



# Effects of Monitoring on Mortgage Delinquency: Evidence from a Randomized Field Study

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# Systematic Inattention of Homebuyers?

- Early Mortgage Delinquency
  - Up to 1 in 10 homebuyers is seriously delinquent in the first year (Anderson and Dokko, 2010)
- Unexpected Expenses
  - About ½ of new LMI homeowners experienced major unexpected home repairs, and 1/3 reported major unexpected increases in utility costs, property taxes, or homeowner's insurance within the first 2 years (Van Zandt and Rohe, 2011)
- Increased Consumption
  - Consumer Expenditure Survey, median household shifts 5% of annual income to household durable goods, home-related consumption and home maintenance/improvement services (Siniavskaia, 2008)
- **Self control and attention problems may underlie early payment default**
  - Borrowers overspend on goods and services for the home
  - Not be experienced in making regular loan payments
  - Underestimate the potential for unexpected budget shortfalls.



# Inattention Problems

## Common Behavioral Biases

- Neglect future consequences
- Salience
- Failures in cognition

## Solutions?

- Planning/Goals
- Reminders
- External monitoring



# Study Design: Field Experiment

The screenshot shows the MyMoneyPath website. At the top, there is a navigation bar with the MyMoneyPath logo, a search bar, and a login section. Below the navigation bar is a large banner image of a woman running, with the text "Get a free financial checkup to help you find out where you are and where you can go." and a "Get Started" button. Below the banner is a text box explaining the partnership with Ohio State University and listing the benefits of the free financial checkup. Below this is a two-step process diagram: Step 1: "You tell us a little about your financial situation by answering simple questions, like how much you make each month and what kinds of debts you have." Step 2: "We help you understand how your finances are doing, where you can improve, and what you can do in the future." At the bottom, there is a footer with the text "MyMoneyPath is a free service made possible in partnership with:" and logos for The Ohio State University, The University of Wisconsin, and the Ohio Housing Finance Agency.

my**money**path

email  youraddress@email.com password  Login Forgot your password?

Get a free financial checkup to help you find out **where you are** and **where you can go.**

Get Started

The Ohio Housing Finance Agency is partnering with Ohio State University to provide a new, **FREE online financial checkup** to new homebuyers!

- Get a quick snapshot of your financial health in 5 important areas.
- It only takes about 10 minutes to complete.
- Respond honestly—the information you provide won't be used to approve your mortgage application.
- The information you provide won't be shared with your lender.
- And, after you complete the free check-up, you can receive a \$25 gift card and additional free financial planning tools.

**1** You tell us a little about your financial situation by **answering simple questions**, like how much you make each month and what kinds of debts you have.

**2** We help you understand **how your finances are doing, where you can improve, and what you can do in the future.**

Have questions? [Email us anytime](#); we're happy to help!

MyMoneyPath is a free service made possible in partnership with:

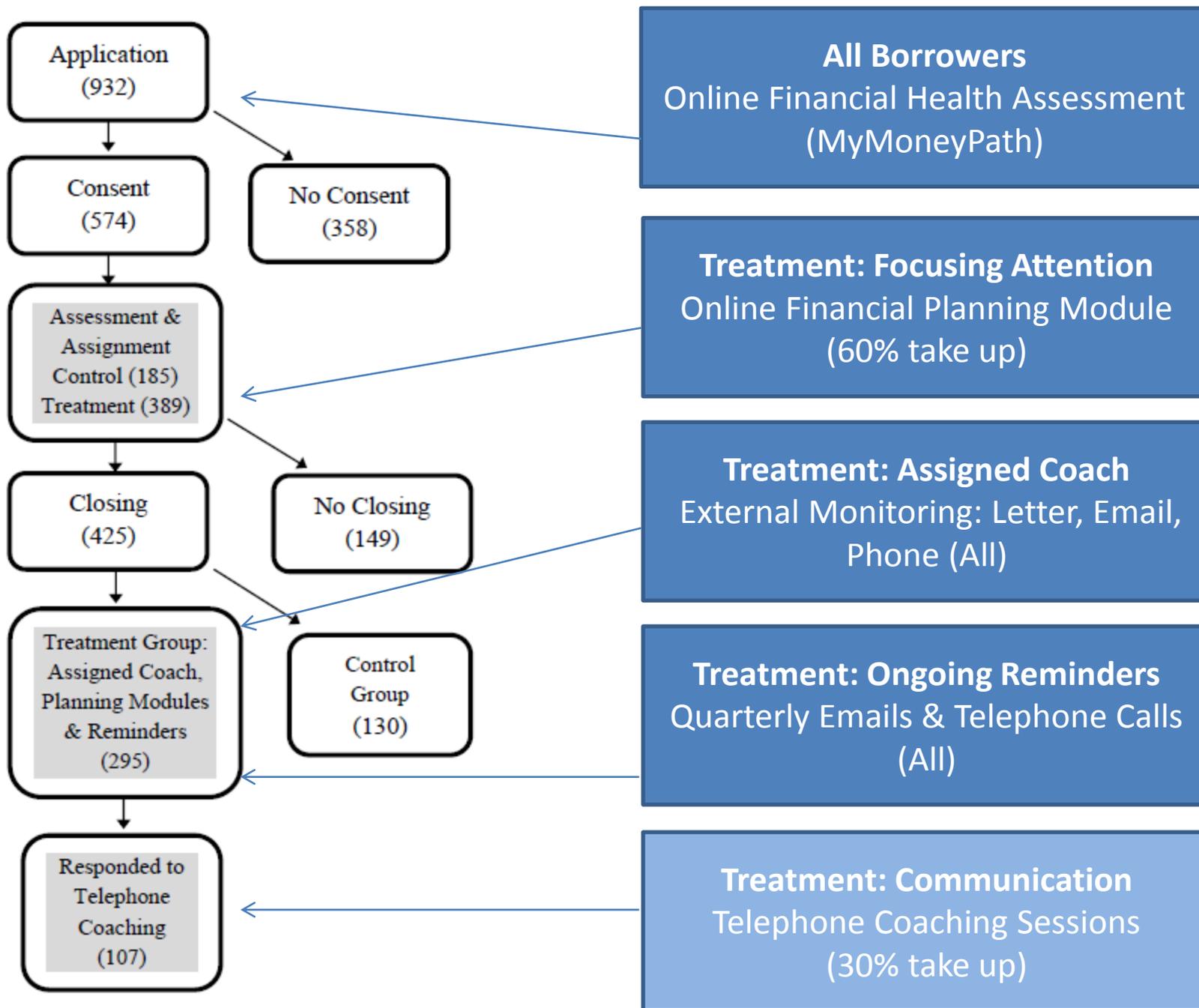
THE OHIO STATE UNIVERSITY THE UNIVERSITY OF WISCONSIN OHIO HOUSING FINANCE AGENCY

## Ohio Housing Finance Agency's First Time Homebuyer Program

- June-December, 2011
- MRB funded mortgages
- Online education and telephone counseling required

## MyMoneyPath

- Online financial assessment, red-yellow-green cautions; then assigned randomly to treatment
- Online planning module
- Quarterly follow-up by letter, email and phone (offer coaching)



# Screenshot of Assessment Tool

**my money path**

My Answers Account Settings Log Out

Click any previously completed step in this progress bar to jump there and edit your answer.

Getting Advice Last Questions Confirmation Budget Results Borrowing Savings Housing

See Set Do See Do See Set Do S

**Guidance**

Have a question? Need support? Shoot us an email at [support@mymoneypath.com](mailto:support@mymoneypath.com) and one of our team members will be happy to help.

### Your Path

Congratulations! You have completed the MyMoneyPath check-up. This is an important step to take control of your personal money path. This special tool helps you review your current situation. Using this tool you can decide if there are changes that you need to make to keep you on your money path. The traffic lights below will help you identify areas that might need some attention. After viewing your results, you will be able to create your own personalized money plan.

The traffic lights let you know whether you should:

-  **Continue on your path**
-  **Proceed with caution**
-  **Stop and make a change**

**Budgeting**

 Stop! Budgeting needs immediate attention. You can't follow the path to a healthy financial future without changing your behaviors here. Take some time, make a plan, and get back on track!

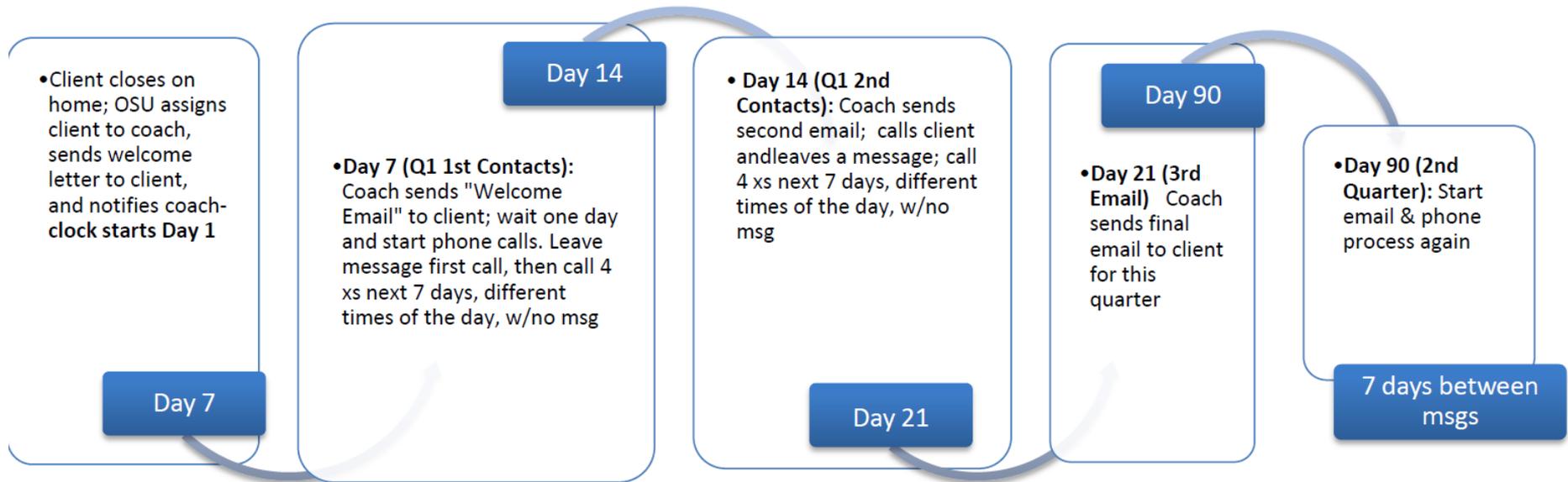
Here are a few places to look for some help:

- [Tips: The 10-minute guide to budgeting](#)
- [Video: Getting started with budgeting](#)
- [Tool: Beehive helps you budget](#)

**You currently have not set up a budget for your finances**  
A spending plan can help you spend on your priorities and prioritize your spending.

**You currently do not stick to your budget**  
Try tracking your spending for the next couple of weeks to get a feel for where your money is actually going. Then recreate a budget to better reflect your goals in light of your circumstances.

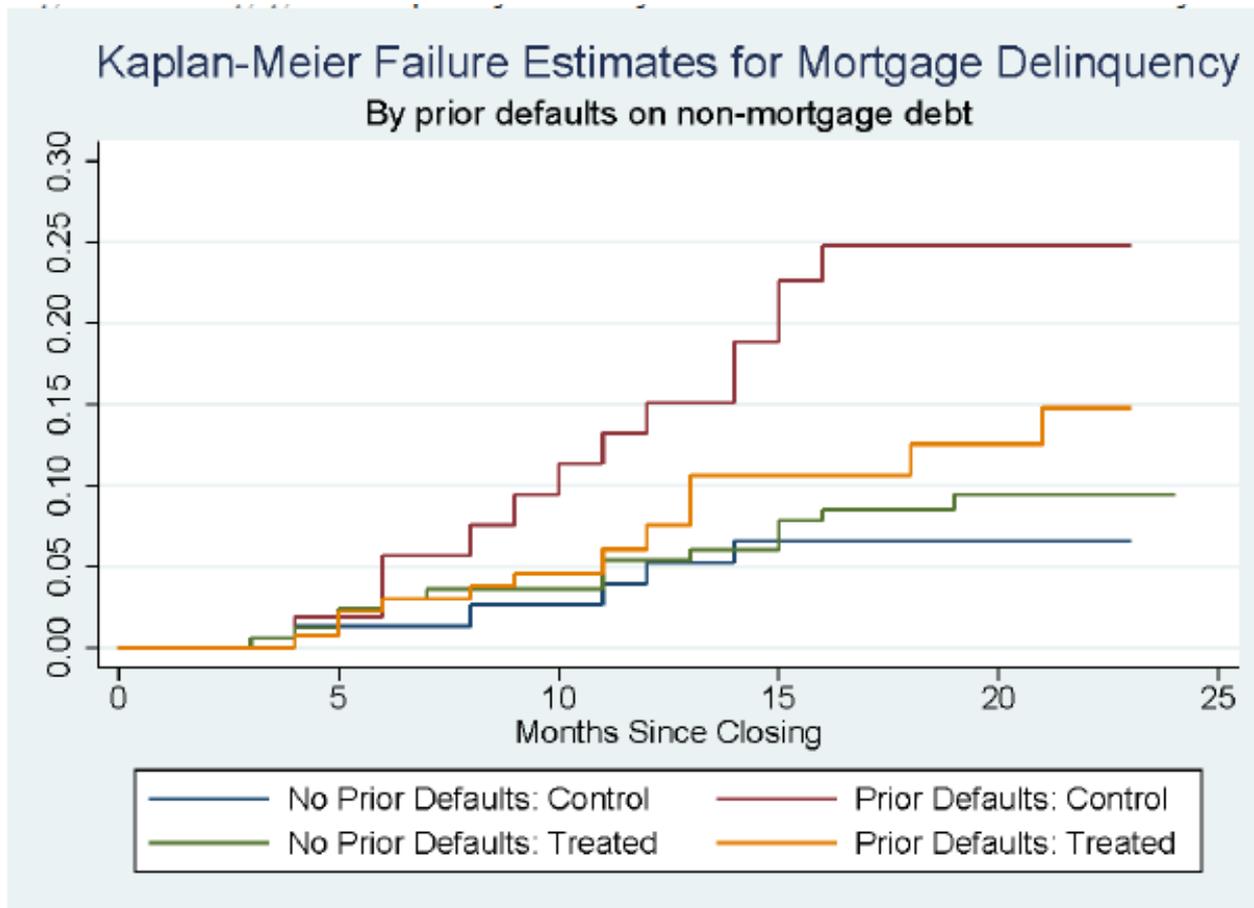
# Contact Schedule



# Descriptive Characteristics (Baseline)

	Control	Treatment	Total
Credit Score	674.13	665.95	668.44
Monthly income	\$3,856	\$3,732	\$3,770
LTV	97.9%	98.6%^	98.4%
Female	44.6%	47.1%	46.4%
Age	33.31	32.25	32.58
College Degree	36.2%	35.3%	35.5%
Minority	11.5%	15.3%	14.1%
HH Size	2.4	2.4	2.4
Total Savings	\$2,987	\$3,239	\$3,162
Future Discounting	6.15%	9.49%	8.47%
<b>Prior Defaulters</b>	<b>41.5%</b>	<b>44.7%</b>	<b>43.8%</b>
<i>Observations</i>	<i>130</i>	<i>295</i>	<i>425</i>

# DV: Mortgage Delinquency



# Experiment- ITT

Estimate average treatment effects (ATE) for  $Y$  for loan  $i$ :

$$Y_i = \alpha_0 + \beta_1 \text{Treatment}_i + \epsilon_i \quad (1)$$

Treatment was randomly assigned:  $\beta_1$  provides a causal estimate of the effects

$\epsilon_i$  is a Huber–White corrected standard error.



# Probit, Treatment Estimates for Mortgage Delinquency in first 15 months

All Borrowers			
	(1)	(2)	(3)
Treatment	-0.2087 (0.173)	-0.2165 (0.191)	-0.2596 (0.198)
Loan Controls	No	Yes	Yes
Borrower Controls	No	No	Yes
N	425	425	425
r2	0.005	0.162	0.192

Borrowers with Delinquencies in Last Year			
	(1)	(2)	(3)
Treatment	-0.4830** (0.240)	-0.4574* (0.256)	-0.4703* (0.260)
Loan Controls	No	Yes	Yes
Borrower Controls	No	No	Yes
N	186	178	178
r2	0.027	0.117	0.121

Marginal effects; r2 is pseudo estimated coefficient of determination.

Probit. Loan Controls include baseline credit score, delinquent on trades; Borrower controls include income, gender, debt to income, age, education, race, time in home, savings, time preferences.

(d) for discrete change of dummy variable from 0 to 1

\*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$



# OLS, Treatment on Account Balances at One Year Follow-Up

	(1) Installment Debt (Ln) b/se	(2) Revolving Debt (Ln) b/se	(3) Savings (Ln) b/se
<i>Panel 1: All Borrowers</i>			
Treatment	0.1871 (0.245)	-0.1574 (0.177)	0.5383* (0.296)
N	424	424	225
r2	0.331	0.467	0.248
<i>Panel 2: Prior Defaulters</i>			
Treatment	0.2871 (0.379)	-0.0912 (0.192)	0.9137* (0.541)
N	186	186	88
r2	0.341	0.539	0.309

OLS Log-Log model for account balance at baseline, predicting account balance at follow-up. Controls (not shown) include baseline credit score categories, income, gender, debt to income, LTV, age, education, race, time in home, savings, time preferences.

\*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$



# Probit, Treatment on Financial Behaviors at One Year Follow-Up

	(1) Revolving Debt up 2k+	(2) Installment Debt up 2k+	(3) Saving Money- post	(4) Automatic Mortgage Payment	(5) Use Budget- post
<i>Panel 1: All Borrowers</i>					
Treatment	-0.2876** (0.143)	0.0221 (0.139)	0.4336** (0.201)	0.7639*** (0.234)	0.0830 (0.207)
N	425	424	223	223	225
Pseudo R2	0.042	0.053	0.068	0.132	0.103
<i>Panel 2: Prior Defaulters</i>					
Treatment	-0.4226* (0.238)	0.2711 (0.218)	0.0368 (0.338)	1.3003** (0.510)	0.2301 (0.393)
N	186	186	85	81	88
Pseudo R2	0.113	0.077	0.059	0.235	0.297

Marginal effects Probit. Controls (not shown) include baseline credit score categories, income, gender, debt to income, LTV, age, education, race, time in home, savings, time preferences.

\*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$



# Effects of Monitoring

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## Mortgage Delinquency

- For the total sample, 12 percent of borrowers had experienced 60 day delinquency within the first 15 months after purchase.
  - Slightly lower rates for treatment group: 11% compared with 13%
- Treatment effects concentrated among those with history of missed payments
  - 12.9% delinquency, compared with 24.1% for control group
  - Nearly cuts delinquency rate in half (46-48%)

## Mechanisms?

- Lower revolving debt (>\$2,000 or more)
- Use of automatic payments
- Self-reported savings
- No evidence for budgeting behaviors



# Policy Implications

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## Current Goal: Reduce Risk

- Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010: limit risky mortgage characteristics that have been associated with higher rates of default.
  - Certain households may be disproportionately disadvantaged by such policy changes
- Rigid credit underwriting regulations may undervalue well-designed behavioral mechanisms.
  - Simple, attention focusing interventions
  - Targeted to borrowers with histories of missed payments
  - Reminders via letter, email and phone; automated text messages?



# Final Thoughts

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- Generalizability
  - Sample of first-time homebuyers in a state-subsidized mortgage program
  - Meets FHA guidelines
- Scalability
  - Private sector arbitrage opportunity?
  - Public sector take the lead?
- Modifications
  - Simpler financial assessment and goal modules
  - Automated reminders- does assigned coach matter?
  - Other credit repayment behaviors

