# **MLD Assignment**

* **Due** Mar 13, 2019 by 6pm
* **Available** Feb 20, 2019 at 6pm - Mar 20, 2019 at 6pm 28 days

This assignment was locked Mar 20, 2019 at 6pm.

Background

The following abstract appeared in Alicia H. Munnell, Geoffrey M.B. Tootell, Lynn E. Browne, and James McEneaney (1996), “Mortgage Lending in Boston: Interpreting HMDA Data,” American Economic Review86, 25-53.

The Home Mortgage Disclosure Act was enacted to monitor minority and low-income access to the mortgage market. The data collected for this purpose show that minorities are more than twice as likely to be denied a mortgage as whites.  Yet variables correlated with both race and creditworthiness were omitted from these data, making any conclusion about race’s role in mortgage lending impossible. The Federal Reserve Board of Boston collected additional variables important to the mortgage lending decision….

As discussed in Munnell et al (1996), the HMDA data indicate whether an applicant’s mortgage application was approved and provide several demographic characteristics.  In 1990, following the request of the Federal Reserve Board of Boston, lending institutions in the Boston area provided additional information relevant to mortgage lending decisions.  In light of the relatively small number of mortgage loan applications made by minorities, these extra variables were collected for all applications by blacks and Hispanics and for a random sample of those by whites.

The data set includes the following variables:

APPROVE = 1 if mortgage loan was approved, = 0 otherwise

GDLIN = 1 if credit history meets guidelines, = 0 otherwise

LOANPRC = loan amount/purchase price

OBRAT = other obligations as a percent of total income

MALE = 1 if male, = 0 otherwise

MARRIED = 1 if married, = 0 otherwise

BLACK = 1 if black, = 0 otherwise

HISPAN = 1 if Hispanic, = 0 otherwise

(All applicants are non-Hispanic white, non Hispanic black, or Hispanic.  [In 1990 about 94% of Boston residents were white, Black, or Hispanic. (Links to an external site.)](http://www.bostonplans.org/getattachment/83972a7a-c454-4aac-b3eb-02e1fddd71e3/))

Assignment

Write an article for an applied economics journal that targets economists interested in real-world issues. Assume that your audience is familiar with basic microeconomic and econometric concepts.

Present and discuss the descriptive statistics for the entire sample and for each racial/ethnic group.

Controlling for relevant characteristics, is race/ethnicity associated with the outcome of a mortgage loan application? To address this question, estimate and present appropriate probit and logit models of loan approval. Discuss the signs and statistical significance of the coefficients. Also discuss the robustness of the results across the probit and logit models; do not compare the coefficients but focus on the signs and significance levels.

For the logit models, compute, present, and interpret the odds ratios associated with each of the independent variables.  For both models, present predicted probabilities of loan approval for a few prototypical individuals.

Can we conclude that mortgage lending institutions discriminate against minorities?  Explain fully.

How does your analysis relate to current issues? See the articles posted on Canvas.

[Sample R Program](https://seattleu.instructure.com/courses/1582391/files/64403472/download?wrap=1)

[Another Sample R Program (Generates Log-likelihood)](https://seattleu.instructure.com/courses/1582391/files/64403477/download?wrap=1)

Data Files

[Excel FilePreview the document](https://seattleu.instructure.com/courses/1582391/files/64403435/download?wrap=1)

[CSV FilePreview the document](https://seattleu.instructure.com/courses/1582391/files/64403441/download?wrap=1)

Deadlines

Feb. 26       EDA, Sample Selection Criteria, [Descriptive Statistics by Race/Ethnicity Preview the document](https://seattleu.instructure.com/courses/1582391/files/64403428/download?wrap=1)

Mar. 5         Logit Estimates and Odds Ratios; Probit Estimates

Mar. 12       [Final Tables Preview the document](https://seattleu.instructure.com/courses/1582391/files/64403396/download?wrap=1)and Confidential Peer Reviews

Mar. 13       Final Papers

## **Rubric**

**Scoring Rubric**

| Scoring Rubric | | |
| --- | --- | --- |
| **Criteria** | **Ratings** | **Pts** |
| This criterion is linked to a Learning OutcomeIntroduction | |  |  | | --- | --- | | **8.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 8.0 pts |
| This criterion is linked to a Learning OutcomeEconometric Model and Estimation Method | |  |  | | --- | --- | | **8.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 8.0 pts |
| This criterion is linked to a Learning OutcomeData | |  |  | | --- | --- | | **8.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 8.0 pts |
| This criterion is linked to a Learning OutcomeResults | |  |  | | --- | --- | | **8.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 8.0 pts |
| This criterion is linked to a Learning OutcomeConclusions | |  |  | | --- | --- | | **8.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 8.0 pts |
| This criterion is linked to a Learning OutcomeWriting | |  |  | | --- | --- | | **8.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 8.0 pts |
| This criterion is linked to a Learning OutcomeDescription of criterion  Contributions | |  |  | | --- | --- | | **2.0 pts**  **Full Marks** | **0.0 pts**  **No Marks** | | 2.0 pts |
| Total Points: 50.0 | | |