Do Prize-Linked Incentives Promote Positive Financial Behavior? Evidence from a Debt Reduction Intervention

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Abstract

Prize-linked programs are becoming increasingly popular, yet little evidence exists regarding their efficacy. I conduct the first field experiment examining whether prize-linked incentives can be effective in promoting debt reduction by randomizing access among 6,907 borrowers in a debt management plan. I find strong take-up of the program and that takers were timelier with repayment and paid off more debt. However, intent-to-treat estimates are precise zeros. These results suggest that despite strong interest and positive correlations, prize-linked incentives may not modify behavior and may simply attract individuals who are ex-ante likely to engage in the target behavior.

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1. Introduction

Many Americans are struggling with high levels of debt. In the second quarter of 2018, U.S. aggregate household debt reached a new high at $13.3 trillion, exceeding the previous peak of $12.7 trillion set in the third quarter of 2008. Consumer credit card debt has been steadily rising since the Great Recession reaching $829 billion in mid-2018, an amount similar to pre-crisis levels (Federal Reserve Bank of New York 2018). High levels of unsecured debt pose a significant threat to financial stability and future wealth accumulation as the associated interest rate typically exceeds expected return on equities.

A growing body of evidence suggests that debt accumulation is driven in part by behavioral factors (Stango and Zinman 2009; Meier and Sprenger 2010; Lusardi and Tufano 2015). Despite this evidence, and the pervasiveness and severity of debt burdens, relatively little research has examined whether behaviorally informed interventions can reduce debt loads (Karlan and Zinman 2012). In contrast, there is a robust literature demonstrating that behaviorally engineered approaches can be effective in improving savings accumulation (see, for example, Madrian and Shea 2001; Thaler and Benartzi 2004; Karlan et al. 2016).

Using prize-linked incentives to promote financial health is a behaviorally informed approach of recent interest to policymakers in the U.S., particularly in promoting savings. Prize-linked savings (PLS) accounts introduce stochastic returns to standard savings accounts by giving depositors a chance of winning (usually cash) prizes, with their chance of winning depending on their savings behavior. PLS products have existed for hundreds of years and are popular around the world (Kearney et al. 2011), though have been slower to catch on in the U.S., in part due to legal constraints. The first PLS program in the U.S. was launched among eight credit unions in Michigan in 2009 and experienced considerable consumer interest, with approximately 40,000 individuals participating and depositing $72.2 million through 2012.[1] This experience and correlational evidence is consistent with survey evidence which suggests there is high demand among low-income Americans for PLS products (Tufano, De Neve and Maynard 2011). In 2014,

[1] https://prosperitynow.org/blog/michigans-save-win-program-demonstrates-successful-way-encourage-savings

Congress enacted the American Savings Promotion Act removing legal barriers to PLS products and 26 states had enacted legislation authorizing PLS accounts by the end of 2017.[2]

Despite evidence of consumer interest and the proliferation of legislation to permit their offer, it is still an open question whether prize-linked products can causally improve financial behavior. Prize-linked incentives may improve linked behaviors either by appealing to an individual's tendency to overweight small probability events (Gonzalez and Wu 1999), combating present bias by introducing the prospect of immediate rewards (Laibson 1997), or by simply leveraging the excitement of gambling (Conlisk 1993). Evidence from the lab suggests that PLS products may attract more deposits than standard savings accounts and that they may help induce higher rates of savings, potentially by acting as a substitute for gambling or through non-linear probability weighting (Atalay et al. 2014; Filiz-Ozbay et al. 2015). While these results are encouraging, important questions regarding their external validity remain. Non-randomized evidence from the field finds similar results. Cole, Iverson and Tufano (2017) use data from a bank in South Africa that offered prize-linked savings accounts and find strong demand for the product, particularly among financially constrained consumers, and suggestive evidence that PLS accounts increase net savings, though are unable to establish causality due to selection. Both Cole, Iverson and Tufano (2017) and Cookson (2018) find evidence that PLS products are a substitute for gambling expenditure.

While evidence from the lab and non-randomized studies from the field suggest that prize linked incentives may be a promising way to improve savings behavior, there is little causal evidence from randomized field experiments, and no evidence on whether these incentives may be effective in promoting debt reduction. Gertler et al. (2018) randomized access to a two month long PLS intervention among bank branches in Mexico and finds modest effects on the number of account openings, yet no impact on savings behavior among existing clients. The lack of an effect on savings balances may be due to limited awareness regarding the presence or structure of the incentives, their short duration, cultural or institutional features unique to Mexico, or simply because these incentives do not causally lead to new savings.

[2] https://www.financialregulatoryreport.com/financial-services-regulation-u-s/prize-linked-savings-laws-spread-across-states/

In this paper, I conduct the first large-scale, individual-level randomized controlled trial examining whether prize-linked incentives can promote positive financial behavior, and the first examination of whether these incentives can be effective in promoting debt reduction. Randomly selected participants in a debt management plan (DMP) were given access to a program that probabilistically linked debt-repayment with debt relief. Specifically, each on-time in-full monthly repayment granted the participant an entry in a monthly lottery for $500 to be applied towards their existing DMP balance. Each on-time monthly payment also granted participants one entry into the grand prize drawing, $10,000 to be applied to their outstanding debt.[3] One monthly drawing was held each month in 2016, and the grand prize was drawn in January 2017. Program participants received monthly emails including information on the previous month's winner as well as information regarding upcoming drawings.

Similar to evidence from non-randomized field studies examining the efficacy of prize-linked incentives in improving savings behavior, I find strong demand for the program and positive correlational effects. Nearly three-quarters of DMP clients in the treatment group elected to participate, and program participants were timelier with their debt repayments, paid off more of their DMP debt, were less likely to drop out of the DMP, and had fewer late payments and charge-offs on debt obligations than program non-participants. However, leveraging random assignment, I find that these effects are driven almost entirely by selection. Over the period in which the incentives are active, I find a precise null average treatment effect on on-time payments (0.5pp, 95% CI = [-0.3pp, 1.3pp], control mean = 89%), DMP dropout (-0.1pp, 95% CI = [-1.3pp, 1.0pp], control mean = 16%), and outstanding DMP balance (46.7 dollars, 95% CI = [-$132, $225], control mean = $11,558). Average treatment effects on auxiliary outcomes gathered from credit reports are similarly null, as are effects estimated over the year after the incentives were removed. Examining which baseline characteristics predict take-up, I find evidence that individuals who are more likely to repay their debts ex-ante are more likely to participate in the prize-linked incentives: they have higher credit scores and fewer delinquencies than program non-participants. These results suggest that prize-linked incentives may not change behavior, and may simply be adopted by individuals who are likely to be successful in the linked behavior anyway.

[3] Thus, rather than targeting liquidity constraints, the intervention offers the chance of relief from large debt burdens through balance reductions. Dobbie and Song (2017) suggests that interventions that target "debt overhang" through debt write-downs may be more effective than those that target liquidity constraints, particularly in a DMP context.

This paper adds to extant literatures in several respects. First, it provides the first evidence from an individual-level randomized controlled field trial on the efficacy of prize-linked incentives in improving financial behavior, and the first evidence (causal or correlational) on whether these incentives can encourage debt reduction. Second, it uses individual level random variation to separately estimate selection bias from treatment effects of prize-linked incentives. The results present a cautionary tale: I find no evidence that the incentives cause behavior change, yet ample evidence that they are adopted primarily by individuals who will engage in the targeted behavior anyway. This underscores the need to treat correlational estimates on the efficacy of PLS products with caution. Third, the paper contributes to a nascent body of literature that uses field experiments to examine the effects of using behaviorally informed approaches to reduce debt, finding mixed success (Karlan and Zinman 2012; Collins, Gjertson and Sydnor 2018; Mazar, Mochon and Ariely 2018).

2. Study Setting and Background

I partnered with Money Management International (MMI), the largest non-profit credit counseling agency in the U.S., to design and implement the experiment. MMI offers numerous products and services, including financial education, credit counseling, and bankruptcy counseling. One of MMI's principle products is its Debt Management Plan (DMP). A DMP is a structured repayment plan targeted to individuals struggling with high levels of unsecured debt (predominately credit card debt). Prior to accepting a client into a DMP, MMI painstakingly reviews a prospective participant's financial situation to determine an affordable monthly repayment amount and to ensure that a client can successfully repay their debt on the DMP within five years[4] (but would struggle in repaying their debt on their own).[5] Often, this requires clients to decrease their consumption or expenditures in other areas to make ends meet, and MMI offers suggestions on expenses which can be reduced. MMI also negotiates directly with a client's creditors to reduce interest rates and late fees,[6] and then establishes a one monthly payment system in which DMP participants make a payment directly to MMI and MMI disburses the funds to creditors in accordance with the established agreements. Clients are generally encouraged (or required) to

[4] Under existing regulatory guidelines, DMPs cannot exceed five years in length. Borrowers who are financially unable to repay their debts within five years are not eligible to participate in a DMP, unless creditors are willing to reduce principal balances accordingly, which there are generally unwilling to do (Wilshusen 2011).
[5] In practice, however, very few prospective participants do not pass this screening process (Dobbie and Song 2017).
[6] Creditors also typically cease collection efforts while an individual is participating in a DMP (Wilshusen 2011).

place all their unsecured debts on a DMP at the start of the program, though creditors may not agree to participate.[7] Accounts placed on the DMP are closed to further use. Opening new lines of credit or accumulating unsecured debt outside the DMP may result in DMP creditors discontinuing benefits. Clients pay a monthly fee for the service on sliding scale depending on their financial situation and state laws, typically between $15 and $50 a month.[8] MMI administers over 75,000 DMPs each year, and collectively non-profit credit counseling agencies administer approximately 600,000 DMPs annually, returning around $1.5 - $2.5 billion to creditors (Hunt 2005; Wilshusen 2011).

DMP monthly payments, though generally slightly lower than the amount that would be required to stay current on one's debts in the absence of the program, are substantial. In our sample, MMI clients are expected to devote 16 percent of their monthly take home pay towards the DMP each month, on average. Many DMP participants struggle in making this commitment – only around a third successfully complete the program. Dropout is particularly concentrated in the first six months, when borrowers are attempting to make the lifestyle changes necessary to be successful within the DMP. Anecdotal evidence suggests that a substantial portion of this dropout appears to be due to a reluctance to comply with DMP repayment terms – exit interviews suggest around half off drop outs are not related to a financial hardship (job loss, bankruptcy filing, medical hardship, or general financial inability to pay). Program withdrawal can be costly – remaining debt may be referred to collections with potentially negative impacts on one's credit score.

3. Experimental Design

Randomly selected participants in MMI's DMP were given access to the "*Every Payment Counts*" program, which linked debt repayment with a small chance of debt relief. With each monthly on-time, in full debt repayment, program participants were entered into a drawing to receive $500 to be applied to their existing DMP balance. Each on-time monthly payment also granted participants one entry into the grand prize drawing, $10,000 to be applied to their existing debt.[9] Twelve

[7] Student loans are generally ineligible to be included in a DMP.
[8] Credit counseling agencies also receive "fair share" payments from creditors of approximately five percent of recovered debt.
[9] All prizes could only be applied to a client's outstanding DMP debt. If the award amount exceeded DMP balance, the remainder would not be distributed in cash. None of the awarded amounts exceeded the recipient's outstanding DMP balance.

monthly drawings were held throughout 2016 and the grand prize was drawn at year's end.[10] Treatment group participants also received a monthly newsletter (by email) highlighting the previous month's winner and providing reminders about upcoming drawings.

To examine whether there may be differential effects across different stages of the debt repayment life-cycle, the randomization was stratified across three cohorts: clients newly starting a DMP (those who originated a DMP in Q1 2016), clients one year into their DMP (originated in Q1 2015) and clients two years into their DMP (originated in Q1 2014). Prize-linked incentives may be particularly impactful for individuals who are just starting a DMP and beginning to develop the habits required to be successful within the program. All clients who started a DMP in the first three months of 2016 were entered into the study and we collected a random sample of 1,500 active clients who started a DMP in 2015 or 2014, respectively.[11]

All study participants were randomized, with equal probability, into one of two groups: the treatment group – who received an invitation to participate in the *Every Payment Counts* program, and the control group – who did not receive an invitation (and was ineligible to participate). Treatment group participants were informed of the existence of the program through a three step process. First, they received an email describing the program that contained a one-click link to opt-in if interested, or opt-out if not interested (Appendix Figure 1).[12] If a participant did not respond to the first email, they received a second, nearly identical, email a few days later. If a participant did not respond to either email, she then received up to three phone calls with a pre-recorded message describing the program and prompts to press 1 to opt-in, press 2 to opt-out, or press 3 to speak with an MMI support counselor (Appendix Figure 2). If none of the pre-recorded phone messages received a response, MMI support counselors then called clients directly, at home and at work, to inform them about the program and elicit interest. Up to three calls were made, and a message was left on the client's voicemail or answering machine if they did not answer the phone. Finally, participants in the treatment group who had not previously opted-in (or opted-out)

[10] Chances of winning depended upon participation and debt repayment behavior and were unknowable ex-ante. Prospective participants were told that chances of winning depend on the number of entries.
[11] 43 clients from the 2014 cohort, and 69 clients from the 2015 cohort exited the DMP between the time of randomization (November 2015) and the onset of the study (Jan 2016). Exits are balanced across treatment and control and excluded from the analysis.
[12] Treatment participants from the 2014 and 2015 cohort received the first email in the second week of January 2016, while clients new to the DMP received the first email approximately one week after origination.

received a version of the monthly newsletter that had a section describing the program and eliciting interest in a similar manner as presented in the initial email (Appendix Figure 3). The marketing of the program was designed to maximize awareness of its existence and make the barriers to participation as low as possible.

4. Data and Sample Characteristics

The analysis uses data from three sources: MMI's DMP intake screening, MMI monthly administrative data, and credit reports and credit scores from one of the three major credit bureaus. At DMP intake, MMI collects selected demographic information (e.g. age, gender, race, and number of dependents) and detailed financial information including monthly net income, monthly expenses, assets and liabilities. Monthly administrative data, collected each month for two years following study onset, track DMP activity including DMP status, outstanding DMP balance, and repayment behavior. Credit data include tradeline level information on outstanding debts (including debt outside the DMP), delinquencies, charge-offs, bankruptcy filings, and FICO credit score. Credit reports were pulled at baseline,[13] in January 2017 (immediately after the removal of the incentives), and in January 2018 (a year after the incentives had been removed). Credit report information was collected through "soft" credit pulls, which do not impact credit scores.

Table 1 presents baseline summary statistics and randomization balance tests for the sample (Appendix Tables 1-3 present the same information by cohort). Columns 1 and 2 present descriptive statistics, separately for the treatment and control groups. Column 3 presents a univariate balance test for each variable, reporting an estimate of the difference between Columns 1 and 2. The overall pattern is consistent with valid randomization: none of the univariate differences are statistically significant and estimated differences do not appear to be economically meaningful. In particular, baseline DMP debt, monthly payment amounts, monthly incomes, and credit scores are very similar across groups. Column 4 presents results from a multi-variate balance test regressing an indicator for being assigned to treatment on the complete set of variables in the table. The results are also consistent with the randomization functioning well – the p-value on the F-test that the covariates are jointly zero is nearly one. Column 5 repeats the joint test for the sample for which credit reports are available and verifies the results are similar.

[13] Baseline credit reports were pulled in early January 2016 for the 2014 and 2015 cohorts, and at DMP intake for clients who originated a DMP in 2016.

In total, 6,907 individuals participated in the experiment and their characteristics are broadly representative of MMI DMP clients as a whole. Average baseline debt on the DMP is approximately $15,000 and participants' average monthly DMP payment is around $480, accounting for approximately 16 percent of monthly net income. Clients on average have 5 – 6 unsecured debts (primarily credit cards) on their DMP. Credit report data suggest that the sample has had difficulty managing debt in the past: most of the sample has a subprime credit score (average score is 614) and participants have made numerous late payments on outstanding debt accounts. Approximately 11 percent of the sample had declared bankruptcy in the recent past.[14]

In comparison to the detailed financial information, MMI collects relatively limited demographic information, much of which is voluntary. Average age in our sample is 48, 18 percent of participants have a co-borrower on the DMP, and clients have 2.4 financial dependents, on average. Approximately a quarter of our sample elected not to disclose their gender and 68 percent of those who responded identified as female. Nearly a third of respondents didn't provide information about their race. Among responders, 63 percent identified as white. The majority of our sample (58 percent) originated their DMP during the first three months in 2016.[15]

5. Results

5.1. Take-up

Figure 1 describes take-up of the incentives.[16] In total, 74 percent of the treatment group elected to participate in the *Every Payment Counts* program, indicating strong interest, awareness, and demand. Approximately two-thirds of take-up occurred in the month participants joined the study, with 92 percent (98 percent) occurring by month two (three). Take-up among the 2016 cohort (76.7 percent) was slightly higher than take-up in the 2015 cohort (71.7 percent, p-value on difference with 2016 = 0.01) and the 2014 cohort (68.9 percent, p-value = 0.00). The majority of

[14] Chapter 7 (Chapter 13) bankruptcies typically remain on one's credit report for ten (seven) years.
[15] We were careful not to change the composition of individuals who elected to start a DMP. The program was not externally marketed, nor mentioned during DMP origination. Randomization occurred after a DMP was originated, and the existence of the incentives was disclosed to treatment group participants approximately a week after DMP start. DMP originations for Q1 2016 were very close to recent trends and MMI expectations ~ 1,200 – 1,300 starts a month.
[16] Control group participants were not sent any marketing or invitations to participate and were ineligible. MMI support counselors did not receive any requests from the control group to participate.

participants who did not elect to opt-in simply failed to respond to our marketing efforts. Only 6 percent of the treatment group actively opted-out of the incentive program.

5.2. Estimating Impacts on Participants who Take-up the Incentives

Prior to investigating the causal effects of treatment, I first examine how outcomes differ for those who selected into the prize-linked incentives compared to those who did not. I estimate correlational parameters using OLS equations of the following form:

$$(1) \quad Y_{it} = \alpha + \beta(TakeUp_i * Post_t) + Post_t + \gamma_i + \varepsilon_{it}$$

where *Y* is an outcome variable of interest drawn from the administrative data (e.g. DMP balance) or credit report data (e.g. charge-offs) for person *i* at time *t*, $TakeUp_i$ indicates whether individual *i* elected to participate in the incentive program, $Post_t$ is an indicator variable denoting non-baseline periods (months 1 – 24 in the administrative data or credit report pulls in 2017 and 2018), and γ_i captures individual fixed effects.[17] For analysis using the monthly administrative data, time is indexed by the month in which participants entered the study (started a DMP for the 2016 cohort). Standard errors are clustered at the individual level.

For this analysis, I restrict the sample to the treatment group since the control group did not have access to the incentives and could not choose to participate.[18] The coefficient of interest, β, captures a combination of treatment and selection effects, and this analysis is akin to non-randomized evaluations of prize-linked incentive programs that compare savings behavior across program participants and non-participants.

Table 2 demonstrates that individuals who elected to participate in the incentive program were considerably more successful in the DMP than those who did not participate. Though there is no observable difference in on-time payment behavior conditional on remaining in the DMP across the 24 month window of analysis,[19] there are stark differences between takers and non-takers in

[17] Study participants who started a DMP in 2016 were assigned to treatment or control prior to making their first DMP payment. As a result, I lack a baseline measure of repayment behavior and estimate impacts on on-time payments using a pooled OLS framework with monthly fixed effects. Results are qualitatively unchanged when I normalize baseline repayment behavior to equal one for the 2016 cohort and estimate effects using the fixed effects framework.

[18] Results are qualitatively unchanged when including the control group.

[19] According to MMI the vast majority of DMP participants use direct debit to make payments, though I do not observe payment method in the data.

DMP retention – participants in the *Every Payment Counts* incentive program were 11 percentage points (se = 1.4pp) more likely to remain active in the DMP than non-participants on average over the two year window of observation. Increased DMP retention is largely driven by a reduction in dropout – takers were 10 percentage points (se = 1.4pp) less likely to prematurely dropout of the DMP than non-takers. As a result, individuals who took-up the prize-linked incentives paid down more of their DMP debt than program non-participants. Program participants outstanding DMP balance was 854.33 dollars (se = 210.3 dollars) lower than program non-participants on average across the 24 month post period. Two years after the onset of the incentives, takers had reduced their debt by 1,943.78 dollars (se = 347.70 dollars) more than non-takers (Figure 2).

The even numbered columns in Table 2 describes differences between program takers and non-takers along the administrative outcomes of interest separately for the period in which the incentives were active and the post-period after the incentives were removed. During the incentive period, active DMP clients who participated in the program were 1.6 percentage points (se = 0.7pp) more likely to make their monthly payment on-time than individuals in control. The point estimate drops to 0.2 percentage points (se = 0.8pp) after removal of the incentives. Estimates of the differences between program participants and non-participants are similar across the incentive and post-incentive periods for the other administrative outcomes. Temporal differences in the estimates for dropout and remaining active in a DMP are small. Commensurate with the compounding effects of dropout, there are larger differences between program participants and non-participants in amount of debt paid off within the DMP in the post-incentive period than in the period during which the incentives were active.[20] Interestingly, program takers are 1.3 percentage points (se = 0.6pp) less likely to complete a DMP while the incentives are active, yet there is no observable difference between participants and non-participants after the incentives are removed (the difference between the two point estimates is not statistically significant, however). This provides suggestive evidence that either take-up was more likely among people who were less likely to complete the DMP in the first year, or that the incentives encouraged people to remain active in the DMP while they had sufficient resources to pay off their debts.

[20] Appendix Tables 4 - 6 examines heterogeneous effects by DMP start year cohort and finds similar effects, though differences between program participants and program non-participants are generally slightly more pronounced among the 2016 cohort.

Individuals who took advantage of the *Every Payment Counts* incentive program also had improved outcomes on their credit reports relative to non-participants (Table 3). Takers had fewer charge-offs on non-mortgage debt (point estimate = -1,029.94, se=371.25) and fewer late payments (point estimate = -8.548, se=2.10) than non-takers after the incentive program was introduced.[21] Estimates are similar across the incentive and post-incentive period, though the difference between takers and non-takers in number of late payments on the credit report is even starker in the post-incentive period. The point estimate on total non-mortgage debt on the credit report is negative, though small. There are also no observable differences in credit score between program participants and non-participants.[22] Similar to the results from the administrative data, differences between program participants and non-participants are similar across DMP start year cohort, though slightly more pronounced among individuals new to the DMP (Appendix Tables 7 - 9).

5.3. Estimating Treatment Effects

The previous section demonstrated that individuals who elected to participate in the *Every Payment Counts* incentive program experienced better outcomes, both within the DMP and on their credit reports, than program non-participants. However, these estimates may be plagued by selection as program participation is endogenous. I now leverage the random assignment of program access to estimate the causal impacts of treatment. In particular, I estimate similar specifications as in the previous section, replacing programmatic take-up with random assignment to treatment.

Table 4 presents intent-to-treat effect estimates on DMP administrative outcomes. In stark contrast to the correlational estimates comparing program participants with non-participants, estimated treatment effects are precise zeros. In particular, I find a null average treatment effect on all the administrative data measures of interest: on-time payments, DMP retention and dropout, and outstanding DMP balance. Even numbered columns examine the effects of treatment separately for the period in which the incentives were active and the post-period after the incentives were

[21] When analyzing credit report outcomes, I remove the 4.6 percent of clients who declared bankruptcy during the window of analysis to focus on debt reduction attributable to participants' repayment behavior. The bankruptcy rate is not statistically different across program takers and non-takers (nor across treatment and control), and including individuals who declared bankruptcy does not meaningfully change the results.

[22] FICO does not directly incorporate whether an individual is participating in a DMP into its scoring model, though participating in a DMP can reduce one's credit score. DMP participants have their existing unsecured credit accounts closed upon initiation and they are unable to open new lines of credit while active in a DMP. This can have a dramatic impact on one's credit utilization ratio and negatively impact one's score. https://www.experian.com/blogs/ask-experian/credit-education/debt-management-plan-is-it-right-for-you/

removed. Over the year the incentive program was running, the estimated treatment effect on on-time payments (0.5pp, se 0.4pp), DMP dropout (-0.1pp, se 0.6pp), and outstanding DMP balance (46.7 dollars, se 91.1 dollars) are all essentially zero. The corresponding confidence intervals rule out increases in on-time payments of 1.3pp (control mean = 89%), reductions in dropout of 1.3pp (control mean = 16%), and reductions in DMP balance of approximately 132 dollars (control mean = $11,558), all very minor differences relative to control. Unsurprisingly given that there is no observable effect of treatment during the incentive period, I also find little evidence of treatment effects in the year after the incentives were removed. Estimated effects on dropout, on-time payment behavior, and DMP debt reduction are all small and insignificant.

Table 5 examines the effects of treatment on auxiliary debt outcomes observable on the credit report. Similar to the lack of effects observed on DMP outcomes, I find little evidence of a treatment effect on broader credit health. During the incentive period, and also over the entire window of analysis, there is no observable effect on any of the credit outcomes of interest. In particular, over the year the incentives were in place, I find a null average treatment effect on non-mortgage charge-offs (223.13 dollars, se = 186.85 dollars), number of late payments (0.78 payments, se = 1.02 payments), credit score (-1.43 points, se = 1.76 points), and non-mortgage debt (-318.08 dollars, se = 446.36 dollars).[23] All point estimates are small relative to baseline levels, and the respective confidence intervals exclude economically meaningful effects: 95% confidence intervals preclude decreases in charge-offs of approximately 190 dollars, decreases in late payments of 1.2 payments, increases in credit score of 2 points, and reductions in non-mortgage debt of approximately 1250 dollars. Similarly, I find no evidence of a treatment effect in the year after the incentives were removed.

5.4. Heterogeneous Treatment Effects

As noted above, debt management plans frequently require participants to make lifestyle changes by reducing discretionary spending so that their monthly budget can accommodate repaying all of their unsecured debts in accordance with renegotiated agreements with creditors (and in no more than five years). Participants new to a DMP may have the greatest difficulty in developing the

[23] Results are similar including mortgage debt, though less precisely estimated.

habits required to be successful in the repayment program. Prize-linked incentives may be particularly effective in helping these clients develop the required habits.

Tables 6 - 8 present estimates of heterogeneous treatment effects on administrative outcomes by DMP start year. Similar to the average effects across the entire sample, I find little evidence of treatment effects within cohort. Point estimates on DMP dropout, on-time payment behavior, and outstanding DMP debt are generally small and not statistically significant. For example, over the period in which the incentives were active, point estimates on DMP dropout range from -0.9pp to 1.0pp across the three cohorts. There is little evidence that the incentives were more effective in promoting debt reduction among the 2016 cohort – none of the estimated effects are statistically significant for this cohort and several, including effects on outstanding DMP balance, have the opposite sign.

In fact, there is little evidence that the incentives induced behavior change among any of the cohorts. Over both the period in which the incentives were active and the period after the incentives were removed, most estimates reveal a null average treatment effect. An exception is retention among the 2014 cohort. Estimates suggest that participants in this cohort randomly assigned to treatment were 2.8pp (se = 1.3pp) more likely to remain active in the DMP while the incentives were active and 4.7pp (se = 2.3pp) more likely to remain active after the incentives were removed than their counterparts in control. While potentially promising, it appears that this increase in retention is primarily being driven by a reduction in successful program completions. In particular, 2014 treatment participants were 2.0pp (se = 1.0pp,) less likely to complete the DMP successfully while the incentives were active, and 2.9pp (se = 2.1pp) less likely to complete after the incentives were removed.[24]

I find similar results when examining outcomes on study participants' credit reports (Tables 9 - 11). Across cohorts, I find null average treatment effects on charge-offs, late payments, credit score, and total debt burden. Point estimates are small and confidence intervals generally preclude economically meaningful impacts (though standard errors on total debt burden estimates are relatively large for the 2014 and 2015 cohorts due to limited sample sizes). I do not find evidence of effects either over the year in which the incentives were active, nor over the year after the

[24] Point estimates on DMP dropout are also negative, though smaller in magnitude and not statistically significant.

incentives were removed. Estimated treatment effects on the 2016 cohort tend to be similar in magnitude to those of other cohort years, though generally indicate directionally less beneficial effects.

All told, these results suggest that the prize-linked incentive program had little effect on behavior. If anything, the incentive program may have encouraged financially questionable behavior. Among the cohort closest to DMP completion, being randomly assigned to treatment may have encouraged participants to remain in the DMP rather than use accumulated assets to successfully complete the program. Though unknowable to study participants at the time, the expected benefit to participating in the *Every Payment Counts* incentive program (calculated ex-post) was less than $1 per month, well below the typical monthly service fee to remain in the DMP.[25]

5.5. Who takes up prize-linked incentives?

The previous sections demonstrate that individuals who elected to participate in the prize-linked incentive program experienced improved debt reduction outcomes relative to those who did not, yet that these effects are driven almost entirely by selection – intent-to-treat estimates reveal a precise null average treatment effect. So who selects into prize-linked incentive programs?

Table 12 explores differences in baseline characteristics between treatment group subjects who participated in the *Every Payment Counts* program and those who did not. As noted in Section 5.1, there is a larger proportion of 2016 starts among takers than non-takers. Relatedly, program participants have higher starting DMP balances and longer remaining on their DMP on average than non-participants. Program takers also have higher monthly DMP payment amounts, more tradelines on the DMP, higher net monthly incomes, higher debt on their credit report, and are more likely to have a co-client on the DMP than non-takers. Differences along demographic characteristics are relatively muted.

Importantly, individuals who elected to take-up the incentives appear ex-ante more likely to repay their debt successfully – they have higher credit scores and fewer delinquencies on their credit report than program non-participants. Column 4 present results from a regression of an indicator measuring take-up on the set of baseline characteristics. Credit score, an aggregate measure

[25] Even if known, however, heavily skewed (e.g. prize-linked) incentives can still be attractive to consumers who overweight small probability events, even if they provide a negative excess return (Barberis and Huang 2008).

assessing the likelihood that an individual will repay her debts, is a strong predictor of taking up the incentive program – a 100 point increase in credit score translates into a 6 percentage point increase in the likelihood of take-up. When omitting credit scores from the regression, past delinquencies (which are an important component of, and correlated with, credit scores) are also a significant predictor of take-up. In essence, those who were ex-ante more likely to repay their debt we're also more likely to participate in the prize-linked incentives program.

6. Conclusion

This paper conducts the first individual-level randomized controlled field trial examining the effects of prize-linked incentives on financial behavior, and presents the first evidence (causal or correlational) on whether these incentives can be effective in decreasing consumer debt burdens. Leveraging individual level randomization, I find strong evidence of selection and little evidence of causal behavior change. Study participants who took up the prize-linked incentives were more effective in repaying their debt than individuals who did not participate in the incentive program – they were more timely with their debt repayments, paid off more of their debt within the program, and had fewer delinquencies and charge-offs on their credit report. In contrast, estimates of intent-to-treat effects are precisely zero. Selection estimates reveal that individuals who were ex-ante more likely to repay their debts were more likely to participate in the prize-linked incentive program – they had higher credit scores and fewer past delinquencies than non-participants.

The positive correlational results found in this paper (and strong interest in the incentives) are similar to findings from non-randomized field studies examining the efficacy of prize-linked incentives in improving savings behavior. The absence of causal effects on financial outcomes, however, presents a cautionary tale – prize linked incentives may be primarily adopted by individuals who will engage in the targeted behavior anyway.

Like in any randomized field experiment, external validity is an important question and results from this paper may not immediately generalize to other settings (like savings behavior). However, this paper presents evidence that even in settings where there is no financial cost to participation, and when the incentives are advertised and promoted extensively and in a manner that would be difficult and costly to achieve in most real world settings, prize-linked incentive programs may face massive selection problems. Even if prize-linked incentives were to causally

improve financial health for some consumers (a prospect for which I find little evidence), results from this paper suggest that it may be very difficult to get these individuals to participate.

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Table 1: Baseline Characteristics and Balance Tests

	(1)	(2)	(3)	(4)	(5)
Variables	Control	Treatment	Difference	Balance Test	CBR Sample Balance Test
DMP Balance (1,000s)	15.01	15.55	-0.54	0	0
	[15.10]	[15.91]	(0.370)	(0.001)	(0.001)
Months Remaining on DMP (Winsorized 5%)	40.32	40.82	-0.5	0.001	0.001
	[13.78]	[13.74]	(0.330)	(0.001)	(0.001)
DMP Monthly Payment	472.57	487.46	-14.89	0	0
	[456.58]	[473.17]	(11.190)	(0.0)	(0.0)
Number of Tradelines on the DMP	5.71	5.721	-0.011	-0.001	0
	[4.08]	[3.95]	(0.097)	(0.002)	(0.002)
Credit Score	613.58	614.45	-0.88	0	0
	[78.33]	[78.67]	(1.910)	(0.0)	(0.0)
CBR Debt (1,000s)	104.53	105.74	-1.2	0	0
	[133.54]	[140.41]	(3.320)	(0.0)	(0.0)
CBR Delinquent Payments	36.06	34.82	1.24	0	0
	[55.49]	[55.88]	(1.350)	(0.0)	(0.0)
Net Monthly Income (1,000s)	3.06	3.11	-0.05	0.004	0.004
	[2.04]	[2.23]	(0.050)	(0.004)	(0.004)
Prior Bankruptcy	0.1125	0.1191	-0.0066	0.023	0.02
	[0.32]	[0.32]	(0.008)	(0.019)	(0.020)
Age	47.81	47.91	-0.1	0	0
	[14.91]	[15.08]	(0.360)	(0.0)	(0.0)
Number of Dependents	2.404	2.406	-0.002	0	0
	[1.46]	[1.47]	(0.035)	(0.005)	(0.005)
Coclient	0.1805	0.1748	0.0057	-0.022	-0.026
	[0.38]	[0.38]	(0.009)	(0.018)	(0.018)
Female	0.677	0.6848	-0.0078	0.011	0.008
	[0.47]	[0.46]	(0.013)	(0.015)	(0.015)
White	0.6306	0.6355	-0.0048	0.002	0.001
	[0.48]	[0.48]	(0.014)	(0.015)	(0.015)
DMP Start in 2016	0.5814	0.5823	-0.001	-0.014	-0.012
	[0.49]	[0.49]	(0.012)	(0.016)	(0.016)
Missing Credit Data	0.0151	0.0127	0.0024	-0.043	0
	[0.12]	[0.11]	(0.003)	(0.104)	(0.0)
Missing Credit Score	0.0198	0.017	0.0027	-0.007	-0.011
	[0.14]	[0.13]	(0.003)	(0.107)	(0.110)
Missing Age	0.0038	0.0029	0.0009	-0.063	-0.11
	[0.06]	[0.05]	(0.001)	(0.106)	(0.109)
Missing Gender	0.2378	0.2359	0.0019	0.041	0.036
	[0.43]	[0.42]	(0.010)	(0.034)	(0.035)
Missing Race	0.3113	0.3005	0.0108	-0.027	-0.027
	[0.46]	[0.46]	(0.011)	(0.033)	(0.033)
p-value of F-test of joint significance of all explanatory variables				0.935	0.928
N	3440	3467		6907	6725

Cells in Columns 4 and 5 report coefficients and standard errors. The regression in Column 5 is restricted to the sample that could be matched to a credit report at baseline and the two follow-up periods, for comparability with subsequent tables. The Months Remaining on DMP variable replaces the top 5 percentiles with the value at the 95th percentile due to expected DMP lengths exceeding five years. Results are nearly identical using non-winsorized data.

Table 2: Selection into the Incentives: Administrative Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Opt-in x Post	0.009		0.110		-0.103		-0.008		-854.329	
	(0.007)		(0.014)		(0.014)		(0.008)		(210.304)	
Opt-in x Incentive Period [i]		0.016		0.108		-0.095		-0.013		-247.953
		(0.007)		(0.012)		(0.011)		(0.006)		(147.269)
Opt-in x Post Incentive Period [ii]		0.002		0.114		-0.111		-0.003		-1,347.989
		(0.008)		(0.018)		(0.017)		(0.011)		(282.203)
Post			-0.310		0.234		0.076		-3,636.646	
			(0.013)		(0.013)		(0.007)		(175.883)	
Incentive Period				-0.196		0.164		0.033		-2,078.853
				(0.011)		(0.011)		(0.005)		(128.431)
Post Incentive Period				-0.409		0.295		0.114		-4,994.906
				(0.016)		(0.015)		(0.010)		(230.739)
Constant	0.927	0.927	1.000	1.000	0.000	0.000	0.000	0.000	15,815.208	15,815.208
	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(92.936)	(93.080)
Adjusted R-squared	0.001	0.001	0.568	0.631	0.661	0.689	0.502	0.532	0.905	0.924
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	65870	65870	86675	86675	86675	86675	86675	86675	86675	86675
Individuals	3467	3467	3467	3467	3467	3467	3467	3467	3467	3467
P-value of [i]=[ii]	-	0.047	-	0.630	-	0.122	-	0.242	-	0.000
Average Outcome - End of Incentive Period	0.907	0.907	0.785	0.785	0.162	0.162	0.053	0.053	11870.857	11870.857
Average Outcome - 24-months	0.890	0.890	0.582	0.582	0.245	0.245	0.173	0.173	8136.770	8136.770

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. The sample is restricted to participants in the treatment group. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table 3: Selection into the Incentives: Credit Report Outcomes

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Non-mortgage Charge-off		Late Payments		Credit Score		Non-mortgage Debt (Winsorized Top 1%)	
Opt-in x Post	-1,029.94		-8.548		-2.28		-281.73	
	(371.25)		(2.101)		(2.88)		(780.71)	
Opt-in x Incentive Period [i]		-1,044.78		-6.434		-2.72		-453.79
		(343.41)		(1.565)		(2.92)		(672.54)
Opt-in x Post Incentive Period [ii]		-1,015.11		-10.661		-1.84		-109.67
		(429.16)		(2.817)		(3.33)		(1,017.64)
Post	2,489.91		24.321		17.98		-2,927.32	
	(335.98)		(1.829)		(2.50)		(654.94)	
Incentive Period		2,078.68		16.460		9.53		-2,149.21
		(313.91)		(1.352)		(2.54)		(554.43)
Post Incentive Period		2,901.14		32.182		26.43		-3,705.44
		(381.00)		(2.463)		(2.87)		(862.49)
Constant	1,595.42	1,595.42	35.129	35.129	615.16	615.16	41,291.52	41,291.52
	(97.25)	(97.27)	(0.600)	(0.600)	(0.83)	(0.83)	(238.41)	(238.45)
Adjusted R-squared	0.64	0.65	0.792	0.801	0.73	0.74	0.90	0.90
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9696	9696	9696	9696	9576	9576	9696	9696
Individuals	3232	3232	3232	3232	3192	3192	3232	3232
P-value of [i]=[ii]	-	0.897	-	0.017	-	0.723	-	0.639
Average Outcome - End of Incentive Period	2900.54	2900.54	46.825	46.825	622.68	622.68	38806.32	38806.32
Average Outcome - 24-months	3744.97	3744.97	59.417	59.417	640.22	640.22	37504.88	37504.88

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. The sample is restricted to participants in the treatment group. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.

Table 4: Treatment Effects: Administrative Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Treatment x Post	0.005		0.011		-0.005		-0.007		24.458	
	(0.004)		(0.008)		(0.008)		(0.005)		(136.817)	
Treatment x Incentive Period [i]		0.005		0.004		-0.001		-0.003		46.704
		(0.004)		(0.006)		(0.006)		(0.003)		(91.140)
Treatment x Post Incentive Period [ii]		0.004		0.018		-0.008		-0.010		5.212
		(0.005)		(0.011)		(0.010)		(0.007)		(187.174)
Post			-0.240		0.162		0.077		-4,293.658	
			(0.006)		(0.005)		(0.003)		(96.469)	
Incentive Period				-0.120		0.094		0.026		-2,310.237
				(0.005)		(0.004)		(0.002)		(65.902)
Post Incentive Period				-0.343		0.221		0.121		-5,999.076
				(0.008)		(0.007)		(0.005)		(129.861)
Constant	0.920	0.920	1.000	1.000	-0.000	0.000	-0.000	0.000	15,535.333	15,535.333
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(65.674)	(65.777)
Adjusted R-squared	0.001	0.001	0.563	0.629	0.657	0.686	0.502	0.534	0.905	0.925
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	130283	130283	172675	172675	172675	172675	172675	172675	172675	172675
Individuals	6907	6907	6907	6907	6907	6907	6907	6907	6907	6907
P-value of [i]=[ii]	-	0.855	-	0.061	-	0.249	-	0.226	-	0.740
Average Outcome - End of Incentive Period	0.899	0.899	0.785	0.785	0.160	0.160	0.055	0.055	11558.683	11558.683
Average Outcome - 24-months	0.889	0.889	0.569	0.569	0.251	0.251	0.181	0.181	7884.096	7884.096

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table 5: Treatment Effects: CBR Outcomes

VARIABLES	(1) Non-mortgage Charge-off	(2) Non-mortgage Charge-off	(3) Late Payments	(4) Late Payments	(5) Credit Score	(6) Credit Score	(7) Non-mortgage Debt (Winsorized Top 1%)	(8) Non-mortgage Debt (Winsorized Top 1%)
Treatment x Post	208.07		0.641		-1.68		-194.82	
	(206.99)		(1.325)		(1.75)		(502.17)	
Treatment x Incentive Period [i]		223.13		0.776		-1.43		-381.08
		(186.85)		(1.020)		(1.76)		(446.36)
Treatment x Post Incentive Period [ii]		193.02		0.505		-1.93		-8.57
		(250.54)		(1.740)		(2.06)		(638.74)
Post	1,519.26		17.352		17.97		-2,941.10	
	(146.55)		(0.969)		(1.23)		(352.58)	
Incentive Period		1,081.99		10.920		8.94		-2,104.12
		(132.48)		(0.758)		(1.24)		(314.80)
Post Incentive Period		1,956.53		23.783		27.00		-3,778.07
		(177.54)		(1.259)		(1.47)		(445.01)
Constant	1,693.49	1,693.49	35.869	35.869	614.35	614.35	41,138.27	41,138.27
	(69.00)	(69.00)	(0.441)	(0.441)	(0.58)	(0.58)	(167.42)	(167.43)
Adjusted R-squared	0.63	0.63	0.779	0.789	0.72	0.73	0.90	0.91
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19239	19239	19239	19239	18936	18936	19239	19239
Individuals	6413	6413	6413	6413	6312	6312	6413	6413
P-value of [i]=[ii]	-	0.846	-	0.798	-	0.751	-	0.411
Average Outcome - End of Incentive Period	2887.93	2887.93	47.180	47.180	622.57	622.57	38842.09	38842.09
Average Outcome - 24-months	3747.30	3747.30	59.907	59.907	640.37	640.37	37355.87	37355.87

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.

Table 6: Treatment Effects: Administrative Outcomes - 2016 Cohort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Treatment x Post	0.000		0.008		-0.004		-0.004		32.717	
	(0.005)		(0.011)		(0.011)		(0.005)		(184.750)	
Treatment x Incentive Period [i]		-0.001		0.002		-0.002		0.000		33.933
		(0.006)		(0.009)		(0.008)		(0.003)		(128.313)
Treatment x Post Incentive Period [ii]		0.001		0.013		-0.005		-0.008		30.998
		(0.007)		(0.014)		(0.014)		(0.007)		(242.153)
Post			-0.251		0.210		0.041		-3,981.074	
			(0.008)		(0.008)		(0.003)		(131.912)	
Incentive Period				-0.129		0.117		0.012		-2,137.393
				(0.006)		(0.006)		(0.002)		(94.163)
Post Incentive Period				-0.345		0.281		0.063		-5,401.629
				(0.010)		(0.010)		(0.005)		(169.607)
Constant	0.892	0.892	1.000	1.000	0.000	0.000	0.000	0.000	17,257.085	17,257.085
	(0.012)	(0.012)	(0.005)	(0.005)	(0.005)	(0.005)	(0.002)	(0.002)	(88.673)	(88.659)
Adjusted R-squared	0.000	0.000	0.590	0.649	0.639	0.679	0.513	0.528	0.929	0.942
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	73081	73081	100475	100475	100475	100475	100475	100475	100475	100475
Individuals	4019	4019	4019	4019	4019	4019	4019	4019	4019	4019
P-value of [i]=[ii]	-	0.756	-	0.233	-	0.702	-	0.127	-	0.985
Average Outcome - End of Incentive Period	0.887	0.887	0.771	0.771	0.204	0.204	0.025	0.025	13785.867	13785.867
Average Outcome - 24-months	0.893	0.893	0.577	0.577	0.326	0.326	0.096	0.096	10238.883	10238.883

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table 7: Treatment Effects: Administrative Outcomes - 2015 Cohort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Treatment x Post	0.007		-0.007		0.002		0.005		-282.502	
	(0.009)		(0.016)		(0.014)		(0.011)		(296.157)	
Treatment x Incentive Period [i]		0.004		-0.015		0.010		0.004		-150.061
		(0.009)		(0.013)		(0.011)		(0.007)		(172.695)
Treatment x Post Incentive Period [ii]		0.010		0.001		-0.007		0.006		-414.944
		(0.011)		(0.022)		(0.019)		(0.016)		(441.738)
Post			-0.188		0.112		0.076		-4,379.740	
			(0.011)		(0.010)		(0.007)		(189.868)	
Incentive Period				-0.089		0.064		0.025		-2,299.027
				(0.009)		(0.008)		(0.005)		(113.690)
Post Incentive Period				-0.287		0.159		0.128		-6,460.453
				(0.016)		(0.013)		(0.011)		(280.030)
Constant	0.924	0.924	1.000	1.000	0.000	0.000	0.000	0.000	14,864.508	14,864.508
	(0.007)	(0.007)	(0.008)	(0.008)	(0.007)	(0.007)	(0.005)	(0.005)	(142.391)	(142.395)
Adjusted R-squared	0.000	0.000	0.552	0.612	0.670	0.689	0.482	0.521	0.849	0.882
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	29208	29208	35775	35775	35775	35775	35775	35775	35775	35775
Individuals	1431	1431	1431	1431	1431	1431	1431	1431	1431	1431
P-value of [i]=[ii]	-	0.510	-	0.336	-	0.144	-	0.882	-	0.400
Average Outcome - End of Incentive Period	0.912	0.912	0.825	0.825	0.118	0.118	0.057	0.057	10501.844	10501.844
Average Outcome - 24-months	0.914	0.914	0.624	0.624	0.176	0.176	0.200	0.200	6414.670	6414.670

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table 8: Treatment Effects: Administrative Outcomes - 2014 Cohort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Treatment x Post	0.015		0.038		-0.013		-0.024		294.805	
	(0.009)		(0.017)		(0.012)		(0.014)		(271.982)	
Treatment x Incentive Period [i]		0.016		0.028		-0.009		-0.020		260.703
		(0.009)		(0.013)		(0.010)		(0.010)		(180.126)
Treatment x Post Incentive Period [ii]		0.014		0.047		-0.017		-0.029		328.906
		(0.011)		(0.023)		(0.016)		(0.021)		(382.828)
Post			-0.260		0.082		0.178		-5,065.388	
			(0.012)		(0.009)		(0.010)		(201.842)	
Incentive Period				-0.127		0.053		0.075		-2,876.127
				(0.010)		(0.007)		(0.008)		(131.682)
Post Incentive Period				-0.392		0.111		0.282		-7,254.650
				(0.016)		(0.011)		(0.015)		(285.234)
Constant	0.930	0.930	1.000	1.000	0.000	0.000	0.000	0.000	11,444.893	11,444.893
	(0.007)	(0.007)	(0.008)	(0.008)	(0.006)	(0.006)	(0.007)	(0.007)	(130.598)	(130.601)
Adjusted R-squared	0.005	0.005	0.491	0.583	0.692	0.703	0.467	0.543	0.764	0.833
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27994	27994	36425	36425	36425	36425	36425	36425	36425	36425
Individuals	1457	1457	1457	1457	1457	1457	1457	1457	1457	1457
P-value of [i]=[ii]	-	0.794	-	0.276	-	0.390	-	0.551	-	0.784
Average Outcome - End of Incentive Period	0.917	0.917	0.785	0.785	0.079	0.079	0.136	0.136	6453.180	6453.180
Average Outcome - 24-months	0.849	0.849	0.491	0.491	0.116	0.116	0.394	0.394	2831.838	2831.838

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table 9: Treatment Effects: CBR Outcomes - 2016 Cohort

VARIABLES	(1) Non-mortgage Charge-off	(2)	(3) Late Payments	(4)	(5) Credit Score	(6)	(7) Non-mortgage Debt (Winsorized Top 1%)	(8)
Treatment x Post	443.20		1.118		-2.26		-7.33	
	(317.13)		(1.818)		(2.48)		(642.59)	
Treatment x Incentive Period [i]		394.80		1.149		-2.17		-146.58
		(288.86)		(1.391)		(2.50)		(567.34)
Treatment x Post Incentive Period [ii]		491.60		1.088		-2.34		131.93
		(379.22)		(2.395)		(2.89)		(824.99)
Post	2,131.90		22.859		14.24		-3,638.25	
	(222.31)		(1.315)		(1.74)		(454.23)	
Incentive Period		1,551.13		14.919		2.24		-2,603.28
		(202.05)		(1.016)		(1.75)		(400.55)
Post Incentive Period		2,712.67		30.799		26.25		-4,673.22
		(269.45)		(1.720)		(2.05)		(576.55)
Constant	1,442.02	1,442.02	30.544	30.544	600.02	600.02	43,406.04	43,406.04
	(105.73)	(105.75)	(0.606)	(0.606)	(0.83)	(0.83)	(214.21)	(214.24)
Adjusted R-squared	0.54	0.54	0.734	0.750	0.67	0.69	0.91	0.91
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10959	10959	10959	10959	10788	10788	10959	10959
Individuals	3653	3653	3653	3653	3596	3596	3653	3653
P-value of [i]=[ii]	-	0.672	-	0.967	-	0.936	-	0.639
Average Outcome - End of Incentive Period	3192.44	3192.44	46.042	46.042	601.15	601.15	40728.77	40728.77
Average Outcome - 24-months	4402.84	4402.84	61.892	61.892	625.08	625.08	38799.42	38799.42

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.

Table 10: Treatment Effects: CBR Outcomes - 2015 Cohort

VARIABLES	(1) Non-mortgage Charge-off	(2) Non-mortgage Charge-off	(3) Late Payments	(4) Late Payments	(5) Credit Score	(6) Credit Score	(7) Non-mortgage Debt (Winsorized Top 1%)	(8) Non-mortgage Debt (Winsorized Top 1%)
Treatment x Post	-182.75		1.185		-2.55		-762.29	
	(391.14)		(2.546)		(3.36)		(1,203.42)	
Treatment x Incentive Period [i]		-74.67		0.506		-0.24		-592.83
		(361.53)		(1.916)		(3.39)		(1,058.56)
Treatment x Post Incentive Period [ii]		-290.83		1.863		-4.85		-931.74
		(464.27)		(3.388)		(4.09)		(1,521.04)
Post	1,018.11		11.873		32.56		-1,879.67	
	(280.29)		(1.685)		(2.36)		(820.72)	
Incentive Period		739.33		7.294		24.53		-1,621.95
		(258.87)		(1.264)		(2.35)		(714.78)
Post Incentive Period		1,296.88		16.452		40.59		-2,137.39
		(328.49)		(2.246)		(2.93)		(1,061.49)
Constant	2,111.17	2,111.17	41.699	41.699	615.92	615.92	39,788.21	39,788.21
	(130.36)	(130.41)	(0.849)	(0.850)	(1.12)	(1.12)	(401.33)	(401.48)
Adjusted R-squared	0.73	0.73	0.838	0.843	0.74	0.75	0.90	0.90
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4053	4053	4053	4053	3996	3996	4053	4053
Individuals	1351	1351	1351	1351	1332	1332	1351	1351
P-value of [i]=[ii]	-	0.445	-	0.516	-	0.170	-	0.743
Average Outcome - End of Incentive Period	2812.92	2812.92	49.248	49.248	640.33	640.33	37867.87	37867.87
Average Outcome - 24-months	3261.66	3261.66	59.089	59.089	654.05	654.05	37181.85	37181.85

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.

Table 11: Treatment Effects: CBR Outcomes - 2014 Cohort

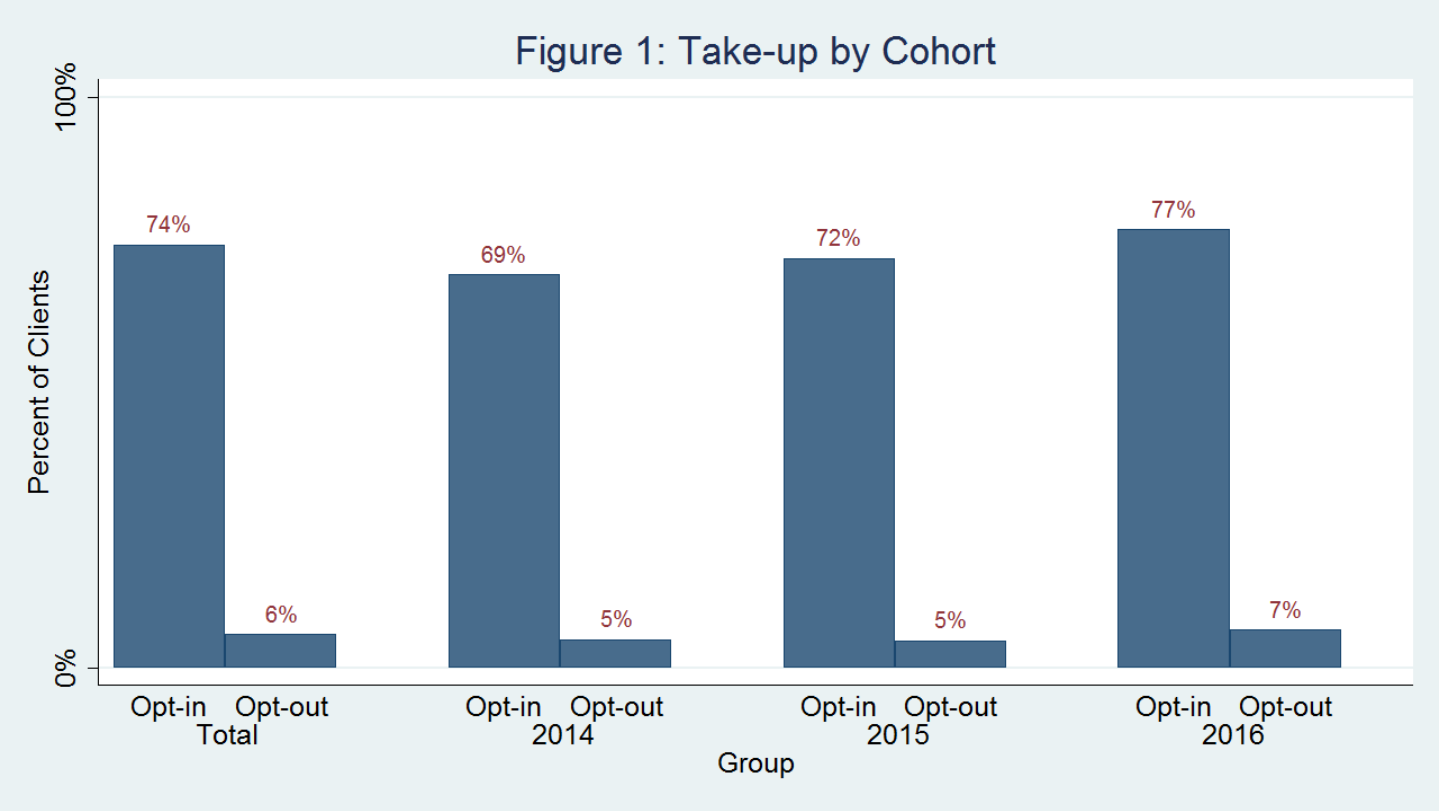
VARIABLES	(1) Non-mortgage Charge-off	(2) Non-mortgage Charge-off	(3) Late Payments	(4) Late Payments	(5) Credit Score	(6) Credit Score	(7) Non-mortgage Debt (Winsorized Top 1%)	(8) Non-mortgage Debt (Winsorized Top 1%)
Treatment x Post	-41.99		-1.240		0.60		-124.91	
	(237.67)		(2.702)		(3.21)		(1,053.70)	
Treatment x Incentive Period [i]		51.91		-0.019		-0.61		-778.08
		(184.07)		(2.172)		(3.18)		(965.79)
Treatment x Post Incentive Period [ii]		-135.88		-2.460		1.80		528.27
		(337.69)		(3.495)		(3.99)		(1,318.61)
Post	417.99		8.386		13.65		-2,158.03	
	(189.97)		(2.197)		(2.32)		(750.87)	
Incentive Period		199.31		4.074		11.35		-1,277.52
		(158.81)		(1.812)		(2.27)		(708.87)
Post Incentive Period		636.67		12.698		15.94		-3,038.53
		(243.54)		(2.770)		(2.89)		(907.82)
Constant	1,944.99	1,944.99	44.083	44.083	650.10	650.10	36,553.26	36,553.26
	(79.12)	(79.14)	(0.899)	(0.899)	(1.07)	(1.07)	(351.21)	(351.33)
Adjusted R-squared	0.83	0.83	0.832	0.835	0.75	0.75	0.90	0.90
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4227	4227	4227	4227	4152	4152	4227	4227
Individuals	1409	1409	1409	1409	1384	1384	1409	1409
P-value of [i]=[ii]	-	0.477	-	0.258	-	0.462	-	0.168
Average Outcome - End of Incentive Period	2170.38	2170.38	48.148	48.148	661.15	661.15	34884.76	34884.76
Average Outcome - 24-months	2513.38	2513.38	55.544	55.544	666.94	666.94	33780.18	33780.18

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.

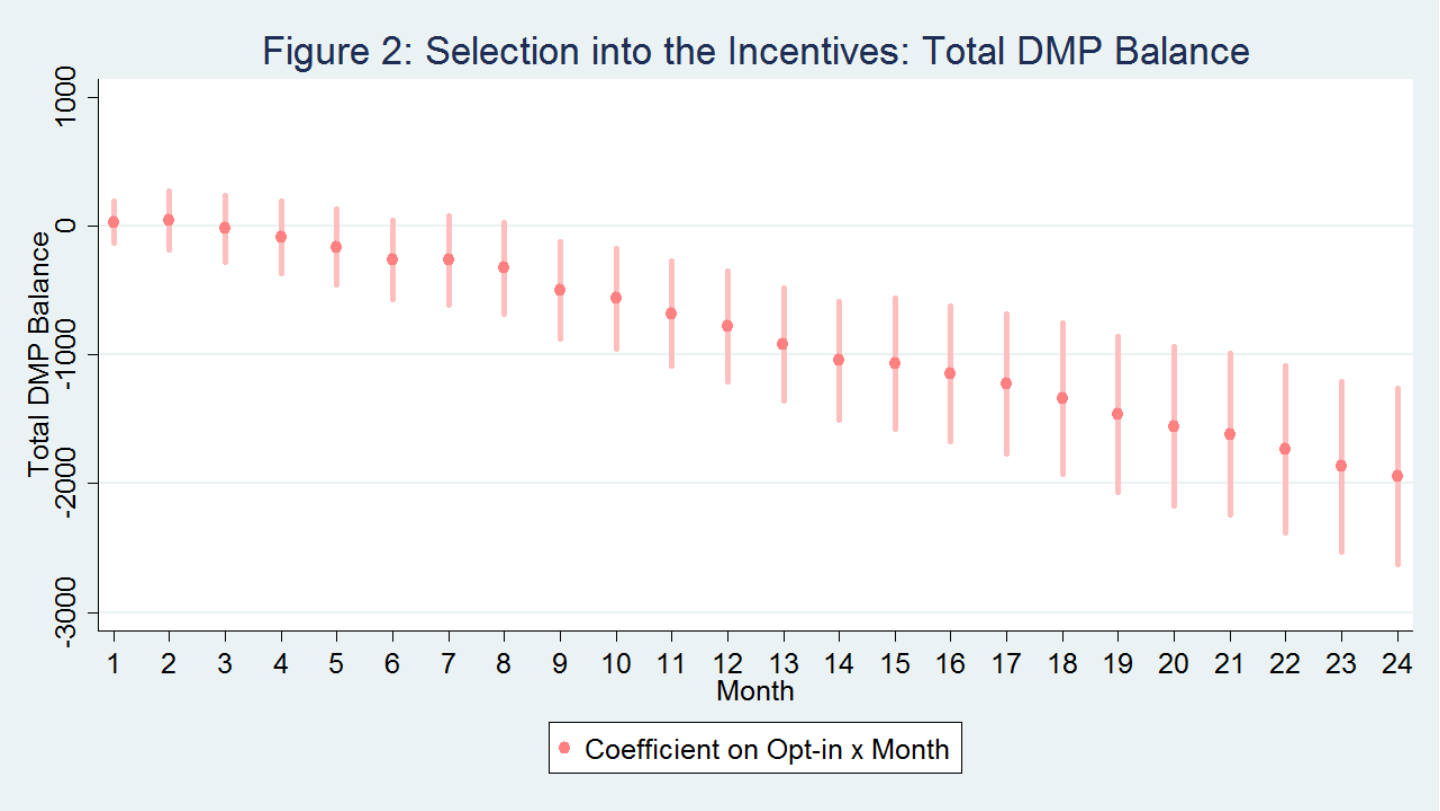
Table 12: Baseline Characteristics and Predictors of Take-up

	(1)	(2)	(3)	(4)	(5)
Variables	Non-takers	Takers	Difference	Take-up	Take-up
DMP Balance (1,000s)	13.3	16.34	-3.030	0.001	0.001
	[13.54]	[16.60]	(0.610)	(0.001)	(0.001)
Months Remaining on DMP (Winsorized 5%)	38.99	41.46	-2.470	0.001	0.001
	[13.49]	[13.77]	(0.530)	(0.001)	(0.001)
DMP Monthly Payment	439.91	504.13	-64.220	0	0
	[410.78]	[492.16]	(18.30)	(0.0)	(0.0)
Number of Tradelines on the DMP	5.217	5.898	-0.681	0.010	0.007
	[3.71]	[4.02]	(0.153)	(0.002)	(0.002)
Credit Score	604.67	617.9	-13.230	0.001	
	[78.55]	[78.44]	(3.060)	(0.0)	
CBR Debt (1,000s)	96.24	109.09	-12.850	0	0
	[142.94]	[139.38]	(5.460)	(0.0)	(0.0)
CBR Delinquent Payments	39.73	33.09	6.640	0	-0.000
	[58.30]	[54.91]	(2.170)	(0.0)	(0.0)
Net Monthly Income (1,000s)	2.98	3.15	-0.170	-0.004	-0.004
	[2.02]	[2.30]	(0.090)	(0.005)	(0.005)
Prior Bankruptcy	0.13	0.1153	0.0147	-0.034	-0.038
	[0.34]	[0.32]	(0.013)	(0.024)	(0.024)
Age	47.85	47.93	-0.08	0	0
	[15.74]	[14.84]	(0.580)	(0.001)	(0.001)
Number of Dependents	2.332	2.432	-0.100	0.005	0.005
	[1.41]	[1.49]	(0.057)	(0.005)	(0.005)
Coclient	0.15	0.1835	-0.034	0.009	0.015
	[0.36]	[0.39]	(0.015)	(0.021)	(0.021)
Female	0.6553	0.6955	-0.040	0.036	0.038
	[0.48]	[0.46]	(0.020)	(0.019)	(0.019)
White	0.6228	0.64	-0.0171	0	0.006
	[0.49]	[0.48]	(0.022)	(0.019)	(0.019)
DMP Start in 2016	0.5222	0.6034	-0.081	0.071	0.046
	[0.50]	[0.49]	(0.019)	(0.020)	(0.019)
Missing Credit Data	0.0078	0.0144	-0.0066	0.143	0.085
	[0.09]	[0.12]	(0.004)	(0.139)	(0.056)
Missing Credit Score	0.0133	0.0183	-0.005	0.325	
	[0.11]	[0.13]	(0.005)	(0.147)	
Missing Age	0.0011	0.0035	-0.0024	0.113	0.147
	[0.03]	[0.06]	(0.002)	(0.10)	(0.097)
Missing Gender	0.2167	0.2427	-0.026	0.103	0.109
	[0.41]	[0.43]	(0.016)	(0.044)	(0.044)
Missing Race	0.29	0.3042	-0.0142	-0.025	-0.02
	[0.45]	[0.46]	(0.018)	(0.042)	(0.042)
N	900	2567	3467		

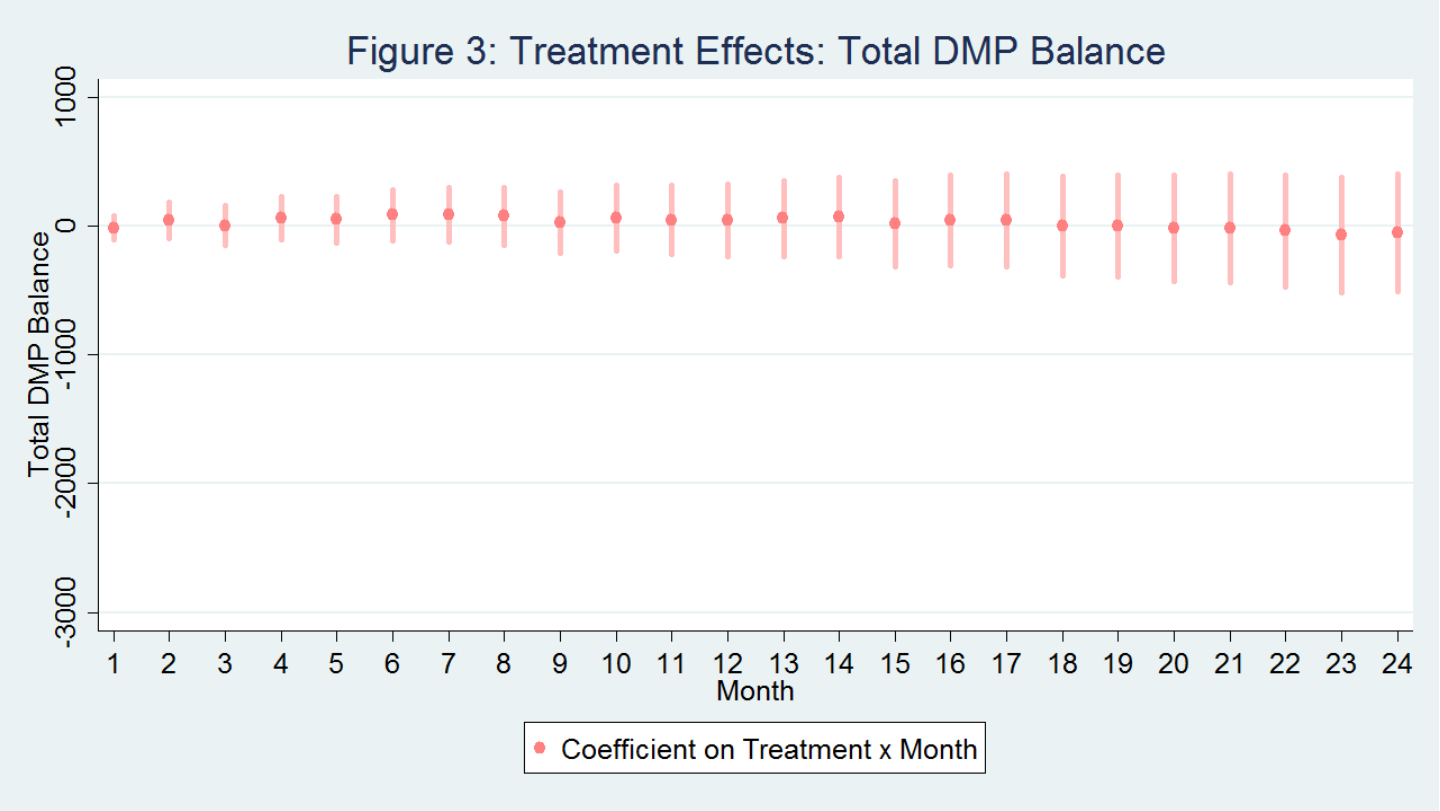
Sample is restricted to participants in the treatment group. Cells in Columns 4 and 5 report coefficients and standard errors. The regression in Column 5 is restricted to the sample that could be matched to a credit report at baseline and the two follow-up periods, for comparability with previous tables. The Months Remaining on DMP variable replaces the top 5 percentiles with the value at the 95th percentile due to expected DMP lengths exceeding five years. Results are nearly identical using non-winsorized data.



Notes: Sample is restricted to study participants in the treatment group. Opt-ins are participants who chose to participate in the prize-linked incentive program, opt-outs are those who actively chose not to participate. The remaining study participants did not respond to marketing efforts.



Notes: Sample is restricted to study participants in the treatment group. Months are indexed by the date on which a participant entered the study. Coefficients are from a regression of DMP balance on opt-in status interacted with program month and individual and month fixed effects. Standard errors are clustered at the individual level. The vertical bars denote the 95% confidence interval.



Notes: Months are indexed by the date on which a participant entered the study. Coefficients are from a regression of DMP balance on treatment status interacted with program month and individual and month fixed effects. Standard errors are clustered at the individual level. The vertical bars denote the 95% confidence interval.

Figure A1: Recruitment Email

Money Management
INTERNATIONAL

Improving lives through financial education.

Dear %%FIRST%%,

You're invited to enroll in Money Management International's ***Every Payment Counts*** **Rewards Program!**

EVERY PAYMENT COUNTS
$10,000 Grand Prize

At Money Management International, we think that hard work should pay you back. That's why we created the ***Every Payment Counts*** **Rewards Program** and are making it available to you at no extra cost.

Just make your full monthly Debt Management Plan payment on time, and you'll automatically be entered into a drawing where you could win:

- A **$500** prize awarded every month in 2016
- A Grand Prize of up to **$10,000** awarded at the end of the year!

Each month you make a complete, on-time payment, you'll earn another chance to win $500—and the more months you make your scheduled payment on time, the more chances you have to win the $10,000 Grand Prize! All prizes go toward paying down your debt.

Never miss a chance to win - Sign up today so that you don't miss the next drawing!

YES!
CLICK HERE to enroll in the free Every Payment Counts Rewards Program and earn your chance to win $10,000!

NO THANKS
CLICK HERE to confirm that you're not interested in participating in the free Every Payment Counts Rewards Program.

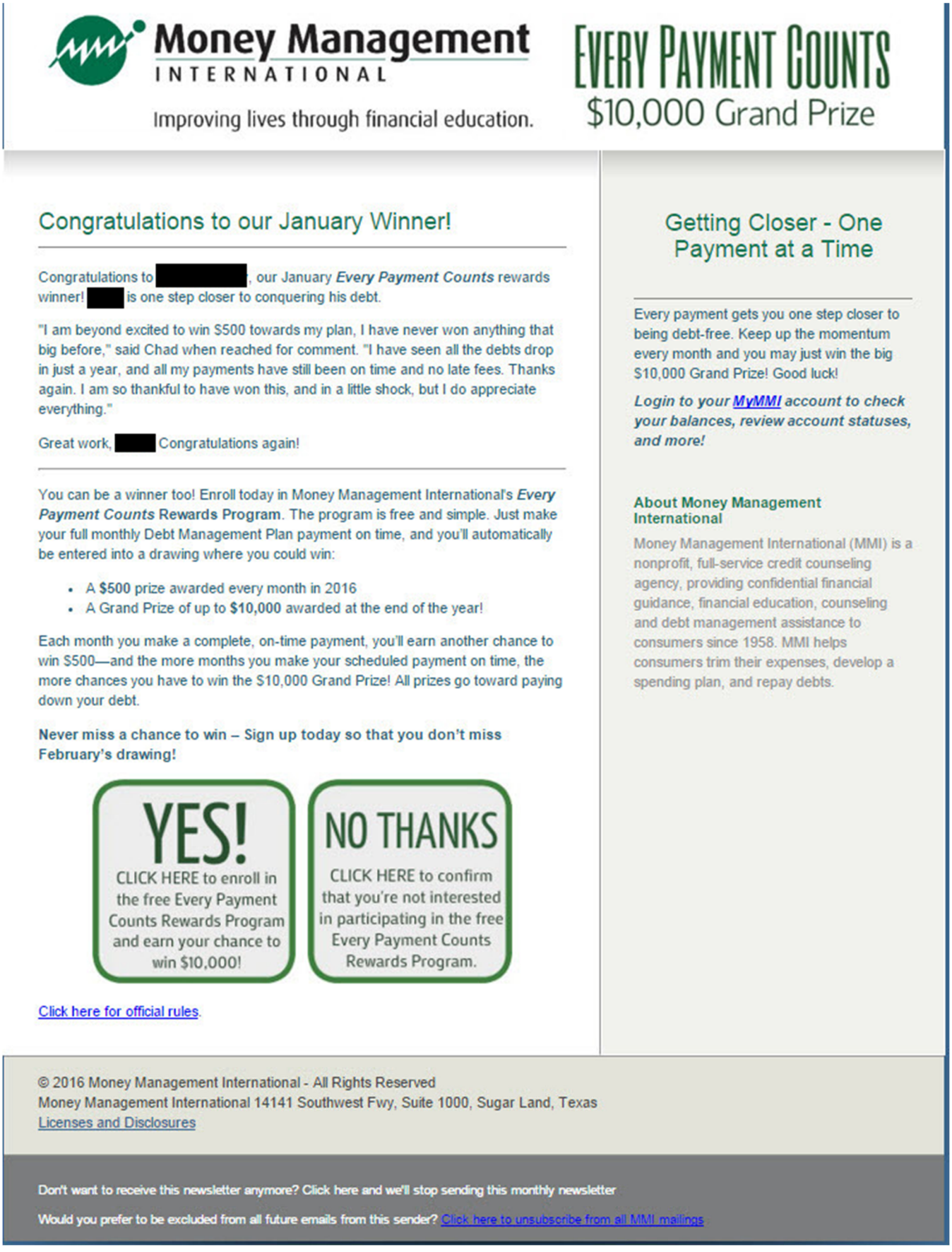
For official rules and additional program details please visit WEB ADDRESS

Figure A2: Robodialer Script

Hello!

This call is to notify you of a fantastic opportunity to participate in Money Management International's "Every Payment Counts" Rewards Program. You should have received two emails inviting you to participate in monthly drawings rewarding up to $500, and a $10,000 end of the year drawing to go towards repaying debt on your debt management program. If you participate, each month you make your deposit on-time, you'll earn another chance to win $500—and the more months you make your deposit on time, the more chances you have to win the $10,000 Grand Prize!

Figure A3: Newsletter



Money Management INTERNATIONAL

Improving lives through financial education.

EVERY PAYMENT COUNTS

$10,000 Grand Prize

Congratulations to our January Winner!

Congratulations to [redacted], our January ***Every Payment Counts*** rewards winner! [redacted] is one step closer to conquering his debt.

"I am beyond excited to win $500 towards my plan, I have never won anything that big before," said Chad when reached for comment. "I have seen all the debts drop in just a year, and all my payments have still been on time and no late fees. Thanks again. I am so thankful to have won this, and in a little shock, but I do appreciate everything."

Great work, [redacted] Congratulations again!

You can be a winner too! Enroll today in Money Management International's ***Every Payment Counts*** **Rewards Program**. The program is free and simple. Just make your full monthly Debt Management Plan payment on time, and you'll automatically be entered into a drawing where you could win:

- A **$500** prize awarded every month in 2016
- A Grand Prize of up to **$10,000** awarded at the end of the year!

Each month you make a complete, on-time payment, you'll earn another chance to win $500—and the more months you make your scheduled payment on time, the more chances you have to win the $10,000 Grand Prize! All prizes go toward paying down your debt.

Never miss a chance to win – Sign up today so that you don't miss February's drawing!

YES!
CLICK HERE to enroll in the free Every Payment Counts Rewards Program and earn your chance to win $10,000!

NO THANKS
CLICK HERE to confirm that you're not interested in participating in the free Every Payment Counts Rewards Program.

Click here for official rules.

Getting Closer - One Payment at a Time

Every payment gets you one step closer to being debt-free. Keep up the momentum every month and you may just win the big $10,000 Grand Prize! Good luck!

Login to your MyMMI account to check your balances, review account statuses, and more!

About Money Management International

Money Management International (MMI) is a nonprofit, full-service credit counseling agency, providing confidential financial guidance, financial education, counseling and debt management assistance to consumers since 1958. MMI helps consumers trim their expenses, develop a spending plan, and repay debts.

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Table A1: Baseline Characteristics and Balance Tests - 2016

	(1)	(2)	(3)	(4)	(5)
Variables	Control	Treatment	Difference	Balance Test	CBR Sample Balance Test
DMP Balance (1,000s)	16.55	17.1	-0.55	0	0
	[16.66]	[17.23]	(0.530)	(0.001)	(0.001)
Months Remaining on DMP (Winsorized 5%)	47.04	47.29	-0.25	0	0
	[10.95]	[10.85]	(0.340)	(0.001)	(0.001)
DMP Monthly Payment	470.64	488.92	-18.27	0	0
	[495.85]	[498.41]	(15.680)	(0.0)	(0.0)
Number of Tradelines on the DMP	5.635	5.768	-0.134	0.001	0.002
	[3.92]	[3.94]	(0.124)	(0.002)	(0.002)
Credit Score	599.73	600.28	-0.55	0	0
	[79.48]	[78.32]	(2.520)	(0.0)	(0.0)
CBR Debt (1,000s)	104.47	102.8	1.66	0	0
	[139.80]	[135.69]	(4.390)	(0.0)	(0.0)
CBR Delinquent Payments	31.33	29.05	2.28	0	0
	[49.53]	[51.53]	(1.610)	(0.0)	(0.0)
Net Monthly Income (1,000s)	2.99	2.99	0	-0.002	-0.002
	[2.02]	[2.03]	(0.060)	(0.006)	(0.006)
Prior Bankruptcy	0.1305	0.1441	-0.0136	0.029	0.025
	[0.34]	[0.35]	(0.011)	(0.024)	(0.024)
Age	46.78	46.62	0.16	0	0
	[15.21]	[15.35]	(0.480)	(0.001)	(0.001)
Number of Dependents	2.375	2.389	-0.014	0.002	0.002
	[1.44]	[1.48]	(0.046)	(0.006)	(0.006)
Coclient	0.1535	0.1585	-0.005	0.001	-0.001
	[0.36]	[0.37]	(0.012)	(0.025)	(0.026)
Female	0.668	0.6932	-0.0252	0.03	0.025
	[0.47]	[0.46]	(0.017)	(0.020)	(0.020)
White	0.6085	0.6355	-0.0271	0.025	0.029
	[0.49]	[0.48]	(0.019)	(0.020)	(0.021)
Missing Credit Data	0.02	0.0178	0.0022	-0.031	0
	[0.14]	[0.13]	(0.004)	(0.126)	(0.0)
Missing Credit Score	0.0255	0.0228	0.0027	-0.025	-0.022
	[0.16]	[0.15]	(0.005)	(0.131)	(0.137)
Missing Age	0.0045	0.0035	0.001	-0.087	-0.161
	[0.07]	[0.06]	(0.002)	(0.129)	(0.135)
Missing Gender	0.2725	0.267	0.0055	0.07	0.064
	[0.45]	[0.44]	(0.014)	(0.044)	(0.045)
Missing Race	0.3525	0.3368	0.0157	0.009	0.018
	[0.48]	[0.47]	(0.015)	(0.043)	(0.044)
p-value of F-test of joint significance of all explanatory variables				0.865	0.839
N	2000	2019		4019	3886

Cells in Columns 4 and 5 report coefficients and standard errors. The regression in Column 5 is restricted to the sample that could be matched to a credit report at baseline and the two follow-up periods, for comparability with previous tables. The Months Remaining on DMP variable replaces the top 5 percentiles with the value at the 95th percentile due to expected DMP lengths exceeding five years. Results are nearly identical using non-winsorized data.

Table A2: Baseline Characteristics and Balance Tests - 2015

	(1)	(2)	(3)	(4)	(5)
Variables	Control	Treatment	Difference	Balance Test	CBR Sample Balance Test
DMP Balance (1,000s)	14.38	15.34	-0.97	0.001	0.001
	[13.68]	[15.75]	(0.780)	(0.003)	(0.003)
Months Remaining on DMP (Winsorized 5%)	36.88	37.34	-0.46	0.001	0.001
	[11.14]	[11.45]	(0.60)	(0.001)	(0.001)
DMP Monthly Payment	453.43	479.65	-26.22	0	0
	[371.61]	[441.34]	(21.590)	(0.0)	(0.0)
Number of Tradelines on the DMP	5.859	5.837	0.022	-0.001	-0.002
	[4.17]	[4.20]	(0.221)	(0.004)	(0.004)
Credit Score	615.73	616.37	-0.64	0	0
	[70.93]	[75.56]	(3.90)	(0.0)	(0.0)
CBR Debt (1,000s)	98.07	105.62	-7.55	0	0
	[118.88]	[137.08]	(6.810)	(0.0)	(0.0)
CBR Delinquent Payments	39.2	43.6	-4.4	0.001	0.001
	[53.84]	[58.70]	(2.990)	(0.0)	(0.0)
Net Monthly Income (1,000s)	3.05	3.24	-0.19	0.012	0.014
	[1.94]	[2.77]	(0.130)	(0.008)	(0.008)
Prior Bankruptcy	0.1044	0.0928	0.0116	-0.014	-0.01
	[0.31]	[0.29]	(0.016)	(0.045)	(0.045)
Age	48.47	48.75	-0.28	0	0
	[14.56]	[14.83]	(0.780)	(0.001)	(0.001)
Number of Dependents	2.412	2.436	-0.024	0.004	0.003
	[1.48]	[1.48]	(0.078)	(0.010)	(0.010)
Coclient	0.2327	0.1939	0.039	-0.094	-0.101
	[0.42]	[0.40]	(0.022)	(0.037)	(0.037)
Female	0.6889	0.6743	0.0146	-0.009	-0.006
	[0.46]	[0.47]	(0.028)	(0.033)	(0.033)
White	0.657	0.6058	0.051	-0.054	-0.059
	[0.48]	[0.49]	(0.031)	(0.033)	(0.034)
Missing Credit Data	0.0085	0.0055	0.0029	0.214	0
	[0.09]	[0.07]	(0.004)	(0.247)	(0.0)
Missing Credit Score	0.0141	0.0069	0.0072	-0.188	-0.193
	[0.12]	[0.08]	(0.005)	(0.227)	(0.227)
Missing Age	0.0014	0.0042	-0.0027	0.238	0.253
	[0.04]	[0.06]	(0.003)	(0.233)	(0.233)
Missing Gender	0.2384	0.2133	0.0251	-0.016	-0.01
	[0.43]	[0.41]	(0.022)	(0.077)	(0.077)
Missing Race	0.3216	0.2867	0.0349	-0.124	-0.138
	[0.47]	[0.45]	(0.024)	(0.073)	(0.074)
p-value of F-test of joint significance of all explanatory variables				0.139	0.041
N	709	722		1431	1403

Cells in Columns 4 and 5 report coefficients and standard errors. The regression in Column 5 is restricted to the sample that could be matched to a credit report at baseline and the two follow-up periods, for comparability with previous tables. The Months Remaining on DMP variable replaces the top 5 percentiles with the value at the 95th percentile due to expected DMP lengths exceeding five years. Results are nearly identical using non-winsorized data.

Table A3: Baseline Characteristics and Balance Tests – 2014

	(1)	(2)	(3)	(4)	(5)
Variables	Control	Treatment	Difference	Balance Test	CBR Sample Balance Test
DMP Balance (1,000s)	11.44	11.45	-0.02	-0.003	-0.004
	[10.63]	[10.69]	(0.560)	(0.003)	(0.003)
Months Remaining on DMP (Winsorized 5%)	25.26	26.26	-1.000	0.003	0.004
	[9.11]	[10.16]	(0.510)	(0.002)	(0.002)
DMP Monthly Payment	496.4	491.17	5.23	0	0
	[417.08]	[430.25]	(22.20)	(0.0)	(0.0)
Number of Tradelines on the DMP	5.774	5.475	0.299	-0.003	-0.004
	[4.43]	[3.70]	(0.214)	(0.004)	(0.004)
Credit Score	648.78	651.5	-2.71	0	0
	[70.45]	[70.07]	(3.70)	(0.0)	(0.0)
CBR Debt (1,000s)	110.97	113.9	-2.93	0	0
	[129.45]	[155.47]	(7.520)	(0.0)	(0.0)
CBR Delinquent Payments	45.81	41.95	3.86	0	0
	[69.21]	[62.26]	(3.460)	(0.0)	(0.0)
Net Monthly Income (1,000s)	3.25	3.31	-0.05	0.008	0.008
	[2.19]	[2.16]	(0.110)	(0.010)	(0.010)
Prior Bankruptcy	0.0711	0.0758	-0.0046	0.033	0.031
	[0.26]	[0.26]	(0.014)	(0.052)	(0.052)
Age	49.98	50.65	-0.66	0.001	0.001
	[14.12]	[14.15]	(0.740)	(0.001)	(0.001)
Number of Dependents	2.477	2.424	0.053	-0.009	-0.01
	[1.48]	[1.43]	(0.076)	(0.010)	(0.010)
Coclient	0.2038	0.2011	0.0027	0.006	0.005
	[0.40]	[0.40]	(0.021)	(0.038)	(0.038)
Female	0.6874	0.6739	0.0135	-0.011	-0.015
	[0.46]	[0.47]	(0.027)	(0.031)	(0.031)
White	0.6577	0.662	-0.0043	-0.003	-0.01
	[0.47]	[0.47]	(0.028)	(0.032)	(0.032)
Missing Credit Data	0.0082	0.0055	0.0027	-0.402	0
	[0.09]	[0.07]	(0.004)	(0.252)	(0.0)
Missing Credit Score	0.0096	0.011	-0.0014	0.314	0.286
	[0.10]	[0.10]	(0.005)	(0.246)	(0.249)
Missing Age	0.0041	0	0.004	-0.473	-0.467
	[0.06]	[0.0]	(0.002)	(0.062)	(0.064)
Missing Gender	0.1423	0.1722	-0.0299	0.042	0.031
	[0.35]	[0.38]	(0.019)	(0.080)	(0.080)
Missing Race	0.1888	0.2135	-0.0247	-0.011	-0.016
	[0.39]	[0.41]	(0.021)	(0.076)	(0.076)
p-value of F-test of joint significance of all explanatory variables				0.000	0.000
N	731	726		1457	1436

Cells in Columns 4 and 5 report coefficients and standard errors. The regression in Column 5 is restricted to the sample that could be matched to a credit report at baseline and the two follow-up periods, for comparability with previous tables. The Months Remaining on DMP variable replaces the top 5 percentiles with the value at the 95th percentile due to expected DMP lengths exceeding five years. Results are nearly identical using non-winsorized data. Three (zero) people in the control (treatment) group are missing age data, which is highly significant in regressions predicting treatment assignment. Omitting age (and its missing values) the p-values in Columns 4 and 5 are 0.681 and 0.524 respectively.

Table A4: Selection into the Incentives: Administrative Outcomes - 2016 Cohort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Opt-in x Post	0.012		0.145		-0.143		-0.002		-929.879	
	(0.010)		(0.020)		(0.020)		(0.008)		(292.392)	
Opt-in x Incentive Period [i]		0.018		0.136		-0.131		-0.005		-252.252
		(0.011)		(0.018)		(0.017)		(0.005)		(216.990)
Opt-in x Post Incentive Period [ii]		0.005		0.152		-0.152		0.000		-1,457.345
		(0.012)		(0.025)		(0.024)		(0.011)		(369.561)
Post			-0.354		0.316		0.038		-3,234.943	
			(0.019)		(0.019)		(0.007)		(250.989)	
Incentive Period				-0.232		0.216		0.016		-1,910.212
				(0.017)		(0.016)		(0.005)		(194.037)
Post Incentive Period				-0.448		0.393		0.055		-4,252.737
				(0.022)		(0.022)		(0.010)		(308.020)
Constant	0.898	0.898	1.000	1.000	0.000	0.000	0.000	0.000	17,552.106	17,552.106
	(0.017)	(0.017)	(0.007)	(0.007)	(0.007)	(0.007)	(0.003)	(0.003)	(123.897)	(123.852)
Adjusted R-squared	0.000	0.001	0.594	0.651	0.638	0.678	0.528	0.541	0.928	0.940
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	36915	36915	50475	50475	50475	50475	50475	50475	50475	50475
Individuals	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019
P-value of [i]=[ii]	-	0.201	-	0.319	-	0.164	-	0.562	-	0.000
Average Outcome - End of Incentive Period	0.892	0.892	0.770	0.770	0.205	0.205	0.025	0.025	14096.919	14096.919
Average Outcome - 24-months	0.895	0.895	0.584	0.584	0.325	0.325	0.091	0.091	10537.638	10537.638

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. The sample is restricted to participants in the treatment group. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table A5: Selection into the Incentives: Administrative Outcomes - 2015 Cohort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Opt-in x Post	0.046		0.121		-0.097		-0.024		-905.513	
	(0.017)		(0.029)		(0.026)		(0.019)		(488.476)	
Opt-in x Incentive Period [i]		0.049		0.106		-0.072		-0.034		-133.739
		(0.017)		(0.025)		(0.022)		(0.015)		(319.773)
Opt-in x Post Incentive Period [ii]		0.042		0.136		-0.122		-0.014		-1,677.287
		(0.022)		(0.037)		(0.033)		(0.026)		(701.559)
Post			-0.282		0.183		0.099		-4,012.581	
			(0.026)		(0.024)		(0.017)		(405.084)	
Incentive Period				-0.180		0.126		0.054		-2,353.137
				(0.023)		(0.021)		(0.014)		(286.622)
Post Incentive Period				-0.384		0.239		0.144		-5,672.025
				(0.032)		(0.030)		(0.023)		(562.004)
Constant	0.924	0.924	1.000	1.000	0.000	-0.000	0.000	-0.000	15,343.721	15,343.721
	(0.010)	(0.010)	(0.011)	(0.011)	(0.010)	(0.010)	(0.007)	(0.007)	(217.766)	(217.778)
Adjusted R-squared	0.005	0.005	0.570	0.625	0.701	0.718	0.484	0.523	0.843	0.875
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14677	14677	18050	18050	18050	18050	18050	18050	18050	18050
Individuals	722	722	722	722	722	722	722	722	722	722
P-value of [i]=[ii]	-	0.689	-	0.237	-	0.013	-	0.295	-	0.001
Average Outcome - End of Incentive Period	0.933	0.933	0.810	0.810	0.130	0.130	0.060	0.060	10948.158	10948.158
Average Outcome - 24-months	0.918	0.918	0.627	0.627	0.165	0.165	0.208	0.208	6592.722	6592.722

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. The sample is restricted to participants in the treatment group. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table A6: Selection into the Incentives: Administrative Outcomes - 2014 Cohort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	On-time Payment		Active Account		Drop Out		Completed DMP		Total DMP Balance	
Opt-in x Post	-0.019		0.032		-0.060		0.028		-926.197	
	(0.011)		(0.026)		(0.021)		(0.021)		(366.586)	
Opt-in x Incentive Period [i]		-0.012		0.057		-0.057		0.000		-504.497
		(0.012)		(0.022)		(0.018)		(0.015)		(238.980)
Opt-in x Post Incentive Period [ii]		-0.028		0.008		-0.063		0.056		-1,347.896
		(0.015)		(0.035)		(0.026)		(0.030)		(521.571)
Post			-0.244		0.110		0.134		-4,132.707	
			(0.023)		(0.019)		(0.017)		(285.428)	
Incentive Period				-0.138		0.083		0.055		-2,267.974
				(0.020)		(0.017)		(0.012)		(178.687)
Post Incentive Period				-0.351		0.137		0.213		-5,997.440
				(0.029)		(0.023)		(0.024)		(412.893)
Constant	0.943	0.943	1.000	1.000	0.000	-0.000	0.000	-0.000	11,453.796	11,453.796
	(0.009)	(0.009)	(0.011)	(0.011)	(0.008)	(0.008)	(0.009)	(0.009)	(174.376)	(174.386)
Adjusted R-squared	0.007	0.007	0.489	0.581	0.695	0.705	0.458	0.536	0.799	0.863
Individual Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14278	14278	18150	18150	18150	18150	18150	18150	18150	18150
Individuals	726	726	726	726	726	726	726	726	726	726
P-value of [i]=[ii]	-	0.241	-	0.056	-	0.668	-	0.018	-	0.015
Average Outcome - End of Incentive Period	0.920	0.920	0.804	0.804	0.073	0.073	0.123	0.123	6597.812	6597.812
Average Outcome - 24-months	0.842	0.842	0.530	0.530	0.103	0.103	0.368	0.368	2995.516	2995.516

The unit of observation is a person-month, baseline and 24 months post-random assignment. Months are indexed by the date on which a participant entered the study. The sample is restricted to participants in the treatment group. Columns 1 and 2 measure on-time payment behavior conditional on remaining active in the DMP. The post indicator captures the 24 months after random assignment, the incentive period indicator captures months for which the prize-linked incentive program was active, and the post-incentive period captures months after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. Regressions in Columns 1 and 2 include monthly fixed effects and omit individual fixed effects due to a lack of a baseline measure of the dependent variable for most participants.

Table A7: Selection into the Incentives: CBR Outcomes - 2016 Cohort

VARIABLES	(1) Non-mortgage Charge-off	(2)	(3) Late Payments	(4)	(5) Credit Score	(6)	(7) Non-mortgage Debt (Winsorized Top 1%)	(8)
Opt-in x Post	-1,817.90		-12.008		-0.56		-182.16	
	(658.88)		(3.082)		(4.40)		(1,089.14)	
Opt-in x Incentive Period [i]		-1,895.45		-9.199		-0.06		-86.99
		(617.73)		(2.307)		(4.45)		(953.07)
Opt-in x Post Incentive Period [ii]		-1,740.34		-14.818		-1.05		-277.33
		(743.58)		(4.114)		(4.91)		(1,401.81)
Post	3,974.01		33.218		12.41		-3,505.40	
	(618.76)		(2.747)		(3.92)		(959.00)	
Incentive Period		3,404.53		23.146		0.11		-2,682.92
		(583.99)		(2.048)		(3.98)		(835.55)
Post Incentive Period		4,543.49		43.289		24.72		-4,327.88
		(689.94)		(3.673)		(4.34)		(1,229.76)
Constant	1,233.05	1,233.05	29.259	29.259	600.71	600.71	44,110.15	44,110.15
	(150.10)	(150.14)	(0.832)	(0.832)	(1.18)	(1.18)	(303.09)	(303.17)
Adjusted R-squared	0.53	0.54	0.748	0.764	0.67	0.70	0.91	0.91
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5532	5532	5532	5532	5463	5463	5532	5532
Individuals	1844	1844	1844	1844	1821	1821	1844	1844
P-value of [i]=[ii]	-	0.669	-	0.027	-	0.761	-	0.849
Average Outcome - End of Incentive Period	3178.99	3178.99	45.326	45.326	600.77	600.77	41360.29	41360.29
Average Outcome - 24-months	4437.32	4437.32	61.145	61.145	624.61	624.61	39568.86	39568.86

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. The sample is restricted to participants in the treatment group. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.

Table A8: Selection into the Incentives: CBR Outcomes - 2015 Cohort

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Non-mortgage Charge-off		Late Payments		Credit Score		Non-mortgage Debt (Winsorized Top 1%)	
Opt-in x Post	-575.45		-6.466		3.82		524.86	
	(477.40)		(4.099)		(5.27)		(1,704.88)	
Opt-in x Incentive Period [i]		-433.34		-3.211		3.12		-394.60
		(444.04)		(3.123)		(5.34)		(1,510.85)
Opt-in x Post Incentive Period [ii]		-717.57		-9.722		4.52		1,444.32
		(571.72)		(5.401)		(6.36)		(2,130.55)
Post	1,248.33		17.698		27.27		-3,018.62	
	(314.32)		(3.398)		(4.45)		(1,287.45)	
Incentive Period		975.64		10.104		22.05		-1,931.59
		(294.73)		(2.604)		(4.48)		(1,139.13)
Post Incentive Period		1,521.01		25.292		32.49		-4,105.65
		(373.47)		(4.450)		(5.41)		(1,625.10)
Constant	2,172.40	2,172.40	43.394	43.394	616.80	616.80	39,669.33	39,669.33
	(181.81)	(181.94)	(1.270)	(1.271)	(1.59)	(1.59)	(587.06)	(587.50)
Adjusted R-squared	0.73	0.73	0.837	0.842	0.75	0.76	0.89	0.89
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2040	2040	2040	2040	2025	2025	2040	2040
Individuals	680	680	680	680	675	675	680	680
P-value of [i]=[ii]	-	0.440	-	0.045	-	0.787	-	0.194
Average Outcome - End of Incentive Period	2837.06	2837.06	51.194	51.194	641.09	641.09	37454.55	37454.55
Average Outcome - 24-months	3178.45	3178.45	61.709	61.709	652.54	652.54	36600.19	36600.19

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. The sample is restricted to participants in the treatment group. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.

Table A9: Selection into the Incentives: CBR Outcomes - 2014 Cohort

VARIABLES	(1) Non-mortgage Charge-off	(2)	(3) Late Payments	(4)	(5) Credit Score	(6)	(7) Non-mortgage Debt (Winsorized Top 1%)	(8)
Opt-in x Post	-504.82		-8.554		-9.19		-788.49	
	(323.07)		(3.553)		(4.90)		(1,534.43)	
Opt-in x Incentive Period [i]		-354.31		-7.433		-8.63		-1,077.94
		(235.33)		(2.566)		(4.86)		(1,262.51)
Opt-in x Post Incentive Period [ii]		-655.32		-9.675		-9.75		-499.04
		(488.03)		(4.963)		(6.12)		(2,097.73)
Post	722.53		13.018		20.56		-1,741.68	
	(278.28)		(3.066)		(4.15)		(1,228.32)	
Incentive Period		494.43		9.158		16.67		-1,315.66
		(216.47)		(2.131)		(4.08)		(927.15)
Post Incentive Period		950.63		16.878		24.44		-2,167.70
		(393.03)		(4.362)		(5.22)		(1,761.73)
Constant	1,985.06	1,985.06	42.479	42.479	651.38	651.38	35,508.38	35,508.38
	(95.00)	(95.07)	(1.042)	(1.043)	(1.48)	(1.48)	(492.99)	(493.34)
Adjusted R-squared	0.87	0.87	0.862	0.864	0.76	0.76	0.89	0.89
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2124	2124	2124	2124	2088	2088	2124	2124
Individuals	708	708	708	708	696	696	708	708
P-value of [i]=[ii]	-	0.464	-	0.516	-	0.825	-	0.717
Average Outcome - End of Incentive Period	2236.28	2236.28	46.534	46.534	662.13	662.13	33452.77	33452.77
Average Outcome - 24-months	2485.85	2485.85	52.716	52.716	669.12	669.12	32998.12	32998.12

The unit of observation is a person-credit report, with credit reports pulled at baseline, one year (immediately after the incentives were removed), and two years after study onset. The sample is restricted to participants in the treatment group. Individuals who declared bankruptcy post study onset have been removed from this analysis, though including them doesn't meaningfully influence the results. The post indicator captures the two years after random assignment, the incentive period indicator captures the year for which the prize-linked incentive program was active, and the post-incentive period captures the year after the incentives were removed. Each column presents results from a single OLS regression of the dependent variable described in the column heading on the variables shown in the rows and individual fixed effects. Standard errors (in parentheses) are clustered at the individual level. The top 1 percent of non-mortgage debt balances have been winsorized.