

ME2720 Macroeconomics for Business

Assignment 2

The Labor Market and Business Cycles

Deadline: November 21, 2017 at 13:15[†]

General Comments & Instructions

In most empirical exercises it is hard to find the exact variable you are looking for. Presumably, you will need to make assumptions in order to solve questions¹. Of course you should clearly state (and motivate!) your assumptions so that others can evaluate your work. Also, do not forget to document which methods and formulas were used to perform calculations, as we all know that different formulas yield different results! Finally, note that an important part of this exercise is to offer economic interpretations of your results.

All teams are required to solve at least 3 of the 5 exercises in Assignment 1. If it is your turn to present the solutions to a particular exercise in class then you need to send me your presentation slides a day in advance (November 20, before 13:15).

Last but not least, the solutions that you hand in must be comprised in ONE coherent *pdf*-file, supplemented with ONE Excel file, or alternatively with the code of the programming language you used, where all calculations must be easy to follow. The *pdf*-file should be easy to read, logically structured, and it must clearly show what you have done and which databases you have used.

[†]Submission to luis.perez@indek.kth.se.

¹For instance, you are interested in the total number of workers in the economy but such data are not available. Then, it might be a good idea to look at the total population aged 18–64 as it represents the population that could *legally* work.

Presentations

(1) The Natural Rate of Unemployment

Group 6: Kyra Jetten, Rick van Oostende, Sarah Steinbach

(2) Labor Unions and Unemployment

Group 3: Karin Sundbeck, Johanna Eriksson, Eleanor Johansson

(3) Real GDP Co-movements

Group 2: Alice Aslander, Frida Nilsson, Joel Gedin

(4) Okun's Law

Group 11: Marcos Rassi Torrecillas, Zhizheng Wang, Delin Wang

1 The Natural Rate of Unemployment

Draw a random sample of 6 OECD countries and estimate the natural rate of unemployment for a period of at least 25 years, starting at the earliest in 1980. Present your results in one graph per country and provide comments on how the natural rate of unemployment has varied for the chosen countries. Why do you think the natural rate of unemployment has changed as it has? You may use whatever method you find suitable to isolate the trend from the unemployment series (except using average measures of unemployment), e.g. the Hodrick-Prescott method, regression analysis, etc.

2 Labor Unions and Unemployment

Assess the claim made on page 140 in the textbook which states that stronger labor unions lead to higher rates of natural unemployment. You may use the average unemployment level over a sufficient number of years² as a proxy for the natural rate of unemployment³.

²The larger the time series and the greater the (country) sample size, the better.

³*Hint:* OECD Statistics is a valuable data source for this exercise and the variable *Trade Union Density* could be used as a measure of trade union strength.

3 Real GDP Co-movements

This exercise is intended to see if and how business cycles are correlated across space. Start by randomly choosing one country. Then gather at least 30 years of real GDP data, starting in 1980 at the earliest, for that country, for 5 countries located closeby, and for 5 countries located far away from the chosen country. Calculate the pairwise correlation coefficients based on the countries' annual real GDP growth rates series and present your results as Table 1 below does.

Table 1: Correlation Matrix

	Sweden	Belgium	Denmark	Finland	France	Norway
Sweden	1.0000					
Belgium	0.3600	1.0000				
Denmark	0.1693	0.3442	1.0000			
Finland	0.7657	0.3638	0.0962	1.0000		
France	0.2265	0.7926	0.4770	0.4349	1.0000	
Norway	0.2248	0.1367	0.5295	0.0579	0.0863	1.000

Based on your results, comment on how business cycles are correlated across space and how this relationship is affected by distance and potentially also other forces.

4 Okun's Law

Draw a random sample of 5 countries and use at least 20 years of annual data, starting in 1980 at the earliest, per country to illustrate Okun's law (see Figure 1 below) with one graph per country.

Calculate the output gap as the percentage deviation of real GDP from a five-years centered running moving average and the deviation of the unemployment rate from its natural level as the deviation from its mean. A five-year centered running moving average for real GDP is calculated according to:

$$Y_t^* = \frac{Y_{t-2} + Y_{t-1} + Y_t + Y_{t+1} + Y_{t+2}}{5} \quad (1)$$

where Y_t^* denotes potential real GDP at time t and Y_t denotes observed real GDP at time t .

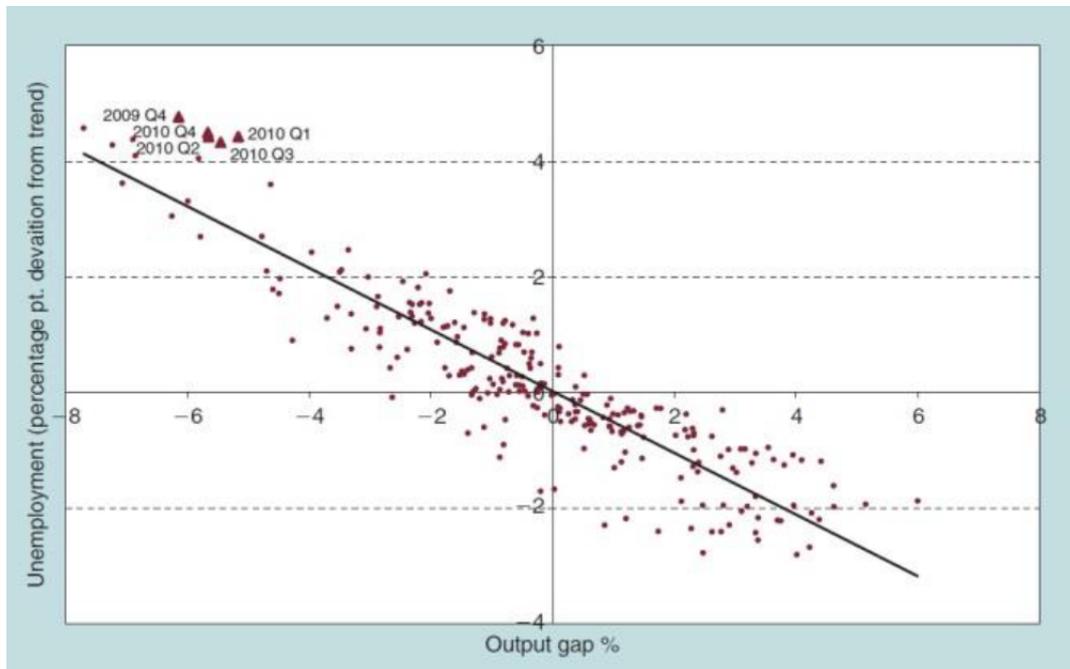


Figure 1: Okun's Law for the US, 1949-2011

5 Your choice!

Make a short macroeconomic analysis of whatever topic you are interested in!