FRED Graph Depicting Real Earnings in the United States

1. Start by navigating to the FRED homepage at http://research.stlouisfed.org/fred2/.
2. In the search box located at the upper right corner, type in "earnings" and press Enter.
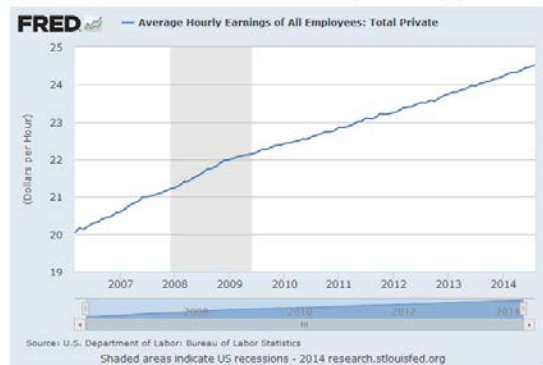3. List of series should be populated:

4. From the populated list, click on "Seasonally Adjusted" series for the "Average Hourly Earnings of All Employees: Total Private."

5. Now, you should see a page with a data graph corresponding to the series you selected.

6. Below the graph are four tabs with the "Graph" tab expanded out. The series that is on the graph represents nominal data. We would like to see how wages change if we remove the effect of inflation on this data. Given that real earnings series is not available in FRED we need to construct such series using tools incorporated into the FRED Graph. To do so, we would add another data series identical to the one we already have on the graph and use CPI as a deflator to calculate real earnings.

7. In the "Graph" tab, expand "Add Data Series" section and either copy and paste the series ID "CES0500000003" into the search box or search for "earnings" and pick the "Average Hourly Earnings of All Employees: Total Private" series. Make sure the "Add new series" option is selected and then click on "Add Series" button.

8. Two identical lines should appear on the graph.
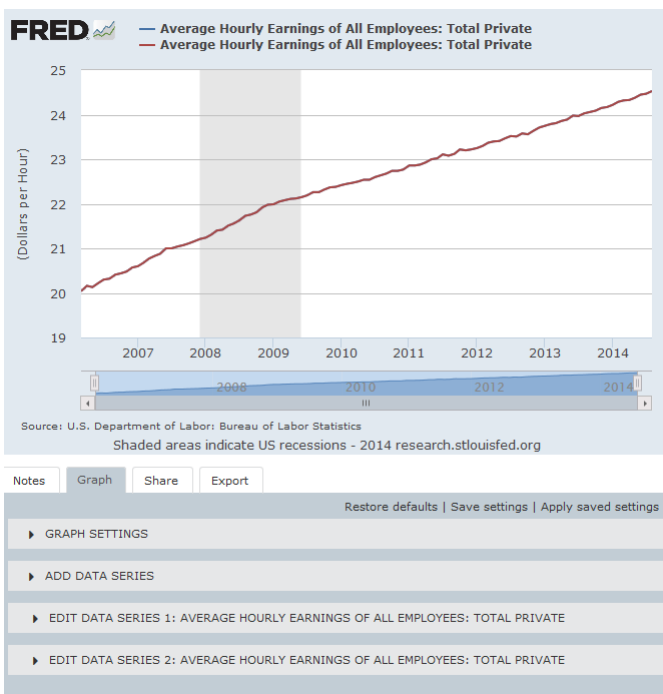
9. Go back to the "Add Data Series" section and type in "CPI." Choose the "Consumer Price Index for All Urban Consumers: All Items" (series ID "CPIAUCSL"). The CPI series is the deflator that would be used along with the second earnings series we have on the graph. Thus we need to pick "Modify existing series" option and from the drop down menu select "Data Series 2." Click on "Add Series" button.

10. Now, we see that the earnings series (marked with "a") and the CPI series (marked with "b") are both under the "Edit Data Series 2" section.

11. Expand "Edit Data Series 2" section and at the bottom, click on "Create your own data transformation." In the "Formula" field, type "a/b*100" and click "Apply."

12. Now, we have real and nominal earnings on the graph but the real earnings series is tied to the 1982-84 dollars (CPI is reported in that base year). We can rebase the CPI series so that we are looking at the trough of the Great Recession.
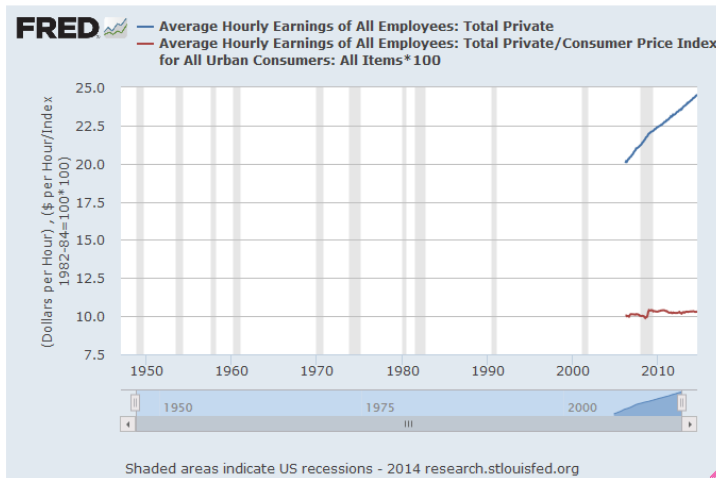
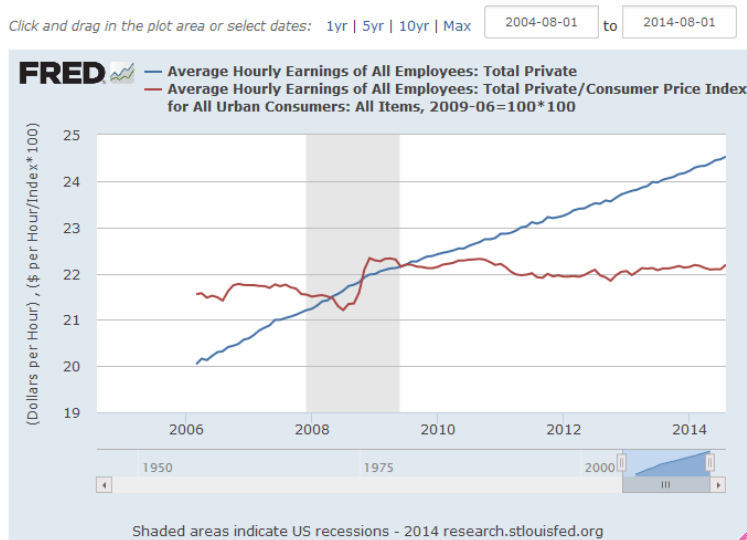13. Expand "Edit Data Series 2" section, locate series "(b) Consumer Price Index for All Urban Consumers: All Items, Index 1982-84=100, Seasonally Adjusted (CPIAUCSL)" and change its "Units" in the drop down menu to "Index (Scale value to 100 for chosen period)." Then from the "Trough" dates select "2009-06-01" representing the end of the Great Recession.

14. Go back to the graph image and above the graph change the viewing date range to "10 yr."

15. Lastly, in the "Graph Setting" section, we can modify the "Graph Background" color. Within "Edit Data Series 1" and "Edit Data Series 2" sections we can adjust "Line Style" and "Color" to desired personal preference.