**Evaluating the Impact of Homebuyer Education and Financial Benefits on Loan Performance for Low Income Borrowers**

Homebuyer education and counseling (HEC) programs are designed to help low- and moderate-income borrowers ~~to~~ navigate the homebuying process and increase ~~the~~ financial literacy with the intent of reducing default rates. However, 62% of all defaults are due to a borrower's inability to pay, ~~half of whom~~and half of those who default ~~would not be able to consume at a subsistence level if they~~do so because making ~~paid their~~ mortgage payments would have left them unable to meet immediate needs for food and other necessary expenses.[1]  While increased financial literacy can improve budgeting and saving habits, it cannot prevent ~~a~~ negative income shocks. Typically, HEC programs are evaluated by comparing default rates using data from the down payment assistance programs, which do not provide financial benefits beyond the initial home purchase. ~~And from the results of previous studies, the~~ The impact of HEC programs on defaults is unclear, and there is no evidence about the interaction between financial education programs and more flexible forms of financial assistance. Therefore, I propose evaluating HomeReady, an affordable mortgage product offered by Fannie Mae, to understand the impact of homebuyer education on delinquency related outcomes when paired with a continuous financial benefit.  This research will address academic questions about the roles of information compared to credit constraints in mortgage default, and will have direct implications for the design of HEC and mortgage assistance ~~programs could be designed more effectively based on the results of this research~~.

**Proposal Summary - HomeReady® Mortgages:** Started in 2015, HomeReady® is Fannie Mae's affordable mortgage offered to households with income at or below 80% of their area's median income (AMI) with at least one borrower who has completed homebuyer education. The HomeReady® program is unique in that there are caps on loan level price adjustments (LLPA). Mortgage lenders can keep the reduced LLPA benefit as profit or pass on the benefit by giving borrowers a better rate. This allows for the comparison between three groups: (1) borrowers who have been eligible for HomeReady® based on their income but did not participate or receive HEC, (2) HomeReady® borrowers whose rate at origination is at or above the market rate, and (3) HomeReady® borrowers whose rate at origination is below the market rate and who thus enjoy a financial benefit in addition to HEC. I propose evaluating the impact of HEC alone and combined with a financial benefit on delinquency using secondary data analysis to understand the role of financial literacy in delinquency and payment choices for low income households and to provide design improvements for mortgage assistance and modification programs.

**Methodology:**  Merging acquisition data containing borrower and loan characteristic information with performance data allows me to build a payment history and credit profile for each loan. Using this information, I can construct binary response variables indicating early delinquency (going 90 days delinquent within the first 6 months/year/2 years etc. Early delinquency can be used as a proxy for default risk given that going seriously delinquent is a precursor to default. I propose several logistic regressions to explore the effect of HEC and HEC combined with financial incentives:

$$Y = a + b\,HR + c\,SATO + f\,HR * SATO + dX + e$$

> **Commented [MOU1]:** Too much jargon!  What is a loan level price adjustment? Remember that you are writing for an audience who has no background whatsoever in housing finance.

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[1] https://www.minneapolisfed.org/research/economic-policy-papers/who-defaults-on-their-mortgage-and-why-policy-implications-for-reducing-mortgage-default

Where Y is one of the response variables defined above, X is a vector of borrower and loan characteristics at the time of acquisition, HR is a binary indicator of whether a loan is a part of the HomeReady® program, SATO is the note rate spread at time of origination, and HR * SATO is an interaction effect for HomeReady® and SATO. This specification identifies the causal effect of a better rate for HomeReady loans, assuming that the improved rate is not correlated with an unobserved characteristic that also impacts delinquency. I will also use propensity score matching estimates based on the rich set of variables included in loan applications to account for selection into the HR program.

**Resources/Considerations:** The ideal dataset for performing this analysis would be the internal Fannie Mae loan-level monthly performance data which can be requested for academic purposes. ~~If that data is unavailable, the external acquisition and performance data can be used to build a loan history. In addition, there could be bias due to more sophisticated individuals self-selecting into HEC programs, and a propensity score adjustment should be tested to correct for selection bias.~~ It is also worth noting that there is a limited history of the product given that it started in 2015, this limits the ability to understand the impact of HEC later in the loan lifecycle. Additionally, the economic conditions since 2015 have been favorable, so the results from this study may not be consistent in adverse economic conditions.

Additional response variables that could be tested include delinquency cure rates (after going 90 days delinquent, did they make up the payments), and modification rates. Delinquency cure rates and modification rates are possibly noisy proxies for financial literacy of a borrower, given that a financially savvy borrower more likely to establish a budget for making up payments or pursue modification options available to them. Using these response variables could allow for estimations of the effect of HEC on financial literacy, controlling for financial benefits.

**Intellectual Merit:** This proposal would evaluate the effectiveness of HEC on early delinquency when used in conjunction with continued financial benefits. The previous literature focuses on the direct impact of financial education ~~HEC~~ on eventual default, ~~which fails to acknowledge the large number of defaults due to inability to pay rather than financial illiteracy~~ but does not address the role of financial constraints or complementarities between financial education and lower interest rates. Therefore, I evaluate a more comprehensive bundle of treatments with different potential mechanisms.

~~The HomeReady® program offers the potential for lenders to pass along financial benefits to the borrower, allowing for a deeper understanding of how homebuyer education can benefit consumers when inability to pay is lessened.~~

**Broader Impacts:** On average, the homeownership rate for low income individuals is 15 percentage points lower than the national rate.[2] Additionally, low income homeowners experience higher mortgage default rates, with the lowest income groups experiencing the highest default rates.[3] ~~Between the lack of affordable housing and the perceived credit risk, low income households face increased barriers to entry to homeownership. By better understanding the relationship between financial literacy and default, programs can be better designed to meet~~

[2] https://www.census.gov/housing/hvs/data/histtab17.xlsx
[3] https://www.fanniemae.com/resources/file/research/datanotes/pdf/credit-risk-of-low-income-mortgages-white-paper.pdf

**Commented [MOU2]:** This is a really big assumption. People who select into home ready are probably different than those who do not. I think you would be better looking at the effect the SATO as determined by when people bought homes – arguing that the specific timing of when someone bought a home was as good as random, perhaps within a one year period and conditional on state or MSA fixed effects.

When did the HR program begin, and have there been any changes in the eligibility rules or other aspects of the program that you could use in the evaluation? Were there some loan originators who were more active in telling customers about HR, for example?

Do you observe individual shocks, like job loss? Your question is really about whether HR helps people cope with shocks, so the ideal regression would include a measure of shock and an interaction between HR and shock. You could use changes in the local area unemployment rate if you don't have individual shocks.

**Commented [MOU3]:** This doesn't need to be a separate section, and should instead be incorporated into the research design discussion.

the needs of low-income households and allow the benefits of HEC to be fully realized. It is important to evaluate programs designed to reduce default and increase access to home ownership because home ownership is a recognized path to asset accumulation and long term economic stability, and to better schools, safer neighborhoods, and other amenities that are associated with the opportunity gap for minority youth.  My own work as an analyst at Fannie Mae has made me aware of the lack of evidence about the effect of existing programs and about the margins at which large-scale programs could be adjusted.  I am committed to continuing to work to expand housing access and financial stability for minority communities through research that builds on my years of practical experience in the low income housing field.  I also look forward to advocating for the inclusion of these research questions in the agendas of my future classmates and, eventually, to offering my own students a view of how economists can use their tools to study this fundamental question of access and equity in America.

**Commented [MOU4]:** Cite Raj Chetty's work on high opportunity neighborhoods, for example.  And the Moving to Opportunities evaluations.