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Does shopping for a mortgage make consumers better off?

Know Before You Owe: Mortgage shopping study – brief #2



This is the second in a [series of research briefs](#) on homebuying and mortgage shopping developed by the Bureau of Consumer Financial Protection's Office of Research and Division of Consumer Education and Engagement. This research brief draws heavily on the first brief in this series, which describes the study and research methodology in detail. Information on the Bureau's study design, technical details and definitions, and descriptions of the data can be found in the [first brief](#).

1. Introduction

The primary goal of the Bureau’s research study was to examine the effect of comparison shopping and consumers’ outcomes in the home and mortgage markets. The study used a randomized control trial in which a group of consumers was encouraged to conduct mortgage-related shopping (the “treatment group”) and their outcomes were subsequently compared to a control group which did not receive such encouragement. In this brief, Bureau researchers first examine whether the intervention effectively encouraged the treatment group to shop more. Finding positive results, researchers then examined whether the encouragement affected any of the three key outcome measures:

- consumers’ knowledge of the mortgage market
- consumers’ confidence in their ability to handle home- and mortgage-related activities
- the terms of the mortgages homebuyers receive

2. Mortgage shopping

The study measured shopping in three ways: (1) the number of lenders the participant reported contacting; (2) the number of preapproval and prequalification letters the participant reported obtaining; and (3) the number of official Loan Estimates the participant reported receiving. The three measures were intended to quantify how broadly each consumer searches and at what level of depth. Contacting a lender is, of course, required for any further engagement and therefore the number of lenders a participant contacts is indicative of the breadth of their mortgage shopping. Obtaining either a preapproval letter or a Loan Estimate requires further engagement with a lender, including the submission of personal and financial information. Measures of these activities are therefore intended to give a sense of how broadly participants engaged with lenders on a deeper level.¹

Table 1 displays the average number of lenders contacted, pre-approval letters obtained, and Loan Estimates obtained (standard errors are in parentheses²). The first row contains measures for the entire study population, and the second row contains measures for the subset of participants who reported purchasing a home during the study. Participants who reported purchasing a home reported engaging in each of these activities more than the study population

¹ Although many borrowers obtain a preapproval letter prior to obtaining a Loan Estimate, this order is not required, and, indeed, a preapproval letter is never required to consummate a mortgage. The values of these documents are also different. A preapproval letter gives a borrower some assurance that the lender is willing to lend to them. A Loan Estimate does not provide this assurance, and rather, estimates the cost of a potential loan to the borrower.

² Standard errors are used in this brief as a measure of the precision of their associated estimates. The standard error of 0.02 in the third column of Table 1 means that researchers can be fairly confident that the average number of lenders contacted in the Bureau study, 1.74, is within 0.02 of the population average (that is, the average obtained if researchers surveyed the entire relevant population). In other words, researchers are about 95 percent confident that the Bureau estimate is within 0.04 (2 x 0.02) of the population average. In this case, the standard error is small relative to the estimate, so the research team can be confident that the population average is not too far from the Bureau's estimate of 1.74.

as a whole. This difference is natural since the study population includes individuals who gave up their home search as well as individuals who did not advance their home search as far as they expected to at the beginning of the study. Perhaps reflecting the increasing levels of required effort, and also reflecting the (essentially) sequential relationship of the activities, both rows show that participants reported contacting more lenders than obtaining preapproval letters, and obtaining more preapproval letters than Loan Estimates.

TABLE 1: REPORTED CONTACT WITH LENDERS, MEAN (SE)

	Obs.	Lenders contacted	Preapproval letters	Loan Estimates
Study population	12,320	1.74 (0.02)	1.21 (0.02)	0.78 (0.01)
Purchased a home	4,142	2.04 (0.04)	1.96 (0.03)	1.37 (0.03)

Table 2 displays the same average measures among the study population, separated by whether participants were in the control group or the treatment group. The table shows that, on average, participants in the treatment group reported contacting 0.44 (28 percent) more lenders, received 0.26 (23 percent) more preapproval letters, and received 0.19 (26 percent) more Loan Estimates. Each of these differences is highly statistically significant (t-tests; p-values < 0.001), and the results persist when the analysis controls for demographic, baseline status, and attitudinal measures.

TABLE 2: REPORTED CONTACT WITH LENDERS, BY TREATMENT GROUP, MEAN (SE)

	Lenders contacted	Preapproval letters	Loan Estimates
Control group	1.58 (0.04)	1.11 (0.03)	0.71 (0.02)
Treatment group	2.02 (0.04)	1.37 (0.03)	0.90 (0.03)
Difference	0.44 (0.06)	0.26 (0.04)	0.19 (0.03)

As discussed in the first brief in this series, because participants in the treatment group were treated identically to those in the control group except for the fact that they were encouraged to shop, differences in shopping behavior can be said to have been caused by the shopping encouragement. The result that the treatment successfully encouraged shopping behavior is an important first step for the analyses that follow; since the study successfully increased shopping

behaviors in the treatment group, Bureau researchers can now explore whether this increased shopping is associated with other important outcomes.

3. Homebuying and study completion

Bureau researchers next examine whether assignment to the treatment group affected participants' likelihoods of completing the Bureau study or buying a home. It is important to consider whether treatment affected participants' likelihood of completing the study because if it did, this could mean that any results researchers find are driven by differences in *who completed the study* rather than an actual change in outcomes across the group's population.³ The research team is interested in whether treatment affected participants' likelihood of buying a home because reducing the likelihood might be considered an adverse effect of the treatment.

Table 3 shows that participants in the treatment group were 2.1 percentage points (4.68 percent) less likely to complete the study. This difference is statistically significant, meaning that the research team can be highly confident that fewer people completed the study *because* they were in the treatment group, and not due to random chance. This result is essentially the same when the analysis controls for demographic, baseline status, and attitudinal measures. This result tells us that the analyses that follow must attempt to account for this difference so as not to confuse effects due to selection bias with effects due to treatment. One way to do this is to control for a variety of observable variables, such as demographics, how far participants had progressed in their home and mortgage searches when they began the study, and certain psychological and

³ This would be a form of selection bias. See the first brief in this series for a lengthier discussion on this topic.

attitudinal measures. By including these variables in the analyses, Bureau researchers attempt to account for any disparities in outcome measures that are attributable to these variables.⁴

Table 3 also shows that participants in the treatment group were 0.32 percentage points (1.61 percent) less likely to purchase a home. This difference is not statistically significant, meaning that researchers lack the confidence to conclude that the difference is due to anything other than random chance. This difference is also not economically significant, meaning that it is relatively small. This result is not significantly altered when the analysis controls for demographic, baseline status, and attitudinal measures.

TABLE 3: REPORTED PURCHASE OF HOME OR COMPLETION OF THE STUDY, BY TREATMENT GROUP, PROPORTION (SE)

	Purchased a home	Completed study
Control group	0.2056 (0.005)	0.449 (0.006)
Treatment group	0.2023 (0.005)	0.428 (0.006)
Difference	-0.0032 (0.007)	-0.021 (0.009)

⁴ For a full accounting of methods used to account for differential attrition please see Beckett and Chin (in progress). For an in-depth analysis of the characteristics that correlate with attrition in this study, please see Chin, Couper, and Beckett (forthcoming).

4. Knowledge

The first outcome of interest was participants' knowledge of the mortgage market. Brief 3 will have an in-depth discussion of the knowledge scale used as well as an in-depth analysis of the participants' responses. In short, the Bureau asked each participant nine multiple-choice questions on mortgages and homebuying, each with a single right answer. These questions were asked both at the beginning of the study and at the end of the study to assess how participants' knowledge changed over the course of the study. In scoring participants' responses, they received one point if they answered a question right, and zero points otherwise. Knowledge scores therefore ranged from zero to nine.

Table 4 displays intent-to-treat (ITT) estimates of the average difference between the treatment and the control groups. ITT estimates were discussed in generality in the [first brief](#) in this series. As ITT estimates, the differences displayed in the table are measures of the effect of *encouragement to shop* on the *entire treatment group's* (average) knowledge. The middle column displays average differences in participants' knowledge scores measured at the end of the study. Participants in the treatment group answered about 0.19 more questions (3.5 percent) correctly than the control group. The last column displays changes in knowledge scores relative to participants' baseline knowledge scores. These data show that participants in both groups became more knowledgeable over time, with the control group answering 0.42 more questions correctly at the end of the study than at the beginning, on average. However, the treatment group increased its score by approximately 0.21 (50.0 percent) more over the same period. Controlling for demographic, baseline status, and attitudinal measures; including participants' baseline knowledge scores; and adjusting for differential completion rates; does not significantly alter the result. Each of these differences is highly statistically significant (p-values < 0.001).

TABLE 4: ITT ESTIMATES OF THE EFFECT OF TREATMENT ON KNOWLEDGE, MEAN (SE)

	Post-study knowledge	Change in knowledge
Control Group	5.47 (0.04)	0.42 (0.03)
Treatment Group	5.66 (0.04)	0.63 (0.03)
Difference	0.19 (0.06)	0.21 (0.04)

5. Confidence

The second outcome of interest was participants' confidence in their abilities to handle issues related to mortgage and homebuying processes. The study asked each participant six questions related to their subjective assessment of their ability to handle home- and mortgage-related tasks. These questions were asked both at the beginning of the study and at the end of the study in order to assess how participants' confidence changed over the course of the study. Each response was scored between "zero," which indicated the participant lacked confidence, and "two," which indicated the participant was very confident. Participants were then assigned the average of their responses across the six questions to be their total confidence score. Confidence scores therefore ranged from 0 to 2. The following two questions are examples from the Bureau survey:

1. How confident are you that you can tell when a mortgage offer is a bad deal?
2. How confident do you feel when talking to lenders?

Table 5 displays intent-to-treat (ITT) estimates of the average difference between the treatment and the control groups' confidence scores. As ITT estimates, the differences displayed in the table are measures of the effects of *encouragement to shop* on the *entire* treatment group's (average) confidence. The middle column displays differences in participants' average confidence scores. The average confidence score of participants in the treatment was about 0.06 more (5.4%) than that of the control group. The final column displays changes in confidence relative to participants' baseline measures. These data show that participants in both groups became more confident over time, with the control group's average confidence score increasing by 0.11. However, the treatment group's average score increased by approximately 0.05 (45 percent) more over the same time period. Controlling for demographic, baseline status, and attitudinal measures; including participants' baseline confidence scores; and adjusting for differential completion rates; does not significantly alter the estimates. These differences are highly statistically significant (p-values < 0.001).

TABLE 5: ITT ESTIMATES OF THE EFFECT OF TREATMENT ON CONFIDENCE, MEAN (SE)

	Post-study confidence	Change in confidence
Control group	1.12 (0.01)	0.11 (0.01)
Treatment group	1.18 (0.01)	0.15 (0.01)
Difference	0.06 (0.01)	0.05 (0.01)

6. Mortgage outcomes

Only about 348 participants provided information about their mortgage terms.⁵ Unfortunately, this was not a large enough sample size for Bureau researchers to detect statistically significant differences in mortgage outcomes. Nonetheless, the research team analyzes the data here to provide suggestive evidence and suggest a way forward for future research.

Each homebuyer faces unique personal (e.g., credit score) and contextual (e.g., home zip code) circumstances that affect the mortgages available to them. To make mortgage outcomes comparable across study participants, researchers created an “interest rate score” which was intended to quantify the affordability of a participant’s mortgage *relative to mortgages available to consumers like them*. To do this, the research team utilized a database of home mortgage offers to form a set of mortgages comparable to the mortgage that each study participant received.⁶ A participant’s interest rate score is thus defined to be the proportion of loans that are comparable to the loan the participant received that offered a lower interest rate. Interest rate scores therefore varied from 0 to 1, with lower scores indicating that the participant received a more affordable loan (a score of 0 means there were no comparable loans with rates lower than theirs, and a score of 1 means there were no comparable loans with rates higher than theirs).

⁵ When restricted to participants in the control and shopping treatment group who could be matched with the Informa database (see note below).

⁶ The mortgage database was constructed from lender ratesheets provided by Informa Research Services and represents mortgages offered by 31 lenders, including many large lenders. Comparable mortgages were loans offered in the same state as the participant’s mortgage, in the same week, and otherwise matched on loan type (Conforming, Jumbo, FHA, VA, etc.), loan amount, loan term, loan-to-value ratio, credit score, and discount points. All analyzed mortgages were fixed-rate loans and were obtained for the purchase of a home.

Table 6 displays the difference between the control and treatment groups in interest rate score. It shows that, on average, both the control and treatment groups obtained mortgages near the median of those available to them (that is, the average interest rate they received was lower than the rate of about half of comparable loans). The treatment group does show an improvement of about 2 percentage points compared to the control group. However, this difference is not statistically significant, which means that researchers lack the confidence to conclude that the difference is due to anything other than random variations.⁷

TABLE 6: ITT ESTIMATES OF THE EFFECT OF TREATMENT ON INTEREST RATE SCORES, MEAN (SE)

	Interest rate score
Control group	0.52 (0.02)
Treatment group	0.49 (0.03)
Difference	0.02 (0.03)

⁷ Assuming the calculated means and variances are reflective of the population, to achieve the standard level of statistical power, the study would have needed to observe data from approximately 6000 borrowers (t-test, beta=0.80, alpha=0.05). This is far more than the 348 received.

7. Conclusion

The Bureau's research study was designed to examine how comparison shopping influences home and mortgage outcomes. This brief showed that the study was successful in its efforts to encourage consumers to shop, observing increased self-reported shopping behavior along a variety of shopping measures. Further, it showed that the encouragement to shop led consumers, on average, to become more knowledgeable about home mortgages and to have greater confidence in their abilities to handle mortgage-related issues. It also showed that the study provides suggestive evidence of encouragement to shop resulting in better mortgage terms for consumers. These results were in the expected direction, but were not statistically significant, suggesting that further research in this area could be useful.