Exercise 4.3.

Benchmarking using IMF's XLPBM excel add-in or excel embedded macro (BENCH)

Overview

This is a practice session in the use of the IMF's XLPBM benchmarking software. There are 3 parts:

1. Benchmarking a quarterly indicator to an annual series
2. Benchmarking an annual deflator to a quarterly price series
3. Using XLPBM to spline an annual series (using both a simple spline and a seasonal spline).

Detail

Part 1: Benchmarking a quarterly indicator to an annual series

You are given an annual series ('Y') and an indictor series ('X').

1. Using Denton's method, use XLPBM to produce a benchmark series for X benched to Y. Set the B/I parameter to zero. Plot the resulting series and the original series ('X').
2. Check that the sum of the BM series equals the Annual series in each year.
3. At the end of the series (from Q1 2016) – what is the growth in the BM series? Why?
4. Try adjusting the B/I ratio (set it = 5, -5, 10). What do you notice? [Hint: Look at the growth rate at the end of the series]
5. Change the benchmark method to the Cholette-Dagum method. What do you notice?

Part 2: Benchmarking an annual deflator to a quarterly price series

You are given an annual deflator 'Def' for Hotels & Restaurants and a quarterly CPI series for 'Meals Out'.

1. Calculate the annual CPI index.
2. Use XLPBM (or BENCH) to benchmark the CPI series to the deflator.
3. What do you notice? What adjustment is needed to the XLPBM (or BENCH) formula? Why?
4. Plot the CPI and benchmark deflator series.

Part 3: Using XLPBM to spline an annual series

You are given an annual series for ISIC 1074: Manufacture of macaroni, noodles, couscous and similar farinaceous products. In this case there is no indicator series.

1. Using XLPBM or BENCH (Denton's method), calculate a simple 'spline' of the annual series. How did you do this?
2. Plot the result.
3. If the quarterly series is assumed to be seasonal (for example, if it relates to agricultural output, and we may infer it seasonality from other similar series) and we estimate that with the following seasonal factors:

Q1	0.98
Q2	1.01
Q3	1.02
Q4	0.97

   Calculate a seasonal spline of the annual series using XLPBM (or BENCH).
4. Try using Cholette-Dagum method.