Take-up of Financial Education: Demographic Characteristics and Prior Knowledge

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Disclaimer

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Motivation

• Consumer financial decisions can be complicated
  • Getting a mortgage is one of the most substantial financial commitments a consumer makes
• Many policymakers support helping consumers through financial education
• But: Who uses educational materials?
  • What are their demographic characteristics?
  • Are they already knowledgeable?
Correlates of take-up

• Relatively little work on correlates of take-up, as many papers use data solely from participants

• Some literature on who uses investment advice
  • Generally positive correlations between take-up and income, educational attainment (Bucher-Koenen & Koenen, 2012; Kramer, 2016; Lin and Lee, 2004; Scholl et al., 2018)
Prior Knowledge and Take-Up

• Substantial psych/marketing literature on the role of prior knowledge in search

• Types of knowledge:
  • Objective – what individuals *actually* know
  • Subjective – what individuals *perceive* they know
  • Product experience – e.g., prior purchases

• Unfortunately, mixed findings
### Literature on Prior Knowledge

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th>Negative</th>
<th>Inverted U</th>
<th>No relationship</th>
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</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
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<tr>
<td></td>
<td>Mishra &amp; Kumar 2011</td>
<td>Miyake &amp; Norman 1979</td>
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<td></td>
<td>Calcagno &amp; Monticone 2015</td>
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<tr>
<td></td>
<td>Ward &amp; Lynch 2018</td>
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<tr>
<td><strong>Subjective</strong></td>
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<tr>
<td></td>
<td>Lin &amp; Lee 2004</td>
<td>Duncan &amp; Olshavsky 1982</td>
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<td></td>
<td>Loibl &amp; Hira 2009</td>
<td>Locander &amp; Hermann 1979</td>
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<td></td>
<td>Mishra &amp; Kumar 2011</td>
<td>Radecki &amp; Jaccard 1995</td>
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<tr>
<td><strong>Proxy</strong></td>
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<td></td>
<td>Rao &amp; Sieben 1992</td>
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</table>
Research Questions

• How are (1) demographic characteristics and (2) prior knowledge associated with use of an online financial education tool?
  • Examine both the decision to take-up the tool and the intensity of use (time)

• Do survey measures of use show the same relationships as clickstream data?

• Note: Correlational analyses
Study Background

- Emails to 5.2M
- 99k responses, 23k eligible
- 19k complete first survey
- 6k encouraged to go to website

- Demographics of sample match profile of 2015 new mortgages (National Survey of Mortgage Originations)
Encouragement Design

• Subset encouraged to visit online educational resources in survey and follow-up emails

Hello,

You successfully submitted your first survey! Thank you—we really appreciate your participation. In about two weeks, we’ll contact you again to see how things are going.

In the meantime, check out the Consumer Financial Protection Bureau’s free “Owning a Home” tools. They’ll help you navigate the home buying process, ask the right questions, and choose a mortgage that’s right for you.

What mortgage rates can you expect? How do you know if a mortgage offer is a good deal? The Owning a Home tools will help you answer these questions and more.

The CFPB is a government agency with one purpose—to look out for consumers in the financial marketplace. We have nothing to sell, and we put your interests first. The tools are free, easy to use, customized to your situation, and can save you time and money. Check out Owning a Home now.

Thank you,

Dustin Beckett
Lead Researcher, Home Buying Study Team
Consumer Financial Protection Bureau
dustin.h.beckett@cfpb.gov

• Track use

• Follow-up surveys at two week intervals
Owning a Home

Tools and resources to educate and empower consumers when shopping for a mortgage.

• Overall Process
• Explore Interest Rates
• Understand Loan Options
• Loan Estimate and Closing Disclosure Explainers
• Closing Resources: Closing Checklist and Guide to Closing Documents

• Note: Site has been revised so results may not reflect current tool.
Subjective Knowledge

• “What individuals perceive that they know” (Brucks, 1985)

• 12-point scale increasing in confidence (M=5.9, SD=3.0)
  • $\alpha = .82$

• Ex: How confident are you that you can tell when a mortgage offer is a bad deal?
  • Ans: Not at all confident (21%); Somewhat confident (55%); Very confident (24%).
Objective Knowledge

• Information “actually stored in memory” (Brucks 1985)

• 12-point scale increasing in mortgage knowledge and financial literacy (M=6.5, SD = 2.9)

• Ex: Which of these is most likely to happen if a borrower cannot make a 20% down payment?
  • Answer: The borrower will have to pay for mortgage insurance
  • 67% correct, 16% incorrect, 16% don’t know
Experience

• We also capture if participants have bought a home before, and if so, how recently

• 57% are prior homebuyers

• Correlations:
  • Experience and objective knowledge: 0.39
  • Experience and subjective knowledge: 0.30
  • Subjective and objective knowledge: 0.40
Additional Demographics

- Age (18-29, 30-39, 40-49, 50+)
- Race/ethnicity
- Educational attainment
- Annual household income (< $35k, $35-50, ..., $175k+)
- Employment status
- Parental status
- Marital status
- Self-reported credit score
- Use of a real estate agent
Usage Data

**Clickstream**
- Worked with website analytics team to measure use
- 36.7% of participants visited the site in the first two weeks
- Of those who went, mean duration was 10.9 minutes (SD=19.2 minutes)

**Survey**
- 5.8% report using CFPB mortgage resources in the first follow-up survey
Survey vs. clickstream data

• Few people reported going, but those who did report were fairly accurate.

<table>
<thead>
<tr>
<th>Two Weeks after Enrollment</th>
<th>N</th>
<th>Used website</th>
<th>Did not use website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported use in survey</td>
<td>267</td>
<td>194</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(72.7% correct reports)</td>
<td></td>
</tr>
<tr>
<td>Did not report use</td>
<td>4297</td>
<td>1535</td>
<td>2761</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(64.3% correct reports)</td>
</tr>
</tbody>
</table>
Demographic characteristics and take-up
Binary take-up: Demographics

- Logistic regression using demographic characteristics to predict likelihood of using site in first two weeks

- Not significant:
  - Other race/ethnicity
  - Education
  - Employment
  - Income (inconsistent)
  - Marital status
  - Parental status
  - Use of real estate agent

<table>
<thead>
<tr>
<th></th>
<th>Clickstream (Odds ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (vs. 18-29)</strong></td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>1.37***</td>
</tr>
<tr>
<td>40-49</td>
<td>1.49***</td>
</tr>
<tr>
<td>50+</td>
<td>2.08***</td>
</tr>
<tr>
<td><strong>Asian</strong></td>
<td>1.53***</td>
</tr>
<tr>
<td><strong>Superprime (vs. sub)</strong></td>
<td>1.17*</td>
</tr>
<tr>
<td><strong>Experience</strong></td>
<td></td>
</tr>
<tr>
<td>before 1999</td>
<td>0.71***</td>
</tr>
<tr>
<td>2000-2004</td>
<td>0.63***</td>
</tr>
<tr>
<td>2005-2007</td>
<td>0.68***</td>
</tr>
<tr>
<td>2008 or later</td>
<td>0.51***</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>6227</td>
</tr>
</tbody>
</table>

If odds ratio <1, less likely; if >1, more likely
Intensity of use: Demographics

• OLS regression to predict time on website in first two weeks.
  • Usage during entire survey shows pattern with age

<table>
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<tbody>
<tr>
<td>Age (vs. 18-29)</td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>-40.9</td>
</tr>
<tr>
<td>40-49</td>
<td>-159.7</td>
</tr>
<tr>
<td>50+</td>
<td>-325.6***</td>
</tr>
<tr>
<td>Other (race/ethnicity)</td>
<td>-238.5*</td>
</tr>
<tr>
<td>N</td>
<td>2284</td>
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</tbody>
</table>
Prior knowledge and take-up
## Binary take-up: Prior Knowledge

- Logistic regression using demographic characteristics + prior knowledge to predict likelihood of using site
  - Additional regressions to test for u-shape and interactions
- Robustness tests for entire survey use
  - Clickstream (Odds ratio) | Self-report (Odds ratio)
  |--------------------------|--------------------------|
  | Obj. Knowledge | 1.09*** | 1.14***
  | Subj. Knowledge | 0.87*** | 0.94*
  | Experience before 1999 | 0.74*** | 0.56*
  | 2000-2004 | 0.63*** | 0.54*
  | 2005-2007 | 0.68*** | 0.63*
  | 2008 or later | 0.51*** | 0.42***
  | Demographics | Yes | Yes
  | N | 6175 | 4501

If odds ratio <1, less likely; if >1, more likely
Take-up at different levels

- **Objective Knowledge**
  - SK ~ 6
  - OK ~ 6
  - P(use) ~ 35%

- **Subjective Knowledge**
  - SK ~ 9
  - OK ~ 7.4
  - P(use) ~ 27%
  - SK ~ 6.5
  - OK ~ 9
  - P(use) ~ 40%
Intensity of use: Prior Knowledge

• OLS regression to predict time on website in first two weeks.
  • Usage during entire survey shows Objective B = 52.3** and Subjective B = -49.4**
  • Additional regressions to test for u-shape and interactions

<table>
<thead>
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<tbody>
<tr>
<td>Obj. Knowledge</td>
<td>16.9</td>
</tr>
<tr>
<td>Subj. Knowledge</td>
<td>-35.2***</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
</tr>
<tr>
<td>before 1999</td>
<td>13.4</td>
</tr>
<tr>
<td>2000-2004</td>
<td>-103.8</td>
</tr>
<tr>
<td>2005-2007</td>
<td>-91.9</td>
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<tr>
<td>2008 or later</td>
<td>-117.7</td>
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<tr>
<td>Demographics</td>
<td>Yes</td>
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<tr>
<td>N</td>
<td>2269</td>
</tr>
</tbody>
</table>
Intensity of use at different levels

SK ~ 6
OK ~ 6
Secs~ 490

SK ~ 6.5
OK ~ 9
Secs~ 525

SK ~ 9
OK ~ 7.4
Secs~ 375

Objective Knowledge
Subjective Knowledge
Results and Implications

• Analysis using surveys shows similar results to clickstream data
  – Helps validate use of survey reports as proxies for search

• Difficult to predict take-up from demographics, raising questions about efficient marketing
Results and Implications

• Prior knowledge is related to take-up
  – Objective knowledge correlates positively
  – Subjective knowledge correlates negatively
  – Homebuying experience correlates negatively

• Can policymakers access prior knowledge?

• If causal, results suggest potential interventions for marketing financial education (“You might be surprised to learn that...”)
Thank you