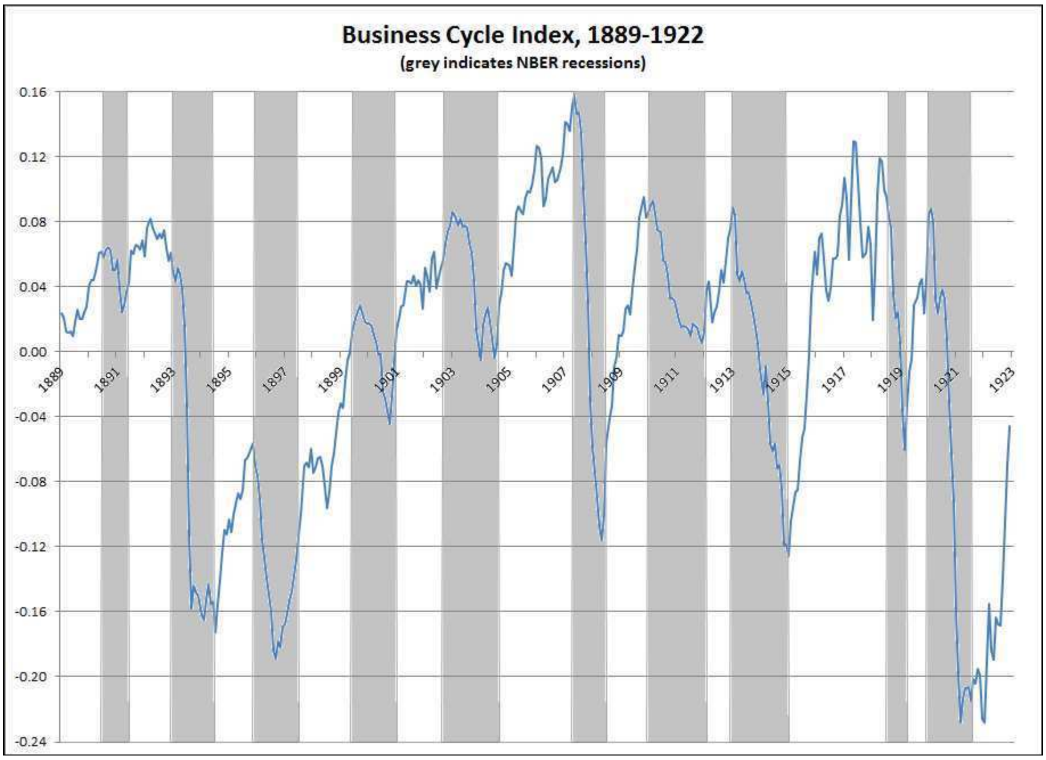
**Assignment 2**

**The Success of Employment Applications in Ohio during the Gentleman's Recession**

On April 18, 1906, a 7.9 earthquake hit San Francisco, California. The death total from the earthquake and associated fires and mud slides is estimated to have been 3,000. As many as 300,000 people, out of a population of 400,000, were made homeless. Property damage amounted to $400 million, $250 million of which was covered by insurance.

With such an enormous claim upon the insurance industry, insurance companies and the entire financial system were subjected to enormous stress. The following year, the Panic of 1907 broke out. Stock prices tumbled. Banks were closed. And, an industrial recession got underway.

Fortunately, J.P. Morgan and others stepped in to support stock prices; and, banks issued $100 million of scrip (or, emergency money). And, the recession was short-lived. Indeed, for a time, this recession was called "The Gentlemen's Recession," as it was said to have mostly affected investors and did not much affect those in the working class.

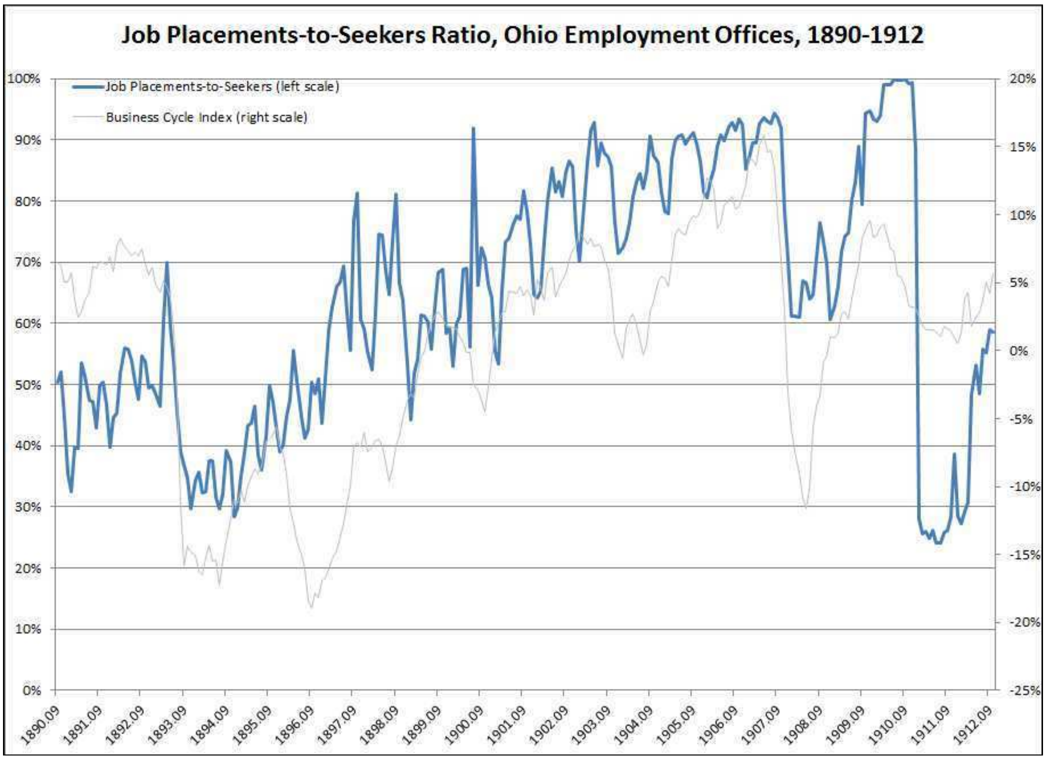



The chart above shows an index of the business cycle during the period.[1] It is relatively easy to see the sharp fall in the index during the recession that followed the Panic of 1907. It is also relatively easy to see the sharp recovery from this recession.

During the period, the State of Ohio operated employment offices in five cities. From their reports, monthly time series can be constructed for job applications, job listings and job placements, for

[1] The index is constructed from four underlying time series: (1) railroad freight ton-miles, (2) deflated bank clearings outside New York City, (3) an index of factory employment, and (4) an index of business physical activity (similar to today's index of industrial production); and, is equal to the average seasonally-adjusted deviation of these time series from their trends.

men and for women, for each of the five cities, from Sept. 1890 to Oct. 1912.[2] These employment offices focused on inexperienced and unskilled workers, and “difficult to place” individuals.[3]




The above chart displays the ratio of job placements to seekers, for the total of men and women in all five cities, juxtaposed against the business cycle indicators. Two things should stand out:

First, there is a strong upward trend in the ratio through 1910. After that, there is a sharp decline. This decline, it turns out, is due to an administrative change involving the differentiation of “registered” from “not registered” job applicants. Accordingly, the data following 1910 are not directly comparable to the data through 1910.

Second, through 1910, there appears to be a weak, positive correlation between the ratio and the business cycle index. In particular, the ratio dips during the recession that followed the Panic of 1893 and it dipped again during the recession that followed the Panic of 1907.

In this assignment, you are to:

- Use the data in the accompanying spreadsheet, for the period Sept. 1890 to Dec. 1910 (<u>not to</u> the end of the data), to estimate two multiple regressions in which the dependent variable is the ratio of job placements to job seekers (in the first regression) for men and (in the second regression) for women for your city (your city code is in Grades), and the two independent variables are time and the business cycle index.
- Use the regression output to comment on
- [1] Whether the ratios are affected by the business cycle;

[2] After the latter date, only quarterly data are reported; and, referrals are reported, not placements.

[3] For-profit employment agencies served experienced and skilled workers well. Both government employment offices and not-for-profit employment agencies focused on inexperienced and unskilled workers, and “difficult to place” individuals, with government employment offices tending to displace not-for-profit employment agencies.

- [2] Whether the ratios are particularly sensitive to the business cycle (affected by more than one-to-one); and,
- [3] Whether the ratios fell by at least as much as would be predicted following the Panic of 1907. (To perform this step correctly, you will need to compare actual values of the Y-variable to the forecast values of the Y-variable given the estimated regression and the X-variables of the specific period of time being investigated.)

**CITY CODES:**

01 – Cincinnati
02 – Cleveland
03 – Columbus
04 – Dayton
05 – Toledo