ECON 423 Lab: Noneconomic Forecasts

Evaluating the Composite Leading Index

This lab examines the ability of the Composite Index of Leading Indicators to predict turning points in the business cycle.

- On page 370 of the text: “The National Bureau defined that a peak is reached if the next three months are all downward; a trough is reached if the next three months are all upward.”
- How reliable is this as a forecast of turning points in the reference cycle?
- How often does the reference cycle peak close to peaks in the Indicators?

Data

The Excel file leading_indicators.xls contains dates, the monthly Composite Index of Leading Indicators, and four variables related to the reference cycle:

- **Leading**: Composite Index of Leading Indicators
- **Peak**: = 1 at reference cycle peaks
- **Trough**: = 1 at reference cycle troughs
- **Expansion**: = 1 during expansions
- **Recession**: = 1 during recessions

Procedures

1. Preliminary steps

   - Insert a new column to the right of **Leading**
   - Label the column **Delta-L**
   - Write a formula calculating the month-to-month change in the composite leading index
   - Insert a new column to the right of **Delta-L**
   - Label the new column **Delta-L3**
   - Write a formula using the logical functions “If” and “And” so that this column = 1 if **Delta-L** = 1 for 3 consecutive months
   - Sum up **Delta-L3** What does this sum tell you about turning point forecasts?

2. Analysis

   - We now know how often the Composite Index of Leading Indicators turned down for three consecutive months in the sample period
   - Want to find out how often an actual business cycle peak happened “near” these events
   - Must define “near” in practical terms
   - Let near be ± three months
• Construct a logical variable that is equal to 1 if \texttt{Delta-L3} equals 1 and \texttt{Peak} = 1 in any of the three months before or after \texttt{Delta-L3} equals 1, and equal to zero otherwise.

• Formula:
  – Column E: \texttt{Delta-L3}
  – Column F: \texttt{Peak}
  – In Column G, Row 6:
    \[=\text{IF}((\text{AND}(E6=1,\text{OR}(F3=1,F4=1,F5=1,F6=1,F7=1,F8=1,F9=1))),1,0)\]

3. Evaluation

• How many times was the formula =1?
• How many business cycle peaks in the sample?
• How many times did \texttt{Delta-L3} turn down for three consecutive months?
• Is this an “overestimate” of business cycle peaks?