



Nudging Credit Scores in the Field: The Effect of Text Reminders on Creditworthiness in the United States

Anat Bracha and Stephan Meier

Abstract:

In this paper we present evidence from a field experiment on the effect of text message reminders and credit card APR (annual payment rate) information on credit scores of low-to-moderate-income individuals. We find that individuals who initially had a low credit score benefited significantly from receiving the text reminders, while individuals who initially had a mid or high score did not. The positive effect on low-score individuals stems from the reduction of debt and better payment patterns. For mid-score individuals, we find a positive effect on payment patterns but no effect on credit scores; this may be because a better payment pattern is slower than a worse payment pattern to affect a credit score. For initially high-credit score individuals, we find a negative effect on credit scores, due to higher collection accounts. As for APR information, we find only sporadic effects: it helped reduce the number of inquiries for low-score individuals and reduce collection accounts of mid-score individuals, yet it contributed to greater past-due balances of high-score individuals.

Keywords: field experiment, credit score, creditworthiness, reminders, financial decisionmaking, low income

JEL Classifications: C93, D14

Anat Bracha is a senior economist in the research department of the Federal Reserve Bank of Boston. Stephan Meier is an associate professor of business at the Graduate School of Business of Columbia University. Their e-mail addresses are anat.bracha@bos.frb.org and sm3087@columbia.edu, respectively.

This paper, which may be revised, is available on the web site of the Federal Reserve Bank of Boston at <http://www.bostonfed.org/economic/wp/index.htm>.

The views expressed in this paper are those of the authors and do not necessarily represent those of the Federal Reserve Bank of Boston or the Federal Reserve System.

This version: November 2014

1. Introduction

A credit score is a measure of financial trustworthiness, instrumental for all aspects of individuals' financial transactions in the United States, including getting a loan, credit cards, and interest rates on borrowing. This measure is so prevalent that often nonfinancial agents such as prospective landlords and employers use it to assess the trustworthiness of a potential tenant or worker.¹

Length of financial history, payment history (including any delinquencies or collections), number of credit lines, loans, percentage of credit used, and number of credit inquiries all contribute to the credit score. The longer the financial history, the more reliable it is; hence, for good financial behavior a longer history contributes to a higher credit score. Likewise, a better payment history, fewer credit lines, and a lower percentage of credit use generally yield higher credit scores. A lower percentage of credit use (best is below 30 percent) increases a credit score, since it indicates that the individual is not financially constrained. For the same reason, a larger number of credit inquiries, suggesting a strong need for credit, reduces a credit score.

Although having a high income makes it easier to obtain a larger credit line, use a smaller portion of it, and pay bills on time, and hence to obtain a high credit score, credit scores are not influenced by income per se. That is, a low-income individual who lives within her means can obtain the highest credit score. Given the fundamental role that credit scores play in day-to-day life in the United States, from getting a credit line, cell phone, or car loan, even to renting an apartment, it is very important to understand what can be done to help individuals improve their credit scores. This question is important in general, and especially important for the low-to-moderate-income (LMI) individuals who likely have a greater need for access to liquidity than higher-income individuals.

In this paper we report results from a field experiment conducted between early 2013 and early 2014 in Boston, Massachusetts, with LMI taxpayers who were offered credit advising services. Those taxpayers who opted into the advising sessions were randomized as to whether they received extra information on credit scores and the average APR on basic credit cards in their area (the "information" condition), and as to whether or not they received monthly text reminders (the "text" condition). The text condition is independent of the information

¹ Some states have banned employers from making hiring decisions based on credit scores; see <http://www.ncsl.org/research/financial-services-and-commerce/use-of-credit-info-in-employ-2013-legis.aspx>. Massachusetts also prohibits the use of credit report or credit scores in hiring decisions, except in cases where the information on the credit report directly relates to a bona fide occupational qualification, as described here <https://malegislature.gov/Bills/188/House/H1731>. See also <https://malegislature.gov/Bills/188/House/H1744>.

condition. The text messages included reminders of the individual's financial goal (elicited during the credit advising session) and credit score range, reminders to pay bills on time and to pay at least the minimum amount, as well as relevant and updated interest rate information on basic credit cards, when applicable.

We find that monthly text reminders had a positive effect, a gain of 23–24 points on average, on the credit scores of individuals who initially had low scores (below 584), no effect on the credit scores of initially mid-score individuals (584–671), and a negative effect of about 17–18 points on the credit scores of individuals who started with high credit scores (672 or higher). It is important to stress that the effect we find is based on comparing individuals who opted into the credit advising and received monthly text reminders, with others who also opted into credit advising but were not randomly selected to receive such reminders. Hence, the effect is not due to selection into credit advising or regression to the mean.

Looking into how the text messages affected credit scores, we find that the reminders had a marginal positive effect on lowering the rate of use of available credit by low-score individuals, but they had no such effect on the mid- and high-score individuals. Looking at individuals' debt goals elicited during the credit advising sessions, which asked participants what they planned their overall debt level to be a year from that day, we find that receiving text reminders helped low-score individuals to achieve their debt goal. Yet we find no such positive effect on mid- or high-score individuals. What we do find is that text reminders are associated with greater collection accounts for high-score individuals.

The effect on credit scores of low-score individuals seems to be due to the reduction in debt and having more credit available for these individuals, but we do not observe any effect of text reminders on their payment patterns as measured by the change in the average maximum delinquency (taking the highest delinquency in each account). Interestingly, we find that text messages did have an effect on the payment patterns of mid- and high-score individuals. The regression analysis indicates that these messages helped improve the mid-score individuals' payment patterns, an improvement that may take longer to be reflected in the total credit score. However, these messages had a negative effect on the payment patterns of the high-score individuals. The effect on mid-score individuals can also be seen by analyzing averages, while looking at the means of the high-score individuals yields results based on only a few observations. We therefore note this regression result, yet conclude that the reminders had no effect on high-score payment patterns as reflected in maximum delinquencies.

Examining the effect of information about the relationship between credit scores and average APR on basic credit cards in the Boston area, we find that this information had a marginal effect in decreasing the number of credit report inquiries for low-score individuals. It may be that the

information clarified what is considered a good or bad deal, reducing the urge to apply for other credit cards (thinking one can get a better deal) or the temptation posed by unattractive offers. For high-score individuals we find that the information had a marginal effect in increasing total past-due amounts by an average of \$81–\$82, based on a comparison of the figures in the 2013 and 2014 credit reports. It is possible that the high-score individuals realized that they could afford to sacrifice their score a little and still obtain good APR rates, or that the cost of being past due is not very high for them, leading them to manage their finances less stringently.

2. Contribution to the Literature

This paper contributes to at least two different strands of literature: First, it contributes to an important literature on the financial decisionmaking of LMI individuals (for example, Bertrand et al. 2004). It is well documented that the poor often make very expensive financial choices, such as using payday loans, check-cashing services, and/or repeatedly borrowing at high interest rates (Rhine et al. 2006, Ananth et al. 2007, Haisley et al. 2008, Bertrand and Morse 2011, and Dobbie and Skiba 2013). One of the most common and academically explored ways to help LMI households smooth consumption using less-expensive alternatives is to provide them with access to spendable funds and encourage them to accumulate precautionary savings (for papers on the effectiveness of savings, see, for example, Burgess and Pande 2005, Brune et al. 2011, Ashraf et al. 2010, and Dupas and Robinson 2013a,b). The literature also provides evidence on interventions to help increase savings in both developed countries (for example, Madrian and Shea 2001, Carroll et al. 2009, and Thaler and Benartzi 2004) and developing countries (see, for example, Ashraf et al. 2006, Brune et al. 2011, and Bryan et al. 2010, for a review article). Our paper, however, focuses not on helping the poor save, but rather on helping the poor gain access to cheaper loans by improving their credit scores.

This is, to our knowledge, the first attempt within the context of the economics literature to improve individuals' creditworthiness. Not only is this an attempt to improve a behavior that is important for an individual's or a household's financial and nonfinancial security, it is also more flexible than existing available microcredit structures that rely in part on peer pressure and very strict repayment schedules (see, for example, Morduch 1999, Wydick 1999, Ahlin and Townsend 2007, Karlan 2007, and Carpenter and Williams 2010). Our approach allows people to improve their creditworthiness without putting much pressure on the borrower.

Second, our paper contributes to a growing literature on the effectiveness of reminders. It has been shown that simple reminders or feedback messages can increase savings (Karlan et al. 2010, Pomeranz et al. 2010), decrease overdraft bank fees (Stango and Zinman 2011), improve

books returns to a library (Apesteguia et al. 2013), help achieve goals in the workplace (Cadena et al. 2011), and increase vaccination rates (Milkman et al. 2011). We extend this list to include a very important area of LMI households' financial decisionmaking: repayment of debts, patterns of payment, and use of credit. In this regard, this paper is similar to Cadena and Schoar (2011), which examines repayment of loans in Uganda. Yet our paper studies individuals rather than small businesses, examines the effect of reminders on debt reduction generally rather than on repayment of a specific loan, and applies this analysis to the U.S. credit market.

Finally, beyond studying the effect of reminders on individual creditworthiness and showing that reminders have an effect in the context of the U.S. credit market, an important contribution of this paper is pointing out the limits of reminders. We find that reminders work for certain individuals who can presumably change their behavior relatively easily, but not for others. In fact, the results show that for the group that was doing well and would not have needed reminders, the reminders backfired. Our paper therefore indicates that reminders should be used with caution in certain contexts.

3. Background, Experimental Design, and Sample Characteristics

In this section we describe the background of the study—where it was conducted and the procedures at the site—as well as the information that was collected, the experimental design, and the sample used for analysis.

3.1. Study Set-Up and Information Collected

The field experiment was conducted in Boston, Massachusetts, during the 2013 tax season (end of January—mid-April 2013) at the Volunteer Income Tax Assistance (VITA) site in the Roxbury neighborhood, a free tax-preparation assistance site for LMI individuals. During the tax season, the site is open for tax preparation purposes three days a week: Tuesdays, Thursdays, and Saturdays. While waiting in line, all taxpayers were asked to fill out two surveys—one administered by the Earned Income Tax Credit (EITC) coalition, which runs the site, and the second by us, which included questions on financial behavior, credit score guess, time preference, general attitude toward risk, and follow-up plans (see Survey A and the EITC survey in the appendix). While waiting in line, the taxpayers at the Roxbury site were also offered a brief credit advising session, which included a review of their credit score and credit report. At the end of the credit advising session, each individual's debt goal was elicited along with his or her top planned financial action and sense of having control over life (see Survey B

in the appendix). Finally, after the tax returns were completed, all taxpayers (whether or not they had opted in to the credit advising session) were asked about how they intended to spend their expected tax refund if any (see Survey C in the appendix).

The individuals who opted into credit advising consented to have their credit reports pulled at the site and again within one year of signing the consent; they also provided their cell phone number and consented to receive text messages containing financial information. We ended up pulling the credit report of these participants twice: first, on site for the advising session, and again a year later to examine their progress. We merged the information from these credit reports with the responses to our surveys (surveys A, B, and C), the responses to the EITC survey, and tax return data.

During the tax season at least one person, usually two, from the Federal Reserve Bank of Boston was present to oversee the successful execution of the study and to provide credit advising services for the participating taxpayers.

3.2. Experimental Design

The aim of this study was to test whether providing information or reminders can improve credit scores and help recipients achieve their financial goals. For this, we devised a 2x2 between-subject design, whereby we randomly assigned individuals to receive monthly text message reminders (the “text” condition) containing individualized financial information, and randomly assigned individuals to receive extra information at the credit advising session (the “APR info” condition, “info” for short).

Randomization into the info condition was done on the day level—every other day individuals who opted into the credit advising session received, in addition to information provided regularly during credit advising, an information card showing the relationship between credit scores and average APR rates on basic credit card offers in the Boston area. Figure 1 shows an example of such a card.

Figure 1: Extra Information Provided for Those in the *Info* Condition

Information about Credit Card Rates

When you use a credit card, you pay interest (an additional cost) on spending that is not paid in full each month. This additional cost depends on the interest rate (also called the APR) of the card.

What you need to look for in a credit card offer is:

1. **Annual fee**
2. **Regular APR** – this is the rate you will pay after any promotion period is over

The **LOWER** the APR the **LOWER** the **ADDITIONAL COST** you pay.

Below is information on the **average** APRs (additional costs) offered recently by banks on cards with no annual fee.

CREDIT SCORE RANGE	AVERAGE APR
For scores 740–850:	11.44%
For scores 680–739:	15.51%
For scores 620–679:	19.07%
For scores 500–619:	20.73%
For scores 300-500:	Not likely to be approved for an unsecured card

Source: Informa Research Services, Inc., Calabasas, CA www.informars.com. Although the information has been obtained from various financial institutions, the accuracy cannot be guaranteed.

Assignment into the “text” condition was random, regardless of whether or not one was in the “info” condition. The text messages reminded individuals of their credit score range, to pay bills on time and at least the minimum amount, their stated top-priority financial goal for the year, and, if the individual was on an information day, also information regarding the average credit card APR offer on basic credit cards in the Boston area for their credit score bracket and the one above that bracket. If their score was within the top bracket, the information was given for the top credit score bracket and the one immediately below that. If they were not scored, the message indicated they were not scored and gave the average APR on basic credit cards for the lowest and second-lowest credit score brackets. Figure 2 gives an example.

Figure 2: Example of a Monthly Text Reminder

For a Person Only in the Text Treatment (not in “Info”):
 Ur credit score: btwn 680-739. Pay bills on time & at least min amt. Goal: reduce balance.

For a Person in Both the Info and Text Treatments:
 Ur credit score: btwn 680-739. Pay bills on time & at least min amt. Goal: reduce balance. Avrg. APR on crdt card: 16.9% for score 680-739; 11.8% for 740-850

We hypothesized that the reminders would improve credit scores by inspiring recipients to work on their financial goals, reduce debt, and improve their payment patterns. The reason we expected the reminders to help increase credit scores is that the message included a reminder of the credit score and its importance, especially for those individuals who were in both the info and the text conditions and thus received an updated information reminder on the average APR in recent offers by credit score range. Moreover, the message included a reminder to pay on time and at least the minimum amount, so we expected a better payment pattern from recipients, as we expected this would help them to reduce their debt and raise their credit scores.

We expected the APR information to generally motivate people to work toward increasing their credit scores, and also specifically to decrease the number of inquiries, since this information makes it clear which offers are attractive and which ones are not, and informs consumers whether their current rates are reasonable.

3.3. Sample

At the Roxbury site, 1,031 individuals were serviced for whom we have survey data. Of these, seven were removed due to errors in data entry. Of the remaining 1,024 taxpayers, 587 (57 percent) opted in to a credit advising session that included our pulling their credit report, and 437 (43 percent) did not.

The 587 individuals who opted into credit advising constitute our sample. Of the 587, seven were removed due to an error in the message they were sent, 43 individuals were removed either because their credit score information was missing or because we did not have sufficient information to pull their report the second time, and 151 individuals were excluded since they did not provide a cell phone number, lacked survey information, or did not have their credit report pulled at the site.² This left a sample of 386 individuals. Their assignment to conditions is given in Table 1 below.

Table 1: Number of Observations

Texts	APR Info	
	0	1
0	90	110
1	83	103

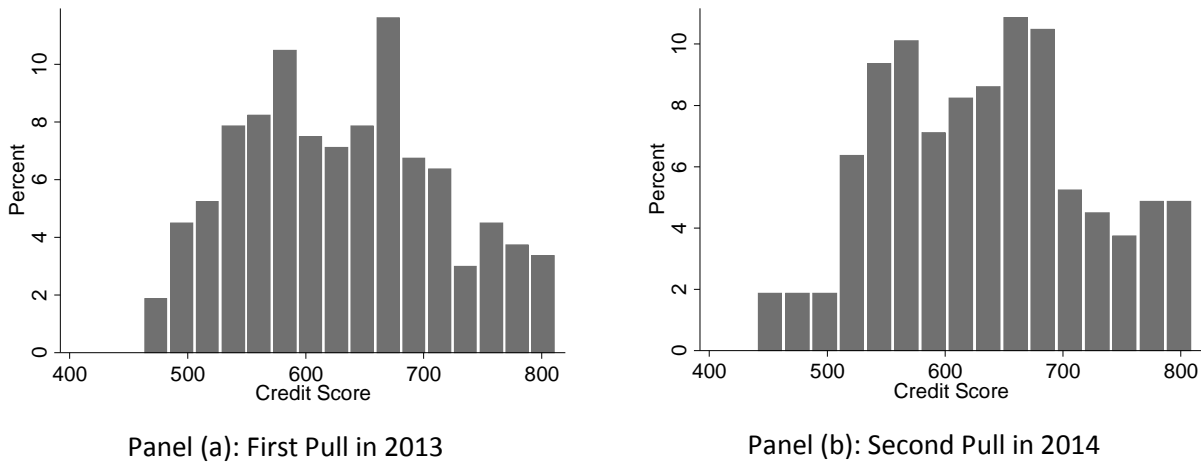
² This happened on only a few occasions when, for example, one person started the advising session but was called to do his taxes.

The 386 individuals constitute our analysis sample; yet for analyzing the changes in credit scores below, we are left with 247 individuals: 119 had “insufficient information” in the first pull, meaning they did not have sufficient information to be scored, and 20 had a score in the first pull but “insufficient information” in the second pull. Of these 247 individuals, 151 were in the “info” condition, and 135 were in the “text” condition, meaning that they received monthly text messages.³

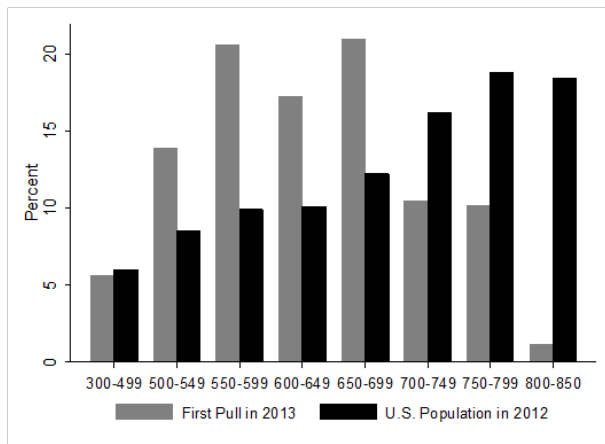
Analysis Sample Characteristics

The sample is 64 percent female, 42 years old on average and with annual income averaging \$19,883. One-third of the sample had a high school or GED education level, which was also the most common level of education in the sample; the second most common education level, held by 30 percent, was “some college.” The average FICO score at the first pull was 631, with a standard deviation of 84. The FICO score distribution in this sample is given in Figure 3 below. Panel (a) is the distribution at the first pull, while panel (b) presents the distribution at the second pull, taken a year later. Panel (c) shows a comparison of the credit score distribution in our sample (first pull) relative to the distribution in the general U.S. population.

Figure 3: FICO Score Distribution



³ Recall that some individuals were in both the info and the text conditions.



Panel (c): Comparison with the General Distribution in the United States

The random assignment was successful, yielding individuals with similar characteristics across conditions. The average credit score of individuals who were assigned to receive monthly text reminders (and who were scored) was 626, compared with 636 for those who did not receive monthly reminders ($p=0.32$, two-sided t -test). The proportion of females was similar in the two subgroups—63.5 percent vs 64 percent—and the total debt balance was also similar—\$14,705 for those who did not receive text messages and \$13,674 for those who did ($p=0.78$, two-sided t -test). The average annual gross income among those who did not receive monthly text messages was slightly lower at \$18,442 vs \$21,427 ($p=0.051$, two-sided t -test). Comparing the two info conditions, we find no significant difference in any of the dimensions: the average credit score was 625 for those who visited on an information day and 639 for those who visited on other days ($p=0.19$, two-sided t -test). The female proportion was 67 percent on days with extra information and 60 percent on days without, but this difference is not significant ($p=0.18$, two-sided t -test). In terms of income, those individuals who came on information days earned on average \$20,658 per year compared with \$18,894 earned by those who came on no extra information days ($p=0.25$, two-sided t -test). The total debt balance was also similar, averaging \$14,373 among those who received extra information and \$13,994 among those who did not ($p=0.92$, two-sided t -test).

4. Results

We present the results in three steps. First, we look at the overall effects of the text reminders and APR information on the change in credit scores. Following the analysis of credit scores, we examine the effect of these interventions on achieving debt goals, as well as the effect on other important factors that affect the credit score, such as credit use, collection accounts, number of inquiries, and payment patterns.

4.1. The Effect on Credit Score

To measure the effect of text message reminders and information about APR rates on credit scores, we compute the change in individuals' scores from 2013, at the time of the credit advising session, to 2014, a year following the session. A value of 40 for this variable indicates an increase of 40 points in the credit score over one year, while -20 indicates a decline of 20 points in the credit score. Table 2 below presents the linear regression analysis to evaluate the effect of the treatments—whether text or info—on the change in credit scores. The results seem to indicate that there was no treatment effect.

Table 2: Credit Score Difference

	(1)	(2)	(3)	(4)
Texts	1.302 (6.381)		1.230 (6.397)	-5.156 (9.770)
APR Info		2.064 (6.445)	2.019 (6.462)	-3.539 (9.115)
Texts * APR Info				11.186 (12.931)
Constant	-0.447 (4.521)	-0.972 (4.870)	-1.563 (5.769)	1.509 (6.777)
R ²	0.000	0.000	0.001	0.004
Adjusted-R ²	-3.9e-03	-3.7e-03	-7.6e-03	-8.7e-03
Observations	247	247	247	247
Text Joint P-value				.477

Notes: OLS regressions. Dependent variable: difference in credit scores between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Credit scores in our sample vary widely from 462 to 812 (first pull in 2013). It is possible that individuals with different backgrounds react differently to the extra information provided on “info” days and also react differently to the text reminders. For instance, low-FICO individuals may know less about credit scores, or they may fail to appreciate their importance as fully as higher-score individuals. If this is the case, then the extra information may have a stronger effect on the low-score individuals than on the high-score individuals. Similarly, if low-score individuals have a stronger tendency to forget to pay their bills on time than individuals with higher scores, then the reminders may have a positive effect on low-score individuals but not on others. We therefore split the sample into three groups: bottom-, mid-, and top-third FICO score

individuals, based on their 2013 scores. The bottom third includes individuals with a score below 584, the middle third includes individuals with a credit score between 584 and 672, and the top third consists of individuals with a score of 672 or higher.

Examining the effect of the treatments by these initial score subgroups, we find a differential effect of text messages that explains the null effect overall. Yet even splitting the sample by FICO scores, we find no effect of APR information on credit scores. Table 3 presents a simple average change in credit scores by text reminders, and Table 4 (a)–(c) below presents the results of a regression analysis.

Table 3: Average Change in Credit Score

		Text	
		0	1
Score Group	Low	6.567 (41.215) N=41	30.365 (41.995) N=47
	Mid	-5.052 (57.151) N=43	-6.875 (54.878) N=44
	High	-2.208 (36.411) N=48	-20.093 (54.314) N=44

Standard Deviation in Parenthesis

As the results in Table 4 clearly show, text messages have a positive and significant effect on low-score individuals, increasing their credit score by an average of 24 points. This is robust to controlling for the info condition. Adding an interaction of text and APR information to assess whether the text effect is different for individuals who were in both conditions, we find that text and its interaction with the APR information are significant jointly but not separately. This implies that there is no differential effect of text messages whether or not an individual was also subject to the info condition. In contrast, we find that text messages have a marginally significant *negative* effect on high-score individuals of 18 points on average. As with the low-score individuals, this effect is robust to including the info treatment indicator, and is also jointly significant when adding the interaction term of the two treatment indicators. Similar to the results for the low-FICO individuals, we do not find a differential effect of the text messages based on whether the individuals were also in the info condition. Interestingly, we find no effect of any of the treatments on the mid-score group.

Table 4: Credit Score Difference by FICO- Score Group

(a) Low-Score Group					(b) Mid-Score Group				
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Texts	23.798** (9.439)		24.323** (9.596)	16.249 (15.482)	Texts	-1.822 (12.685)		-1.192 (12.728)	-12.034 (20.317)
APR Info		-0.037 (10.085)	-3.686 (9.849)	-10.159 (13.862)	APR Info		11.210 (12.894)	11.140 (13.001)	1.726 (18.931)
Texts * APR Info				13.173 (19.775)	Texts * APR Info				17.929 (26.126)
Constant	6.568 (6.844)	19.100** (7.912)	8.560 (8.701)	12.059 (10.192)	Constant	-5.053 (9.084)	-12.742 (10.009)	-12.088 (12.257)	-6.143 (15.045)
R ²	0.077	0.000	0.079	0.084	R ²	0.000	0.010	0.010	0.016
Adjusted-R ²	.065	-.013	.054	.047	Adjusted-R ²	-.013	-3.2e-03	-.016	-.024
Observations	78	78	78	78	Observations	78	78	78	78
Text Joint P-value				.019	Text Joint P-value				.721

Notes: OLS regressions. Dependent variable: difference in credit scores between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-17.885* (9.604)		-17.786* (9.617)	-10.167 (13.715)
APR Info		-8.734 (9.732)	-8.528 (9.603)	-1.417 (13.249)
Texts * APR Info				-15.053 (19.277)
Constant	-2.208 (6.602)	-6.244 (6.919)	2.055 (8.170)	-1.500 (9.369)
R ²	0.037	0.009	0.046	0.053
Adjusted-R ²	.027	-2.2e-03	.024	.02
Observations	91	91	91	91
Text Joint P-value				.066

Notes: OLS regressions. Dependent variable: difference in credit scores between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Examining the percentage change in the credit score—that is, the change in the credit score between 2014 and 2013 over the initial score in 2013 rather than simply the change in the credit score—may be more appropriate for comparing across individuals with different initial scores. When we do this, we find similar results: the monthly text reminders had a significant positive effect on low-score individuals, increasing their score by an average of 4.5–4.6 percent; the

reminders had a null effect on mid-score individuals; and they had a marginally significant negative effect on high-score individuals, reducing their score by an average of 2.5 percent.

The effect of text reminders on low-score individuals can also be seen in the chance of improving credit scores: the text reminders increased low-score individuals' chance to improve their score by 20–21 percent (marginal effects). Yet, this effect is evident only among the low-FICO-score individuals; we find no effect of text messages on mid- or high-FICO individuals, nor any effect of information on any of the credit score groups. The results examining the percentage change in the credit score and the chance of improving the score are reported in Tables A1 and A2, respectively, in the appendix.

How did the monthly text messages help low-score individuals improve their credit score? Why did these messages have a negative effect on high-score individuals? Did the information provided influence some of the factors that contribute to better financial standing but are slow to be reflected in credit scores? To answer these questions, we next look at the effect of the treatments, focusing mainly on the text reminders, on achieving debt goals and on the level of credit use, patterns of payment, and number of collection accounts.⁴

4.2. The Effect on Achievement of Debt Goals

To examine the effect of text reminders and extra information on individuals' achieving their debt goal, we constructed a measure of progress based on overall planned debt, as recorded in Survey B (see Figure 4). The variable takes the value of 0 if total balances stayed the same or increased, 1 if the total balances decreased by less than the planned amount, and 2 if total balances decreased by the planned amount or more.⁵

⁴ In the various analyses, we use all observations that had the relevant measure. Hence, it is possible that some individuals were included in one analysis, but not in another. In particular, there are individuals who were not in the credit score analysis, but did have other relevant measures. We therefore ran all the regressions reported in the paper, restricting attention to only those individuals who appear in the credit score analysis. All qualitative results survived.

⁵ If an individual planned a positive change in balances, we recorded this entry as missing. We did this because positive changes in total balance could indicate different things for different people, making a consistent definition of "progress" difficult to formulate. For example, one person might plan greater debt because she wants to buy a home while another might expect higher balances because he recently lost his job and will no longer be able to pay the bills. In one case the increase is desired and is a sign of progress, while in the other it is not. In the latter case, an increase in debt below the planned amount would be preferable. Only 5 percent of individuals in our sample reported positive planned changes in balances.

Figure 4: Survey B Question on Debt Goal/Plan

What kinds of debt do you currently have? How do you think the different kinds of debt that you have will change during the next 12 months?		
Debt Type	Current Balance	12 months from now, I expect it to:
Credit and Retail Debt	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Auto Loans	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Student Loans	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Mortgage	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Medical Debt	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Payday Loan	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Debt in Collection	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Other (specify _____)	\$ _____	Increase by \$ _____ or Decrease by \$ _____

We find that while the monthly text reminders helped low-score individuals to achieve their goals, the reminders had no such effect on mid- or high-score individuals. This can be seen by using either linear or ordered probit regression. Table 5 below presents the ordered probit results and shows that the chances of making progress (recorded as “1”) or achieving one’s goal (recorded as “2”) are higher for those individuals who received the text reminders. Interestingly, this is not a consequence of low-score individuals’ setting lower goals: the correlation between initial credit scores and the planned change in debt (excluding those who expected an increase in debt) is 0.008 and insignificant ($p=0.912$).

Next, we consider a continuous measure of achieving debt goals, rather than the categorical variable considered in Table 5. We examine the ratio of the actual difference in total balances over the self-reported planned change recorded in 2013, and find no effect of text reminders (see Table A3 in the appendix). Together, this implies that text reminders help increase the chances that low-score individuals will work toward their debt reduction goal, but does not affect the amounts.

As with credit scores, the APR info treatment had no effect on any of the credit score groups’ achieving their debt goals.⁶

⁶ There is only one specification for the high-score individuals where the info treatment had a significant effect.

Table 5: Ordered Probit Regression, Achievement of Debt Goals

	(a) Low-Score Group				(b) Mid-Score Group				
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	
Texts	0.607** (0.300)		0.614** (0.301)	0.756 (0.469)	Texts	-0.073 (0.284)		-0.063 (0.285)	0.263 (0.449)
APR Info		-0.028 (0.298)	-0.080 (0.303)	0.053 (0.453)	APR Info		0.165 (0.289)	0.161 (0.289)	0.455 (0.427)
Texts * APR Info				-0.242 (0.610)	Texts * APR Info				-0.552 (0.583)
Cut 1					Cut 1				
Constant	0.386* (0.230)	0.043 (0.238)	0.341 (0.284)	0.415 (0.342)	Constant	0.230 (0.211)	0.363 (0.226)	0.328 (0.276)	0.510 (0.342)
Cut 2					Cut 2				
Constant	1.067*** (0.250)	0.696*** (0.247)	1.023*** (0.299)	1.098*** (0.354)	Constant	0.921*** (0.228)	1.056*** (0.247)	1.022*** (0.292)	1.210*** (0.358)
Pseudo-R ²	0.032	0.000	0.033	0.034	Pseudo-R ²	0.000	0.002	0.003	0.010
Observations	63	63	63	63	Observations	71	71	71	71
Text Joint P-value				.19	Text Joint P-value				.437

Notes: Ordered Probit regressions. Dependent variable: progress on debt goals coded as *no progress* (0), *some progress* (1) and *goal achieved* (2). Marginal effects are omitted due to differences in interpretation by base level; marginal effects predicting *goal achieved* are consistent with presented results. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: Ordered Probit regressions. Dependent variable: progress on debt goals coded as *no progress* (0), *some progress* (1) and *goal achieved* (2). Marginal effects are omitted due to differences in interpretation by base level; marginal effects predicting *goal achieved* are consistent with presented results. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High -Score Group

	(1)	(2)	(3)	(4)
Texts	0.074 (0.294)		0.073 (0.294)	0.904* (0.462)
APR Info		0.205 (0.297)	0.205 (0.297)	0.919** (0.430)
Texts * APR Info				-1.450** (0.610)
<hr/>				
Cut 1				
Constant	0.249 (0.210)	0.328 (0.229)	0.362 (0.269)	0.765** (0.334)
<hr/>				
Cut 2				
Constant	1.123*** (0.241)	1.206*** (0.261)	1.242*** (0.298)	1.705*** (0.375)
Pseudo-R ²	0.001	0.004	0.004	0.051
Observations	65	65	65	65
Text Joint P-value				.167

Notes: Ordered Probit regressions. Dependent variable: progress on debt goals coded as *no progress* (0), *some progress* (1) and *goal achieved* (2). Marginal effects are omitted due to differences in interpretation by base level; marginal effects predicting *goal achieved* are consistent with presented results. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

4.3. The Effect on Credit Use

The available credit that an individual has affects credit scores and is related to achieving debt reduction goals. The higher the credit use out of the available credit line, especially beyond 30 percent use, the lower the credit score. Therefore, if individuals work toward reducing their debt, we may see a reduction in their credit use and hence an improvement in their credit scores.

Examining the change in the percentage of credit used between 2014 and 2013 we find, consistent with individuals' achieving their debt goals, that low-FICO individuals who received a monthly reminder had a marginally lower use of credit, which, as noted, is a positive factor on credit scores. For high-score individuals, we find a positive effect, meaning that credit use has increased, which is a negative development in terms of credit scores. Although this is consistent with the results obtained by examining the effect of text reminders on achievement of debt goals, this effect is not significant. Nevertheless, it is possible that individuals close accounts or reduce their available credit line to help with, for instance, self-control problems. Such changes,

which are very plausible (especially since many individuals are not aware of the effect of credit use on credit scores), can lead to a higher percentage use of credit in spite of an overall reduction of debt. Hence, even a mild effect on percentage of credit use can be important.

As with the result of credit scores and achievement of debt goals, the results below also show no effect of APR information on percentage of credit use.

Table 6: Change in Percentage of Credit Used

(a) Low-Score Group					(b) Mid-Score Group				
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Texts	-9.294*		-9.291*	-3.470	Texts	-1.565		-1.452	-5.709
	(5.286)		(5.359)	(8.452)		(6.143)		(6.174)	(9.644)
APR Info		-1.213	-0.026	4.933	APR Info		3.150	3.096	-0.620
		(5.482)	(5.462)	(7.802)			(6.229)	(6.268)	(9.010)
Texts * APR Info				-9.750	Texts * APR Info				7.254
				(10.939)					(12.589)
Constant	6.805*	2.571	6.819	4.158	Constant	-4.140	-6.778	-6.011	-3.765
	(3.863)	(4.254)	(4.867)	(5.715)		(4.368)	(4.769)	(5.798)	(7.006)
R ²	0.035	0.001	0.035	0.044	R ²	0.001	0.003	0.004	0.008
Adjusted-R ²	.023	-.011	.012	9.6e-03	Adjusted-R ²	-.011	-8.7e-03	-.02	-.028
Observations	88	88	88	88	Observations	87	87	87	87
Text Joint P-value				.06	Text Joint P-value				.849

Notes: OLS regressions. Dependent variable: difference in percent of credit used between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: difference in percent of credit used between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	10.068		10.150	16.577*
	(6.928)		(6.958)	(9.970)
APR Info		-3.352	-3.583	2.417
		(6.995)	(6.954)	(9.632)
Texts * APR Info				-12.557
				(13.936)
Constant	0.250	6.778	2.041	-0.958
	(4.791)	(5.000)	(5.936)	(6.811)
R ²	0.023	0.003	0.026	0.035
Adjusted-R ²	.012	-8.5e-03	3.9e-03	1.8e-03
Observations	92	92	92	92
Text Joint P-value				.681

Notes: OLS regressions. Dependent variable: difference in percent of credit used between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

4.4. The Effect on Payment Patterns—Past Due Balances

Next, we examine payment patterns. We expected that reminders, in particular, would have a positive effect on payment patterns. The first measure we use is the change in total past due balances between 2014 and 2013. We use the same regression specification as before, but we do not find any significant effect of the text reminders on past-due balances. Although not significant, the point estimates indicate the expected effect—that is, lower total past-due balances—among the low-score individuals. Yet for the mid- and high-score individuals the reminders seem to have had the unintended effect of increasing total past-due balances. Of course, given that these results are insignificant, they are suggestive only.

The APR information, as we found before, does not have a significant effect on past-due balances. It has the expected point-estimates for low- and mid-score individuals. Surprisingly, however, we find a significant effect of information among high-score individuals. Yet, the effect is negative—increasing total past-due balances by \$81–\$82 on average.

Table 7: Change in Past Due Balance

	(a) Low-Score Group				(b) Mid-Score Group			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Texts	-267.712 (339.892)		-261.227 (344.101)	49.808 (558.118)	182.202 (116.796)		179.018 (117.195)	131.808 (183.302)
APR Info		-89.406 (350.740)	-59.063 (353.903)	199.396 (508.765)		-94.036 (119.816)	-87.308 (118.969)	-128.516 (171.254)
Texts * APR Info				-503.649 (710.208)				80.444 (239.276)
Constant	-71.462 (250.040)	-160.594 (276.958)	-38.144 (321.117)	-183.941 (382.117)	-97.884 (83.061)	49.389 (91.736)	-45.093 (110.051)	-20.176 (133.166)
R ²	0.007	0.001	0.008	0.014	0.028	0.007	0.034	0.035
Adjusted-R ²	-4.5e-03	-.011	-.016	-.023	.016	-4.5e-03	.011	4.7e-04
Observations	85	85	85	85	87	87	87	87
Text Joint P-value				.305				.171

Notes: OLS regressions. Dependent variable: difference in total past due balances between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: difference in total past due balances between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	49.934 (47.352)		48.086 (46.842)	-6.667 (66.930)
APR Info		82.402* (46.811)	81.311* (46.809)	30.208 (64.660)
Texts * APR Info				106.966 (93.549)
Constant	21.771 (32.747)	3.556 (33.458)	-18.884 (39.958)	6.667 (45.722)
R ²	0.012	0.033	0.045	0.059
Adjusted-R ²	1.2e-03	.023	.023	.026
Observations	92	92	92	92
Text Joint P-value				.128

Notes: OLS regressions. Dependent variable: difference in total past due balances between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

This negative result of APR information on the change in total past-due balances may be the result of the high-score individuals being pleasantly surprised by their scores, thinking that they can relax a little, and realizing that the cost they pay for having past-due balances is not that high. To test whether this effect stems from the individuals who were surprised, we split the sample into those who guessed that their score was bad or fair (surprised) and those who guessed that their score was good or excellent (not surprised). Although none of the results are significant due to the small sample sizes once we split the group, the direction and magnitudes are the same whether or not the high-score individuals were surprised. It seems, then, that reassurance that one has a good score, whether it comes as a surprise or not, may have led the high-score individuals to relax their financial self-discipline.

4.5. The Effect on Payment Pattern—Delinquencies

Delinquencies are a core factor in the construction of the credit score. Failure to pay on time, even if the amount is eventually paid in full, results in late fees and finance charges and negatively affects one's credit score. Likewise, holding everything else constant, paying on time and at least the minimum amount, even if not paying in full, contributes positively to one's score. Although the measure of total past-due balances we presented above captures one aspect of delinquency (the amount), it does not capture the duration of the delinquency. In fact, in terms of the delinquency's effect on one's credit score, the duration of the delinquency may be

more important than the amount itself, as it is an indicator of behavior. For this reason, we examine whether the text reminders had an effect on individuals' payment patterns as reflected in the measure of delinquency duration, which we call simply "delinquency."

To construct a measure of delinquency, we utilize the full account-level data available in the individual credit reports. In particular, we consider the payment pattern field of each trade account in a subject's second credit score, as shown in Figure 5. The marked area in the credit report represents coded information regarding the length of delinquency of each specific account. For example, "1" indicates on-time payment, while "5" indicates delinquency of over 120 days.

Figure 5: Credit Report Information

T R A D E S									
8	9	11	13	16	19	22	24	1-12	26
SUBNAME	ACCOUNT#	SUBCODE	13 OPENED	16 HIGHCRED	19 TERMS	22 MAXDELO	PAYPAT	13-24	MOP

10	12	15	18	21					
ECO A	COLLATRL/LOANTYPE	CLSD/PD	BALANCE	REMARKS					

27	I N Q U I R I E S								
ABC BK	B 6781001	8/03	\$16.9K	60M282	1/05	445543211111			I05
9876543210		5/05A		\$1128	\$1410 05	11111111			
I AUTOMOBILE			\$12.9K	*CONTACT	SUBSCRIBER	20	1/	1/ 5	
ABC RETAILER	D 1234567	12/02	\$9.6K	MIN200	2/03	111111111111			R01
1234567890		5/05A	\$16.7K		\$2300 02	111111111111			
I /CREDITCARD			\$5.2K			29	1/	0/ 0	
ABC MORTGAGE	Q 1111111	11/99	\$232.5K	360M1470		111111111111			M01
1112223333		5/05A				111111111111			
C /PROPERTY			\$173.2K			48	0/	0/ 0	
ABC DEPARTMENT	D 7654321	12/04	\$500	MIN25		111111			R01
123123123123		5/05A	\$1500						
I /CREDITCARD			\$150			5	0/	0/ 0	

For all accounts that were updated recently enough and had enough recorded payment history (between 13 and 24 months), we generate three variables that compare the maximum delinquency across years. The first, Maximum Delinquency Improvement, takes the maximum delinquency for each account, averages across persons within each year, and then computes a difference between the averages of year 1 and year 2 by subtracting the second year's value from the first year's value. Positive values indicate improvement and negative values show deterioration. For example, if one person had two accounts, one of which she always paid on time (coded as 1) and the other she held delinquent for over 120 days (coded as 5) in the year before the treatment, but delinquent for only 40 days (coded as 2) in the year after the treatment, then these accounts would receive a value of $(5+1)/2 - (2+1)/2 = 3/2$. This positive value shows that the account owner improved her payment pattern after the treatment. High Credit Maximum Delinquency Improvement and Weighted Maximum Delinquency Improvement both measure the same units of change just described; however, instead of averaging maximum delinquencies across all accounts, each of these measures uses criteria to select one account for each person for comparison between year 1 and year 2. High Credit Maximum Delinquency

Improvement uses the account on which the individual had the greatest level of “high credit” in the second year. High credit records the highest amount the individual ever owed on the particular account. Weighted Maximum Delinquency Improvement, alternatively, uses the account with the highest calculated weight. The calculated weight is a simple average of the ratio of high credit use in the particular account over the maximum high credit over all accounts for that person and the ratio of available payment history over the possible months of history (24). The account with the greatest weight is selected for the calculation of the change in delinquency.

Examining the distribution of these variables, we found that almost 80 percent of observations for each variable were recorded as 0 because the subject was never overdue on his or her payments. For this reason, we include an indicator for never being late on a payment, as well as a term for interaction with text reminders. Table 8 reports the results for Improvement in Maximum Delinquency; Tables A4 and A5 in the appendix report the results using High Credit Maximum Delinquency and Weighted Maximum Delinquency, respectively.

Regardless of which variable we examine, Improvement in Maximum Delinquency, High Credit Maximum Delinquency, or Weighted Maximum Delinquency, we find that text reminders positively affect low-score individuals (although these findings are not consistently significant) and negatively affect high-score individuals. That is, it appears that text reminders contribute to longer periods of delinquency among the initially high-score individuals. However, one may wonder whether high-score participants improved overall, only less so when they received reminders, compared with high-score individuals who did not receive the reminders. To examine this point, and better understand the effect, we look at the average improvement by score group (see Table 9, panel (a)). We find that in all groups (low-, mid-, or high-score) average delinquency deteriorated for those who did not receive the text reminders. Delinquency among those who received the text reminders deteriorated as well, except for the low-score individuals, who actually improved their average delinquency.

Looking even deeper, splitting the sample by whether the individual had always paid in the past, the overall negative results for high-score individuals were due to the few who had not always paid in the past (N=3). For the high-score individuals who had always paid in the past, text reminders had a positive effect, as these individuals had a lower decline in the measure of delinquency improvement than those who did not receive the text reminders. For low-score individuals, past behavior (always paying or not) is not important for the effect of the text reminders, and the effect of the text reminders appears to be positive. We observe a significant positive effect of text reminders on mid-score individuals. This is surprising, since we did not find any effect of text reminders on this group’s credit score change. It is possible that improvement in payment patterns is slower than other factors to influence credit scores;

nevertheless, this is a positive development that may yet be reflected in scores if more time is allowed. Examining the average effect in Table 9 (panels (b) and (c)), we find a mixed effect among the mid-score individuals: among those who had always paid in the past, the reminders had a negative effect; among those who had not always repaid, text reminders had a large, positive effect.

The APR information had no effect on maximal delinquency.

Table 8: Improvement in Maximum Delinquency Payment Patterns

	(a) Low-Score Group				(b) Middle-Score Group			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Texts	0.956 (0.617)		1.032* (0.612)	0.888 (0.942)	0.994* (0.530)		0.995* (0.534)	1.034 (0.622)
APR Info		-0.642 (0.479)	-0.709 (0.472)	-0.807 (0.681)		0.012 (0.243)	0.021 (0.238)	0.052 (0.346)
Texts * APR Info				0.194 (0.955)				-0.060 (0.481)
Always Repaid	-0.756 (0.652)	-1.483** (0.587)	-0.952 (0.657)	-0.979 (0.677)	0.102 (0.439)	-0.466 (0.326)	0.102 (0.442)	0.103 (0.446)
Text * Always Repaid	-0.418 (0.889)	0.592 (0.646)	-0.435 (0.879)	-0.379 (0.929)	-1.165* (0.589)	-0.171 (0.262)	-1.165* (0.593)	-1.167* (0.598)
Constant	-0.269 (0.452)	0.725 (0.474)	0.222 (0.553)	0.290 (0.652)	-0.478 (0.401)	0.082 (0.311)	-0.491 (0.434)	-0.512 (0.468)
R ²	0.138	0.127	0.175	0.176	0.098	0.052	0.098	0.099
Adjusted-R ²	.086	.075	.108	.09	.059	.011	.045	.031
Observations	54	54	54	54	73	73	73	73
Text Joint P-value				.11				.089

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-1.658*** (0.578)		-1.624*** (0.582)	-1.353** (0.594)
APR Info		0.094 (0.107)	0.068 (0.104)	0.242* (0.141)
Texts * APR Info				-0.368* (0.205)
Always Repaid	-0.336 (0.477)	0.785*** (0.295)	-0.302 (0.482)	-0.215 (0.477)
Text * Always Repaid	1.748*** (0.587)	0.085 (0.109)	1.711*** (0.592)	1.634*** (0.585)
Constant	0.200 (0.472)	-0.968*** (0.293)	0.132 (0.485)	-0.042 (0.488)
R ²	0.178	0.103	0.182	0.215
Adjusted-R ²	.147	.07	.141	.165
Observations	85	85	85	85
Text Joint P-value				3.8e-03

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Table 9: Average Improvement of Maximum Delinquency

Score Group	Text		Score Group	Text		Score Group	Text	
	0	1		0	1		0	1
	Low	-0.492 (1.615) N=41		0.121 (1.772) N=47	Low		-1.025 (1.546) N=12	-0.486 (1.08) N=15
Mid	-0.393 (0.940) N=43	-0.317 (1.089) N=44	Mid	-0.376 (0.917) N=30	-0.547 (1.038) N=29	Mid	-0.478 (1.144) N=6	0.516 (0.886) N=8
High	-0.129 (0.609) N=48	-0.117 (0.378) N=44	High	-0.136 (0.614) N=44	-0.046 (0.192) N=40	High	0.200 () N=1	-1.458 (0.648) N=2

Panel (a): Overall Effect*
Panel (b): Always Paid*
Panel (c): Did Not Always Pay*

*Note: Standard Deviation in Parenthesis

4.6. The Effect on Collection Accounts

Another aspect of payment patterns and debt reduction that is very important in determining a credit score is the number of accounts in collection. These are accounts that a lender has decided to sell to a third-party collection agency after the borrower has failed to fulfill the repayment agreement. Having accounts in collection sends a strong negative signal to lenders, and a record of any collection remains on a credit report for several years, even after the full amount has been repaid. Moreover, accounts in collection do not show information on the duration of delinquency; hence, these accounts are not included in our previous measures of payment patterns.

The measure of collection accounts we constructed subtracts the number of accounts in the first credit report pulled in 2013 from the number of collection accounts in the second report pulled in 2014. A positive number indicates an increase in the number of accounts in collection, which is a negative development in one's financial standing or creditworthiness and would reduce an individual's credit score.

Examining the effect of treatments on the number of collection accounts, we find no effect of text reminders on the low- and mid-score groups. The text reminders, however, had a positive effect on the number of collection accounts of the high-score group. That is, high-score individuals who received text reminders had, on average, a larger increase in the number of collection accounts than those individuals who did not receive the reminders. Splitting the high-score group into those who were surprised (guessing that their score was bad or fair) and those who were not (guessing that their score was good or excellent), we do not find evidence that this effect is due to individuals' being pleasantly surprised by their high credit score. Instead, it seems that the reminders reassuring them they were in good financial standing, whether they were surprised or not, may have led them to relax their financial discipline, resulting in the unintended consequence of having more accounts in collection and lower credit scores. Table 10 below reports the results.⁷

⁷ As with payment patterns (delinquency), we examine the average change in the number of collection amounts by score groups and text reminders. We find that the regression result is evident across different individuals, unlike with payment patterns, whether or not these individuals paid consistently in the past.

Table 10: Change in the Number of Collection Accounts

(a) Low-Score Group					(b) Middle-Score Group				
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Texts	0.259 (0.296)		0.247 (0.300)	0.062 (0.478)	Texts	-0.001 (0.261)		-0.016 (0.259)	-0.477 (0.399)
APR Info		0.140 (0.304)	0.112 (0.306)	-0.045 (0.442)	APR Info		-0.435* (0.261)	-0.435 (0.262)	-0.837** (0.373)
Texts * APR Info				0.306 (0.616)	Texts * APR Info				0.784 (0.521)
Constant	-0.025 (0.218)	0.029 (0.237)	-0.087 (0.276)	0.000 (0.328)	Constant	0.023 (0.186)	0.278 (0.200)	0.286 (0.243)	0.529* (0.290)
R ²	0.009	0.003	0.010	0.013	R ²	0.000	0.032	0.032	0.057
Adjusted-R ²	-2.8e-03	-9.2e-03	-.013	-.022	Adjusted-R ²	-.012	.02	8.6e-03	.023
Observations	87	87	87	87	Observations	87	87	87	87
Text Joint P-value				.345	Text Joint P-value				.361

Notes: OLS regressions. Dependent variable: difference in the number of collection accounts between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: difference in the number of collection accounts between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	0.225** (0.088)		0.228** (0.088)	0.286** (0.127)
APR Info		-0.091 (0.091)	-0.096 (0.088)	-0.042 (0.123)
Texts * APR Info				-0.114 (0.177)
Constant	-0.021 (0.061)	0.133** (0.065)	0.027 (0.075)	0.000 (0.087)
R ²	0.067	0.011	0.080	0.084
Adjusted-R ²	.057	-4.1e-05	.059	.053
Observations	92	92	92	92
Text Joint P-value				.168

Notes: OLS regressions. Dependent variable: difference in the number of collection accounts between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Interestingly, we find some evidence, albeit weak, that APR information had an effect on collection accounts of mid-score individuals, decreasing the amount of such accounts. This is consistent with APR info improving delinquencies among mid-score individuals and is, of course, very important; however, the result from the collection account measure is weak and can be taken as suggestive only.

4.7. The Effect on the Number of Inquiries

Finally, we examine the change in the number of inquiries in 2014 compared with 2013. An increase in this measure indicates that the individual is seeking new credit, and this is especially interesting since the information we provided may have informed the participants about what constitutes a good offer, reducing the temptation to apply for new credit cards, and/or helping participants resist the inclination to accept just any credit offer that comes their way.

For low-score individuals we find a weak effect of information on reducing the number of inquiries, but no such effect of the text reminders. As for the mid-score and high-score individuals, we find that neither the text reminders nor the APR information had any effect on the number of inquiries (see Table 11).

Table 11: Change in Number of Inquiries

(a) Low-Score Group					(b) Middle-Score Group				
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Texts	0.744 (0.828)		0.893 (0.819)	0.896 (1.297)	Texts	-0.405 (0.935)		-0.408 (0.931)	-1.216 (1.412)
APR Info		-1.490* (0.832)	-1.578* (0.834)	-1.576 (1.200)	APR Info		-1.190 (0.933)	-1.192 (0.938)	-1.928 (1.348)
Texts * APR Info				-0.004 (1.680)	Texts * APR Info				1.435 (1.882)
Constant	-1.700*** (0.602)	-0.412 (0.644)	-0.832 (0.750)	-0.833 (0.890)	Constant	0.795 (0.669)	1.257* (0.700)	1.467* (0.851)	1.882* (1.012)
R ²	0.010	0.037	0.051	0.051	R ²	0.002	0.020	0.023	0.030
Adjusted-R ²	-2.3e-03	.026	.028	.016	Adjusted-R ²	-.01	7.9e-03	-2.5e-03	-8.0e-03
Observations	85	85	85	85	Observations	80	80	80	80
Text Joint P-value				.406	Text Joint P-value				.861

Notes: OLS regressions. Dependent variable: difference in the number of collection accounts between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: difference in the number of collection accounts between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-0.422 (0.477)		-0.429 (0.480)	-0.145 (0.686)
APR Info		0.187 (0.479)	0.202 (0.480)	0.478 (0.677)
Texts * APR Info				-0.560 (0.964)
Constant	0.279 (0.336)	-0.024 (0.341)	0.181 (0.411)	0.045 (0.473)
R ²	0.009	0.002	0.011	0.016
Adjusted-R ²	-2.6e-03	-.01	-.013	-.021
Observations	85	85	85	85
Text Joint P-value				.301

Notes: OLS regressions. Dependent variable: difference in the number of collection accounts between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

5. Conclusions

We find, in a field experiment in the United States, that text reminders have an effect on individuals' credit score and creditworthiness. However, the reminders have different effects on individuals of different backgrounds: those who needed help the most, that is, the low-score individuals indeed increased their score significantly. Those who began with mid-level scores were not affected, and the high-score individuals, who were doing quite well on their own, were negatively affected by the reminders.

We explain this effect by examining key factors that we hypothesize will be affected by the interventions and that contribute to the credit score. We find that the positive effect on low-score individuals comes from helping these individuals achieve their debt goals and reduce their rate of credit use, and some weak evidence that the intervention helps them improve their payment patterns as reflected in delinquencies. For high-score individuals, it seems that reminders may have made them slacken their financial self-discipline and increase their collection accounts.

Other than the striking finding that text reminders can have an effect on creditworthiness, this study also shows that reminders can backfire and are not a magic pill. These reminders are a tool available to use to help individuals improve, yet one has to be cautious to avoid creating unintended results.

Lastly, although we find weak evidence of the effect of APR information, such information did have a positive effect on reducing the number of credit inquiries, as hypothesized, among low-score individuals, and on reducing the number of collection accounts among the mid-score individuals.

References

Ahlin, Christian, and Robert M. Townsend. 2007. "Using Repayment Data to Test Across Models of Joint Liability Lending." *The Economic Journal* 117(517): 11–51.

Ananth, Bindu, Dean Karlan, and Sendhil Mullainathan. 2007. "Microentrepreneurs and Their Money: Three Anomalies." <http://karlan.yale.edu/p/AnomaliesDraft.v7.pdf>.

Apesteagua, Jose, Patricia Funk, and Nagore Iriberrí. 2013. "Promoting Rule Compliance in Daily-Life: Evidence from a Randomized Field Experiment in the Public Libraries of Barcelona." *European Economic Review* 64: 266–284.

Ashraf, Nava, Dean Karlan, and Wesley Yin. 2006. "Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines." *Quarterly Journal of Economics* 121 (1): 635–672.

Ashraf, Nava, Dean Karlan, and Wesley Yin. 2010. "Female Empowerment: Impact of a Commitment Savings Product in the Philippines." *World Development*, 38 (3): 333–344.

Bertrand, Marianne, Sendhil Mullainathan, and Eldar Shafir. 2004. "A Behavioral-Economics View of Poverty." *American Economic Review Papers and Proceedings* 94(2): 419–423.

Bertrand, Marianne, and Adair Morse. 2011. "Information Disclosure, Cognitive Biases, and Payday Borrowing." *Journal of Finance*, 66(6): 1865–1893.

Brune, Lasse, Xavier Giné, Jessica Goldberg, and Dean Yang. 2011. "Commitments to Save: A Field Experiment in Rural Malawi." World Bank Policy Research Working Paper No. 5748.

Bryan, Gharad, Dean Karlan, and Scott Nelson. 2010. "Commitment Devices." *Annual Review of Economics* 2 (1).

Burgess, Robin and Rohini Pande. 2005. "Can Rural Banks Reduce Poverty? Evidence from the Indian Social Banking Experiment." *American Economic Review* 95 (3): 780–795.

Cadena, Ximena, Alexandra Cristea, and Heber Delgado-Medrano. 2011. "Fighting Procrastination in the Workplace: An Experiment." NBER Working Paper No. 16944.

- Cadena, Ximena, and Antoinette Schoar. 2011. "Remembering to Pay? Reminders vs. Financial Incentives for Loan Payments." NBER Working Paper No. 17020.
- Carpenter, Jeffrey, and Tyler Williams. 2010. "Peer Monitoring and Microcredit: Field Experimental Evidence from Paraguay." Mimeo.
- Carroll, Gabriel, James Choi, David Laibson, Brigitte Madrian, and Andrew Metrick. 2009. "Optimal Defaults and Active Decisions." *Quarterly Journal of Economics* 124(4): 1639–1674.
- Dobbie, Will, and Paige Marta Skiba. 2013. "Information Asymmetries in Consumer Credit Markets: Evidence from Payday Lending." *American Economic Journal: Applied Economics* 5(4): 256–282.
- Dupas, Pascaline and Jonathan Robinson. 2013a. "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya." *American Economic Journal: Applied Economics* 5 (1): 163-192.
- Dupas, Pascaline and Jonathan Robinson. 2013b. "Why Don't the Poor Save More? Evidence from Health Savings Experiments." *American Economic Review* 103 (4): 1138–1171.
- Haisley, Emily, Romel Mostafa, and George Loewenstein. 2008. "Subjective Relative Income and Lottery Ticket Purchases." *Journal of Behavioral Decision Making* 21(3): 283–295.
- Karlan, Dean 2007. "Social Connections and Group Banking." *The Economic Journal* 117(517): 52–84.
- Karlan, Dean, Margaret McConnell, Sendhil Mullainathan, and Johnathan Zinman. 2010. "Getting on the Top of Mind: How Reminders Increase Savings." NBER Working Paper No. 16205.
- Kast, Felipe, Stephan Meier, and Dina Pomeranz. 2010. "Under-Savers Anonymous: Evidence on Self-Help Groups and Peer Pressure as a Savings Commitment Device." NBER Working Paper No. 18417.
- Madrian, Brigitte, and Dennis Shea. 2001. "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior." *Quarterly Journal of Economics* 116 (4): 1149–1187.
- Milkman, Katherine, John Beshears, James Choi, David Laibson, and Brigitte Madrian. 2011. "Using Implementation Intentions Prompts to Enhance Influenza Vaccination Rates." *Proceedings of the National Academy of Sciences*, 108 (26): 10415.
- Morduch, Jonathan. 1999. "The Microfinance Promise." *Journal of Economic Literature* 37(4): 1569–1614.

Rhine, Sherrie L. W., William H. Greene, and Maude Toussaint-Comeau. 2006. "The Importance of Check-Cashing Businesses to the Unbanked: Racial/Ethnic Differences." *Review of Economics and Statistics* 88(1): 146–157.

Stango, Victor, and Jonathan Zinman. 2011. "Limited and Varying Consumer Attention: Evidence from Shocks to the Salience of Bank Overdraft Fees." Federal Reserve Bank of Philadelphia Working Paper 11-17.

Thaler, Richard, and Shlomo Benartzi. 2004. "Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving." *Journal of Political Economy*, 112 (S1): 164–187.

Wydick, Bruc., 1999. "Can Social Cohesion Be Harnessed to Repair Market Failures? Evidence from Group Lending in Guatemala." *The Economic Journal* 109(457): 463–475.

Appendix

Survey A

A

2013 BOSTON EARNED INCOME TAX CREDIT CAMPAIGN

To improve the program, we would like to ask you some questions. The information is strictly confidential and will not be shared with any organization or its representative.

EITC Survey Number: _____ Date: _____ Volunteer Initials: _____

How many checks did you cash with a check cashing service during 2012? _____ checks (if none, write zero)

How many money orders did you purchase during 2012? _____ money orders (if none, write zero)

How many times did you take a payday loan during 2012? _____ times (if none, write zero)

A **credit score** is a number between 300 and 850 that summarizes your credit history. A higher score means a better credit history. What do you think your credit score is (Take a guess if you don't know your score)? _____

How good do you think your credit score is? Bad Fair Good Excellent

Do you have a credit card? Yes No

If yes, do you know the interest rate on your credit card with the highest balance?

Yes. It is: _____% I am not sure. I think it is: _____% No, I don't know.

What is your **gross monthly income** (income before tax and other deductions)? \$ _____

Is your paycheck usually for the same amount, or does the amount change from paycheck to paycheck?

Usually the same Changes from paycheck to paycheck

In addition to possible federal income taxes, all workers in the United States pay Social Security and Medicare taxes on their earnings. These taxes, also known as payroll taxes, are automatically withheld from a worker's paycheck.

As far as you know, were there any changes in the payroll tax rate applied to your earnings in 2013 compared to 2012? (Only think about changes in Social Security and Medicare taxes, not other taxes)

Yes, I noticed this tax was higher Yes, I noticed this tax was lower No, I did not notice any change in this tax

Note: if you are self-employed, you pay payroll taxes quarterly.

If you noticed any change in the payroll taxes, by how much did it change your earnings per month?

It increased by \$ _____ It decreased by \$ _____ I am not sure I did not notice any change

Imagine that you win a prize in a lottery, and you can select the prize from the following two options.

Which one would you choose?

a. \$50 **today** b. \$55, **but in 1 month**

What would you do if instead you have to select the prize from the following two options. What would you choose?

a. \$50 **today** b. \$65, **but in 1 month**

What would you do if instead you have to select the prize from the following two options. What would you choose?

a. \$50 **today** b. \$75, **but in 1 month**

In general, are you a person who is fully prepared to take risks or do you try to avoid taking risks?

Please answer on the scale below from 1 (unwilling to take risks) to 7 (fully prepared to take risks).

Unwilling to take risks ① ② ③ ④ ⑤ ⑥ ⑦ Fully prepared to take risks

When making decisions about borrowing and saving, some people search for the very best terms while others don't. Where would your family be on the scale from 1 (almost no searching) to 10 (a great deal of searching)?

Almost no searching ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ A great deal of searching

On a scale from 1 to 7, how much do you agree with the statement "I am someone who always follows through with their plans"?

Strongly Disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly Agree

On a scale from 1 to 7, how good are you in calculating a 15% tip?

Not at all good ① ② ③ ④ ⑤ ⑥ ⑦ Extremely good

Imagine that you win a prize in a lottery, but the prize will be paid with a delay. You can select the prize from the following two options. Which one would you choose?

a. \$50 in 6 months b. \$55, but in 7 months

What would you do if instead you have to select the prize from the following two options. What would you choose?

a. \$50 in 6 months b. \$65, but in 7 months

What would you do if instead you have to select the prize from the following two options. What would you choose?

a. \$50 in 6 months b. \$75, but in 7 months

Effective January 1, 2013, payroll taxes increased by 2% (from 4.2% to 6.2%). This increase affects all taxpayers in the United States (if you are self-employed, this changes the taxes you pay quarterly). The tax increase means that for the same pay from your employer, the amount you take home after taxes is lower.

What is the biggest change you made or plan to make to adjust to the reduction in your take-home pay due to the tax increase?

Reduce spending Reduce savings Borrow more/Use more credit Other: _____

If you plan to make other changes in addition to the one above, what is the next biggest change you made or plan to make to adjust to the reduction in your take-home pay due to the tax increase?

Reduce spending Reduce savings Borrow more/Use more credit Other: _____ No change

If you are planning to make more than one change due to the tax increase, how would you describe the combination of changes you will make to adjust to lower take-home pay?

____% of the adjustment is by **reducing monthly spending**,

____% of the adjustment is by **reducing monthly savings**,

____% of the adjustment is by **borrowing more** (which may include increasing your credit card balance)

Do you think the payroll tax will remain at its new level?

Yes, for a very long time.

Not for long. I think it will probably be reduced later this year or next year.

Survey B

B

2013 BOSTON EARNED INCOME TAX CREDIT CAMPAIGN

To improve the program, we would like to ask you some questions. The information is strictly confidential and will not be shared with any organization or its representative.

EITC Survey Number: _____ Date: _____ Volunteer Initials: _____

Below is a list of actions that can increase your credit score.
Which of these actions is your top priority to achieve in the next year (12 months)?

Pay off or reduce balance
What balance would you like to pay off/reduce? _____
What is the current balance? \$ _____ What do you plan to reduce the balance to? \$ _____

Renegotiate interest rates on an account
On what type of account? _____ What interest rate would you like to pay? _____%

Take a small loan
How much do you want to borrow? \$ _____ What will you use the money for? _____

Pay collection amount **Lower balances on all cards to below 30%**

Take out a secured loan **Get a secured credit card**

What kinds of debt do you currently have?
How do you think the different kinds of debt that you have will change during the next 12 months?

Debt Type	Current Balance	12 months from now, I expect it to:
Credit and Retail Debt	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Auto Loans	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Student Loans	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Mortgage	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Medical Debt	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Payday Loan	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Debt in Collection	\$ _____	Increase by \$ _____ or Decrease by \$ _____
Other (specify _____)	\$ _____	Increase by \$ _____ or Decrease by \$ _____

How much do you expect to earn (after tax) in an average month during 2013? \$ _____

How much would you like to save in an average month during 2013? \$ _____

How much do you agree with the following statements?
Please answer on the scales below from 1 (Strongly Disagree) to 7 (Strongly Agree)

What happens to me is my own doing.	Strongly Disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly Agree
Many times I feel that I have little influence over the things that happen to me.	Strongly Disagree ① ② ③ ④ ⑤ ⑥ ⑦ Strongly Agree

Survey C

C

2013 BOSTON EARNED INCOME TAX CREDIT CAMPAIGN

To improve the program, we would like to ask you some questions. The information is strictly confidential and will not be shared with any organization or its representative.

EITC Survey Number: _____ Date: _____ Volunteer Initials: _____

Are you getting a refund this year? Yes No

If you are getting a refund (answered YES above):
How much is your total refund (including federal and state refunds)? \$ _____


How are you going to spend your refund?
If you have already put some of your refund in a savings bond, please include this in the savings amount below.

<input type="checkbox"/> Savings: \$ _____	<input type="checkbox"/> Paying bills: \$ _____
<input type="checkbox"/> Buying stuff (including groceries): \$ _____	<input type="checkbox"/> Paying debt (including old taxes): \$ _____
<input type="checkbox"/> Paying for school/child expenses: \$ _____	<input type="checkbox"/> Other (Specify _____): \$ _____
<input type="checkbox"/> Vacation: \$ _____	

EITC Survey

PLEASE DO NOT WRITE IN THIS AREA


00205



Boston EITC
Earned Income Tax Credit
CAMPAIGN
THOMAS M. MISIINO, MAYOR

2013 BOSTON EARNED INCOME TAX CREDIT COALITION TAXPAYER SURVEY

This survey helps the Boston Earned Income Tax Credit Coalition provide you- the taxpayer -with better services and expanded resources. We will never share your personal information with anyone without your permission.



**FEDERAL RESERVE
BANK OF BOSTON™**

• USE A NO. 2 PENCIL ONLY

- Make solid marks that fill the oval completely
- Erase cleanly any marks you wish to change

GENDER / <input type="radio"/> Female <input checked="" type="radio"/> Male <input type="radio"/> Transgendered	ARE YOU A VETERAN? / <input type="radio"/> Yes <input checked="" type="radio"/> No
HOW WOULD YOU DESCRIBE YOUR RACE OR ETHNICITY? (please mark all that apply) <input type="radio"/> Asian/Pacific Islander / <input type="radio"/> Black/African American / <input type="radio"/> Hispanic/Latino / <input type="radio"/> Native American / <input type="radio"/> White / <input type="radio"/> Caribbean / <input type="radio"/> African / <input type="radio"/> Other	
DO YOU OR A MEMBER OF YOUR HOUSEHOLD CONSIDER YOURSELF A PERSON WITH A DISABILITY? <input type="radio"/> Yes <input checked="" type="radio"/> No <i>If yes, what is the nature of this disability? (please mark all that apply)</i> <input type="radio"/> Blindness or other visual impairment / <input type="radio"/> Neurological Disability / <input type="radio"/> Psychiatric and/or Emotional Disability / <input type="radio"/> Other <input type="radio"/> Deafness or other Hearing Impairment / <input type="radio"/> Learning Disability / <input type="radio"/> Developmental Disability <input type="radio"/> Other Physical Disability / <input type="radio"/> Acquired Disability / <input type="radio"/> Chronic Medical Disability	
WHAT IS THE HIGHEST LEVEL OF EDUCATION YOU HAVE COMPLETED? (please mark one) <input type="radio"/> 0-8 grades / <input type="radio"/> 3 High School grad or GED / <input type="radio"/> 5 Associate's Degree / <input type="radio"/> 7 Some graduate school <input checked="" type="radio"/> 2 9-12 grades (no diploma) / <input type="radio"/> 4 Some college / <input type="radio"/> 6 Bachelor's Degree / <input checked="" type="radio"/> 8 Graduate degree	
HOW FLUENT ARE YOU IN ENGLISH? Please rate from 0 (beginner) to 5 (native speaker): beginner <input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input checked="" type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 native	
WHAT LANGUAGE DO YOU PRIMARILY SPEAK AT HOME? (please mark one) <input type="radio"/> English / <input type="radio"/> 3 Albanian / <input type="radio"/> 5 Arabic / <input type="radio"/> 8 ASL / <input type="radio"/> 9 Cantonese / <input type="radio"/> 11 Cape Verdean Creole / <input type="radio"/> 13 French / <input type="radio"/> 15 Haitian Creole / <input type="radio"/> 7 Other <input checked="" type="radio"/> 2 Mandarin / <input type="radio"/> 4 Portuguese / <input type="radio"/> 6 Russian / <input type="radio"/> 8 Serbian / <input type="radio"/> 10 Somali / <input type="radio"/> 12 Spanish / <input type="radio"/> 14 Vietnamese / <input type="radio"/> 6 Khmer	
LAST YEAR, WHAT BENEFITS DID YOU OR YOUR FAMILY RECEIVE? (please mark all that apply) <input type="radio"/> WIC / <input type="radio"/> SNAP/food stamps / <input type="radio"/> TAFDC / <input type="radio"/> Child Care Vouchers / <input type="radio"/> SSI / <input type="radio"/> SSDI	
DO YOU HAVE INTERNET ACCESS AT HOME? / <input type="radio"/> Yes <input checked="" type="radio"/> No	
ARE YOU REGISTERED TO VOTE? / <input type="radio"/> Yes <input checked="" type="radio"/> No	
HOW MANY MONTHS WERE YOU EMPLOYED LAST YEAR? Full-time: <input type="radio"/> 0 <input checked="" type="radio"/> 1-3 <input type="radio"/> 3-6 <input type="radio"/> 4-6 <input type="radio"/> 7-9 <input type="radio"/> 10-12 Part-time: <input type="radio"/> 0 <input checked="" type="radio"/> 1-3 <input type="radio"/> 3-6 <input type="radio"/> 4-6 <input type="radio"/> 7-9 <input type="radio"/> 10-12	
DURING 2012, DID YOU DO ANY OF THE FOLLOWING? (please mark all that apply) <input type="radio"/> Open a savings account / <input type="radio"/> Open a checking account / <input type="radio"/> Take a loan from a payday lender / <input type="radio"/> Experience a financial crisis <input type="radio"/> Lose a job / <input type="radio"/> Take out a loan from a bank / <input type="radio"/> Attend a credit counseling session / <input type="radio"/> Send/receive money (Western Union, etc.) <input type="radio"/> Use a Check Casher / <input type="radio"/> Purchase a money order / <input type="radio"/> Purchase a US Savings Bond / <input type="radio"/> Use Direct Deposit (paycheck, gov't check, etc.) <input type="radio"/> Take a class on personal finances / <input type="radio"/> Use internet banking or pay a bill over the internet / <input type="radio"/> Open a retirement account	
WHICH OF THE FOLLOWING BEST DESCRIBES YOUR HOUSING STATUS? (please mark one) <input type="radio"/> Rent, no subsidy / <input type="radio"/> 3 Rent, public housing / <input type="radio"/> 5 Living with family or friends / <input type="radio"/> 7 Homeless, in shelter / <input type="radio"/> 9 Own a home with a mortgage <input checked="" type="radio"/> 2 Rent, Section 8 / <input type="radio"/> 4 Rent, other subsidy / <input type="radio"/> 6 Assisted Living Facility / <input type="radio"/> 8 Homeless, no shelter / <input type="radio"/> 10 Own a home with no mortgage	
HAVE YOU BEEN THREATENED WITH EVICTION OR FORECLOSURE IN THE LAST YEAR? / <input type="radio"/> Yes <input checked="" type="radio"/> No	
DID YOU LOSE YOUR HOUSING THROUGH EVICTION OR FORECLOSURE IN THE LAST YEAR? (please mark all that apply) / <input type="radio"/> Yes, foreclosure / <input type="radio"/> Yes, eviction / <input type="radio"/> No	
DID YOU AND YOUR HOUSEHOLD HAVE HEALTH INSURANCE FOR ALL OF 2012? / <input type="radio"/> Yes <input checked="" type="radio"/> No	
Do you find that the cost of health insurance and co-payments are affordable? Please rate from 0 (Unaffordable) to 5 (Affordable): Unaffordable <input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 Affordable	
Not including medical insurance, how much did you pay out of pocket for medical expenses (such as payment or co-pays for physician or hospital visits, prescriptions, dental care, etc.) in the last year? <input checked="" type="radio"/> 4 \$1,000 to under \$3,000 / <input type="radio"/> 5 \$3,000 to under \$5,000 / <input type="radio"/> 1 Less than \$200 / <input type="radio"/> 2 \$200 to under \$500 / <input type="radio"/> 3 \$500 to under \$1,000 / <input type="radio"/> 6 \$5,000 or more / <input type="radio"/> 7 DID NOT USE MEDICAL CARE	
Do you or anyone in your household owe money because of medical expenses/medical debt? / <input type="radio"/> Yes <input checked="" type="radio"/> No	
If yes, how much is this medical debt? / <input type="radio"/> 1 \$1-\$100 / <input checked="" type="radio"/> 2 \$101-\$250 / <input type="radio"/> 3 \$251-\$500 / <input type="radio"/> 4 \$501-\$1,000 / <input type="radio"/> 5 \$1,001-\$5,000 / <input type="radio"/> 6 Greater than \$5,000	
If yes, if we owe money to the following: (please mark all that apply) <input type="radio"/> Hospital / <input type="radio"/> Doctor / <input type="radio"/> Community Health Center / <input type="radio"/> Credit card (if we paid the medical bill by credit card but have not paid card off fully yet)	
In the past year, were you offered a credit card by an agency collecting on a medical expense? / <input type="radio"/> Yes <input checked="" type="radio"/> No	

DID YOU FILE TAXES LAST YEAR? Yes No (If yes, complete this box. If no, skip to next section.)

Did you receive a refund? Yes No Don't remember

If so, how much was your refund?

0 \$1-\$100 \$101-\$500 \$501-\$1,000
 \$1001-\$2,000 \$2001-\$3,000 \$3001-\$4,000 More than \$5,000

If so, what did you do with it? (please mark all that apply)

Buy groceries Pay medical bills Pay for school
 Pay child expenses Save for a home Pay old taxes
 Buy a home Save for a car Go shopping
 Buy a car Pay back debts Save for school
 Save for emergencies Go on vacation
 Pay bills Home improvement

Do you know what the Earned Income Tax Credit is?

Yes No Unsure

Did you get the Earned Income Tax Credit in your refund?

Yes No Don't remember

How much of last year's refund did you put into savings?

0 \$1-\$100 \$101-\$500 \$501-\$1,000 More than \$1,000

If you saved part of your refund, where did you keep it?

Savings Account Checking Account Christmas Club CD
 Kept it at home US Savings Bond College Fund Investment

Where did you cash your check? (mark one)

Direct Deposit Bank Check Casher
 Store (like Stop & Shop) Employer Other

Who prepared your return? (mark one)

I did it myself
 A friend or relative did it for free
 I came to this free assistance site
 I went to a different free assistance site
 I went to a paid preparer (like H.R. Block® or an accountant)

If you paid for tax preparation, did you get an instant refund?

Yes No Don't remember

If you paid for tax preparation, how much was the fee?

Less than \$50 More than \$100
 \$51-\$100 Don't remember

HOW MUCH OF THIS YEAR'S REFUND WILL YOU PUT INTO SAVINGS?

0 \$1-\$100 \$101-\$500 \$501-\$1,000
 More than \$1,000 Unsure

DO YOU HAVE A BANK ACCOUNT?

Checking & savings Just checking Just savings No, but I am interested in one No, not interested

If you have bank account(s), with whom do you bank? (please mark all that apply)

Bank of America Citibank Citizens City of Boston Credit Union East Boston Savings Eastern TD One United
 Mount Washington Sovereign Cathay Mass State Employees Credit Union Flenes Federal Credit Union ING Other

If yes, do you have a debit card that you can use to make transactions? Yes No

If yes, did you pay an overdraft fee in the past 12 months? Yes, once Yes, more than once No

If you have bank account(s), how much money do you regularly keep in it (them) all together?

0 \$1-\$100 \$101-\$500 \$501-\$1,000 More than \$1,000

How much of your paycheck do you regularly put into savings?

0 Less than \$50 \$100-200 \$200-500 More than \$500

If you do not have bank account(s), why not? (please mark all that apply)

Overdraft fees Other fees I don't trust them Goes against my religious beliefs I don't think I can get an account
 They don't speak my language Locations or hours are not good for me Isn't really worth it Other

HOW MANY PEOPLE DO YOU KNOW WHO WOULD LET YOU BORROW MORE THAN \$100 IF YOU ASKED?

0 Less than 3 3-5 More than 5

IN 2012, DID YOU LOAN ANYONE MORE THAN \$100?

Yes No Unsure

WHAT IS KEEPING YOU FROM ATTENDING COLLEGE OR VOCATIONAL SCHOOL?

(please mark all that apply)

Not enough time Not enough money Not sure what to study
 Not enough education/skills I don't want to go

HOW OFTEN DO YOU USE THE FOLLOWING PAYMENT METHODS TO MAKE PURCHASES AT STORES:

Cash: Don't use Once a week or less 2-4 times per week 5-7 times per week 8 or more times per week
Check: Don't use Once a week or less 2-4 times per week 5-7 times per week 8 or more times per week
Debit Card: Don't use Once a week or less 2-4 times per week 5-7 times per week 8 or more times per week
Credit Card: Don't use Once a week or less 2-4 times per week 5-7 times per week 8 or more times per week
Stored Value Card: Don't use Once a week or less 2-4 times per week 5-7 times per week 8 or more times per week

DO YOU KNOW WHAT A CREDIT SCORE IS?

No, I don't know Yes, I know but it is not important for me Yes, I know and it is important for me

DO YOU HAVE ONE OR MORE CREDIT CARDS?

Yes, one card Yes, more than one card No, but I want a credit card No, I don't want a card

If yes, how much do you usually pay each month?

The full amount of the bill Between the full amount and the minimum payment The minimum payment Less than the minimum payment

If yes, what is your current total outstanding balance on all cards:

Less than \$1,000 \$1,000-\$5,000 \$5,000-\$10,000 Greater than \$10,000

Do you know the interest rate of your credit card with the highest balance? Unsure Yes, I know No, I don't know

HOW OFTEN DO YOU WORRY ABOUT HAVING ENOUGH MONEY TO PAY YOUR MONTHLY BILLS?

Never Once in a while During certain times of the year More than I would like All the time and it stresses me out

WOULD YOU LIKE HELP WITH ANY OF THE FOLLOWING? (please mark all that apply)

Emergency/Short Term Loans Small Business Loans Low Cost Prepaid Care's Budgeting help Continuing Education
 Foreclosure Help or Prevention Credit Advising Helping me work with my bank Debt Management Transitional Jobs

Table A1: Percent Change in Credit Scores

(a) Low-Score Group

	(1)	(2)	(3)	(4)
Texts	0.045** (0.018)		0.046** (0.018)	0.031 (0.029)
APR Info		0.002 (0.019)	-0.005 (0.019)	-0.017 (0.026)
Texts * APR Info				0.024 (0.037)
Constant	0.013 (0.013)	0.036** (0.015)	0.016 (0.016)	0.022 (0.019)
R ²	0.079	0.000	0.080	0.085
Adjusted-R ²	.066	-.013	.055	.047
Observations	78	78	78	78
Text Joint P-value				.02

Notes: OLS regressions. Dependent variable: percent change in credit score between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(b) Middle-Score Group

	(1)	(2)	(3)	(4)
Texts	-0.003 (0.020)		-0.002 (0.020)	-0.018 (0.032)
APR Info		0.019 (0.021)	0.019 (0.021)	0.005 (0.030)
Texts * APR Info				0.028 (0.042)
Constant	-0.008 (0.014)	-0.021 (0.016)	-0.020 (0.020)	-0.011 (0.024)
R ²	0.000	0.011	0.011	0.017
Adjusted-R ²	-.013	-1.7e-03	-.015	-.023
Observations	78	78	78	78
Text Joint P-value				.726

Notes: OLS regressions. Dependent variable: percent change in credit score between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-0.025* (0.014)		-0.025* (0.014)	-0.014 (0.019)
APR Info		-0.013 (0.014)	-0.013 (0.014)	-0.002 (0.019)
Texts * APR Info				-0.023 (0.027)
Constant	-0.003 (0.009)	-0.009 (0.010)	0.003 (0.012)	-0.002 (0.013)
R ²	0.037	0.010	0.047	0.054
Adjusted-R ²	.026	-9.4e-04	.025	.022
Observations	91	91	91	91
Text Joint P-value				.062

Notes: OLS regressions. Dependent variable: percent change in credit score between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Table A2: Probit Regression, Improving Credit Score

(a) Low-Score Group					(b) Middle-Score Group				
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Texts	0.620** (0.306) [0.210**]		0.586* (0.309) [0.199*]	0.663 (0.490) [0.224]	Texts	0.121 (0.286) [0.047]		0.121 (0.287) [0.047]	0.043 (0.456) [0.017]
APR Info		0.334 (0.305) [0.117]	0.256 (0.313) [0.088]	0.312 (0.419) [0.108]	APR Info		-0.016 (0.292) [-0.006]	-0.008 (0.293) [-0.003]	-0.075 (0.423) [-0.029]
Texts * APR Info				-0.127 (0.632) [-0.044]	Texts * APR Info				0.128 (0.586) [0.050]
Constant	0.239 (0.208)	0.341 (0.234)	0.103 (0.267)	0.074 (0.304)	Constant	0.132 (0.204)	0.204 (0.227)	0.138 (0.275)	0.180 (0.337)
Pseudo-R ²	0.044	0.013	0.051	0.052	Pseudo-R ²	0.002	0.000	0.002	0.002
Observations	78	78	78	78	Observations	78	78	78	78
Text Joint P-value				.18	Text Joint P-value				.642

Notes: Probit regressions. Dependent variable: dummy variable indicating an improvement in credit score between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. Marginal effects are reported in square brackets below standard errors. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: Probit regressions. Dependent variable: dummy variable indicating an improvement in credit score between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. Marginal effects are reported in square brackets below standard errors. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-0.094 (0.264) [-0.037]		-0.094 (0.264) [-0.037]	0.045 (0.375) [0.018]
APR Info		-0.026 (0.263) [-0.010]	-0.025 (0.263) [-0.010]	0.105 (0.362) [0.042]
Texts * APR Info				-0.275 (0.528) [-0.108]
Constant	-0.052 (0.181)	-0.084 (0.187)	-0.040 (0.224)	-0.105 (0.256)
Pseudo-R ²	0.001	0.000	0.001	0.003
Observations	91	91	91	91
Text Joint P-value				.536

Notes: Probit regressions. Dependent variable: dummy variable indicating an improvement in credit score between the first and second credit report pulls. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. Marginal effects are reported in square brackets below standard errors. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Table A3: Percent of Debt Goal Achieved

(a) Low-Score Group					(b) Middle-Score Group				
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Texts	1.242 (0.951)		1.217 (0.962)	1.492 (1.522)	Texts	3.250 (2.020)		3.224 (2.041)	2.135 (3.124)
APR Info		0.421 (0.981)	0.323 (0.979)	0.560 (1.412)	APR Info		-0.601 (2.073)	-0.370 (2.053)	-1.407 (3.049)
Texts * APR Info				-0.464 (1.976)	Texts * APR Info				1.918 (4.147)
Constant	0.209 (0.690)	0.611 (0.758)	0.029 (0.883)	-0.102 (1.053)	Constant	-2.791* (1.472)	-0.726 (1.554)	-2.569 (1.929)	-1.946 (2.362)
R ²	0.030	0.003	0.032	0.033	R ²	0.040	0.001	0.041	0.044
Adjusted-R ²	.012	-.015	-3.8e-03	-.022	Adjusted-R ²	.025	-.015	9.1e-03	-3.8e-03
Observations	57	57	57	57	Observations	64	64	64	64
Text Joint P-value				.418	Text Joint P-value				.142

Notes: OLS regressions. Dependent variable: percent difference between realized change in balances and expected change in balances. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: percent difference between realized change in balances and expected change in balances. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-8.286 (5.850)		-8.094 (5.794)	0.692 (8.488)
APR Info		-8.788 (5.838)	-8.607 (5.794)	-1.168 (7.811)
Texts * APR Info				-16.225 (11.535)
Constant	-1.303 (3.969)	-0.374 (4.289)	3.254 (4.986)	-0.684 (5.683)
R ²	0.032	0.036	0.066	0.096
Adjusted-R ²	.016	.02	.035	.051
Observations	63	63	63	63
Text Joint P-value				.051

Notes: OLS regressions. Dependent variable: percent difference between realized change in balances and expected change in balances. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Table A4: Improvement in High Credit Maximum Payment Pattern Delinquency

	(a) Low-Score Group				(b) Middle-Score Group			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Texts	0.633 (0.748)		0.719 (0.750)	0.529 (1.140)	1.750*** (0.655)		1.743** (0.658)	2.153*** (0.765)
APR Info		-0.589 (0.572)	-0.646 (0.575)	-0.776 (0.824)		-0.190 (0.315)	-0.174 (0.302)	0.153 (0.434)
Texts * APR Info				0.260 (1.163)				-0.635 (0.604)
Always Repaid	-1.167 (0.789)	-1.709** (0.693)	-1.328 (0.800)	-1.361 (0.821)	0.621 (0.544)	-0.377 (0.414)	0.619 (0.547)	0.622 (0.546)
Text * Always Repaid	-0.249 (1.076)	0.411 (0.771)	-0.306 (1.074)	-0.229 (1.138)	-1.852** (0.731)	-0.114 (0.341)	-1.856** (0.735)	-1.870** (0.734)
Constant	0.167 (0.558)	0.955* (0.563)	0.597 (0.676)	0.684 (0.786)	-1.000** (0.495)	0.122 (0.396)	-0.884 (0.537)	-1.102* (0.575)
R ²	0.127	0.134	0.150	0.151	0.116	0.025	0.120	0.135
Adjusted-R ²	.073	.079	.078	.059	.076	-.019	.066	.068
Observations	52	52	52	52	70	70	70	70
Text Joint P-value				.34				.032

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls; only considering the account(s) with the maximum high credit. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls; only considering the account(s) with the maximum high credit. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-2.500*** (0.913)		-2.568*** (0.919)	-2.071** (0.930)
APR Info		-0.094 (0.170)	-0.135 (0.164)	0.182 (0.221)
Texts * APR Info				-0.677** (0.322)
Always Repaid	-1.091 (0.754)	0.560 (0.465)	-1.159 (0.760)	-1.000 (0.748)
Text * Always Repaid	2.456*** (0.928)	-0.040 (0.174)	2.529*** (0.934)	2.385** (0.917)
Constant	1.000 (0.745)	-0.604 (0.463)	1.135 (0.765)	0.818 (0.764)
R ²	0.103	0.023	0.111	0.158
Adjusted-R ²	.069	-.014	.065	.104
Observations	84	84	84	84
Text Joint P-value				3.2e-03

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls; only considering the account(s) with the maximum high credit. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Table A5: Improvement in Weighted Maximum Payment Pattern Delinquency

(a) Low-Score Group					(b) Middle-Score Group				
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Texts	0.633 (0.748)		0.719 (0.750)	0.529 (1.140)	Texts	1.750** (0.723)		1.757** (0.728)	2.174** (0.849)
APR Info		-0.589 (0.572)	-0.646 (0.575)	-0.776 (0.824)	APR Info		0.144 (0.350)	0.160 (0.338)	0.485 (0.480)
Texts * APR Info				0.260 (1.163)	Texts * APR Info				-0.646 (0.676)
Always Repaid	-1.167 (0.789)	-1.709** (0.693)	-1.328 (0.800)	-1.361 (0.821)	Always Repaid	0.483 (0.601)	-0.519 (0.455)	0.485 (0.604)	0.488 (0.605)
Text * Always Repaid	-0.249 (1.076)	0.411 (0.771)	-0.306 (1.074)	-0.229 (1.138)	Text * Always Repaid	-1.887** (0.809)	-0.131 (0.377)	-1.887** (0.814)	-1.894** (0.814)
Constant	0.167 (0.558)	0.955* (0.563)	0.597 (0.676)	0.684 (0.786)	Constant	-1.000* (0.547)	-0.092 (0.436)	-1.106* (0.594)	-1.324** (0.637)
R ²	0.127	0.134	0.150	0.151	R ²	0.111	0.033	0.114	0.127
Adjusted-R ²	.073	.079	.078	.059	Adjusted-R ²	.07	-.011	.059	.057
Observations	52	52	52	52	Observations	69	69	69	69
Text Joint P-value				.34	Text Joint P-value				.051

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls; only considering the account(s) with the highest weighted average of payment history and high credit. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls; only considering the account(s) with the highest weighted average of payment history and high credit. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

(c) High-Score Group

	(1)	(2)	(3)	(4)
Texts	-2.500*** (0.913)		-2.568*** (0.919)	-2.071** (0.930)
APR Info		-0.094 (0.170)	-0.135 (0.164)	0.182 (0.221)
Texts * APR Info				-0.677** (0.322)
Always Repaid	-1.091 (0.754)	0.560 (0.465)	-1.159 (0.760)	-1.000 (0.748)
Text * Always Repaid	2.456*** (0.928)	-0.040 (0.174)	2.529*** (0.934)	2.385** (0.917)
Constant	1.000 (0.745)	-0.604 (0.463)	1.135 (0.765)	0.818 (0.764)
R ²	0.103	0.023	0.111	0.158
Adjusted-R ²	.069	-.014	.065	.104
Observations	84	84	84	84
Text Joint P-value				3.2e-03

Notes: OLS regressions. Dependent variable: difference in maximum months delinquent between the first and second credit report pulls; only considering the account(s) with the highest weighted average of payment history and high credit. *Texts* is a dummy variable indicating whether an individual received monthly text message reminders. *APR Info* is a dummy that indicates whether an individual received APR information. *Always Repaid* is a dummy variable indicating whether and individual always paid their bills on time. *Text Joint P-value* shows the p-value on an F test of the null hypothesis that the main effect of *Texts* and its interaction effect with *APR Info* are equal to zero. Standard errors are reported in parentheses. * indicates significance at the 10-percent level; ** indicates significance at the 5-percent level; *** indicates significance at the 1-percent level.

