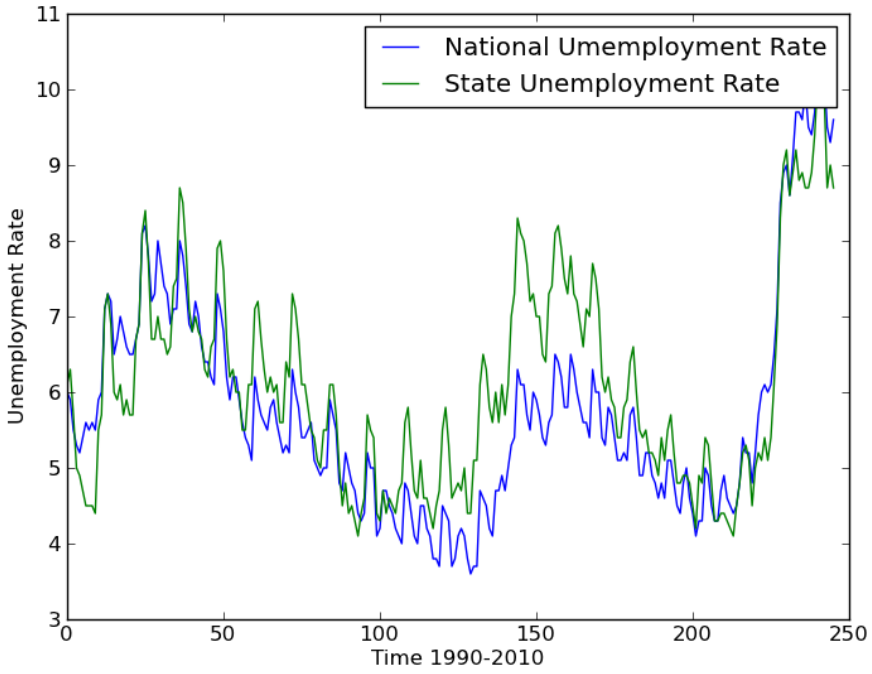
Title and author

Title: Washington State Unemployment Rates (1990-2010)
Author: Jiayang Zhou

Overview of research questions and results

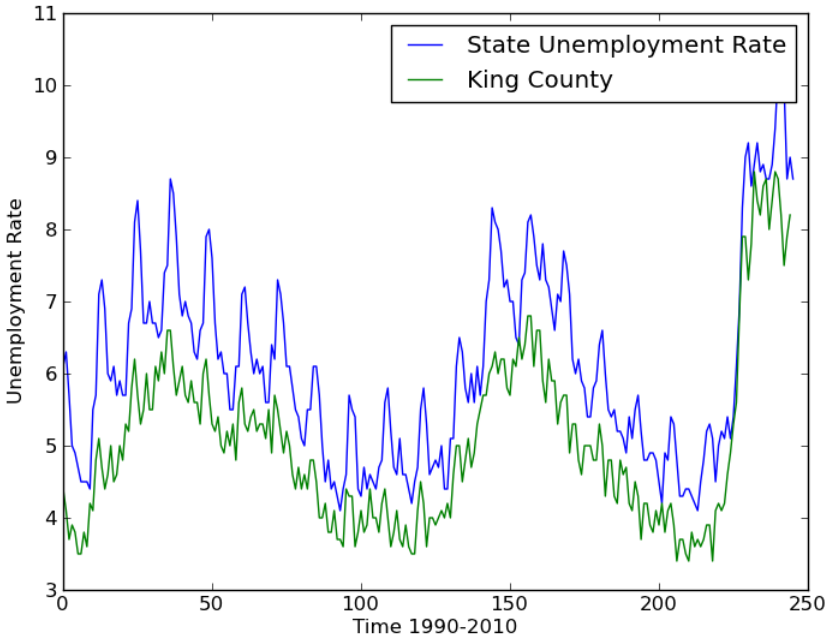
1. First of all, we need to have a general picture of how the unemployment rate changed over time. Compares the state and national unemployment rate histograms.

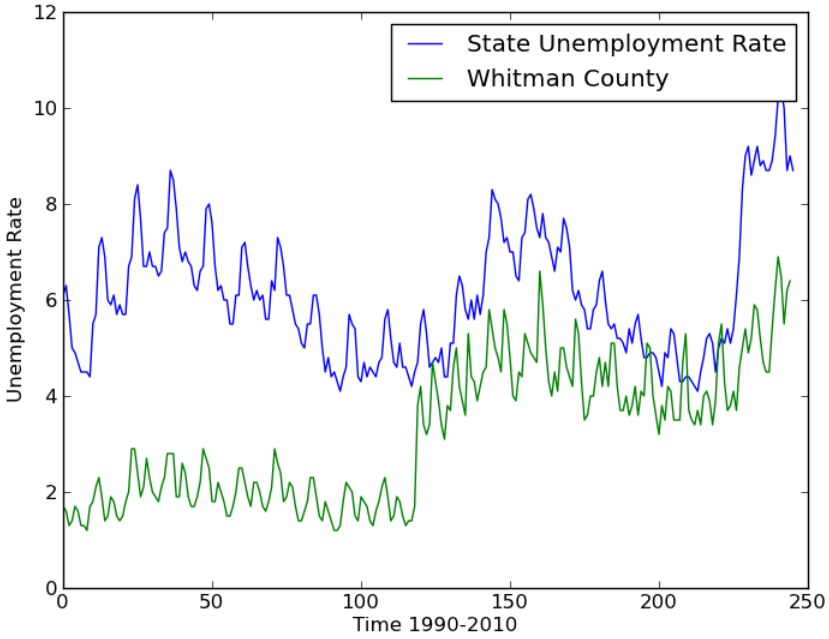


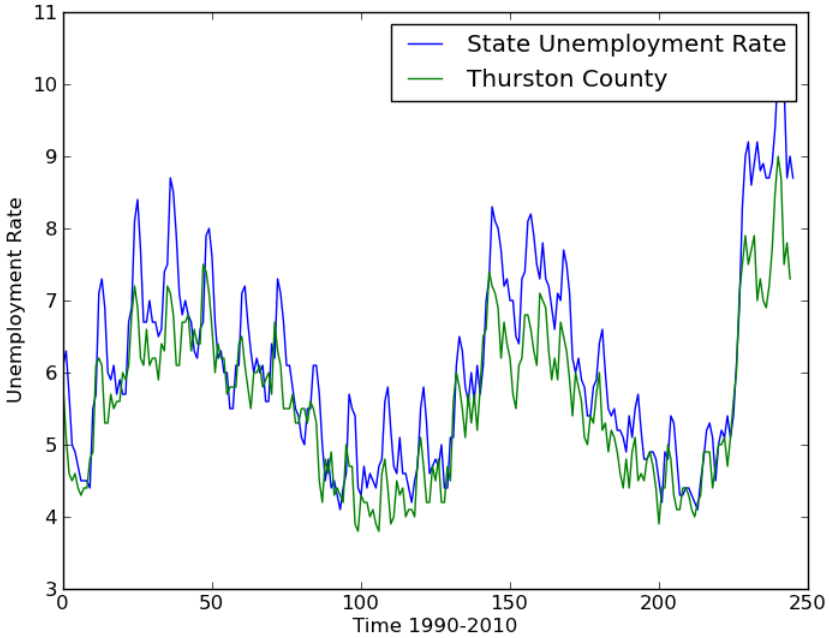
2. Which counties had a better job market? Which counties frequented the "good county list" (meaning that they often had a low unemployment rate)? During these 20 years, when was the prime time to get a job? Based on the "good county list", rank these counties from the lowest unemployment rate to the highest. Find the five best counties to work in Washington State.

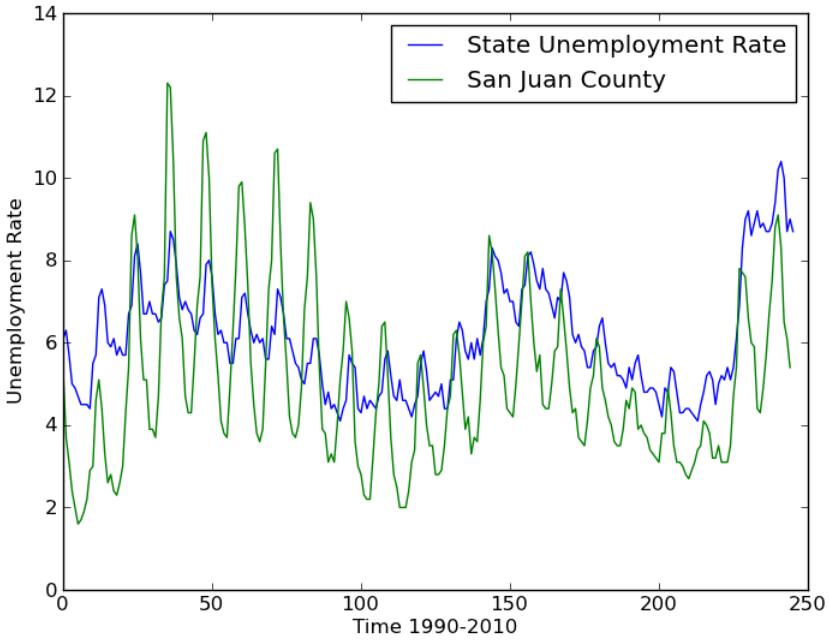
   The best five counties in Washington State:
   King County: best year 2010 worst year 2008
   Whitman County: best year 2004 worst year 1999
   Thurston County: best year 2010 worst year 2000
   San Juan County: best year 1993 worst year 1992
   Snohomish County: best year 2010 worst year 2008

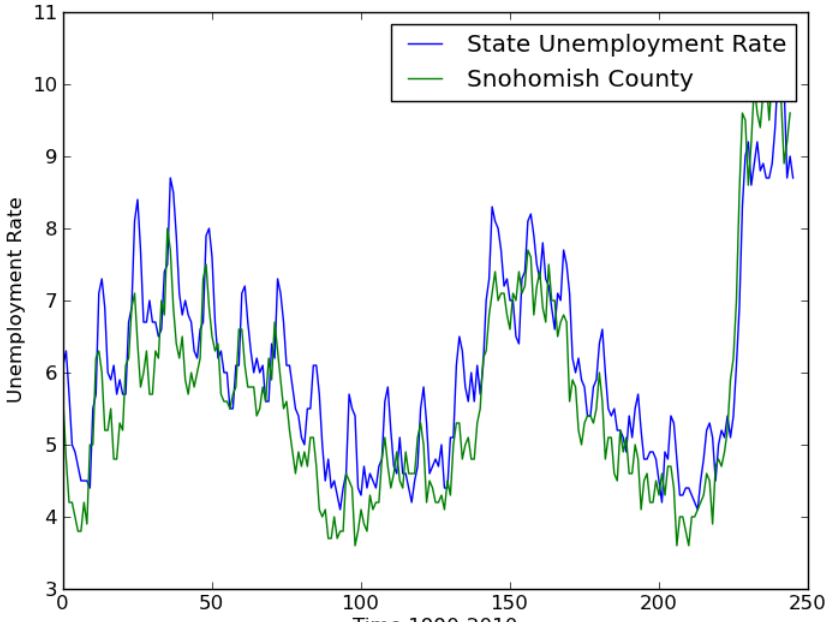
3. How was each county doing every year? Compare each county's unemployment rate to the state rate.






State Unemployment Rate
Thurston County
Unemployment Rate
Time 1990-2010


State Unemployment Rate
San Juan County
Unemployment Rate
Time 1990-2010


State Unemployment Rate
Snohomish County
Unemployment Rate

Motivation and background

Finding a job under the current tough economy is very hard to a lot of people. By examining the Washington State historical unemployment rate and comparing it to the national rate, you could understand that whether Washington State is a good place to work or not. If you need to stay here to find a job, it is also worth to know which county is the best bet. By knowing which counties always had a low unemployment rate, you could raise your chance of being hired. Therefore, this study can give a wealth of background information to the job seekers and help them find jobs with a minimum risk.

Dataset

Before doing any analyses, you need to download a csv file from the Washington State's data site via
https://data.wa.gov/api/views/hvq3-y2jb/rows.csv?accessType=DOWNLOAD

1. Copy and paste this link into a web browser. The file will be saved to the default download folder.
2. The csv file contains 5 columns: Year/Month, County, Unemployment Rate, National Unemployment, State Unemployment. The data entry begins at 1/1/90 and ends at 6/1/10.

Methodology (algorithm or analysis)

1. Reads the csv file into a list of dictionaries. Each dictionary maps a column name to its corresponding value.
2. Removes white spaces and % signs in the data file. Converts strings into floats.
3. Extracts state, national, and county unemployment rates from method1 into separate dictionaries.
4. Creates a dictionary that maps each county to the number of times that its unemployment rate went below the state average. If the rate is below the state average, the county gets 1 point; if the rate is above the state average, the county gets -1 point; if two rates are the same, the county gets 0 point.
5. Sorts the dictionary by its values. Extracts the first five elements, which represent the best five counties.
6. To determine the best and worst time of the job market, calculates the changes between data points, using the equation (f(t + dt) – f(t – dt)) / (2 *dt), where t is a particular month, (f(t + dt) is the following data point, f(t – dt) is the previous data point, dt is the time between two points.

7. Plots the national vs. state histogram and the best five counties vs. state histograms.

Reproducing your results

1. Move the csv file and the python file into a same folder.
2. Go the designate director and run WA_Unemployment_Analysis.py.
3. Outputs include 1 national vs. state unemployment rate histogram, 5 county vs. state unemployment rate histograms, and a text summary that explains when was the best and worst time to get a job in the 5 best counties.

Collaboration None

Reflection The open project is fun but challenging because it could be hard to figure out what kinds of questions should be asked. I would feel more comfortable if I had a guideline for the questions.