Quantitative Reasoning in Today’s World

Signature Assignment #2: Renting vs. Buying

Whether to rent or buy a house is arguably one of the most critical financial decisions one will ever make. Some people claim that renting is “throwing away money” whereas buying a house is a wise financial investment in your future self. This project will provide an opportunity to analyze the validity of such a claim. In this assignment, using Microsoft Excel, you are asked to compare the cost of renting a two-bedroom apartment vs. buying a two-bedroom home. In order to earn the full credit, you must follow the following instruction.

Step #1. Pick a city in the state of California that you would like to live in. Use http://realtor.com or redfin.com to find the median price of (i) a two-bedroom home, and (ii) a two-bedroom apartment.

Step #2. Using Microsoft Excel, calculate the 30-year cost of renting the two-bedroom apartment and house you choose in step #1. When calculating the cost of renting, assume a 2% annual inflation rate. Also, when calculating the cost of buying the house, assume the following: (i) you are putting a 20% down payment, and (ii) the fixed mortgage’s annual interest rate is 5%. Furthermore, make sure to consider several ongoing costs of home ownership such that closing costs, title fees, loan-related fees, homeowner’s insurance rate, monthly association dues, estimated monthly maintenance, annual property tax, etc.

Step #3. For the next 30 years, which is cheaper? Buying or renting? To answer this question, in addition to your calculation step #2, you must consider (i) the tax benefit you could get from mortgage interest deduction, (ii) expected annual home appreciation rate, and (iii) estimated opportunity cost of tying up capital in a home purchase.

Step #4. Find out what type of job could support the home of your choice. Pick three occupation that interest you and find out what the average salary is for each. In order to find the average salary for each occupation, use the occupational employment statistics provided by the Bureau of Labor Statistics (BLS).

Step #5. Write a 2-3 page report (typed, double-spaced, 12 point font, 1-inch margins) that summarizes and answer questions in steps 1-4. Furthermore, your report must address:
- What assumption(s) guided your analysis in steps 3 and 4? Identify mathematical concepts we have learned in class that were relevant to this project.
- Discuss other things you have learned while working on this project.
- In what ways has your work on this project changed the ways you view buying vs. renting? In the long run, is renting really “throwing away money”? What other things or skills have you gained as a result of working on this project?

Step #6. Submit both the spreadsheet and report on Canvas.