205	0.3302											
	Time+Cost To Repay	1	0.0042 (0.0026)	[-0.0008, 0.0093]	0.1025	0.0351											
		2	0.0021 (0.0037)	[-0.0052, 0.0093]	0.5731	0.1208											
		3	-0.0092* (0.0044)	[-0.0179, - 0.0005]	0.0379	0.3302											
	Reminder - Time To Repay	1	0.0027 (0.0026)	[-0.0025, 0.0078]	0.3087	0.0361											
		2	-0.0062 (0.0038)	[-0.0136, 0.0012]	0.1018	0.0957											
	Reminder - Time+Cost To Repay	1	0.0012 (0.0026)	[-0.0039, 0.0063]	0.6471	0.0361											
		2	-0.0038 (0.0038)	[-0.0112, 0.0036]	0.3153	0.0957											
Any automatic full payment set- up	Time To Repay	1	0.0012 (0.001)	[-0.0008, 0.0031]	0.2432	0.0098											
		2	-0.0001 (0.0009)	[-0.0019, 0.0018]	0.9403	0.0616											
				3	-0.0018 (0.0016)	[-0.0049, 0.0012]	0.2451	0.1553									
	Time+Cost To Repay	1	0.0004 (0.001)	[-0.0015, 0.0023]	0.6618	0.0098											
		2	0.0002 (0.001)	[-0.0017, 0.0021]	0.8569	0.0616											
													3	-0.0012 (0.0016)	[-0.0043, 0.002]	0.461	0.1553
	Reminder - Time To Repay	1	0.0012 (0.001)	[-0.0007, 0.0032]	0.2168	0.0106											
		2	-0.0005 (0.0009)	[-0.0023, 0.0014]	0.627	0.0473											
	Reminder - Time+Cost To Repay	1	0.0005 (0.001)	[-0.0014, 0.0024]	0.5803	0.0106											
		2	0.0017 (0.001)	[-0.0003, 0.0038]	0.0896	0.0473											

Table 11: Automatic minimum payment nudge - treatment effects on selected secondary outcomes after nine completed statement cycles

Outcome	Treatment	Lender	Estimate	95% Confidence Interval	P Value	Adjusted R Squared
Any automatic fixed payment set-up	Time To Repay	1	0.012* * * (0.0024)	[0.0073, 0.0167]	0	0.0156
		2	0.0124* * * (0.0026)	[0.0073, 0.0174]	0	0.0823
		3	0.0194* * * (0.0053)	[0.0089, 0.0298]	0.0003	0.4992
	Time+Cost To Repay	1	0.0134* * * (0.0024)	[0.0087, 0.0181]	0	0.0156
		2	0.0107* * * (0.0026)	[0.0057, 0.0157]	0	0.0823
		3	0.0036 (0.0053)	[-0.0067, 0.0139]	0.4943	0.4992
	Reminder - Time To Repay	1	0.018* * * (0.0025)	[0.0131, 0.0229]	0	0.0114
		2	0.0207* * * (0.0027)	[0.0154, 0.026]	0	0.0601
	Reminder - Time+Cost To Repay	1	0.0134* * * (0.0024)	[0.0087, 0.0182]	0	0.0114
		2	0.0221* * * (0.0027)	[0.0167, 0.0274]	0	0.0601
Any automatic fixed payment set-up for greater than contractual minimum payment that statement	Time To Repay	1	0.0113* * * (0.0023)	[0.0068, 0.0158]	0	0.0144
		2	0.0086* * * (0.0023)	[0.004, 0.0131]	0.0003	0.0702
		3	0.0179* * * (0.0053)	[0.0075, 0.0282]	0.0007	0.4783
	Time+Cost To Repay	1	0.0126* * * (0.0023)	[0.008, 0.0172]	0	0.0144
		2	0.0063* * (0.0023)	[0.0017, 0.0108]	0.0069	0.0702
		3	0.0027 (0.0052)	[-0.0075, 0.013]	0.6017	0.4783
	Reminder - Time To Repay	1	0.0161* * * (0.0024)	[0.0114, 0.0208]	0	0.0113
		2	0.0181* * * (0.0025)	[0.0131, 0.023]	0	0.0507
	Reminder - Time+Cost To Repay	1	0.0131* * * (0.0023)	[0.0086, 0.0177]	0	0.0113
		2	0.02* * * (0.0026)	[0.015, 0.025]	0	0.0507
Outcome	Treatment	Lender	Estimate	95% Confidence Interval	P Value	Adjusted R Squared
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Any automatic minimum payment set-up	Time To Repay	1	-0.0179* * * (0.0037)	[-0.025, - 0.0107]	0	0.0377
		2	-0.0143* * * (0.0044)	[-0.023, - 0.0057]	0.0011	0.1265
		3	-0.0281* * * (0.0067)	[-0.0411, - 0.015]	0	0.4601
	Time+Cost To Repay	1	-0.0096* * (0.0036)	[-0.0166, - 0.0026]	0.0071	0.0377
		2	-0.0089* (0.0044)	[-0.0174, - 0.0003]	0.0424	0.1265
		3	-0.0117 (0.0066)	[-0.0246, 0.0012]	0.0761	0.4601
	Reminder - Time To Repay	1	-0.0171* * * (0.0037)	[-0.0243, - 0.01]	0	0.0275
		2	-0.0265* * * (0.0045)	[-0.0353, - 0.0177]	0	0.098
	Reminder - Time+Cost To Repay	1	-0.0131* * * (0.0036)	[-0.0202, - 0.0061]	0.0003	0.0275
		2	-0.0272* * * (0.0045)	[-0.0361, - 0.0184]	0	0.098
Statement balance net of payments	Time To Repay	1	-25.3162 (25.4288)	[-75.1566, 24.5242]	0.3195	0.6023
		2	6.5708 (29.9321)	[-52.0961, 65.2378]	0.8262	0.6086
	Time+Cost To Repay	3	-77.0862 (55.1313)	[-185.1436, 30.9712]	0.162	0.6619
		1	-22.8294 (24.7934)	[-71.4243, 25.7656]	0.3572	0.6023
		2	3.8262 (29.8787)	[-54.7361, 62.3885]	0.8981	0.6086
		3	-79.1543 (54.3025)	[-185.5871, 27.2785]	0.1449	0.6619
	Reminder - Time To Repay	1	-11.1458 (24.8186)	[-59.7903, 37.4987]	0.6534	0.5416
		2	-57.149 (29.9143)	[-115.781, 1.483]	0.0561	0.5253
	Reminder - Time+Cost To Repay	1	-30.031 (25.1314)	[-79.2885, 19.2264]	0.2321	0.5416
		2	-42.3274 (29.7872)	[-100.7103, 16.0554]	0.1553	0.5253

Outcome	Treatment	Lender	Estimate	95% Confidence Interval	P Value	Adjusted R Squared
Cumulative costs across statements	Time To Repay	1	2.1511 (1.4365)	[-0.6645, 4.9668]	0.1343	0.7782
		2	1.6742 (1.8212)	[-1.8954, 5.2438]	0.3579	0.7918
		3	-3.0163 (4.2723)	[-11.39, 5.3574]	0.4802	0.7571
	Time+Cost To Repay	1	-0.5221 (1.3837)	[-3.2342, 2.19]	0.7059	0.7782
		2	-1.7685 (1.7851)	[-5.2673, 1.7302]	0.3218	0.7918
		3	-3.2628 (4.2652)	[-11.6225, 5.097]	0.4443	0.7571
	Reminder - Time To Repay	1	1.1483 (1.4425)	[-1.6789, 3.9756]	0.426	0.909
		2	-1.5153 (0.8587)	[-3.1983, 0.1677]	0.0776	0.9131
	Reminder - Time+Cost To Repay	1	1.2815 (1.4563)	[-1.5727, 4.1358]	0.3789	0.909
		2	-1.5839 (0.8637)	[-3.2767, 0.109]	0.0667	0.9131
Cumulative purchases across statements	Time To Repay	1	-4.0331 (14.9989)	[-33.4309, 25.3648]	0.788	0.7112
		2	9.6533 (13.9056)	[-17.6016, 36.9082]	0.4876	0.7011
		3	-12.5642 (16.9948)	[-45.8741, 20.7456]	0.4597	0.664
	Time+Cost To Repay	1	7.2403 (14.9402)	[-22.0424, 36.5231]	0.6279	0.7112
		2	-1.65 (13.3463)	[-27.8088, 24.5087]	0.9016	0.7011
		3	-11.3731 (16.6575)	[-44.0217, 21.2756]	0.4948	0.664
	Reminder - Time To Repay	1	7.2484 (15.2549)	[-22.6512, 37.1481]	0.6347	0.8704
		2	-5.4525 (9.7064)	[-24.4771, 13.5721]	0.5743	0.8528
	Reminder - Time+Cost To Repay	1	24.734 (15.0023)	[-4.6706, 54.1386]	0.0992	0.8704
		2	7.1919 (9.4322)	[-11.2952, 25.679]	0.4458	0.8528

Outcome	Treatment	Lender	Estimate	95% Confidence Interval	P Value	Adjusted R Squared
Cumulative payments across statements	Time To Repay	1	47.559* (20.381)	[7.6123, 87.5057]	0.0196	0.7
		2	7.1329 (18.9248)	[-29.9597, 44.2255]	0.7062	0.6673
		3	-35.8221 (34.1792)	[-102.8134, 31.1691]	0.2946	0.5503
	Time+Cost To Repay	1	2.3768 (20.4869)	[-37.7775, 42.5311]	0.9076	0.7
		2	13.6845 (18.6976)	[-22.9627, 50.3318]	0.4642	0.6673
		3	9.334 (34.1617)	[-57.6229, 76.291]	0.7847	0.5503
	Reminder - Time To Repay	1	40.0558* (20.1876)	[0.4882, 79.6234]	0.0472	0.8443
		2	29.1039 (15.8089)	[-1.8815, 60.0892]	0.0656	0.8087
	Reminder - Time+Cost To Repay	1	16.5749 (21.065)	[-24.7124, 57.8623]	0.4314	0.8443
		2	4.2355 (15.8838)	[-26.8967, 35.3678]	0.7897	0.8087
Cumulative automatic payments across statements	Time To Repay	1	-0.8028 (3.7505)	[-8.1537, 6.5481]	0.8305	0.6871
		2	7.1207 (3.8385)	[-0.4027, 14.6441]	0.0636	0.7399
		3	-1.2631 (8.6977)	[-18.3107, 15.7845]	0.8845	0.7079
	Time+Cost To Repay	1	-1.8313 (3.432)	[-8.5579, 4.8954]	0.5936	0.6871
		2	-0.3013 (3.7744)	[-7.6992, 7.0966]	0.9364	0.7399
	Reminder - Time To Repay	3	-6.2087 (8.624)	[-23.1118, 10.6943]	0.4716	0.7079
		1	2.4492 (3.4954)	[-4.4018, 9.3002]	0.4835	0.8654
		2	2.709 (2.5578)	[-2.3043, 7.7222]	0.2895	0.8695
	Reminder - Time+Cost To Repay	1	0.9836 (3.4035)	[-5.6872, 7.6544]	0.7726	0.8654
		2	4.0094 (2.4681)	[-0.8282, 8.8469]	0.1043	0.8695

Outcome	Treatment	Lender	Estimate	95% Confidence Interval	P Value	Adjusted R Squared
Cumulative manual payments across statements	Time To Repay	1	48.8665* (20.5359)	[8.6161, 89.1168]	0.0173	0.6849
		2	0.2966 (18.7694)	[-36.4914, 37.0845]	0.9874	0.6449
		3	-36.134 (32.4317)	[-99.7001, 27.4321]	0.2652	0.5211
	Time+Cost To Repay	1	5.5147 (20.6562)	[-34.9714, 46.0009]	0.7895	0.6849
		2	14.2647 (18.5615)	[-22.1159, 50.6453]	0.4422	0.6449
		3	14.5214 (32.3239)	[-48.8334, 77.8762]	0.6533	0.5211
	Reminder - Time To Repay	1	38.7334 (20.3106)	[-1.0754, 78.5423]	0.0565	0.8355
		2	25.9499 (15.8285)	[-5.074, 56.9739]	0.1011	0.798
	Reminder - Time+Cost To Repay	1	15.586 (21.1812)	[-25.9292, 57.1012]	0.4618	0.8355
		2	0.6423 (15.9183)	[-30.5576, 31.8421]	0.9678	0.798

*** P value < 0.005, ** < 0.01, * < 0.05.

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