INCREASING THE SALIENCE OF PROPERTY TAX OBLIGATIONS: A FIELD EXPERIMENT WITH OLDER ADULTS WITH REVERSE MORTGAGES *

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Abstract

This study is based on a field experiment designed to increase the salience of property tax and insurance payments for reverse mortgage borrowers. Homeowners in the treatment group were mailed reminder letters and showed lower rates of missing subsequent payments based on hazard estimates and lower rates of being in severe default by the end of the study. Periodic reminder letters may help increase the rate of compliance among older homeowners for making property tax payments, especially those who previously had payments managed through an escrow account.

JEL Classification Codes: D1, D14, J14, D91
Keywords: Salience, Tax Collection, Tax Default, Property Tax

*This research was supported by The John D. and Catherine T. MacArthur Foundation ‘How Housing Matters’ program as well as the US Department of Housing and Urban Development. The substance and findings of the work are dedicated to the public. The authors are solely responsible for the accuracy of the statements and interpretations contained in this research. Such interpretations do not necessarily reflect the view of the Government.
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1 Introduction

Property taxes are a critical source of revenue for state and local governments. While compliance with tax bills is generally high, default is costly for taxpayers and local governments (Miller, Nikaj et al., 2016). The size and infrequency of payments contributes to the risk of default (Anderson and Dokko, 2016; Waldhart and Reschovsky, 2012; Wong, 2020). This large, lumpy expenditure may be particularly difficult for older homeowners to manage—with relatively fixed monthly incomes, a lower likelihood of having a mortgage and escrow account, potentially rising property values, and limited ability to offset expenses through increased labor supply (Miller, Nikaj and Lee, 2019; Shan, 2010). Indeed, the majority of U.S. states provide property tax exemptions or deferral programs for older adults because of concerns about the financial burden of paying property taxes for this vulnerable group (Lincoln Institute of Land Policy, 2014).

Property tax default is especially a problem among older homeowners with a federally-insured reverse mortgage. Reverse mortgages allow adults ages 62 and older to borrow against the equity in their homes without an ongoing monthly mortgage payment. Reverse mortgage borrowers are required by the lender and federal regulations to pay their property taxes and maintain homeowner’s insurance. The failure to stay in good standing on these obligations can trigger the loan to be in default, even though the loan itself does not require regular payments. If the borrower fails to repay past due property tax or insurance bills, the property can be subject to foreclosure, and the owners can lose their home (US Department of Housing and Urban Development, 2011).

Defaults on reverse mortgages impose significant costs on homeowners, lenders, the federal government, and local tax jurisdictions (Begley et al., 2020). Aside from the direct
costs of default and foreclosure, there are substantial political and reputation costs to fore-
closing on an elderly homeowner for past due property taxes. High rates of property tax
and insurance defaults led to two of the largest banks exiting the reverse mortgage market

As of 2012, more than one-in-ten federally-insured reverse mortgage loan was in de-
fault, prompting federal policy changes (Moulton, Haurin and Shi 2015). After these
policy changes, the rate of default on federally-insured reverse mortgage loans declined
by nearly two-thirds. While lowering the rate of default, these policies imposed a cost on
homeowners by restricting access to reverse mortgages and reducing the amount of eq-
uity that can be borrowed (Lambie-Hanson and Moulton 2020). If default is due in part
to behavioral limitations to remember these expenses, simple reminders about payment
obligations may help offset default risk without restricting access to home equity. This
field experiment tests if a set of five simple one-page mailed letters can serve as a low cost
intervention to reduce default. 1

Homeowners may rationally decide it is better to default on property taxes when their
expected value of non-payment exceeds that of making a payment (Alm et al. 2014). Homeowners face considerable uncertainty regarding the costs of property tax non-payment,
however, including the severity of penalties (Chirico et al. 2019), and the likelihood of
enforcement activity—including foreclosure (Miller, Nikaj et al. 2016). This uncertainty
is exacerbated in the reverse mortgage context, where policy enforcement of foreclosure
tied to property tax and insurance default depends on private loan servicers. These loan
servicers have some ability to manage payment advances on behalf of borrowers, either

1This study was conducted prior to more recent policy changes, so these borrowers have broader access
to their home equity and in some ways presents an alternative to the more recent restrictions on borrowing.
adding to the loan balance or setting up repayment plans. However, default prevention and loss mitigation strategies are not required by policy and are implemented at the lender’s discretion (US Department of Housing and Urban Development, 2011, 2016).

An added complication for new reverse mortgage borrowers is that managing periodic lump sum tax and insurance payments may be novel. More than half of reverse mortgage borrowers use the loan proceeds to pay off a traditional forward mortgage, and the majority of these borrowers report having tax and insurance payments previously escrowed by their lenders (Moulton, Loibl and Haurin, 2017). These reverse mortgage borrowers may simply not be in the habit of making these kinds of payments on their own. Prior research indicates that homeowners who are accustomed to escrows are less able to accurately recall the amount of their property tax obligations (Cabral and Hoxby, 2012). This population of homeowners with a federally-insured reverse mortgage is also particularly financially constrained, since they tend to have low incomes and low levels of liquid savings (Moulton, Loibl and Haurin, 2017).

In this field experiment, approximately 1,500 homeowners with a federally insured reverse mortgage were randomly assigned to a treatment group or control group. Beginning in 2015, the treatment group received a series of five quarterly letters reminding them of their responsibilities to pay their property taxes and homeowner’s insurance, as well as the consequences of having their loan called due and payable for non-payment. The randomly assigned control group received no such letters, only the normal course of business communications from their lenders, local taxing authorities, and property insurance agencies. The treatment group also received these normal communications.

Borrowers in the treatment group showed a 35 to 40 percent lower hazard of bor-
rower non-payment of property taxes or insurance. This effect was maintained beyond the next period that these payments were likely due. This suggests that these reminder letters helped borrowers develop persistent awareness of their payment obligations, and not just the next payment due. Further, by the end of the study period (October 2017), those assigned to the treatment group were 1.2 percentage points less likely to be in severe default (default balance of $2,000 or more with no repayment), a key threshold that makes foreclosure proceedings likely. The reminder treatment did not simply shift the timing of payments that would otherwise eventually occur, but rather appears to have moved borrowers to be better prepared to make periodic lump sum payments.

We also estimate treatment effects separately for homeowners with and without a forward mortgage prior to originating a reverse mortgage. About 40 percent of the homeowners in our sample paid off a forward mortgage with the proceeds of the reverse mortgage. Our survey data indicates that about 65 percent of these homeowners had an escrow for property taxes and insurance prior to taking out the reverse mortgage. Escrows help resolve liquidity constraints for homeowners by spreading the otherwise lumpy expenditures into smaller regular expenses, thereby reducing the likelihood of default (Waldhart and Reschovsky, 2012). However, the indirect, fragmented, and automated nature of escrows reduces the salience of the payments to homeowners. We find that the effects of reminders on the hazard of missing a payment are driven by homeowners with a forward mortgage prior to taking out a reverse mortgage.

Most reverse mortgages are structured as a line of credit, similar to a home equity line of credit (HELOC), where the borrower draws some portion of the funds at closing and leaves the remainder on the line of credit. Money remaining on a line of credit can be used
by the lender to pay for missed property tax and insurance payments, thereby preventing default. In September 2013, the US Department of Housing and Urban Development (HUD) issued a policy restricting the amount of equity withdrawn in the first year to 60 percent of the maximum line of credit unless additional funds were needed to pay off a forward mortgage (Lambie-Hanson and Moulton, 2020). Our sample includes homeowners with reverse mortgages originated between 2013 and 2015, before and after the policy change. Prior to the policy change, 65 percent of homeowners in our sample withdrew all their available proceeds up-front, dropping to 20 percent after the policy change. As a robustness test, we limit the sample to homeowners with reverse mortgages that were originated before the policy change and find similar effects.

This study contributes to a growing body of literature that tests behavioral interventions to increase tax compliance through field experiments (Blumenthal et al., 2001; Cranor et al., 2020; Hallsworth et al., 2017; Meiselman, 2018; Ortega and Scartascini, 2020; Slemrod, Blumenthal and Christian, 2001). A common finding across studies is that messages that emphasize financial costs or deterrence actions are most effective at increasing tax compliance (Hallsworth, 2014; Pomeranz and Vila-Belda, 2019), with limited evidence for messages that emphasize social norms (Hallsworth et al., 2017). Most prior field experiments focus on income tax payments at the federal, state, or local level. An exception is Chirico et al. (2019), who also focus on property taxes, randomizing seven different messages to homeowners who were delinquent on their property tax bills in Philadelphia. The researchers found that reminder messages that emphasized economic sanctions (tax liens and sheriff sale) resulted in the largest increase in short-term repayment rates, with no long term effect of the reminder messages during the next tax cycle.
Similar to Chirico et al. (2019), the reminder letters in our study emphasize economic sanctions for non-payment. However, our study is unique in that we do not focus on homeowners who missed property tax payments, but instead target a group of at risk homeowners (reverse mortgage borrowers) for whom the consequences of non-payment are severe. The average homeowner in our sample is 70 years old with an annual household income of about $35,000, with 70 percent reporting holding less than $1,000 in liquid savings at the time of originating a reverse mortgage. Our intervention is not a payment reminder per se, but rather a more general reminder about periodic lump sum payment obligations.

While our study most directly informs property tax payments in the reverse mortgage context, the heterogeneous effects observed for those with and without a prior mortgage suggest a need for more research to understand the effects of escrows on the salience of tax payments. Homeowners outside of the reverse mortgage context who pay off a forward mortgage that previously held an escrow account may be at risk for property tax default. This group of homeowners may be particularly responsive to behavioral interventions in the years immediately after rolling off a lender managed escrow.

2 Institutional Background

The most widely used reverse mortgage product is insured by the Federal Housing Administration (FHA), called the Home Equity Conversion Mortgage (HECM). Nearly 1.2 million HECMs have been originated since the programs inception in late 1989 through July 2020 (Lambie-Hanson and Moulton 2020). All reverse mortgage loans are structured to allow existing homeowners to convert home equity into immediate cash, tenure, or term
payments (similar to an annuity), or a line of credit. These loans do not require an ongoing payment from the borrower. Instead, the principal and accumulated interest and fees on a reverse mortgage loan are repaid through home sale or foreclosure when the last borrower exits the home, typically at the time of death or relocation of the borrower, or if the loan is in default.

While there is no loan repayment amount due each month, borrowers must pay their property taxes and homeowners insurance premiums, due one or more times per year. When a HECM borrower fails to make a property tax or insurance payment and when no available funds remain on the reverse mortgage line of credit to cover the missed payments, the loan is in default. The lender will then pay the required payments via a corporate advance, and these funds are subsequently added to the outstanding balance on the reverse mortgage loan.

The US Department of Housing and Urban Development (HUD) requires lenders to call the reverse mortgage “due and payable” if a borrower is in default. However, lenders also have the discretion to engage in HUD approved loss mitigation practices, such as offering borrowers a repayment plan. These approved practices have changed considerably over time. As of March 2016, lenders are required to initiate a property foreclosure if the outstanding amount of corporate advance payments is more than $2,000 and the borrower is not making payments under a HUD approved payment plan (US Department of Housing and Urban Development, 2011, 2016).

More than 10 percent of HECM borrowers were in default on property tax or insurance...
bills in 2012, contributing to a series of policy changes \cite{Moulton:2015,Lambie-Hanson:2020}. The first major policy change, effective for loans originated after September 2013, restricted the proportion of the available HECM line of credit that could be withdrawn in the first year after origination. The second major policy change, effective for loans originated after April 2015, required a financial assessment of a homeowner’s income and credit to evaluate their capacity to afford ongoing property tax and insurance payments. Homeowners failing the financial assessment can still receive a HECM if they can set aside enough equity in an escrow account at closing to pay for future property taxes and insurance payments \cite{Lambie-Hanson:2020}. The homeowners in this study all originated a loan prior to April of 2015, prior to the financial assessment and escrow requirements.

3 Field Experiment

All reverse mortgage loan applicants are required to take part in a counseling session prior to being approved for a reverse mortgage loan. There are currently no requirements for counseling or follow-up with borrowers after they close on their reverse mortgage loans. In 2014, the research team partnered with a HUD-certified nonprofit housing counseling organization, Clearpoint Credit Counseling Solutions (now Money Management International) to provide follow-up reminders about reverse mortgage loan obligations to borrowers who received their pre-loan counseling from Clearpoint.

For this field study, reverse mortgage borrowers previously counseled by Clearpoint who closed on their loans between January 1, 2013 and April 30, 2015 were randomly
assigned to a treatment or control group. Clearpoint sent letters to borrowers in the treatment group for one year after closing on their reverse mortgage. These letters were sent quarterly, to remind borrowers of their obligations to pay property taxes and insurance and the consequences of non-payment.\textsuperscript{3}

The design of the reminder letters is motivated by prior literature in psychology and economics, showing that reminders that increase the salience of a behavior by emphasizing the negative (often financial) consequences of failing to take action. Such salience reminders have been found to be successful in increasing desired behavior in varied contexts such as school attendance (Bettinger et al., 2020), fundraising (Damgaard and Gravert 2018), voter registration (Kölle et al., 2020), traffic violations (Lu, Zhang and Perloff 2016), savings behavior (Loibl, Jones and Haisley, 2018), and tax compliance (Chirico et al., 2019; Cranor et al., 2020; Hallsworth et al., 2017; Meiselman, 2018).

There were five letters in total, all sent by postal mail (see the Appendix). Each letter was one page and no more than 300 words. The first letter included a write-on magnet with blanks for borrowers to fill in their property tax due date and amount. The letter encouraged the borrower to fill in the date and amount and to post the magnet in their home. The magnet also added weight to the mailing, increasing the likelihood that homeowners would open the letter (Dillman, Smyth and Christian, 2014). The letter also advised borrowers to contact their local tax assessor’s office if they expected to have any difficulty making their property tax payment. The second letter was sent one quarter later, and focused on reminding the borrower to pay their property tax payment on time, and encouraged them

\textsuperscript{3}The larger study design included another treatment arm with a personalized self-study financial planning packet followed by an offer of free financial counseling. Very low take-up of the offer of counseling combined with counseling staff turnover during implementation reduced the validity of this treatment arm. Treatment estimates for this sample are available upon request; there were no statistically significant results.
to seek assistance if needed. The third through fifth letters also included reminders about property maintenance, property insurance, and other responsibilities of HECM borrowers.

While the content of the letters varied slightly, all five letters included a variant of the following text emphasizing borrower obligations and consequences of non-payment:

“**You are responsible for directly paying your property taxes and homeowner’s insurance as they become due.** It is imperative that you meet these obligations of your agreement to avoid default. Staying current on your property taxes and homeowner’s insurance will prevent your loan from [becoming due and payable] [foreclosure].”

A total of 1,568 HECM borrowers were randomly assigned to the treatment group (n=755) or the control group (n=813). The primary sample includes 1,163 HECM borrowers who closed on a reverse mortgage in 2013 (treatment: 548, control: 615), with an additional 405 HECM borrowers who closed on a reverse mortgage between April 1, 2014 through April 30, 2015 (treatment: 207; control: 198). The 2014-15 random sample is smaller, as it was added later to explore the potential moderating effects of the September 2013 policy change on the treatment intervention.\(^4\)

The date that the first letters were sent to members of the treatment group is the exogenous start date of the treatment. Letters to borrowers in the treatment group were mailed on a rolling basis, beginning the quarter prior to the estimated next property tax due date.\(^5\)

For borrowers closing on HECMs in 2013, the initial letters were sent from April 1, 2015 through November 1, 2015. For borrowers closing on their mortgages in 2014 or 2015, the

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4The original study design included an additional 500 borrowers who closed on a HECM loan in 2012. However, the randomization process was comprised for this group due to staff turnover during our study period and thus is excluded from this analysis.

5The exact due dates for property taxes were not known. Due dates were estimated based on the borrower’s state of residence.
initial letters were mailed from February 15, 2016 through July 1, 2016. Lender advances for property tax and insurance payments were observed through October 2017—15 to 30 months after the first letter was sent.

4 Data

Data for this analysis were provided to the research team under a grant with the US Department of Housing and Urban Development (HUD). These data include transaction level information on loan activity, including advances by the lender to pay property taxes or homeowner’s insurance, from the beginning of our study period through October 31, 2017. These data were then matched to administrative data from Clearpoint Credit Counseling Solutions to identify treatment and control loans. Of the 1,538 HECM borrowers randomized to the treatment or control group during our study period, 1,363 have complete data for our key variables and were still active as of the exogenous start date. Some loan records were incomplete, others were paid off, or the borrower was deceased prior to the exogenous start date.

The primary outcome of interest is the rate of borrowers failing to make property tax or insurance payments. If the borrower has available funds remaining on the reverse mortgage, the lender advances funds from the line of credit for the missed payments (recorded as an “unscheduled draw”). If the borrower lacks sufficient funds remaining on the line of credit, the lender adds the advanced funds to the loan balance (recorded as a “corporate advance”) and the loan is considered to be in default. Per HUD guidelines, the lender must call the loan due and payable, and has the option to work with the borrower to cure the
default or set up a payment plan. If the borrower owes $2,000 or more and is not making payments on a repayment plan, the lender is required to proceed with foreclosure (US Department of Housing and Urban Development, 2011, 2016).

By reminding borrowers of their obligations to pay their property taxes and maintain homeowner’s insurance and the consequences of non-compliance, we expect borrowers will be less likely to miss a payment. Of those who do default, the outstanding amount for borrowers in the treatment group should be lower as we expect borrowers to be more likely to repay to avoid negative consequences.

In our data, we define a missed payment as the lender making a corporate advance or unscheduled draw from the line of credit to pay taxes or insurance of $500 or more. The $500 threshold suggests a significant non-payment that puts the borrower at risk of accumulating more payment problems. However, the borrower may not end up in default if they repay the advance or if they have money remaining on the HECM line of credit.

We define default based on the balance of unpaid corporate advances to pay taxes or insurance as of the last period using two thresholds, $200 and $2,000. To be in default, the borrower missed a tax or insurance payment and was out of money on the line of credit, resulting in a corporate advance by the lender. We code borrowers who made any repayment against the corporate advance within the prior year as not being in default, as these borrowers may be on a repayment plan with their lender and not at risk of foreclosure. Technically, any unpaid corporate advance results in default and the loan being called due

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6There are extensions for particularly “at risk” borrowers, such as when the youngest borrower is 80 years of age or older and the borrower has a critical circumstance such as a terminal illness (US Department of Housing and Urban Development, 2011).

7Our supplemental survey data of HECM borrowers indicates that average annual property taxes total $2,700 and annual insurance payments total $1,600 during our study period.
and payable, and thus the $200 threshold measures the risk of being in default. From a policy standpoint, HUD does not require lenders to foreclose until the default balance reaches $2,000, this being an indicator of a loan most at risk in our sample.

Table 1 summarizes the characteristics of borrowers in the control and treatment groups. The average age of borrowers was 70 years at origination, with a household income of around $3,400 per month ($40,000 per year). About one-in-ten borrowers identified as Black and about half were married. The average borrower credit score was just above 680 and two-thirds had less than $1,000 in financial assets. More than 40 percent had a regular, forward mortgage before originating a reverse mortgage—using at least some of the reverse mortgage proceeds to payoff the forward mortgage. More than half borrowed all their available equity at closing. The average home with a reverse mortgage in the sample was worth about $250,000, although it was slightly larger for the borrowers in the treatment group. The typical loan term was about 46 months from the date of origination to the last observation in the data. Loans were observed through October 2017, which is 15 to 30 months post the start of treatment.

There are few differences between the groups. The treatment group was slightly less likely to be married by the last observation than the control group ($p < 0.10$). The treatment group had a slightly lower credit scores ($p < 0.10$) and higher value homes ($p < 0.05$). Overall the groups are similar in most dimensions.
5 Empirical Strategy

Our identification relies on the random assignment of borrowers to the treatment group. We first estimate the incidence of borrowers having a missed payment of at least $500 that resulted in the lender making a payment from the line of credit or a corporate advance. We code each loan as 0 to signify not having a $500 lender advance payment and 1 if the loan has at least $500 advanced. This is estimated using a hazard model which is commonly used in the study of payment behaviors (see for example Deng, Quigley and Van Order (2000)). We use a Cox proportional hazard framework, which posits that the hazard rate of loan $i$ at loan age $t$ months for the outcome (nonpayment of at least $500) is given by as shown in Equation\ref{eq:1}:

$$h(t|\text{Balance}_i) = \lambda_0(t) \exp(X_i \cdot \beta)$$ (1)

The hazards model specification provides an estimate of the effect of the treatment, $X_i$, for loan $i$, in period $t$, where treatment is a loan assigned to receive the five quarterly letters. The estimate of interest is the rate of treatment borrowers failing to make payments of at least $500$ requiring lenders to take action, providing a broad indicator of missing a payment. We code as 0 borrowers who repay the balance in the same month as the advance, since this may simply be an administrative error the borrower was able to quickly remedy. These hazard estimates begin at the time of the exogenous date of random assignment to the treatment or control group and follow borrowers until October 2017. All borrowers are expected to have at least two payments due for taxes, as well as at least two property insurance payments, during this time span. These estimates are the most direct
indicator that the treatment of reminder letters reduced the rate of borrowers failing to meet their payment obligations. Compared to default, missing a payment is likely to vary over smaller periods as borrowers make or fail to make periodic payments for property taxes and insurance. We argue this is the closest measure to that of borrowers keeping payments for taxes and insurance salient as they manage their cash flows.

The hazard specification controls for differences in exposure to risk as a function of months $t$ across loans to estimate the time until a missed payment of at least $500. Loans that are terminated, refinanced, or in cases where the borrower dies are censored and dropped from the estimation sample when the event occurs because these loans are no longer at risk of nonpayment.

We display the main estimates for the treatment indicator, as well as estimates including time invariant controls as a robustness test. Given that loans were randomly assigned to treatment, we do not expect these controls to result in substantially different estimates or error terms. We also conduct additional robustness tests by restricting the sample. Controls include the age of the borrower in 2013, an indicator for a borrower of color, an indicator of a single borrower (vs. married), credit score, an indicator of having less than $1,000 in financial assets, an indicator of having a mortgage at the time of taking out the reverse mortgage, an indicator of borrowing the maximum allowed, the property value, and the number of months from origination to last observation (see Table for a full listing).

We also estimate the same hazard function conditional on loans originated in 2013, before any changes in HECM policies about the amount of equity that could be drawn were imposed. Even though loans were randomized within each loan origination cohort (2013

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8 Estimates using a repeat hazard model are substantially similar
versus 2014-15), it is possible that the effects are different for later cohorts where lenders could more easily make an unscheduled draw on the loan balance. If the 2013 effects appear similar to the overall estimates, this suggests the 2013, pre-policy change is a valid estimate of the effect of reminder letters. We also estimate the hazard model separately for borrowers who paid off a traditional forward mortgage with their HECM loan. It is plausible that borrowers who had a mortgage when they took out this reverse mortgage loan also had their property taxes and homeowner’s insurance payments managed by the lender using an escrow account. For these borrowers, the risks of non-payment may be higher, and the effects of the reminder letters could be larger. Finally we check that the effects of these reminder letters are not driven by borrowers who took a full draw on their reverse mortgage when they took out the loan. These borrowers potentially have more cash available to make their property tax and insurance payments on their own.

In addition to the hazard of missing at least $500 in payments, we also estimate a borrower’s probability of being in default as of the end of the study period. This a less direct measure of the reminder for specific payments, and rather of the effect of reminders over a longer period and how these effects may result in lower rates of payment default. Using an OLS linear probability model regression, we estimate Equation 2 for borrower $i$ in the study as of the last period observed, where Treatment$_{i}$ is a borrower assigned to the treatment group:

$$ Default_{i} = \alpha_{0} + \alpha_{1} \text{Treatment}_{i} + \beta X_{i} + \epsilon_{i} $$

(2)

The dependent variable, Default$_{i}$, equals one if the borrower $i$ is coded as being in default. As discussed previously, defining defaults for reverse mortgages is challenging since
regular payments are not due in a standardized way across all loans. For this cumulative, cross-sectional estimate, we measure default alternately as (i) having a corporate advance of $200 or more to pay for property taxes or homeowner’s insurance as of the last observation, without repayment; or (ii) having a corporate advance of $2,000 or more advanced by the lender without repayment as of the last observation. Having any corporate advance without repayment results in the loan being called “due and payable;” however, the lender is unlikely to foreclose if the outstanding balance is less than $2,000. This is a rarer but quite serious outcome. These cumulative measures of default as of the last observed period provide an estimate for important an policy outcome—do reminder letters reduce the risk of default and foreclosure? The mean and standard deviation of each of these outcomes is summarized in Table 1 Panel B. The means are also included for each subsample along with the OLS regression estimate.

Additional versions of these specifications include individual-level characteristics ($X_i$), as controls, using the same variables as described for the hazard model. Also similar to the hazard estimates, we provide estimates conditional on loan origination in 2013.

6 Results

Table 1 Panel B shows a comparison of means between the control and treatment groups. The treatment group has a 3.8 percentage point lower rate of having $500 or more in missed payments than the control group, a difference that is statistically significant at the $p < 0.01$ level. The treatment group is also 1.3 points less likely to have a $200 default balance ($p < 0.05$), as well as a 1.95 point lower rate of having a default balance.
of $2,000 or more as of the last observation ($p < 0.10$). These differences are large in magnitude relative to the control group means, with the treatment reducing the rate of a $500 nonpayment by one-third, reducing default of $200 by two-thirds, and reducing the rate of having a $2,000 default balance by more than 80 percent.

Turning to the hazard estimates, we begin with a visual analysis of non-payments over time. Figure 1 displays the Kaplan-Meier hazard curves for treatment and control loans for up to 30 months, beginning with the exogenous start date of random assignment. Both groups show an increasing hazard of having a corporate advance or unscheduled draw of at least $500 over the study period, as would be expected since the risk of missing payments rises as more payments are due. Beginning after the first letters were mailed, the rate of failure for the treatment group appears to be lower—and the difference in rates widens over time.

Table 2 Panel A displays the Cox proportional hazard estimates. Each row is the hazard estimate displayed as an exponentiated coefficient (exp(b) hazard ratio) where a value less than one implies a lower risk of having $500 or more as a corporate advance or unscheduled draw. The first row, ‘2013-15 Sample: No Controls’ is a baseline estimate for the overall effect of the treatment showing a reduction of the risk by about 0.45 relative to the control group not receiving letters. The results are slightly larger in magnitude when adding controls in the second row. The estimates are less precise when limiting to the 2013 sample only in the third row, but similar in magnitude and direction.9 The policy change

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9The initial draw limit policy change was effective for HECMs with case numbers assigned on or after September 30, 2013. Typically, there is a three-month delay between the case number assignment date and the date that the loan is endorsed by HUD. We use the endorsement date to define the origination date in this analysis. Thus, loans endorsed by HUD in December of 2013 likely had case numbers assigned prior to the September 30, 2013 policy change.
at the end of 2013 to restrict initial draw amounts is not driving these results.

Next, Table 2 Panel B displays conditional subsample estimates for borrowers with and without prior mortgages. Table 2 Panel C shows the estimates for subsample regressions for borrowers based on whether or not they withdrew the maximum allowable on the HECM at closing. Note that the smaller sample reduces the power to detect statistically significant effects. Figure 1 shows the plots of the estimates with 90 percent confidence intervals to compare the relative treatment effects for the subsamples of borrowers who had a traditional forward mortgage and those who had a full draw. In general, all these estimates are negative, showing that the treatment reduced the hazard of borrowers missing at least $500 in payments for taxes and insurance. Borrowers who had a full draw, and perhaps more equity available to pay, were no more or less likely to respond to the treatment. Borrowers who had a mortgage when they took out the reverse mortgage, and may have been more likely to have had payments managed by a lender escrow account, do show relatively more robust treatment effects. This is consistent with these borrowers being relatively more responsive to reminder letters.

These hazard estimates are useful to estimate the borrowers’ responsiveness to the reminder letters treatment. The next question is if these lower rates of missing payments result in lower rates of more severe outcomes, including foreclosure. It is possible that reminders accelerate the timing of payments, but not the longer-run rate of repayment or future missed payments. We next turn to the OLS estimates for the two cumulative outcomes as of October 2017. Table 3 displays these estimates of treatment effects relative to the control group of borrowers. The main estimates in the first row are similar to the means shown in Table 3. Having a default balance of $200 or more without repayment
(Column 1) is statistically significant and shows relatively large effects—reducing these outcomes by at least one-half or more. Column (2) shows about a 1.2 percentage point reduction in the rate of borrowers having a default balance of $2,000 or more without repayment. These are borrowers who are at high risk of foreclosure.

Further robustness tests including adding controls, as well as separately restricting the sample to loans originated in 2013 (without controls). Neither set of estimates provides a substantially different magnitude than the baseline estimate. Overall these estimates are consistent with the five reminder letters reducing the rate of borrowers missing payments and ultimately appear to reduce the risk of these older homeowners being at risk of losing their home to foreclosure.

7 Conclusion

Reverse mortgages provide older homeowners with a way to tap their housing wealth for consumption without required monthly mortgage payments. Reverse mortgage borrowers do not have to make monthly mortgage payments on their loans, but are still responsible for paying their property taxes and maintaining homeowner’s insurance coverage. Failure to pay these obligations places the homeowner at risk of foreclosure and increases costs to private lenders, the federal government, and local taxing jurisdictions.

Most reverse mortgages are made under the federal HECM insurance program. The federal government sets the rules for borrowers and lenders, provides oversight, and is ultimately responsible for risk sharing through the federal insurance fund. High rates of property tax and insurance default in the HECM program motivated a series of policy
changes designed to shore up the program (Moulton, Haurin and Shi 2015). However, these policy changes also substantially reduced the amount of home equity available to homeowners through the HECM program and restricted who could access a HECM loan in the first place.

This study tests if a simple intervention—reminder letters—increase the salience of property tax and homeowner’s insurance obligations. Unlike more extensive policy reforms that reduce default by structurally shifting who can access home equity (and how much), the reminder treatment targets behavioral limitations that may inhibit borrowers from meeting their obligations. The results indicate that sending five mailed letters reduces the incidence of borrowers failing to make property tax and property insurance payments and the cumulative risk of severe default.

These estimates show that the effects of reminders on missing payments are strongest among those borrowers who had a traditional forward mortgage when they took out their reverse mortgage loan. Our survey data indicates that the majority of these homeowners had a lender-managed escrow account for property taxes and homeowner’s insurance prior to originating a reverse mortgage. This is a group of homeowners for whom property taxes may be less salient, as these homeowners are not in the habit of managing these expenses on their own.

Sending reminder letters is a relatively low cost approach, as they can be automatically generated by lenders, local taxing authorities, property insurers, or other intermediaries. Many local taxing authorities already send notices to property owners regarding their property tax obligations. There may be value in sending targeted letters to older homeowners, especially those who have taken out a recent reverse mortgage loan or have recently paid
off a traditional mortgage, who may have relied on an escrow account to forward tax payments. These homeowners may be particularly at risk of missing property tax payments and may benefit from behavioral interventions.
Disclosures

The authors have no financial arrangements that might give rise to a conflict of interest. The authors have received financial support for this research from The John D. and Catherine T. MacArthur Foundation and the US Department of Housing and Urban Development. The authors have no financial arrangements that might give rise to conflicts of interest with respect to the research reported in this paper.
 References


8 Figures

Figure 1: Hazard Estimates of $500+ Corporate Advance or Unscheduled Draw for Property Insurance or Taxes

Estimates from Table 1A
Figure 2: Hazard Estimates of $500+ Corporate Advance or Unscheduled Draw for Property Insurance or Taxes: Heterogeneous Effects

Estimates from Table IB with 0.10 confidence intervals.
9 Tables
### Table 1: Summary Statistics by Letters Treatment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control</th>
<th>Treatment</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age Jan 2013</td>
<td>70.34</td>
<td>70.26</td>
<td>-0.077</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
<td>(0.28)</td>
<td>(0.384)</td>
</tr>
<tr>
<td>Monthly Income (000)</td>
<td>3.48</td>
<td>3.36</td>
<td>-0.112</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.10)</td>
<td>(0.168)</td>
</tr>
<tr>
<td>Race: Black</td>
<td>0.11</td>
<td>0.09</td>
<td>-0.022</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.016)</td>
</tr>
<tr>
<td>Some College +</td>
<td>0.47</td>
<td>0.47</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>0.53</td>
<td>0.49</td>
<td>-0.045</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>FICO</td>
<td>689.00</td>
<td>685.54</td>
<td>-3.459</td>
</tr>
<tr>
<td></td>
<td>(3.49)</td>
<td>(3.61)</td>
<td>(5.023)</td>
</tr>
<tr>
<td>Under 1k Assets</td>
<td>0.70</td>
<td>0.72</td>
<td>0.018</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>Had Forward Mortgage at Origination</td>
<td>0.42</td>
<td>0.43</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>Borrowed Max (Full Draw)</td>
<td>0.55</td>
<td>0.51</td>
<td>-0.033</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>Property Value (000)</td>
<td>246.38</td>
<td>270.42</td>
<td>24.037*</td>
</tr>
<tr>
<td></td>
<td>(6.43)</td>
<td>(7.07)</td>
<td>(9.536)</td>
</tr>
<tr>
<td>Months with Loan</td>
<td>46.47</td>
<td>46.43</td>
<td>-0.050</td>
</tr>
<tr>
<td></td>
<td>(0.37)</td>
<td>(0.38)</td>
<td>(0.527)</td>
</tr>
<tr>
<td>Months: treatment to Oct 2017</td>
<td>27.58</td>
<td>27.41</td>
<td>-0.165</td>
</tr>
<tr>
<td></td>
<td>(0.10)</td>
<td>(0.11)</td>
<td>(0.151)</td>
</tr>
<tr>
<td><strong>Panel B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard: $500+ missed payment</td>
<td>0.12</td>
<td>0.08</td>
<td>-0.038**</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Last Observation: $200+ default</td>
<td>0.0209</td>
<td>0.0077</td>
<td>-0.01322</td>
</tr>
<tr>
<td></td>
<td>(0.0054)</td>
<td>(0.0034)</td>
<td>(0.00652)</td>
</tr>
<tr>
<td>Last Observation: $2000+ default</td>
<td>0.0140</td>
<td>0.0015</td>
<td>-0.01242**</td>
</tr>
<tr>
<td></td>
<td>(0.0044)</td>
<td>(0.0015)</td>
<td>(0.00485)</td>
</tr>
</tbody>
</table>

| N   | 716 | 647 | 1363 |

1 Significance levels:  + < 10%  * < 5%  ** < 10%
2 Standard errors in parentheses
### Table 2: Hazard Estimates for Treatment on $500+ Corporate Advance or Unscheduled Draw

<table>
<thead>
<tr>
<th>Panel</th>
<th>Treatment Estimate</th>
<th>(1) 2013-15 Sample: (No Controls)</th>
<th>0.650* (-2.07)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(2) 2013-15 Sample: With Controls</td>
<td>0.598* (-2.45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3) 2013 Sample: (No Controls)</td>
<td>0.701 (-1.48)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4) 2013 Sample: With Controls</td>
<td>0.636+ (-1.88)</td>
</tr>
<tr>
<td>Panel B</td>
<td></td>
<td>(1) 2013-15 Sample: Prior Mortgage (No Controls)</td>
<td>0.466* [-2.19]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) 2013-15 Sample: No Prior Mortgage (No Controls)</td>
<td>0.778 [-0.97]</td>
</tr>
<tr>
<td>Panel C</td>
<td></td>
<td>(1) 2013-15 Sample: Full Draw (No Controls)</td>
<td>0.682 [-1.33]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) 2013-15 Sample: No Full Draw (No Controls)</td>
<td>0.639 [-1.52]</td>
</tr>
</tbody>
</table>

Cox proportional hazards for $500+ missed payment. Exponentiated coefficients; z statistics in (). 95% CI in [].

* + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Observations: A1-A2: 1293; A3-A4: 949; B1: 552; B2: 741; C1: 664; C2: 629

32
Table 3: OLS Treatment Effect Estimates for Payment Status by Last Observation

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Default $200+</td>
<td>Default $2000+</td>
</tr>
<tr>
<td>(1) Baseline (n=1363)</td>
<td>-0.0132*</td>
<td>-0.0124*</td>
</tr>
<tr>
<td></td>
<td>(0.00637)</td>
<td>(0.00465)</td>
</tr>
<tr>
<td>(2) + Controls</td>
<td>-0.0123+</td>
<td>-0.0118*</td>
</tr>
<tr>
<td></td>
<td>(0.00637)</td>
<td>(0.00472)</td>
</tr>
<tr>
<td>Mean</td>
<td>0.0147</td>
<td>0.00807</td>
</tr>
<tr>
<td>(3) 2013 Only (n=1010)</td>
<td>-0.0154+</td>
<td>-0.0146*</td>
</tr>
<tr>
<td></td>
<td>(0.00833)</td>
<td>(0.00593)</td>
</tr>
<tr>
<td>Mean</td>
<td>0.0188</td>
<td>0.00990</td>
</tr>
</tbody>
</table>

(1) Last Observation: $200+ balance without repayment
(2) Last Observation: $2000+ balance without repayment
Standard errors in parentheses
+ $p < 0.10, * $p < 0.05
Reminder Letters

Date
Client #

Address Block

Salutation,

If it's now been about a year or more since you closed on your reverse mortgage. We are happy that you chose CredAbility (now Clearpoint) to provide your reverse mortgage counseling prior to applying for your loan. As part of our reverse mortgage checkup for clients who have closed on their reverse mortgage loan, Clearpoint will be providing you with quarterly updates and reminders about your reverse mortgage and your reverse mortgage responsibilities.

Based on the terms and conditions of your reverse mortgage loan, you are responsible for directly paying your property taxes and homeowner's insurance as they become due. It is imperative that you meet these obligations of your agreement to avoid default. Staying current on your property taxes and homeowner's insurance will prevent your loan from becoming due and payable.

Please review the property tax statement and your homeowner's insurance bill you received in the mail to verify the amounts, due date, and available payment methods. To avoid interest and penalties, be sure to pay the required amounts on time. If you have not already done so, I recommend you to contact your local tax assessor's office to inquire about property tax relief or exemption programs that may be available to you.

For your convenience, I have enclosed a refrigerator magnet to help you track these important due dates. Please fill in the amount and due dates once you have identified these from your statements. We will continue to send you regular reminders to help guide you with the responsibilities of your loan.

Nearly 10% of homeowners with reverse mortgages experience difficulty paying their property taxes or homeowner's insurance. If you are experiencing any difficulty with your finances, please contact our office for additional guidance at 877-977-1995. We can help you to find additional resources and work with your loan servicer to avoid foreclosure.

Sincerely,

Dan Grafus
HUD-approved Reverse Mortgage Counselor

C2C of Cheltenham, Inc. dba Clearpoint Credit Counseling Solutions
275 Peachtree Street NW, Suite 1600 Atlanta, GA 30303-1227 Phone: 877-977-1995 | www.clearpoint.org

Revised: 4/05/16

NFCC
National Foundation for Credit Counseling
Date

Client #

Address Block

Salutation,

It’s now been some time since you closed on your reverse mortgage. We are happy that you chose CredAbility (now Clearpoint) to provide your reverse mortgage counseling. As part of our reverse mortgage checkup for homeowners who have a reverse mortgage, Clearpoint is continuing to provide you with quarterly updates and reminders about your reverse mortgage and your reverse mortgage responsibilities.

Based on the terms and conditions of your reverse mortgage loan, you are responsible for directly paying your property taxes and homeowner’s insurance as they become due. It is imperative that you meet these obligations of your agreement to avoid default. Staying current on your property taxes and homeowner’s insurance will prevent your loan from foreclosure.

Please review the property tax statement and your homeowner’s insurance bill you received in the mail to verify the amount, due date, and available payment methods. To avoid interest and penalties, be sure to pay the required amounts on time. If you have not already done so, I recommend you to contact your local tax assessor’s office to inquire about property tax relief or exemption programs that may be available to you. In some cases, these programs can reduce your property taxes by as much as 50%.

Nearly 10% of homeowners with reverse mortgages experience difficulty paying their property taxes or homeowner’s insurance. If you are experiencing any difficulty with your finances, please contact our office for additional guidance at 877-877-1965. We can help you to find additional resources and work with your loan servicer to avoid foreclosure.

Sincerely,

Dan Grafus
HUD-approved Reverse Mortgage Counselor
Date
Client #

Address Block

Salutation,

It’s now been some time since you closed on your reverse mortgage. We hope that you are doing well and that your reverse mortgage has provided you with the additional financial support you need to successfully age in place. As part of our reverse mortgage checkup for clients who have closed on their reverse mortgage loan, Clearpoint is continuing to provide you with quarterly updates and reminders about your reverse mortgage and your reverse mortgage responsibilities.

Based on the terms and conditions of your reverse mortgage loan, you are responsible for paying your property taxes and homeowner’s insurance as they become due. It is imperative that you meet these obligations of your agreement to avoid default. Staying current on your property taxes and homeowner’s insurance will prevent your loan from becoming due and payable.

This would be a great time to review your homeowner’s insurance. Check your coverage and deductible and inquire about possible money saving options such as multi-policy and senior discounts. Be sure that your payments are on time. Some companies allow monthly automated deductions from your bank account. Remember if your homeowner’s insurance lapses or is cancelled, your lender will force place insurance on your home. Not only is this insurance expensive, it also does not fully cover YOU in the event of a loss. In addition, failure to keep your personal insurance in force will cause your reverse mortgage to go into default and your home could be subject to foreclosure.

Nearly 10% of homeowners with reverse mortgages experience difficulty paying their property taxes or homeowner’s insurance. If you are experiencing any difficulty you’re your finances, please contact our office for additional guidance at 877-877-1550. We can help you to find additional resources and work with your loan servicer to avoid foreclosure.

Sincerely,

Dan Grafius
HUD-approved Reverse Mortgage Counselor
Date
Client #

Address Block

Salutation,

We hope that you are doing well and that your reverse mortgage has provided you with the additional financial support you need to successfully age in place. As part of our reverse mortgage checkup for clients who have closed on their reverse mortgage loan, Clearpoint is continuing to provide you with quarterly updates and reminders about your reverse mortgage and your reverse mortgage responsibilities.

Based on the terms and conditions of your reverse mortgage loan, you are responsible for maintaining the condition of your property. Your lender may perform periodic inspections of your property to ensure that the property continues to be in good condition and may require that necessary repairs be completed. In addition, your homeowner’s insurance policy carrier may cancel your policy if your property is not maintained.

If your home is in need of repairs or maintenance, we recommend contacting your local city to inquire about home repair assistance or weatherization programs. Many cities offer home repair programs specifically for seniors.

Also, be sure to keep your property taxes and homeowners insurance payments up to date. Nearly 10% of homeowners with reverse mortgages experience difficulty paying their property taxes or homeowners insurance, which can result in foreclosure. We can help you to find additional resources and work with your loan servicer to avoid foreclosure.

As a guide, enclosed is a home maintenance checklist to help you minimize unexpected repairs. As your counselor, I am here to assist and help you plan for unexpected expenses such as home maintenance and repairs. If you need assistance, please contact me at 1-800-465-6190, ext. 4830. Our counseling services are free of charge.

Sincerely,

Dan Grajus
HUD-approved Reverse Mortgage Counselor
Date
Client 

Address Block

Salutation,

It has been quite some time since you received your reverse mortgage. We hope that the reverse mortgage has helped you meet your financial goals and age in place comfortably. This would be a good time to review your budget and continue to manage your expenses in order to maximize your cash flow.

- Contact your utility companies to inquire about discount programs
- Combine car insurance and homeowner’s insurance policies with same carrier to obtain a price discount
- Sell unused personal items
- Use coupons when grocery shopping, purchase bulk items whenever possible
- Save on grocery expenses by using organizations such as meals on wheels and local food banks
- Shop at discount stores
- If you take prescription medicine, ask your pharmacist about generic drugs
- Consider cutting back to basic cable

Also, be sure to keep your property taxes and homeowners insurance payments up to day. Nearly 10% of homeowners with reverse mortgages experience difficulty paying their property taxes or homeowners insurance, which can result in foreclosure. We can help you to find additional resources and work with your loan servicer to avoid foreclosure. Please do not hesitate to contact me at 1-800-485-8199, ext. 4836 if you need further assistance to help you reach your goals and improve your overall financial situation.

Sincerely,

Dan Gratus
HUD-approved Reverse Mortgage Counselor

CCS of Greater Atlanta, Inc. d/b/a Clearpoint Credit Counseling Solutions
270 Peachtree Street NE, Suite 1000 Atlanta, GA 30303-1237 Phone: 877-075-1888 | www.clearpoint.org

Revised: 4/07/16