

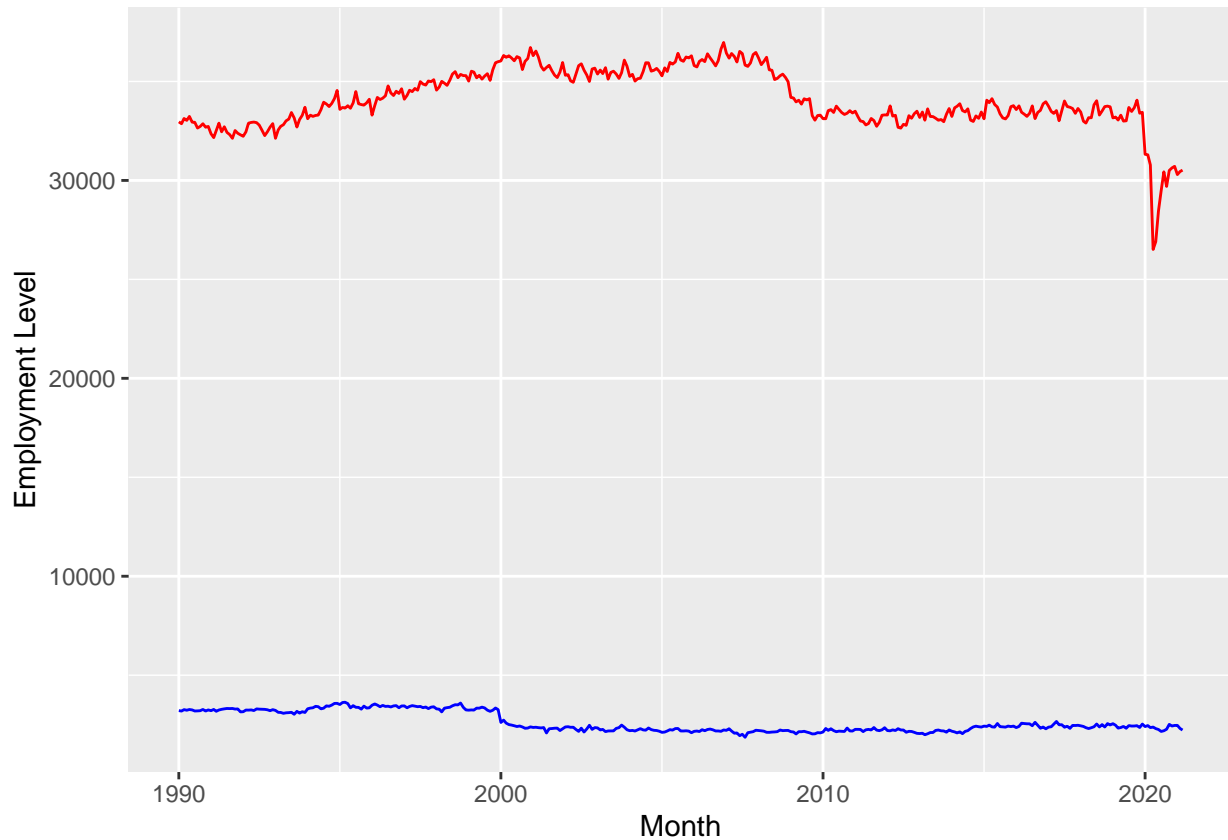
Homework 9

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Economic Model

The employment level of sales and office occupations and the employment level of agriculture and related industries. We believe that if agriculture sector improves in their output then the sales department will sell more agriculture and thus will improve profits on the office level side which then it would create more vacancies in the job market because a firm will have more capital to hire more people. We will be doing a cointegration on these two different random walks.



Analysis and Results

First we did the Dickey Fuller test on both variables so that we could determine if it was a unit root of $I(1)$. Both employment level - sales and office occupations and employment level - agriculture and related industries were series that appear to have a unit root of $I(1)$ which is a pure random walk. Since both are pure random walk we will run a linear regression between the two variables to see if the two variables have any relation

between each other. We got a R^2 of 0.019 and our t statistic for sales was -2.711 which already show us that there is not a relationship between the two variables. But we will also do a integration test by testing the \hat{u}_t which we was made into a variable by taking the residual of the linear regressed variables of Sales and office occupations and agriculture and related industries. Then we use the Dicky Fuller test we tested the τ variable to decided it the variable was stationary or non-stationary. Though analysis we found the value of the test statistic was 1.3448. Which was less than critical value 1.95 meaning that \hat{u}_t fails to reject the null hypothesis. Therefore this dictates that value is non stationary and the two variable do no cointegrate.

