The Leading Index (2)

Consistency.

Technically speaking, the Puget Sound Economic Forecasting Model is a system of ninety-six simultaneous equations estimated using regression analysis. Despite its complexity, it failed to predict the Dot-Com/911 Recession and the Great Recession.

We do take some comfort in the fact that most of the national econometric models used by the fifty Blue Chip panelists also misfired. Thus, it should be no surprise that economists have searched for other ways to predict the vagaries of economic activity. The most popular technique is the index of leading economic indicators.

During the Great Depression, the National Bureau of Economic Research (NBER) began to identify cyclical indicators that tended to lead, coincide, and lag the various phases of the business cycle. In cooperation with NBER, the U.S. Bureau of Economic Analysis (BEA) developed composite indexes of leading, coincident, and lagging indicators, initially publishing them in 1968. Three decades later BEA turned over the business cycle indicators program to the Conference Board (CB).

CB's commonly quoted U.S. Composite Index of Leading Indicators consists of ten variables, such as manufacturers' orders for goods, residential building permits, and the S&P 500 stock index. While it is not always obvious why a variable is considered a leading indicator, building permits are an exception, since they are taken out six to nine months in advance of actual construction.

Patterned after the CB leading index, the Puget Sound Index of Leading Economic Indicators is composed of seven variables, six of which pertain to the local economy: online help-wanted ads, the length of the Washington manufacturing workweek, Puget Sound initial claims for unemployment insurance, Puget Sound housing permits, Puget Sound durable goods spending, the Boeing aircraft backlog-delivery ratio, and the spread between the 10-year Treasury bond rate and the 3-month commercial paper rate.

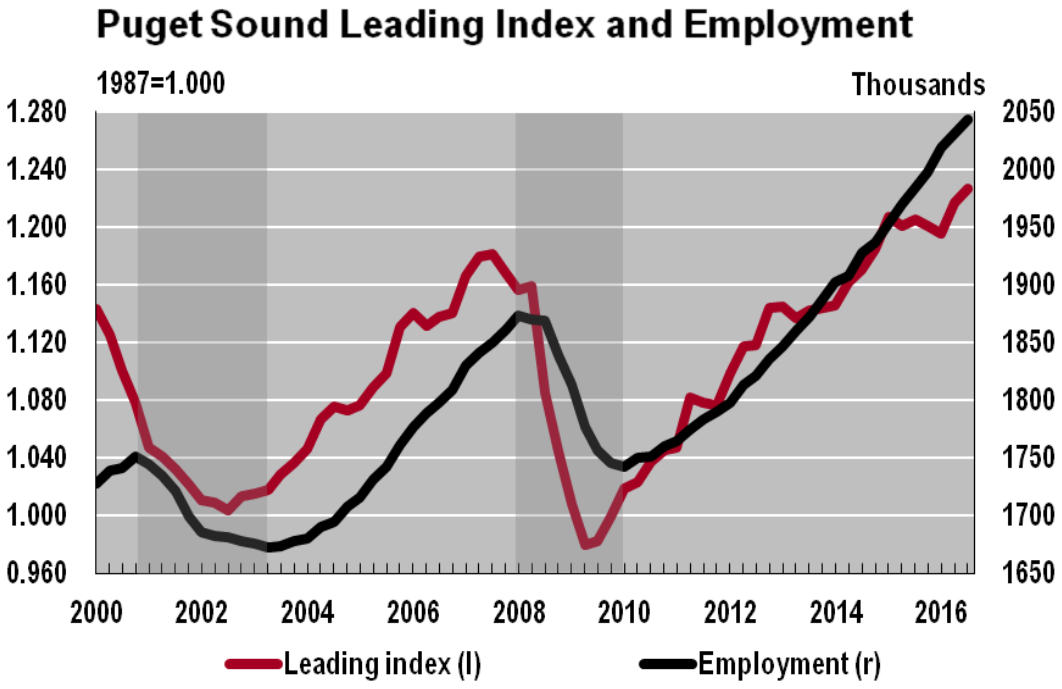
National leading indexes are typically designed to anticipate the ups and downs of U.S. real Gross Domestic Product (GDP), the broadest single measure of economic activity. Lacking a timely estimate of Puget Sound GDP, the objective of our leading index is to predict swings in total regional employment.

As shown in the accompanying chart, the Puget Sound leading index passed muster during both recessions. For example, on the verge of the Great Recession, the leading index turned down in the fourth quarter of 2007, while employment turned down in the second quarter of 2008, a two-quarter (six-month) lead. At the outset of the recovery, following the upturn of the leading index in the third quarter of 2009, employment turned up in the second quarter of 2010, a three-quarter (nine-month) lead. Importantly, during the entire course of the recession and recovery, the leading index pointed the way.

With regression analysis, it is possible to show more precisely the relationship between changes in employment and changes in the leading index. The following equation is an approximation of the estimated model, where Δn and Δl are the percentage changes in employment and the leading index, respectively:

$$\Delta n = 0.050\Delta l+0.086\Delta l(-1)+0.107\Delta l(-2)+0.114\Delta l(-3)+0.107\Delta l(-4)+0.086\Delta l(-5)+ 0.050\Delta l(-6)$$

The model shows that the change in employment in the current quarter is related to the change in the leading index in the current and six prior quarters. Moreover, as indicated by the size of the regression coefficients, the change in employment is most strongly related to the change in the leading index three quarters earlier. This is why downturns (upturns) in the leading index tend to lead downturns (upturns) in employment by three quarters.



The shaded areas designate recessions.