

Analysing Factors Mortgage Lending Decisions

[Housing Finance]

Bolormaa Mendbayar

X23176725

MSCDAD – Research in Computing CA1

National College of Ireland

1. Research Problem Background

The background of this research investigates how varied factors affect the process of giving out mortgages. These factors include things like a person's race, ethnicity, and gender, as well as details about the loan itself, such as how much money is being borrowed and for what purpose and loan approval rates. Understanding these factors helps make sure that everyone has a fair chance to get a mortgage, and it helps spot any unfair differences in who can get a loan.

The Home Mortgage Disclosure Act (HMDA) is a law in the United States made to ensure fairness in lending and to help more people get mortgages. It requires banks to share information about home loans they give out. The study examined lending data for the years 1977, 1978 and 1979 in Memphis, Tennessee, researchers looked at this data to see if there were any unfair differences in lending to certain neighbourhoods. They found that even when things like income were considered, areas with more black people got fewer mortgages. The research highlights the implications of these findings for patterns of city growth and development and suggests the need for further legislative action to address discrimination in mortgage lending (Guy, Pol, & Ryker, 1982).

The second paper focuses on measuring risk and access to mortgage credit, particularly examining disparities faced by female and minority borrowers in credit markets. Historically, these groups have been denied equal access to credit, but limited availability of complete underwriting information has hindered conclusive evidence of discrimination. It emphasizes the importance of considering denial rates rather than default rates when assessing mortgage discrimination, as default rates may underestimate the prevalence of discrimination (Park, 2021).

In recent years, researchers have reanalysed existing loan-approval and loan-performance data shows that in 2000, and devise new tests or detecting discrimination in contemporary mortgage markets, and pointed out two main type of unfairness in mortgage lending, one is disparate treatment, which is when applicants are clearly treated differently, and disparate-impact policies, which systematically put minorities at a disadvantage (Howard, Jacob, & Karger, 2004).

The fourth paper analysed HMDA data collected in 2006, focuses primarily on the pricing information and characteristics of borrowers and loans, such as income and amount borrowed, to understand the factors contributing to delinquency rates, as a result the increase in the incidence of higher priced lending for home purchase loans non-owner-occupied properties was notable, while the increase for owner occupied properties was slight. Also, researchers suggested adjustable-rate mortgages, and manufactured homes with higher credit risks may contribute to delinquency rates (B. Avery, K. P. Brevoort, G. B. Canner, R. Tsang, & S. M. Wallace, 2007)

2. Research Question

How significantly do factors such as income, lien, race, gender, and age influence loan approval rates and loan amounts in mortgage lending?

3. Justification

This question is worth investigating due to its potential to uncover significant insights into the dynamics of mortgage lending and its impact on socio-demographic groups. Understanding how factors such as income, lien status, race, gender, and age influence loan approval rates and loan amounts can improve potential disparities and biases in the lending process. Investigating this problem is essential for promoting fairness, equity, and transparency in mortgage lending practises.

Addressing this research question is feasible using various data analytics tools and techniques. Statistical methods such as regression analysis, machine learning algorithms, and data visualization can be employed to analyse mortgage lending data and measure the influence of socio-demographic factors and loan characteristics on mortgage approval rates and loan amounts accurately.

Since it aims to investigate the precise effects of loan attributes and socio-demographic factors on mortgage approval rates and loan amounts, the research topic is precise as well as quantifiable. This makes it possible to apply quantitative tools to precisely determine the extent and relevance of these influences.

Identifying barriers to mortgage credit for specific socio-demographic groups and provide guidance for initiatives to increase fairness and equity in lending practices by identifying the factors that affect mortgage approval rates and loan amounts.

Ensuring fair treatment and non-discrimination in lending practices are ethical imperatives. The ethical ideals of justice, fairness, and equal opportunity for all individuals of society are in line with the pursuit of equitable credit availability and the investigation of any biases in mortgage lending.

4. Specific Items to be Addressed

Item #1: Variables of Interest: Income, lien, race, gender, and age

Item #2: Data Collection: Obtain the necessary data from an official website of the HMDA

Item #3: Data Analysis Methods- Regression analysis, machine learning algorithms and other data analytics tools.

Item #4: Hypotheses- Lien and income has a significant impact than race, gender, and age on loan approval rates, even after controlling for the other factors.

Item #5: Ethical Considerations: Ensuring the privacy and confidentiality of individuals' data or addressing potential biases in analysis.

Item #6: Expected outcomes: Identifying patterns of discrimination in mortgage lending, uncovering barriers to credit access for certain demographic groups, or proposing policy recommendations based on findings.

BIBLIOGRAPHY

Guy, R., Pol, L.G. and Ryker, R. (1982) 'Discrimination in mortgage lending: The Home Mortgage Disclosure Act,' *Population Research and Policy Review*, 1(3), pp. 283–296.

Park, K.A. (2021) 'Measuring Risk and Access to Mortgage Credit with New Disclosure Data,' *The Journal of Structured Finance*, 26(4), pp. 53–72.

Karger, H.J. (2004) *Stephen L. Ross and John Yinger, The Color of Credit: Mortgage Discrimination, Research Methodology and Fair Lending Enforcement.*

Avery, R.B. *et al.* (2007) 'The 2006 HMDA data,' *Federal Reserve Bulletin*, 93(12), p. 0.