Data Appendix for Revisiting Unemployment in Intermediate Macroeconomics: A New Approach for Teaching Mortensen-Pissarides*

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We describe how we construct the unemployment rate and the vacancy rate data that we used to make Figure 3 in our article *Revisiting Unemployment in Intermediate Macroeconomics: A New Approach for Teaching Mortensen-Pissarides*. Our methodology is based on the approach described in Petrosky-Nadeau and Zhang (2013). The data in csv format and the Python program that we use is available on the website for this project: http://www.briancjenkins.com/mp-model.

1 Unemployment Rate

We construct a monthly unemployment series from April 1929 through September 2016 by concatenating four United States unemployment rate series; all of which are available from FRED.[1] Specifically:

- Seasonally adjusted unemployment rate for the United States from April 1929 through February 1940. FRED series ID: M0892AUSM156SNBR. NBER Indicator: m08292a.
- Seasonally adjusted unemployment rate for the United States from March 1940 through December 1946. FRED series ID: M0892BUSM156SNBR. NBER Indicator: m08292b.
- Seasonally adjusted unemployment rate for the United States from January 1947 through December 1947. FRED series ID: M0892CUSM156NNBR. NBER Indicator: m08292c. Note: The source data are not seasonally adjusted and contain observations through December 1966. We seasonally adjust the entire series through December 1966 using the United States Census Bureau's X-12-ARIMA seasonal adjustment program. We then discard values after December 1947.
- Seasonally adjusted unemployment rate for the United States from January 1948 through September 2016. FRED series ID: UNRATE.

Figure 1 depicts our constructed unemployment rate series.

2 Vacancy Rate

The vacancy rate is the ratio of job openings or vacancies to the labor force. We construct the monthly series of vacancies for the United States going back to April 1929 by scaling and concatenating three series:

- Help-wanted advertising in newspapers index for United States from April 1929 to January 1960. FRED series ID: M0882AUSM349NNBR. NBER Indicator: m08082a. Note: The source data are not seasonally adjusted and contain observations through August 1960. We seasonally adjust the entire series through August 1960 using the United States Census Bureau's X-12-ARIMA seasonal adjustment program. We then discard values after January 1960.

[1] Federal Reserve Economic Data (FRED): https://fred.stlouisfed.org/.

- Composite help-wanted index from January 1960 through January 2001 constructed using the method described in and Barnichon (2010). We obtained the data from Barnichon's website.[2] We scale this series so that its value in January 1960 equals the value of the NBER's help-wanted index for the same date.

- Job openings, total nonfarm for the United States from January 2001 to September 2016. FRED series ID: JTSJOL. We scale this series so that its value in January 2001 equals the value of the scaled help-wanted index from Barnichon for the same date.

Next, we construct monthly labor force data for the United States from April 1929.

- Civilian labor force for the United States from January 1948 to September 2016. FRED series ID: CLF16OV.

- Historical national population estimates from Population Estimates Program, Population Division, U.S. Census Bureau. The source data are annual from July 1, 1900 to July 1, 1999 and not seasonally adjusted. We extend the data to monthly frequency by linear interpolation and discard observations before April 1929 and after January 1948. Then we scale this series so that its value in January 1948 equals the value of the civilian labor force series for the same date.

Now that we have a vacancy series and a labor force series, we compute the monthly vacancy rate for the Unite States by dividing the vacancy rate series by the labor force series. Following Petrosky-Nadeau and Zhang (2013), we scale the result so that the average vacancy rate for 1965 is 2.05% in order to match the vacancy rate estimate for 1965 obtained by Zagorsky (1998). Figure 4 contains a plot of our constructed market tightness series.

[2] https://sites.google.com/site/regisbarnichon/data.

Figure 1: The monthly unemployment rate of the United States from April 1929 to September 2016.

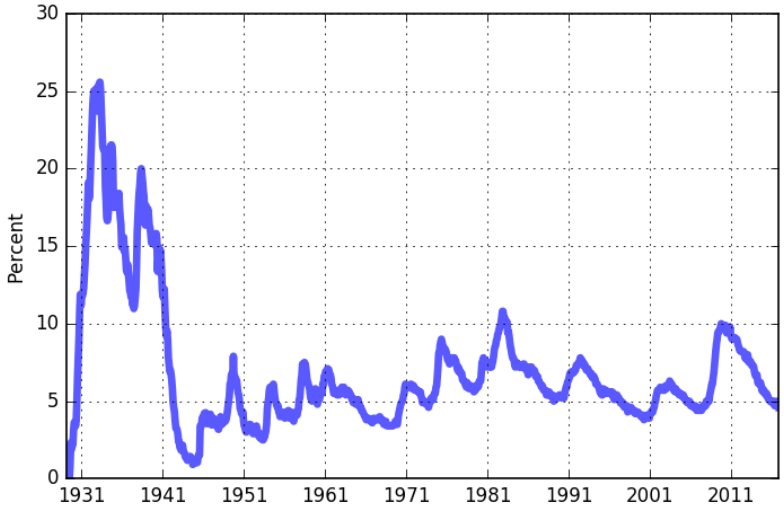


Figure 2: The monthly labor force of the United States from April 1929 to September 2016.

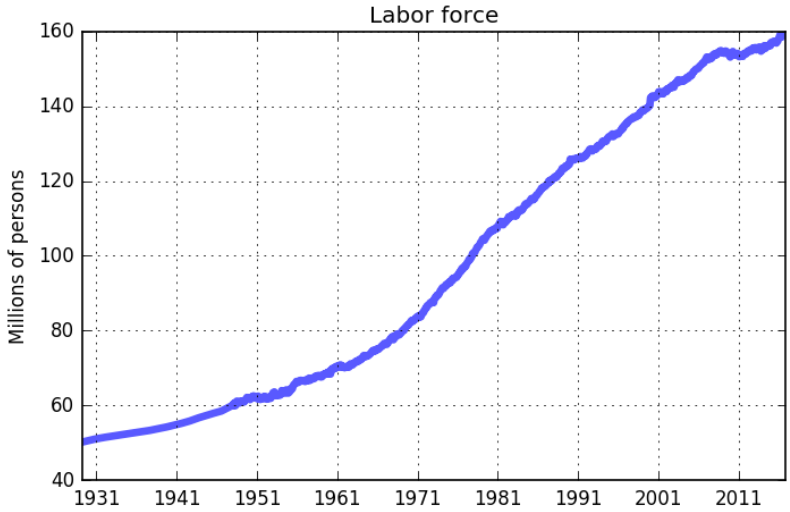


Figure 3: The monthly vacancy rate of the United States from April 1929 to September 2016.

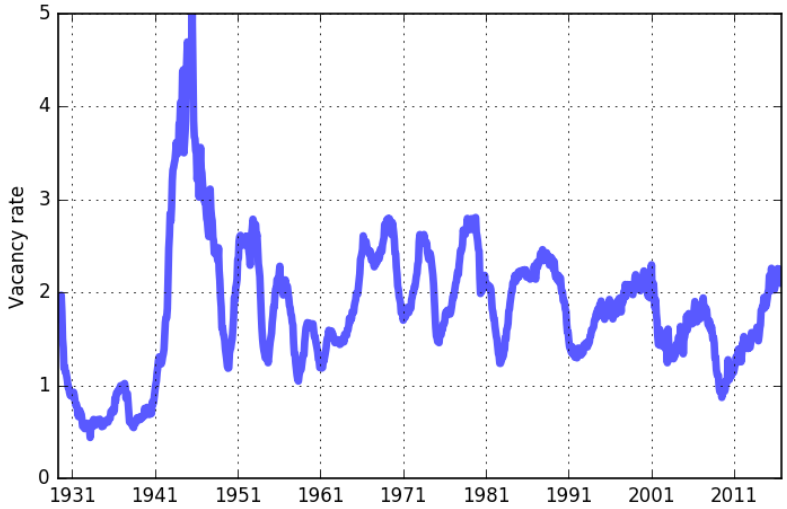
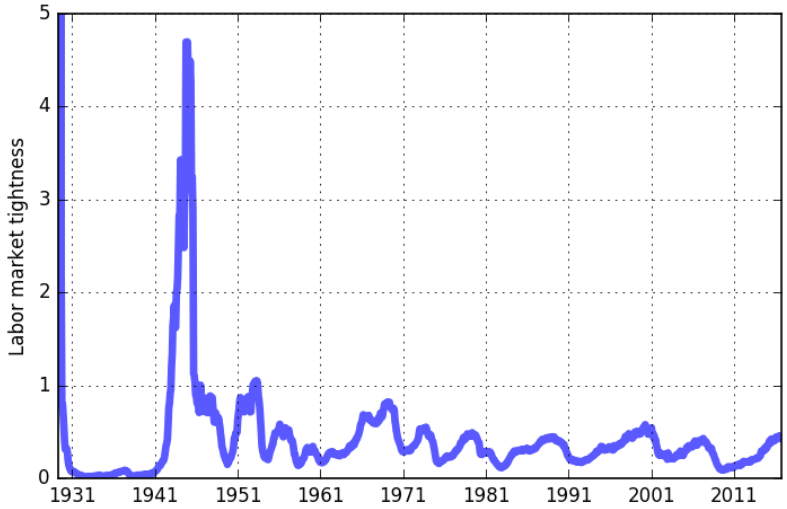


Figure 4: Monthly labor market tightness of the United States from April 1929 to September 2016. Market tightness is the number of job vacancies divided by the labor force.



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