Excel Tips for Growth Accounting

This document discusses the Microsoft Excel commands used during the growth accounting demonstration presented in class.

Before manipulating the data, it is a good idea to organize the worksheet you will be working with in Excel. The "Freeze Panes" command under the "Window" tab allows you to scroll down and across large screen areas without losing your ability to see your worksheet's header (where the labels for the different time series will go) and side pane (where the year for each data row is located). Next, type in headings for the columns and parameter values used in the growth accounting. The headings might not seem useful now, but they save time in the future when you return to your file after not having worked with it for awhile. The labels we included in class were for the parameter values (alpha and delta), new time series (capital stock, capital-to-output ratio, TFP, and the four components of the growth accounting decomposition), calibration targets (initial capital-to-output ratio, average capital-to-output ratio), and the initial and updated guess for the capital stock series.

Once the worksheet is organized, begin to type in the formulas corresponding to the labels in order to manipulate the data. Letters denote columns in Excel, and numbers denote rows. In order to type in a formula for a particular cell, click on the cell, type =, and then type in the desired formula. A $ sign can be used to fix a particular cell in a formula for an entire range of new cells. For example, when typing in the formula used for TFP, the value for the parameter alpha does not change. If alpha resides in cell A2, then type A2 when alpha appears in the formula for TFP. Now, once you drag the formula for TFP to cells for subsequent years, alpha remains fixed as cell A2.

The main Excel trick used in the growth accounting involves calculating the capital stock series. Type in a value for the initial capital stock. Your choice for the initial value implies an updated value of the capital stock. Copy the new updated value of the capital stock. Paste this value as the new guess for the initial capital stock by clicking the "Paste Special" command under the "Edit" tab and pasting as "Values." Repeat this procedure by clicking and holding Ctrl+Y, the "Repeat" command under the "Edit" tab.

Once the four series for the components of the growth accounting are calculated, convert each series to a series relative to the first year's data observation. For example, to calculate the productivity series, 1970-2000, for Finland, divide each year's data by productivity in 1970 and multiply each year's data by 100.

You should always present your results in a clear and professional manner. When making graphs, eliminate unnecessary clutter (Excel's legend and grid lines), provide labels (each axis and all time series), and give the graph a title.