

| Time Period | Pueblo Home Price Index |
|-------------|-------------------------|
| 1982        | 56.93                   |
| 1983        | 65.15                   |
| 1984        | 64.78                   |
| 1985        | 61.37                   |
| 1986        | 65.32                   |
| 1987        | 60.76                   |
| 1988        | 63.04                   |
| 1989        | 71.25                   |
| 1990        | 74.36                   |
| 1991        | 75.04                   |
| 1992        | 73.74                   |
| 1993        | 75.57                   |
| 1994        | 75.81                   |
| 1995        | 82.94                   |
| 1996        | 92.71                   |
| 1997        | 99.55                   |
| 1998        | 110.19                  |
| 1999        | 122.52                  |
| 2000        | 128.39                  |
| 2001        | 130.23                  |
| 2002        | 140.66                  |
| 2003        | 145.12                  |
| 2004        | 151.23                  |
| 2005        | 156.84                  |
| 2006        | 162.59                  |
| 2007        | 167.45                  |
| 2008        | 172.78                  |
| 2009        | 166.31                  |
| 2010        | 163.97                  |
| 2011        | 154.49                  |
| 2012        | 150.74                  |
| 2013        | 151.41                  |

BUSAD 360 Name: \_\_\_\_\_

Exam 2 Part 1

Take Home Problems

Show All Work!

The data table on the left contains Home Price Index (HPI) values for 1982-2013 for the Pueblo Metropolitan Area.

1. Calculate HPI forecasts using a 5-year moving average.
2. Calculate HPI forecasts using a weighted 5-year moving average. Use your own (clearly communicated) weighting scheme.
3. Develop a linear trend model.
4. Calculate the Coefficient of Determination for the linear trend model.
5. Test the slope of the linear model using a  $t$  test.
6. Test the overall model using an  $F$  test.
7. Add a 95% confidence interval to the linear model.
8. Generate forecasts using the linear trend model.
9. Calculate forecast error for each set of estimates (moving average, weighted moving average, and linear model) using MAD and MSE.
10. Which set of forecasts is most accurate? Explain.
11. Which set of forecasts has the most bias? Explain.
12. Generate a set of Pueblo HPI forecasts for 2014-2019 (6 point estimates).
13. Produce a 95% confidence interval for each forecast.
14. Produce a graph illustrating the HPI data, moving averages, weighted moving averages, linear model with confidence intervals and forecasts for 2014-2019.
15. Based on your analysis, do you think it's a good time to invest in Pueblo real estate? Why or why not?