**Graduate Research Plan Statement: Evaluating the Impact of Homebuyer Education and Financial Benefits on Loan Performance for Low- and Moderate-Income Borrowers**

Homebuyer education and counseling (HEC) programs increase financial literacy of low- and moderate-income borrowers and help navigate the homebuying process and reduce default rates. However, 62% of all defaults are the result of inability to pay, and half of those who default do so because making mortgage payments would have left them unable to meet immediate needs for food and other necessary expenses1. While increased financial literacy can improve budgeting and saving habits, it cannot directly prevent negative income shocks. Typically, HEC programs are evaluated by comparing default rates using data from programs that do not provide financial benefits beyond the initial purchase. The impact of HEC programs is unclear, and there is no evidence about the interaction between financial education programs and more flexible forms of financial assistance. I propose evaluating HomeReady® (HR), 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.

**Proposal Summary - HomeReady® Mortgages:** Since 2015, Fannie Mae has offered HomeReady®, an affordable mortgage, to households with income at or below 80% of their area’s median income with at least one borrower who has completed homebuyer education prior to closing. Unlike other mortgage programs, HR has caps on the risk-based fees that increase the price of a loan (LLPA). Mortgage lenders can keep the benefit of reduced LLPAs as profit or transfer the benefit to borrowers through a better rate. I can then compare three groups: (1) Eligible borrowers who did not participate or receive HEC, (2) HR borrowers whose rate at origination is at or above the market rate, and (3) HR 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 effect 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.

**Methodology:** The ideal dataset is the internal Fannie Mae acquisition data containing borrower and loan characteristic information and loan-level monthly performance data, which can be requested for academic purposes. Merging the datasets allows me to build a credit profile and payment history for each borrower. I can then construct binary response variables indicating early delinquency (going 90 days delinquent within the first 6 months/1 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.

Selection bias may be present because those who select into HR are likely fundamentally different from those who do not. Using the subset of borrowers who meet the income requirement, I can determine for each MSA the HR participation by lender and the median HR participation. A measure of the lender’s likelihood of recommending HR can be determined by comparing the lender’s HR participation rate to the MSA’s median HR participation rate; instrumenting using this measure in place of a direct HR indicator can account for selection bias because lender’s likelihood to recommend HR is unlikely to be correlated with borrower delinquency, but a borrower should be more likely to participate in HR if their lender is more likely to recommend it. I propose exploring a two-stage least squares equation to explore the effect of HEC combined with financial incentives:

In the first equation I would regress HR participation on lender’s probability of recommending as an instrument. In the second stage, Y is one of the delinquency response variables, X is a vector of borrower and loan characteristics at the time of acquisition, is the fitted values from the first stage, SPD is the difference between note rate and average note rate of the MSA, and HR \* SPD is an interaction effect.

Since HomeReady® began in 2015, there is a limited history of the product which inhibits my ability to study the effect of HEC later in the loan lifecycle. Additionally, the economic conditions since 2015 have been favorable. Understanding borrower behavior and mortgage loan programs during adverse economic conditions is outside the scope of this research proposal. 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 on eventual default 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.

**Broader Impacts:** On average, the homeownership rate for low-income individuals is 15 percentage points lower than the national rate and low-income homeowners experience higher mortgage default rates2. 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 associated with the opportunity gap for minority youth3. 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.

**References** (1) Ohanian, L. E. (2017, September 13). Who Defaults on Their Mortgage, and Why? Policy Implications for Reducing Mortgage Default. Retrieved from <https://www.minneapolisfed.org/research/economic-policy-papers/who-defaults-on-their-mortgage-and-why-policy-implications-for-reducing-mortgage-default>.

(2) Fout, Hamilton & Li, Grace & Palim, Mark & Pan, Ying. (2018). Credit risk of low income mortgages. Regional Science and Urban Economics. 10.1016/j.regsciurbeco.2018.07.013.

(3) Chetty, Raj, Nathaniel Hendren, and Lawrence Katz. 2016. “The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Project.” American Economic Review 106 (4).