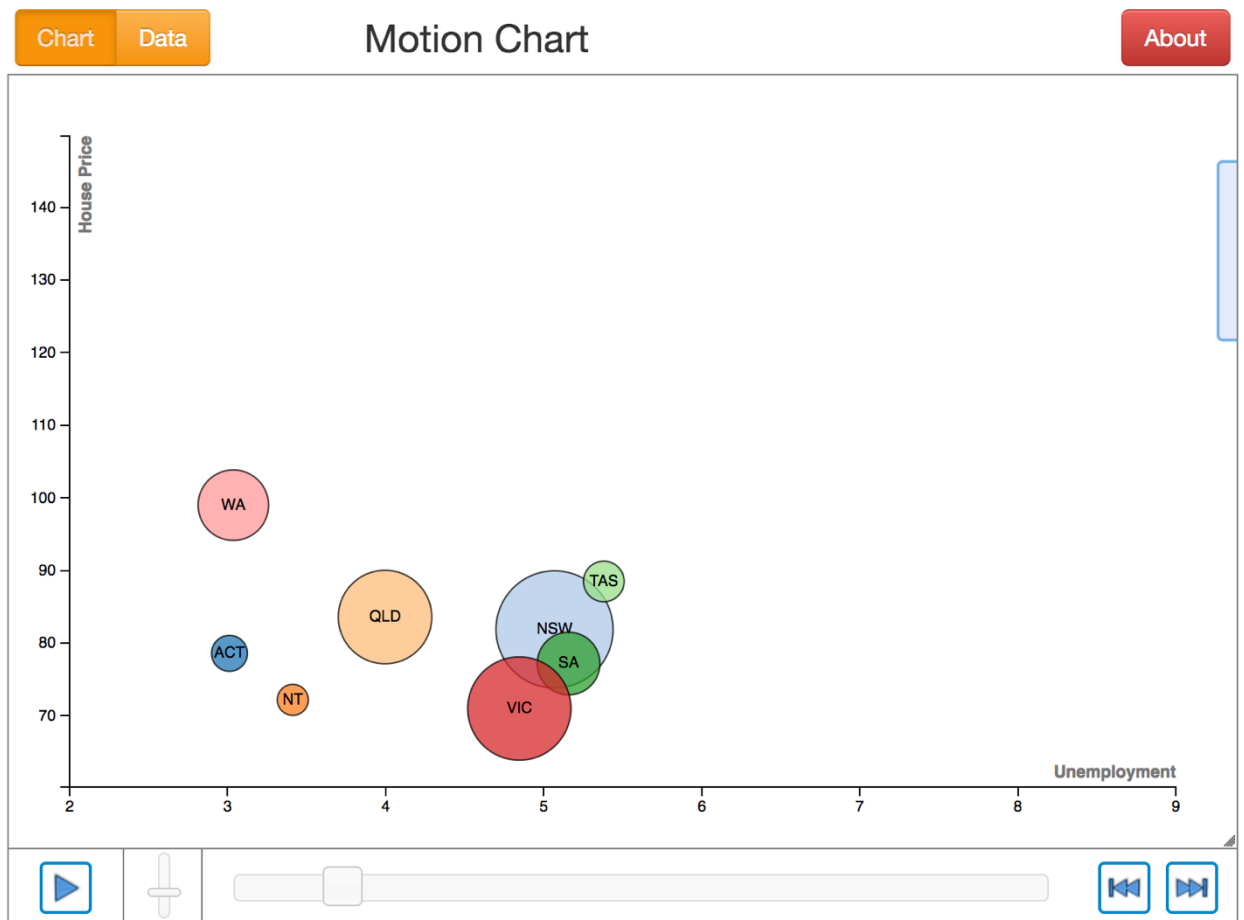# FIT 5145 ASSIGNMENT 1

Introduction to data science

Abstract

analyze the relation between Unemployment Rate and House Prices

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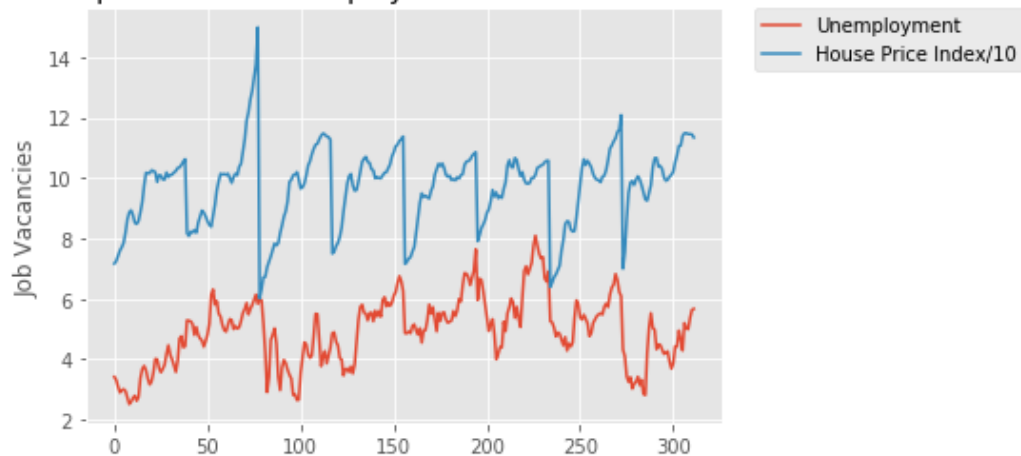**What are the overall patterns across different states in Australia?**

As the motion chart shown, we can make a conclusion that for all states the House Price Index increased stably and considerably from December 2005 to June 2015, while the unemployment rate was very fluctuated.

Those states which has more people (has larger bubble) were more likely to be stable for unemployment rate (like NSW, QLD and VIC). While, small region like ACT, NT and TAS, their unemployment rate were highly changeable every year.

I would make an assumption that the house price index will be higher and higher in Australia.
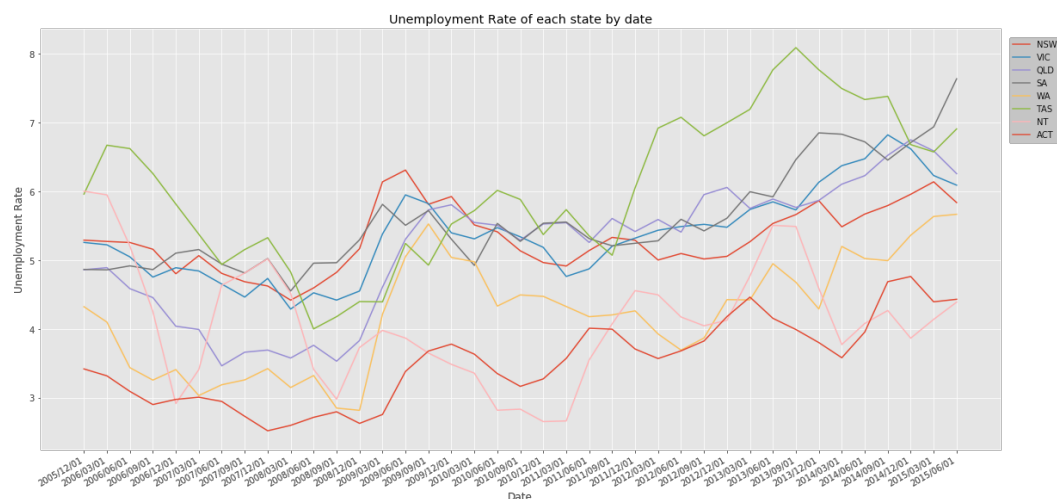
Is there any relationship between unemployment rate and the house price index?

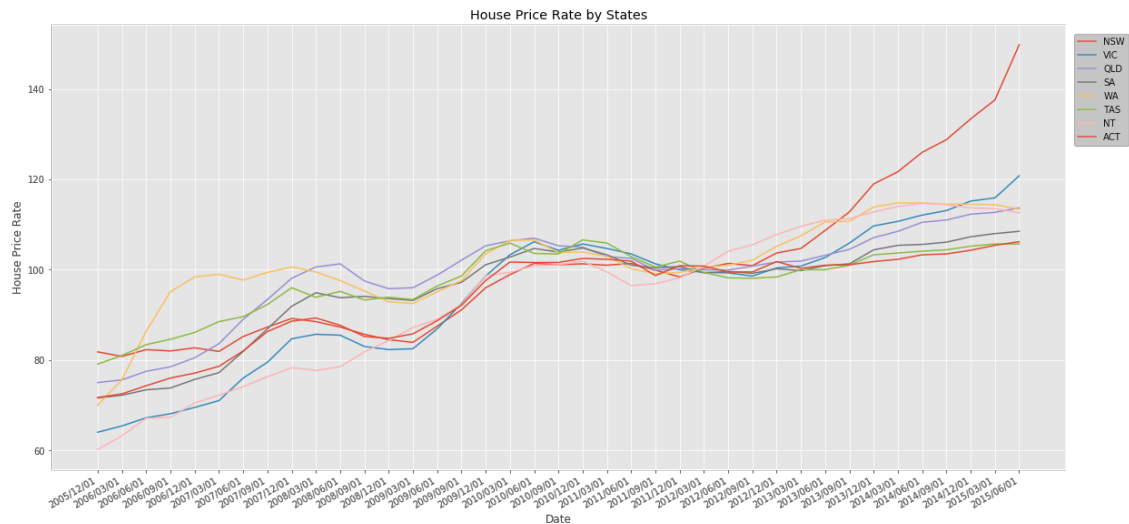Relationship betweenn Unemployment Rate and House Price Index

As we can see the line graph compares the Unemployment Rate over Australia and House Price Index divided by ten (it makes the data easier to compare). It is clear that the lowest of the house price index is always at the same period with the highest unemployment rate, or we can say as the Unemployment rate change, there are likely have lag changes in house price index.

Which state has high unemployment rate and high house price index (you may point out different period of time)? How about low unemployment rate and low house price index?
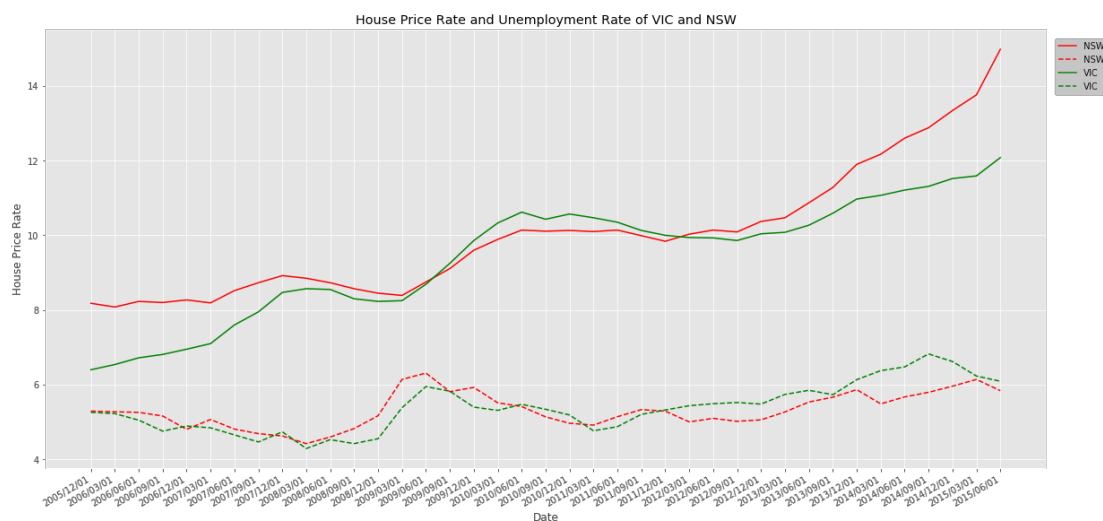

As the line graph depicted, we can see that the data is so staggered, however we also can find that large region like NSW, VIC and QLD, their unemployment rate are generally higher than ACT and NT.

From Dec 2005 to June 2018 and Dec 2011 to March 2015, TAS had higher unemployment rate than others. At most of time, ACT has the lowest unemployment rate.

House Price Rate by States

As the line graph shown, the house price rate increased in each country over the period shown, except from March 2010 to June 2012, which a bit decreased a bit, and NSW was rapidly increased after that.
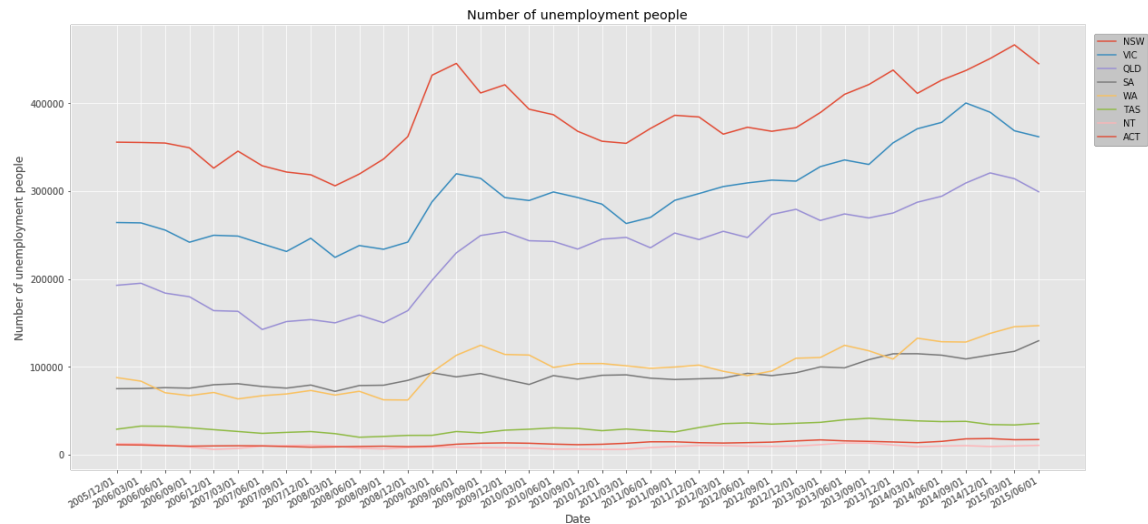
What is the performance of the most populated states like NSW and VIC?

House Price Rate and Unemployment Rate of VIC and NSW

The line graph compares the house price rate/10(line) and unemployment rate(dotted line) between NSW(red) and VIC(green)
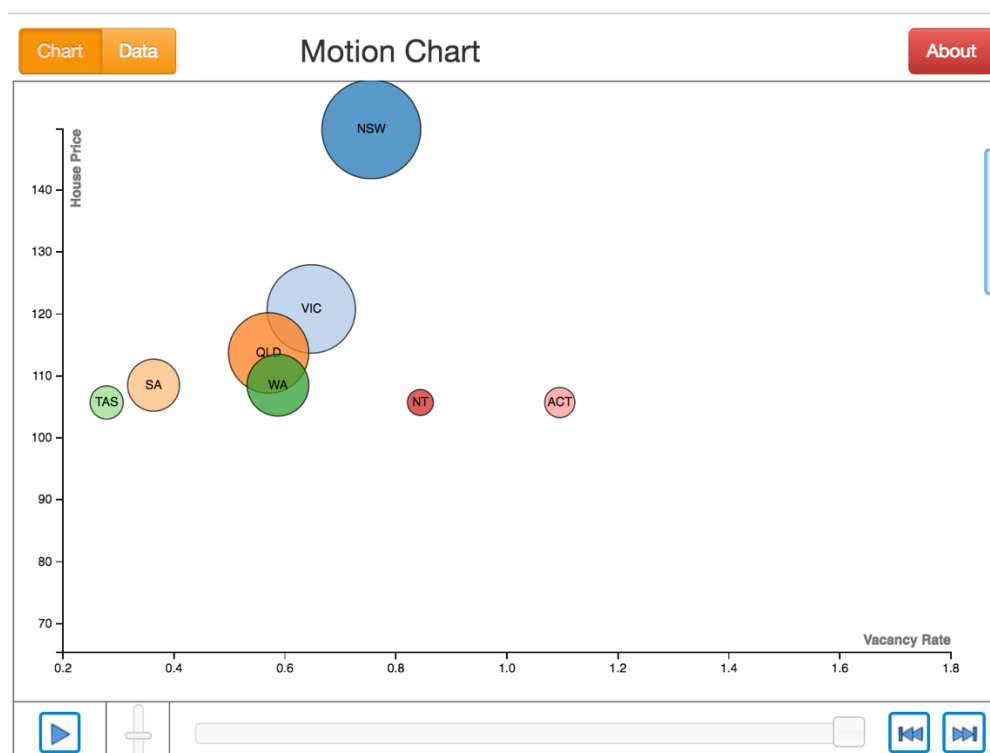
For the house price rate, NSW was always higher than VIC especially after March 2012, except the period between September 2009 and March 2012. NSW tends to higher and higher than VIC

For the unemployment Rate, they were almost at the same level before March 2012, the NSW's unemployment rate kept higher than VIC.

Number of unemployment people

This line graph compares the the number of unemployment people (calculated by unemployment rate * population) in different states by time.

Although it's hard to find the pattern from the rate of unemployment, we can see that from June 2008 to December 2009, those large regions like NSW, VIC, QLD even WA, their unemployment people rapidly increased, however, small region like ACT, NT, TAS were not influenced.

This is a motion chart with vacancy rate on the x-axis, house price index in the y-axis and the colour is given by the state and the size of the bubble is given by the population of the state.

As the motion chart shown, we can see that for the overall patterns, all states vacancy rate were fluctuated except for ACT(Guess it was because the position there were mostly from government).

TAS 's job vacancy was the most stable and always was the smallest.

If we take the large region into consideration (NSW, VIC, QLD, WA), we notice that ,the house price rate would increased as the job vacancy rate decreased into a certain rate and stayed for a certain period of time.

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