Economics 741, Urban Economics   Fall 2020
Professor Yinger

Final Exam

This is an open-book exam. You have two hours to complete it. You must keep your computer camera on while you are taking the exam. Please email your answers to the professor when you are finished.

You must answer any two of the following four questions.

1. COVID-19 and the Income Elasticity of Demand for Housing.

It is 2024, and you have decided to undertake a project on the impact of COVID-19 on the income elasticity of demand for housing. Some scholars argue that this elasticity increased while COVID-19 was most active because people with relatively high incomes spent more on housing to make their work-from-home life more comfortable. In contrast, this argument goes, people with relatively low incomes were forced to conserve on housing. A somewhat weaker version of this argument may apply after vaccines are available, because working from home has remained popular. Other scholars argue that this income elasticity reflects long-run factors and was unlikely to change in 2020 and 2021 before vaccines were available. Your job is to write a proposal for estimating the income elasticity of demand for housing and how it was affected by COVID-19 and its aftermath. Explain the conceptual foundations of your proposal, write down your estimating equation, and describe the data you will need. You may assume that any required data are available.

2. Estimating Mortgage Discrimination

Your colleague wants to study mortgage discrimination. He has access to the loan files for all the applications (approved and not approved) of a large lender. This lender retains all the loans it underwrites, so he can observe what happens to each loan over time, that is, he can observe defaults. This colleague has come to you for advice. He wants to regress whether a loan application was approved on the race/ethnicity of the applicant and all the observed characteristics of the applicant, the loan request, and the property. However, he is worried that this type of regression may not replicate the lender's decision rule and may therefore exaggerate discrimination. In order to help you colleague, you need to come up with a better approach. How can your colleague use the data he has collected to obtain a credible estimate of discrimination in loan approval? (If you come up with a good plan, you colleague should make you a co-author!)

3. Estimating the Value of a Good View

The Mountaintop metropolitan area is surrounded by beautiful mountains. The people in Mountaintop greatly value views of these mountains and are willing to pay more for housing that

has a good view. A local real estate firm has developed and publicized an index of view quality. This index goes from zero (no view) to 100 (unobstructed view out a picture window).

This firm has hired you to determine the relationship between housing prices and good views as measured by this index. The firm wants you first to simply estimate the relationship between housing prices and good views and then to determine, if possible, how much different types of households are willing to pay for views of various quality.

You job is to make a plan for this project. Describe the data you would need. Describe in detail the methods you would use. (Although you are working for a real estate firm, you want to be careful in developing this project, because you hope to submit your results to a professional journal.)

4. Journal Review

You have been asked to review a paper on the demand for school quality. This paper estimates a hedonic regression for all the house sales in a large metropolitan area in 2018. The regression has extensive controls for both the structural traits of each house and the amenities in the house's neighborhood. School quality is measured by a test-score measure that averages math and reading scores at the elementary, middle, and high school level. Each score in this measure is a passing rate on a required state test. This measure picks up school quality differences both within and across school districts. The dependent variable is the log of sales price. The coefficient of the test-score measure is 0.0015. The average house value in this area is $200,000, so, according to the author, homebuyers are willing to pay $(0.0015)(200,000) = \$300$ for a one unit increase in the average passing rate. The editor of the journal has asked you to provide an evaluation of the methodology of this paper and a description of a better methodology, assuming one exists.