Research Project Proposal

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The Housing Market is Currently Failing; an Economic Research Proposal

Introduction and Econometric Model:

In today's current economy, mortgage interest rates have been at a recent 20-year high. Not only are these spiking statistics concerning, but the current buying power of potential homeowners has decreased, and the average age of homeownership has increased drastically in recent years. Studies conducted by the National Association of Realtors (2025) have shown that the share of first-time homebuyers has plummeted to a historic low of 21%, while the median age of these buyers has climbed to a record-high of 40 years old. These are only brief insights into the economic systemic crisis that we are currently seeing. As the both of us approach our first job in the real world, and our mid 20s, we obviously have hopes of being homeowners. But with these recent rises, how can one possibly even look into buying a home until they are at least 35? On top of this, rent prices have increased at an alarming rate, and combined with the average age of first-time homeowning increasing, the amount of equity lost between each person in the U.S. has dramatically increased because they will have to rent instead of buying. While these statistics show the difficulty of entering the housing market, they also serve as an underlying relationship between borrowing power and valuation. Our economic research and model plans demonstrate the relationship between our main independent variable, Mortgage Interest Rates, and the house price index (HPI). On top of this, our model also includes unemployment rates and income to help demonstrate other very important factors that are involved in the macro-lense of

purchasing a home. All in all, we are testing if higher borrowing costs (Mortgages) act as a brake on home prices (HPI), while controlling for the 'engine' of the economy (Income and Employment). We hypothesize that holding all else constant, like even supply which is included in our error term, there is an inverse relationship between borrowing costs and home prices.

$$\mathbf{HPI = \beta_1 + \beta_2(MORTGAGE) + \beta_3(INCOME) + \beta_4(UNEMPLOYMENT) + \varepsilon}$$

What time period will you cover? What are the cross-sections?:

The time period we will cover is between 2000-2025. Our reasoning behind this is because this time period has three major events that almost serve as a "gold standard" for data analysis within this model. These being: The 2008 housing crisis, the 10 year recovery after, and the Post-Covid inflation spike. The variation in the data we collect will make this model statistically powerful.

We will be using a panel dataset of 50 U.S. states. Observing the national average isn't enough because the "Housing Crisis" looks different in every state. For example, California prices react differently to rate hikes than Florida prices. By using a panel dataset (tracking all 50 states over 25 years), we get roughly around 1,200 observation points, which makes your results much more reliable.

What are the sources of your data? Define the Variables:

The primary source of data for this project will be Federal Reserve Economic Data (FRED). It provides publicly available economic data from a wide range of official sources. Specific Variables:

- House Price Index (Dependent Variable): A weighted repeat-sales index provided by the Federal Housing Finance Agency (FHFA). This measures average price changes in single-family homes.

- 30-Year Mortgage Rate (Main Independent Variable): The weekly national average interest rate provided by Freddie Mac's Primary Mortgage Market Survey.
- Real Median Household Income (Control Variable): Inflation-adjusted median income data provided by the U.S. Census Bureau.
- Unemployment Rate (Control Variable): The percentage of the civilian labor force that is without a job, provided by the Bureau of Labor Statistics (BLS).

Literature Review:

Our research is guided by two primary academic sources. Firstly, we follow the work of Harris (1989), who claimed that mortgage interest rates are the most significant driver of buyer demand in the housing market. Secondly, we incorporated the findings of McQuinn & O'Reilly (2008) into our research. They demonstrated that income levels act as the "ceiling" for house prices. By combining these two theories, our model is designed to isolate and evaluate how current high interest rates are impacting home valuations while accounting for the current levels of household income.

References:

Harris, Jack C. 1989. "The Effect of Real Rates of Interest on Housing Prices." Journal of Real Estate Finance and Economics 2(1): 47–60.

McQuinn, Kieran, and Gerard O'Reilly. 2008. "Assessing the Role of Income and Interest Rates in Determining House Prices." Economic Modelling 25(3): 377–390.

National Association of Realtors. 2024. "First-Time Home Buyer Share Falls to Historic Low of 21%, Median Age Rises to 40." *NAR Newsroom*, November 4. https://www.nar.realtor/newsroom/first-time-home-buyer-share-falls-to-historic-low-of-21-median-age-rises-to-40.