Effects of a Randomized Tax-Time Savings Intervention on Savings Account Ownership Among Low- and Moderate-Income Households

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Being unbanked makes it difficult for low and moderate-income (LMI) households to manage finances, save, and access credit. We assessed effects of an online tax-time savings intervention on savings account openings in the 6 months following tax filing among a sample of 4,692 LMI tax filers. Treatment group participants had 60% greater odds of opening a savings account than control group participants ($p < .05$). However, statistically significant treatment effects were found only for participants who filed early in tax season and only for 5 out of 18 specific interventions. Low-cost messages delivered at tax time can encourage early season LMI tax filers who expect larger refunds to open savings accounts. Findings lend additional empirical support for financial inclusion efforts.

Keywords: financial inclusion, financial services, low-income households, saving, unbanked, taxes

Bank account ownership offers households a secure way to deposit funds, pay bills, accumulate savings while earning interest, and access credit (Birkenmaier & Fu, 2015; FDIC, 2016; Robbins, 2013). However, 7% of U.S. households in 2015 were unbanked—had no checking or savings account—while an additional 20% of households were underbanked—had a bank account—but also used alternative financial services (AFS), such as payday loans and check cashing services (FDIC, 2016). Furthermore, less than half of U.S. households have sufficient emergency funds (Bhargava & Lown, 2006).

Being unbanked or underbanked is associated with material hardship (Barr, 2010; Lim, Livermore, & Davis, 2010; Sullivan, Turner, & Danziger, 2008), and a lower likelihood of filing tax returns and receiving refunds (Lim, Livermore, & Davis, 2011). Un/underbanked households are also more likely to use AFS (Despard, Perantie, Luo, Oliphant, & Grinstein-Weiss, 2015; FDIC, 2016; Gross et al., 2012), which carry high fees and interest (Bertrand & Morse, 2011; Consumer Financial Protection Bureau, 2013; O'Neill & Xiao, 2015; Pew Charitable Trusts, 2012). AFS use is also negatively related to asset ownership and the ability to build credit (Despard et al., 2015; Lim et al., 2014; Lusardi & de Bassa Scheresberg, 2013; Pew Charitable Trusts, 2012; Shobe, Christy, Givens, & Y, 2013).

Conversely, bank account ownership is associated with positive savings outcomes (FDIC, 2016; Friedline, Johnson, & Hughes, 2014; Fitzpatrick, 2015; Grinstein-Weiss, Yeo, Despard, Casalotti, & Zhan, 2010). Having savings helps low and moderate-income (LMI) households smooth consumption (Xiao & Noring, 1994) and cope with financial emergencies (Gjertson, 2016). Therefore, knowledge concerning how to increase savings account ownership among these households is important.

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The purpose of this study is to assess whether or not exposure to online tax-time savings interventions resulted in opening a savings account among a large sample of LMI tax filers. While research exists concerning the reasons for and consequences of being unbanked, few studies examine how to encourage LMI consumers to open savings accounts. We offer a unique contribution to the literature on use of financial services by assessing the effectiveness of savings messages informed by behavioral science on savings account openings. Our study is also unique in that savings messages were delivered through online tax-filing software. This represents an opportunity to test whether a low-touch intervention that can reach hundreds of thousands of LMI tax filers has a positive impact on savings account openings. Findings can inform policies and practices to increase access to mainstream financial services for LMI households, which are more likely to be un- or underbanked (FDIC, 2016).

Background

Certain groups consistently have the highest unbanked rates including: non-Asian minorities, renters, young people, the unemployed, immigrants and refugees, low-income households, and female-headed households (Berry, 2005; Bohn & Pearlman, 2013; FDIC, 2016; Paulson & Rhine, 2008; Rao & Malapit, 2015; Rhine, Di, Greene, & Perlmeter, 2016). For example, nearly a quarter of minority households are unbanked compared to 5% of white households (Rhine, Greene, & Toussaint-Comeau, 2006).

Reasons for Being Unbanked

The two primary reasons for not having bank accounts include a lack of enough money to keep in accounts and concerns about account fees (Berry, 2005; FDIC, 2016; Parrish & Frank, 2011; Samolyk, Critchfield, & Watson, 2014). Other reasons include a lack of trust in banks, concerns about privacy and unpredictable fees (FDIC, 2016; Rengert & Rhine, 2016), and having checking accounts closed due to excessive over drafting (Campbell, Asís Martínez-Jerez, & Tufano, 2012; O'Brien, 2012).

Consumer preferences also matter. Servon (2013) found that some consumers choose AFS, such as check cashing stores, because of perceived lower costs and greater price transparency compared to bank accounts. Use of general purpose reloadable prepaid cards has risen within the last 5 years. Among unbanked and underbanked households, 43% used prepaid cards in 2015. For these households, prepaid cards offer consumers an alternative to owning a checking account (FDIC, 2016; Pew Charitable Trusts, 2015). Servon, 2013 also found that consumers prefer AFS because of personal relationships between check cashiers and customers. Similarly, Rengert and Rhine (2016) found that some consumers prefer AFS because staff speak foreign languages, look like consumers, and are familiar to consumers.

Changes in Banked Status

"cycle in and out of the banking system" (FDIC, 2016); almost half of unbanked households in 2015 had a bank account in the past and about a quarter were likely to open an account within the next year (FDIC, 2016). Similarly, Barr (2010) found that most (75%) unbanked households in Detroit said they hoped to open an account in the next year. Reasons for closing bank accounts include income volatility and declines, job loss, and loss of health insurance coverage (FDIC, 2016; Rhine & Greene, 2013). Rhine, Di, Greene, & Perlmeter, 2016 found that heavy losses in household income and wealth helped explain why 15% of households closed savings accounts during the peak years (2007–2009) of the Great Recession. In contrast, starting a new job and receiving direct deposits is a key reason for opening a bank account again (FDIC, 2016).

Importance of Savings Accounts

Owning a savings account is a particularly important aspect of economic inclusion. Money in savings accounts helps households meet basic needs (Xiao & Anderson, 1997), smooth consumption in the face of future adverse events such as losing a job (Carroll & Samwick, 1998; Lusardi, 1998; Mammen & Lawrence, 2006), and provides a buffer against material hardship (Deaton, 1991). Setting aside money for emergencies is a common motive for saving (Xiao & Noring, 1994). Among low-income households, material hardship risk is lessened when people have emergency savings (Despard et al., In press; Gjertson, 2016) and make savings account deposits at tax time (Grinstein-Weiss et al., 2016). In addition, savings accounts can be linked to checking accounts to cover overdrafts that otherwise result in expensive fees (Fusaro, 2008) and can act as commitment devices (Benhabib & Bisin, 2005), enabling individuals to set aside funds they might not otherwise set aside. Once deposited, amounts in savings accounts tend to remain there (Sikkel & van Meer, 2015).

Yet only 47% of households with an annual income of less than $15,000 and 60% of households with an annual income of $15,000 to $30,000, own savings accounts, respectively (FDIC, 2016). Also, households are far more likely to own a checking than a savings account (Xiao, 1996). Thus, efforts to promote savings account ownership may benefit LMI households.

Interventions to Bank the Unbanked

Considerable effort has been devoted in recent years to increase access to mainstream financial services for underserved populations. Federal government efforts include the FDIC's Model Safe Accounts Pilot (FDIC, 2012), various financial education initiatives such as the MyMoney.gov portal, and the Treasury Department's launch of the myRA retirement savings account. Banks' efforts to provide services for unbanked households include offering gateway products and services like check cashing services, low or no-fee and second chance transaction accounts, general purpose reloadable prepaid cards, and credit builder and small dollar loans. Banks also partner with local government and nonprofit organizations to introduce products to underserved populations (Cover, Fuhrman Spring, & Garshick Kleit, 2011; Rengert & Rhine, 2016). Similarly, Bank On coalitions in several U.S. cities seek to increase access to and use of safe and affordable bank accounts with features similar to the FDIC Safe Accounts template.

Interventions encouraging LMI tax filers to save all or part of their refund increased savings account openings (Beverly, Tescher, & Romich, 2004; Key, Tucker, Grinstein-Weiss, & Comer, 2015; Tucker, Key, & Grinstein-Weiss, 2014). Findings from these studies suggest that a good time to help LMI households open accounts is when they file their federal income tax returns. A limitation of the above study is that the interventions required staffing tax assistance sites and included the use of financial incentives. This may be a difficult strategy for promoting large-scale financial inclusion due to costs and limited reach (Grinstein-Weiss et al., 2015).

Study Hypothesis

Savings messages through the Refund-to-Savings initiative have been found to positively impact decisions to save all or part of one's refund (Grinstein-Weiss et al., 2015; Grinstein-Weiss, Russell, Gale, Key, & Ariely, 2017). However, these impacts were observed only among study participants who already own savings accounts and could allocate all or part of their refund to these accounts. Still, prior research indicates that efforts to encourage tax-time savings was associated with savings account openings (Beverly et al., 2004; Key et al., 2015; Tucker et al., 2014). Thus, even if Refund-to-Savings participants do not have a savings account when they filed their taxes, messages to encourage saving may plant a seed that prompts participants to open a savings account later. Accordingly, our hypothesis is:

H_1: Receiving savings messages and prompts at tax time makes LMI tax filers without a savings account more likely to subsequently open a savings account.

In addition, we assess whether or not the impact of receiving tax-time savings messages on savings account take-up depends on when LMI individuals filed during the 2013 tax season. We also examine whether certain types of savings messages and prompts were effective in promoting subsequent savings account openings.

Methods

Study Design and Sample

Data for this study came from the Refund-to-Savings initiative, a series of interventions to promote tax-time savings delivered through an online software program. Tax filers who had an adjusted gross income (AGI) of less than $31,000, qualified for the Earned Income Tax Credit (EITC), and/or were an active duty member of the military with an AGI of less than $57,000 were eligible in 2013 to use TurboTax Freedom Edition (TTFE).

Tax filers using TTFE who expected to receive a refund were randomly assigned to each of the three filing periods to receive one of six savings interventions or to a control group. A total of 18 interventions representing different combinations of anchors and prompts (14 unique, 4 repeated in a different period) were delivered after participants had completed their 2012 tax returns and were deciding how to receive their expected refunds (see Appendix for a full list of interventions). Randomization occurred in three intervention periods to test multiple interventions during the 2013 tax season: Period 1 (January 31–February 13), Period 2 (February 14–March 13), and Period 3 (March 14–April 17).

Concerning the content of interventions, prompts were messages meant to motivate participants to save their refunds for an emergency, to support their family, or to save

for the future based on prior research concerning savings motivations (Lee & Hanna, 2015). A generic prompt was also used, which encouraged participants to save without offering a specific reason. These prompts were informed by prior research indicating that individuals tend to discount the value of saving relative to immediate consumption (Angeletos, Laibson, Repetto, Tobacman, & Weinberg, 2001). Anchors were suggestions about how much to save—as a fixed amount ($100 or $250), or percentage of one's refund: 25%, 50%, or 75%. These suggestions were designed based on prior research indicating that people will use reference points when they are provided to help make decisions (Simmons, LeBoeuf, & Nelson, 2010).

The Refund-to-Savings initiative sample included 12,809 persons who completed their 2012 federal income tax return using TTFE, expected to receive a refund, were randomly assigned to receive a savings intervention or to a control group, and agreed to complete the baseline household financial survey (HFS1). HFS1 included a variety of questions concerning financial circumstances, behaviors, and outcomes, including bank account ownership. Six months after filing their taxes, 4,888 participants also completed the follow-up HFS (HFS2). Participants younger than age 18 (n = 47) and/or who had missing values concerning age (n = 12), savings account ownership (n = 56), and/or intervention period (n = 103) were excluded from the study, yielding a final analytic sample of 4,692 participants with a missingness rate of 4.2%.

Measures and Analysis

Independent variables. To test our hypothesis that receiving savings messages and prompts results in subsequent savings account openings, a dummy variable was created to indicate treatment status ("1" if the participant received any one of the 18 interventions listed in the Appendix, "0" if assigned to a control group). Dummy variables were also created to indicate random assignment to each of the 18 interventions to test our hypothesis based on specific interventions received.

Covariates. The following covariates were used in logistic regression models to offer conservative estimates for testing our hypothesis: age, gender, race/ethnicity, tax filing status, number of children under age 18, educational attainment, current student status, employment status, income, amount of federal tax refund, liquid assets, unsecured debt, home ownership, and a count of financial shocks that occurred in the 6 months after filing taxes (range: 0 to 4). Financial shocks were defined as a period of unemployment, hospitalization, major car repair, and payment of legal expenses (range: 0 to 4). Also, an intervention period was used in models to control for tax filing time preference.

Dependent Variable. Adding a savings account was measured by creating a dummy variable, where a value of 1 was assigned if the participant said they did not have a savings account at baseline (HFS1) and if the same participant said they had a savings account at the 6-month follow-up (HFS2). Otherwise, a value of 0 was assigned, if there was no change from baseline to follow-up in savings account ownership or there was a change from having a savings account at baseline to no longer having a savings account at follow-up.

To assess our hypothesis concerning the overall treatment effect and the effects of each of the 18 interventions, we used bivariate chi-square tests. For the overall treatment effect estimate, there were no statistically significant differences in covariates between the treatment and control group. However, we used logistic regression with covariance control to offer a more conservative estimate.

Among the 18 treatment-control group subsamples, an imbalance in one covariate was found in two subsamples, and in two covariates in one subsample. Consequently, we implemented an inverse probability of treatment weighting (IPTW) procedure (Imbens & Wooldridge, 2009). Logistic regression models provided estimates of the probability of the treatment assignment conditioned on the covariate for which the subsample was imbalanced. When denoting the estimated propensity score as P, the average treatment effect (ATE) weight for assignment to the treatment group was coded as 1/P, and for the control group, 1/(1-P). After applying the propensity score weight, no statistically significant differences existed, indicating that the IPTW procedure was successful in rebalancing the three treatment-control group subsamples on covariates. Thus, for 15 treatment-control group subsamples, logistic regression with covariance control was used for conservative estimates. For the three initially unbalanced subsamples, a sampling weight from the IPTW procedure was added to logistic regression models.

TABLE 1. Sample Description (n = 4,682)

	Treatment Group % or Mean (*SD*)	Control Group % or Mean (*SD*)	Full Sample	p^a
Outcome				
Added savings account	7.39	5.11	7.07	*
Covariates				
Age	35.50 (13.52)	36.30 (13.95)	35.62 (13.58)	ns
Gender				
Female	59.54	63.05	59.80	ns
Male	40.46	36.95	39.81	ns
Race/ethnicity				
White	77.68	76.13	77.13	ns
Black	8.38	8.46	8.39	ns
Asian	2.25	3.02	2.35	ns
Hispanic	8.03	7.85	7.97	ns
Other	3.67	4.53	3.78	ns
Filing Status				
Single	69.11	68.42	69.01	ns
Married, filing jointly, widow(er)	14.26	15.34	14.42	ns
Married, filing separately	0.77	1.35	0.85	ns
Head of household	15.86	14.89	15.72	ns
Number of children under 17				
None	69.23	72.36	69.67	ns
One	15.19	13.44	14.94	ns
Two or more	15.59	14.20	15.39	ns
Education				
High school diploma or less	13.12	11.43	12.88	ns
Some college	35.14	35.99	35.26	ns
College degree or higher	51.73	52.56	51.85	ns
Current student	29.75	31.33	29.97	ns
Employment status				
Employed full-time	47.22	46.77	47.16	ns
Employed part-time	21.73	21.95	21.76	ns
Unemployed, looking for work	9.66	8.72	9.53	ns
Unemployed, not looking	21.18	22.56	21.38	ns
Adjusted gross income	17,315 (9,937)	16,963 (9,964)	17,265 (9,940)	ns
Amount of federal tax refund	1,837 (1,995)	1,801 (2,040)	1,832 (2,001)	ns
Own savings account	75.35	76.24	75.48	ns
Financial shocks	1.05 (0.98)	1.05 (0.99)	1.05 (0.99)	ns
Liquid financial assets	4,761 (11,247)	3,978 (9,463)	4,650 (11,014)	ns
Unsecured debt	6,665 (13,261)	6,838 (17,685)	6,690 (13,972)	ns
Own home	20.89	20.45	20.82	ns
Intervention period				
n	4,017	665	4,682	

[a]Based on bivariate differences using two-tailed Chi Square and *t* tests.
* $p < .05$.

Results

Sample Description

As reflected in Table 1, there were no statistically significant differences between the treatment (n = 4,017) and control (n = 665) groups based on several covariates, indicating that randomized assignment was successful in balancing the two groups. Most participants were female (60%), White (77%), single tax filers (69%), and had no children under 17

(70%). Over half (52%) of the sample had a college degree or higher and nearly half were employed full-time (47%), while almost a third (30%) were enrolled in post-secondary education. Income was very low—an average of $17,265; on average, participants' unsecured debt (e.g., credit card balances) exceeded their liquid financial assets by $2,040 and only 21% owned their homes, though most (75%) had a savings account when they filed their taxes.

Table 2 reflects sample characteristics based on the period in which participants were randomly assigned, which also reflects time preference for filing taxes. Though there

TABLE 2. Sample Description by Intervention Period (*n* = 4,682)

	Period 1 % or Mean (*SD*)	Period 2 % or Mean (*SD*)	Period 3 % or Mean (*SD*)	All Periods	*p*
Outcome					
Added savings account	7.76	5.47	5.32	7.08	*
Covariates					
Age	35.03 (12.95)	36.32 (14.80)	37.60 (15.00)	35.62 (13.63)	***
Gender					
Female	59.38	61.06	62.03	59.97	ns
Male	40.62	38.94	37.97	40.03	ns
Race/ethnicity					
White	76.31	79.96	80.51	77.48	*
Black	9.15	7.45	5.86	8.40	**
Asian	2.05	2.66	3.44	2.33	ns
Hispanic	8.87	6.21	5.61	8.02	**
Other	3.62	3.72	4.59	3.78	ns
Filing Status					
Single	65.75	71.43	80.99	69.21	***
Married, filing jointly, widow(er)	14.85	16.40	11.15	14.31	*
Married, filing separately	0.84	0.88	0.89	0.84	ns
Head of household	18.55	11.29	6.97	15.64	***
Number of children under 17					
None	64.85	78.58	83.61		***
One	16.99	10.97	9.15		***
Two or more	18.16	10.44	7.25		***
Education					
High school diploma or less	15.98	5.31	5.32	12.95	***
Some college	38.76	27.08	26.36	35.38	***
College degree or higher	45.26	67.61	68.31	51.67	***
Current student	28.77	34.63	31.73	30.04	*
Employment status					
Employed full-time	48.81	46.37	41.24	47.29	**
Employed part-time	21.83	20.88	22.34	21.73	ns
Unemployed, looking for work	10.36	7.79	7.36	9.57	*
Unemployed, not looking	19.00	24.96	29.06	21.23	***
Adjusted gross income	17,433 (9,966)	18,126 (10,179)	15,939 (9,539)	17,314 (9,950)	***
Amount of federal tax refund	2,008 (2,104)	1,649 (1,892)	1,231 (1,425)	1,838 (2,007)	***
Own savings account	72.43	84.13	82.13	75.36	***
Financial shocks	1.08	0.96	0.99	1.06	**
Liquid financial assets	3,671	6,395	7,524	4,611	***
Unsecured debt	6,887	6,341	6,110	6,724	ns
Own home	20.23	21.69	22.69	20.92	ns
n	3,326	567	789	4,682	

* p < .05. ** p < .01. *** p < .001.

were no differences between treatment and control group participants within each period due to random assignment, several differences were found among participants across the three periods. Compared to Periods 2 and 3, Period 1 participants were more likely to have added a savings account and less likely to own a savings account when they filed their taxes. Also, Period 1 participants had larger average refunds and less education, and were younger and more likely to have children, be employed full-time, and be black or Hispanic.

Hypothesis Results

Results confirmed our hypothesis, as 7.4% and 5.1% of the treatment and control group participants added a savings account in the 6 months after filing taxes $\chi^2(1, N = 4{,}682) = 4.52$, $p < .05$. Table 3 shows descriptive statistics and adjusted model results from the logistic regression assessing the impact of receiving any Refund-to-Savings intervention on adding a savings account. Participants who received an intervention had 60% greater odds of opening a savings account in the 6 months after filing taxes compared to control group participants ($p < .05$), other things being equal. The unadjusted (i.e., without covariance control) result was similar: 43% greater odds among intervention participants ($p < .05$).

In addition, being a student was associated with 32% lower odds of opening a savings account, other things being equal ($p < .01$). For every $1,000 more in income and liquid financial assets, the odds of opening a savings account were 2% ($p < .01$) and 23% ($p < .001$) less, respectively, other things being equal.

Differences by Time of Tax Filing. Logistic regression models used to assess overall treatment effects were run for each filing period. In Period 1 (1/31/14 to 2/13/14), filers exposed to a savings intervention had 81% greater odds of opening a savings account compared to control group participants ($p < .05$), other things being equal. However, no statistically significant differences in opening a savings account based on intervention exposure were observed in Periods 2 (2/14/14 – 3/13/14) and 3 (3/14/14 – 4/17/14).

Differences by Specific Intervention Received. Out of 18 interventions, five resulted in statistically significant changes in savings account ownership, four of which were in Period 1 (see Table 4). In Period 1, participants who received a 25% anchor (i.e., suggestion to save 25% of one's refund) had 97% greater odds of adding a savings account ($p < .05$). Participants who received an emergency savings message with 25% and 50% anchors had 102% and 95% greater odds of adding a savings account, respectively ($p < .05$). Also, participants who received a saving for family message with a 25% anchor had 105% greater odds of adding a savings account, respectively ($p < .05$).

TABLE 3. Logistic Regression Predicting Opening a Savings Account (*n* = 4,569)

	OR	SE	*p*
Received intervention	1.60	0.31	*
Covariates			
Age	0.99	0.01	ns
Gender (Male)			
Female	0.78	0.10	ns
Race/ethnicity (White)			
Black	1.16	0.23	ns
Asian	1.01	0.48	ns
Hispanic	1.23	0.25	ns
Other	0.93	0.29	ns
Filing Status (Single)			
Head of household	1.01	0.23	ns
Married, filing jointly, widow(er)	0.85	0.21	ns
Married, filing separately	1.01	0.62	ns
Number of children under 17 (None)			
One	1.04	0.20	ns
Two	1.30	0.30	ns
Three or more	0.94	0.28	ns
Education (H.S. diploma or less)			
Some college	0.75	0.00	ns
College degree or higher	0.73	0.01	ns
Current student	0.68	0.12	**
Employment status (Unemployed, looking)			
Employed full-time	1.21	0.25	ns
Employed part-time	0.94	0.20	ns
Unemployed, not looking	1.05	0.26	ns
Adjusted gross income/1000	0.98	0.01	**
Amount of federal tax refund/1000	1.03	0.05	ns
Financial shocks	1.07	0.06	ns
Liquid financial assets/1000	0.77	0.03	***
Unsecured debt/1000	1.00	0.00	ns
Own home	0.97	0.17	ns
Intervention period (Period 1 – 1/31 – 2/13)			
Period 2 (2/14 – 3/13)	1.01	0.21	ns
Period 3 (3/14 – 4/17)	1.03	0.19	ns

* $p < .05$. ** $p < .01$. *** $p < .001$.

TABLE 4. Effects of Specific Interventions on Opening a Savings Account, by Intervention Period (*n* = 4,682)

	Unadjusted estimates				Adjusted estimates		
	n	**%**	**χ^2**	***p***	***OR***	**SE**	***p***
Period 1							
Control	449	5.12					
25%-Anchor	481	8.73	4.65	*	1.97	0.57	*
50%-Anchor	482	6.85	1.22	ns	1.54	0.46	ns
Emergency-25%	486	8.44	4.02	*	2.02	0.58	*
Emergency-50%	498	8.63	4.49	*	1.95	0.55	*
Future-25%	466	8.15	3.38	ns	1.72	0.51	ns
Family-25%	464	8.19	3.44	ns	2.05	0.60	*
Period 2							
Control	94	5.32					
50%-Anchor	77	5.19	0.01	ns	1.22	0.98	ns
75%-Anchor	72	11.11	1.89	ns	2.62	1.77	ns
Emergency-50%	86	5.81	0.02	ns	0.76	0.60	ns
Emergency-75%	75	6.67	0.14	ns	1.13	0.91	ns
Future-75%	73	4.11	0.13	ns	0.94	0.73	ns
Family-75%	90	1.11	2.58	ns	0.14	0.17	ns
Period 3							
Control	122	4.92					
Emergency-$100	109	3.67	0.22	ns	1.02	0.93	ns
Emergency-$250	126	2.38	1.14	ns	0.45	0.41	ns
Emergency-25%	114	6.14	0.17	ns	6.81	5.77	*
Future-$100	116	9.48	1.87	ns	1.86	1.07	ns
Future-$250	103	2.91	0.58	ns	0.75	0.68	ns
Future-25%	99	8.08	0.92	ns	2.75	1.79	ns

[a]Inverse Probability of Treatment Weighted Logistic Regression to correct for treatment-control group imbalance on covariate(s).

* $p < .05$. ** $p < .01$. *** $p < .001$.

In Period 2, none of the interventions resulted in statistically significant greater odds of adding a savings account. In Period 3, the emergency savings message with a 25% anchor resulted in 581% greater odds of adding a savings account ($p < .05$).

Discussion

In this study, we assess the effects of an online tax-time savings intervention on subsequent savings account openings among a sample of LMI tax filers. We find support for our hypothesis that receiving an online tax-time savings message induces a positive change in savings account ownership in the 6 months after filing taxes. Because tax filers were randomly assigned, we can conclude that the Refund-to-Savings interventions, and not other factors, explain the change in account ownership. Specifically, this study indicates LMI households can be encouraged to open savings accounts with simple, low-cost messages, encouraging them to save when they file their taxes online. This finding is consistent with prior research that finds an association between institutional supports and encouragement and savings behavior among LMI households (Beverly & Sherraden, 1999; Hogarth & Anguelov, 2003).

The rate of savings account ownership among LMI households lags well behind middle- and high-income households (FDIC, 2016). However, once deposited, funds in savings accounts tend to remain (Sikkel & van Meer, 2015), which

may help LMI households build assets (Sherraden, 1991). Savings accounts also help households set aside funds in the event of financial emergencies such as a job loss or major unexpected expense (Carroll & Samwick, 1998; Lusardi, 1998; Morduch & Schneider, 2017; Pew Charitable Trusts, 2017). Greater savings account ownership may also improve savings outcomes (FDIC, 2016; Friedline et al., 2014), and lessen risk for material hardship (Deaton, 1991; Gjertson, 2016) among LMI households. Therefore, promoting refund saving is a simple, low-cost way to promote greater financial inclusion and stability among LMI households.

The effects of simple, low-cost messages encouraging refund saving may endure over a period of time. The treatment effect we observe for account openings was based on a delayed response. That is, tax filers did not have a savings account when they filed their taxes, but opened one at some point in the ensuing 6 months. Receiving a savings message at tax time thus may plant a seed that compels LMI tax filers to subsequently open a savings account. Yet in relying on participant self-report, a limitation of our study is that we did not verify savings account ownership. Also, our findings may not fully generalize to the LMI tax filing population in the United States. Participants who filed their taxes online may have characteristics that systematically differ from other LMI persons who file their taxes using paid preparers or volunteer income tax assistance (VITA) programs.

For LMI taxpayers who file online, savings messages could be included in the software programs of participating companies in the Internal Revenue Service's (IRS) Free File Alliance, a low-cost, high-scale strategy for increasing savings account ownership. This strategy is consistent with the FDIC's Economic Inclusion policy agenda, which seeks to shrink the number of households without bank accounts, and with prior research concerning the influence of institutional factors such as access and facilitation in explaining savings behavior (Heckman & Hanna, 2015).

The timing of savings messages delivered through online tax filing programs matters. Though we find an overall treatment effect of these messages on savings account openings, this was true only among participants in Period 1—those who filed early in tax season (late January through mid-February) and were expecting larger refunds compared to later season filers. Filers without a savings account who expect a large refund of $2,000 to $3,000 and receive a savings message may make a mental accounting adjustment (Xiao & Olson, 1993) to allocate some of the refund later—after they have opened a savings account. Conversely, later-season LMI filers with smaller expected refunds might not be compelled to open savings accounts after receiving an online savings message at tax time. Consistent with prior research (FDIC, 2016), these filers with smaller refunds may feel they do not have enough money to warrant opening a savings account.

We also find that the type of message matters. Our results suggest that messages to save for emergencies and messages with lower percentage anchors may be more effective in promoting savings account take-up than other types of messages. The idea of opening an account to help with emergencies is consistent with prior research on the lessened risk of hardship associated with emergency savings (Gjertson, 2016) and savings deposits (Grinstein-Weiss et al., 2016) among LMI households, as well as concerning savings motivations (Lee & Hanna, 2015; Xiao & Noring, 1994).

However, a shortcoming of online tax filing as an opportunity to promote savings is that filers cannot open a savings account at the same time they are deciding about how to receive their refund—as a paper check or through direct deposit. Through the Free File Alliance, the IRS could establish the enabling regulatory framework and help broker partnerships between tax preparation companies and banks or credit unions to establish this functionality. A good time to open a savings account is when one has just received a large tax refund (Rhine, Su, Osaki, & Lee, 2006), which many LMI tax filers regard as an unexpected windfall (Hall & Romich, 2016). Enabling savings account openings as part of the online tax filing experience may also help LMI households who are uncomfortable with visiting a bank to open an account (Mauldin, Henager, Bowen, & Cheang, 2016).

Encouraging LMI tax filers to save their refunds is one way to increase savings account ownership. However, this does not address other factors that compel some consumers to eschew bank accounts. Friedline, Despard, Eastlund, and Schuetz (2017) found that only 9% of a random sample of banks offered entry-level checking accounts that meet core Bank On National Account Standards for safety and affordability (Cities for Financial Empowerment Fund, 2017). Account fees are considered too expensive and will remain a barrier to opening savings accounts among LMI consumers.

In addition, tax-time savings messages are unlikely to convince consumers who remain distrustful of banks and/or have had bad customer service experiences to open savings accounts. Thus, despite the benefits of savings account ownership outlined earlier, it may be unrealistic to expect 100% savings account ownership among LMI households.

In conclusion, we find that providing messages encouraging LMI individuals to save their refunds when they file their taxes online results in savings account openings in the months after tax filing. These messages are a low-cost way to promote savings account ownership among LMI households who file their taxes online. By owning savings accounts, these households may experience improved financial outcomes such as increased liquid financial assets and lessened risk for material hardship.

Implications for Practitioners

The importance of savings and saving account ownership suggests that during assessment, financial counselors, planners, educators, and social workers not just pay close attention to whether clients are banked, but to whether they have a savings account specifically. The results of this study indicate that simple messages delivered at tax time and focused on the importance of having savings for emergencies can motivate LMI clients to open savings accounts. As tax filing season approaches, practitioners might engage LMI clients in conversations about what they plan to do with their refunds and suggest setting aside at least part of their refund in savings. This may help prompt clients without savings accounts to consider opening one.

For LMI clients motivated to open savings accounts, practitioners can help identify banks and credit unions that offer no-fee savings accounts linked to low or no-fee checking accounts. Beyond the tax-time refund savings moment, practitioners can help clients identify strategies for making regular savings deposits, such as signing up for automatic deposits through their employer, and/or making larger deposits in months when income exceeds usual expenses by a greater amount than usual (Worthington, 2004). Still, practitioners should recognize that many consumers save and incur debt simultaneously (Spencer & Fan, 2002) and that debt can crowd out saving (Cavanagh & Sharpe, 2002). Thus, there may be instances when it is more beneficial for clients to reduce debt (especially on high interest, unsecured debt) than to increase savings.

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Appendix

List of Intervention Groups

Period 1 (Jan. 31 – Feb. 13)		Period 2 (Feb. 14 – Mar. 13)		Period 3 (Mar. 14 – Apr. 17)	
	n		***n***		***n***
Control	451	Control	94	Control	124
25%-Anchor	487	50%-Anchor	78	Emergency-$100	111
50%-Anchor	492	75%-Anchor	72	Emergency-$250	127
Emergency-25%	496	Emergency-50%	88	Emergency-25%	116
Emergency-50%	504	Emergency-75%	75	Future-$100	117
Future-25%	471	Future-75%	73	Future-$250	104
Family-25%	467	Family-75%	91	Future-25%	100
Total	3,368	Total	571	Total	799

Prompt	Message
Emergency	"Do you have enough money for an emergency? A Harvard study found that most Americans could not come up with $2,000 for something unexpected. We can help you stay prepared."
Family	"Have a family or thinking of starting one? Start building a bright future for them."
Future	"Save for your future, and get peace of mind. Feel more secure about your future with a little extra money in the bank."
Generic	"Why not save a little money? You can split your federal refund into a savings account or get a US Series 1 Savings Bond."