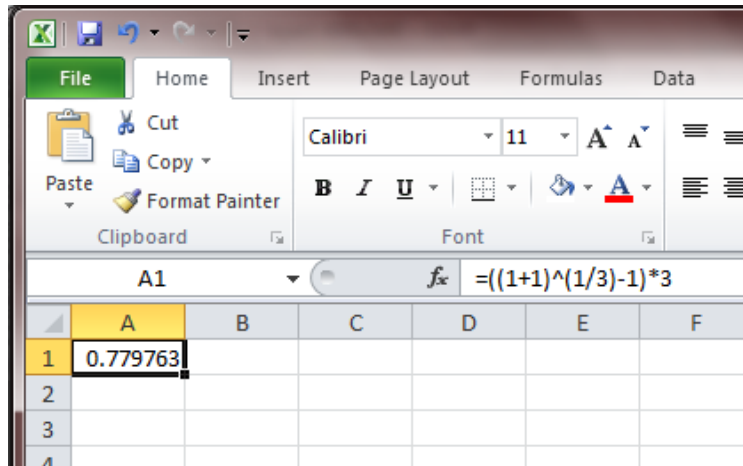


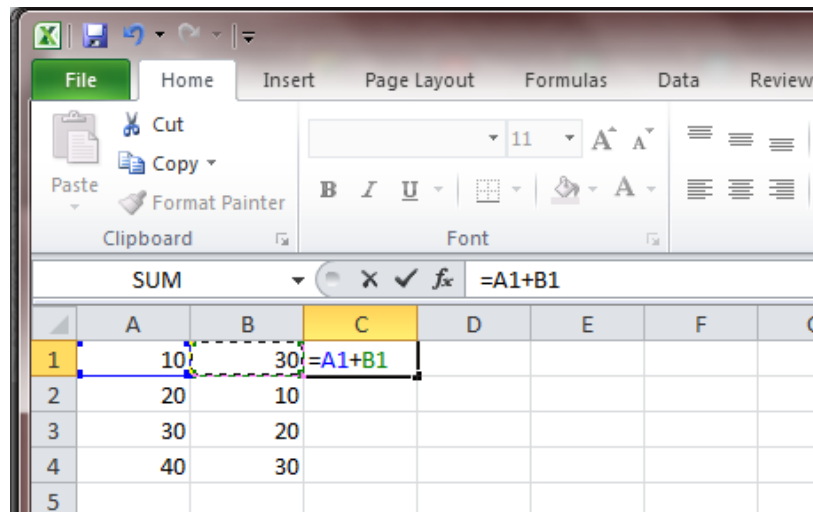
Development Economics

Excel Tips

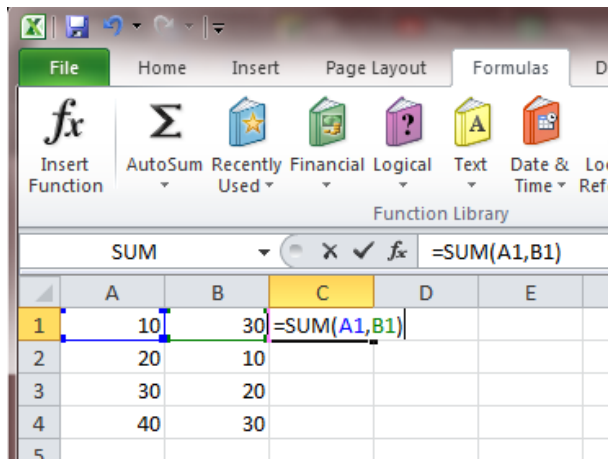
- Calculation of an average annual growth rate using a time series of data: In order to use LOGEST, the formula should be “=100*[LOGEST(Initial y : Final y)-1]”. (More on the general use of formulas in Excel below.)
- To enter a formula (to get Excel to do a calculation for you), always start with the equal sign “=”. For example, to add 2+2, type “=2+2” and hit Enter, and you’ll see that Excel does the calculation for you.
- You can use parentheses to force the order of operations. Notice that after you enter your formula and hit Enter, if you click on the cell, you will see the answer in the cell but the formula in the formula bar.



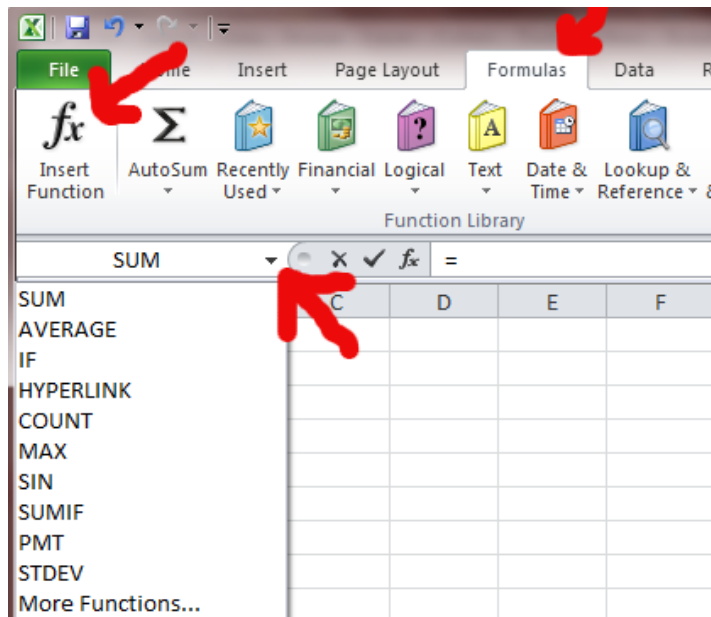
- Your equations can also refer to values in other cells in your worksheet. As you can see in this example, I want Column C to be the sum of A and B. You can type in the whole reference or type “=” then click the first cell (A1), then type “+”, click the second cell (B1), and hit Enter.



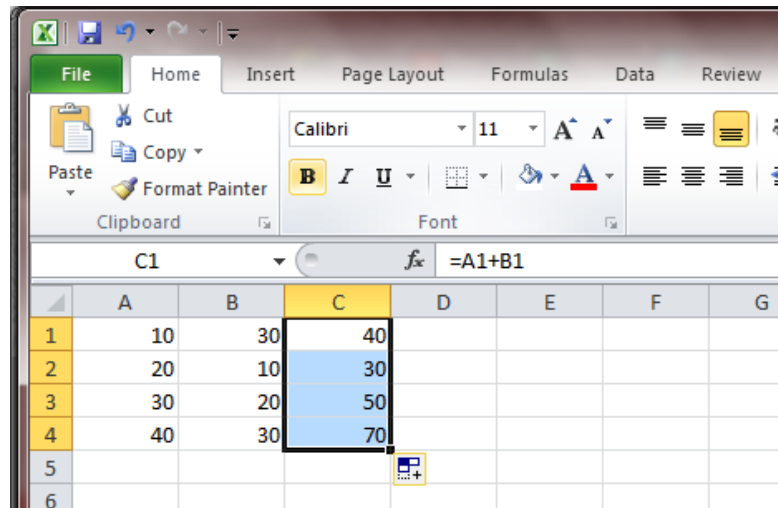
- To refer to several cells that are contiguous (attached without a break), you can use a colon :, for example, to average all the values of A1,A2,A3, and A4, you could type “=AVERAGE(A1:A4)”. (More on functions in the next point.)
- To insert a function (AVERAGE, SUM, LOGEST, etc.), you have a few options. If you know the function, you can simply type it in as part of your equation (for example, “=SUM(A1:A4)” or “=AVERAGE(A1,A3,C5,D8)”



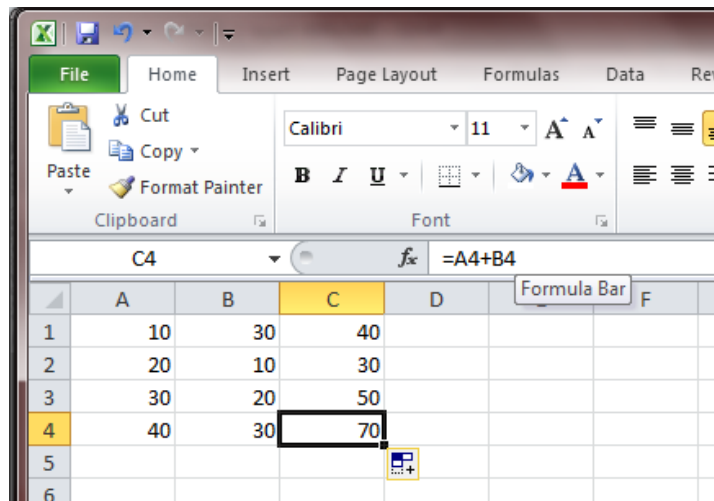
If you don't know the formula, if you type "=" into your cell, a drop-down menu becomes available to the left of your formula bar. You can click the arrow to drop down that menu and select your formula. You can also go to the Formulas tab and select "Insert Function."



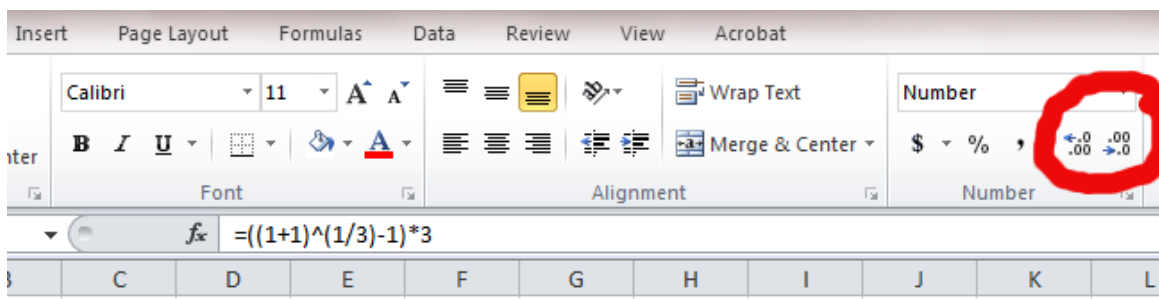
- For the rest of the rows in that cell, however, there is no need to retype the formulas. You can simply click on the bottom right corner of C1 and drag down to C4. Excel will fill in the rest of the cells for you using the same pattern.



As you can see by clicking on C4 and looking at the formula bar, “dragging down” the formula means that C4 sums A4 and B4. It’s not a bad idea to check and see that Excel has entered the formula in, say, the last cell, just the way you were expecting.

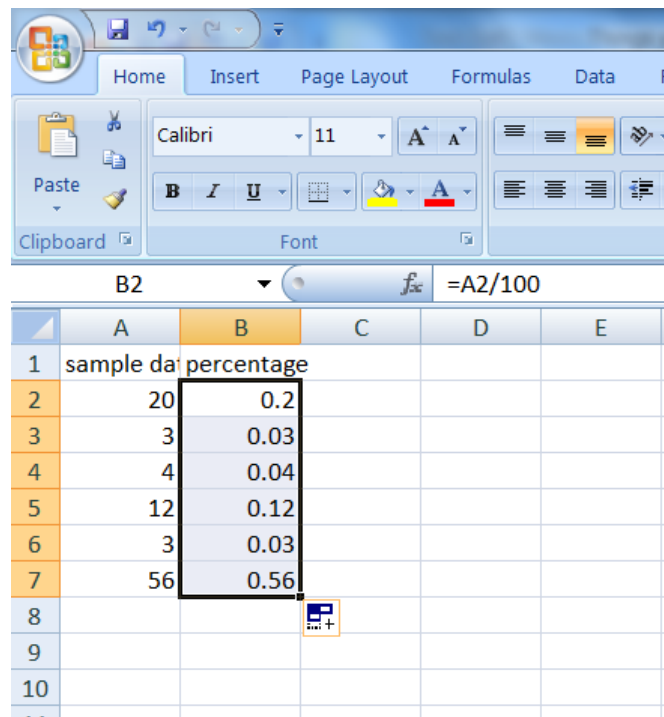


- Use the decimal shifters to control number of decimals, or right click and select “format cells.”

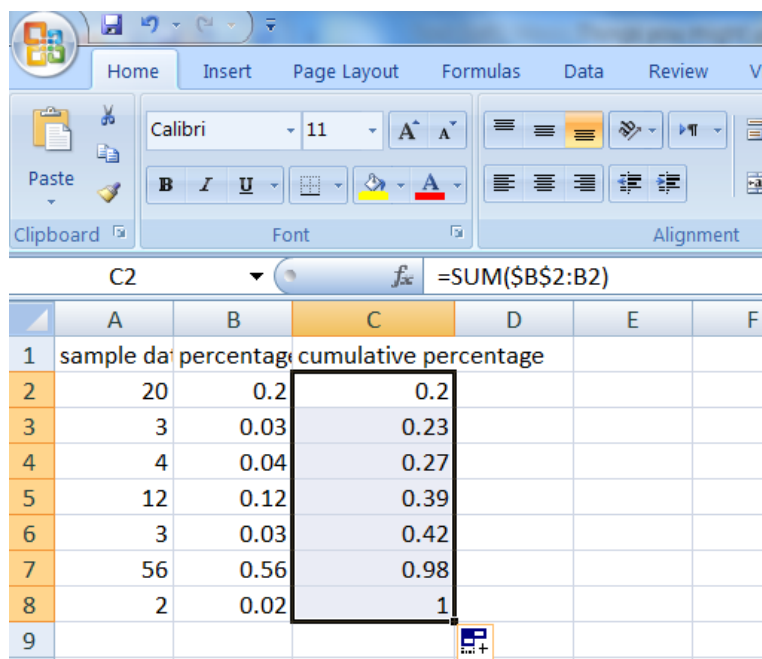


- To insert a blank row (or column), select the row (or column) after where you would like to insert by clicking on the number to the left of the rows (or the alphabetical labels above the columns), and right-click to select “Insert.” This will insert a row (or column) just before the one you selected.

- When you enter a formula such as =A2/100 in one cell and then drag down to copy, Excel automatically adjusts the formula so that any references keep the same relative position. For example, the formula =A2/100 copied into cell B3 becomes =A3/100

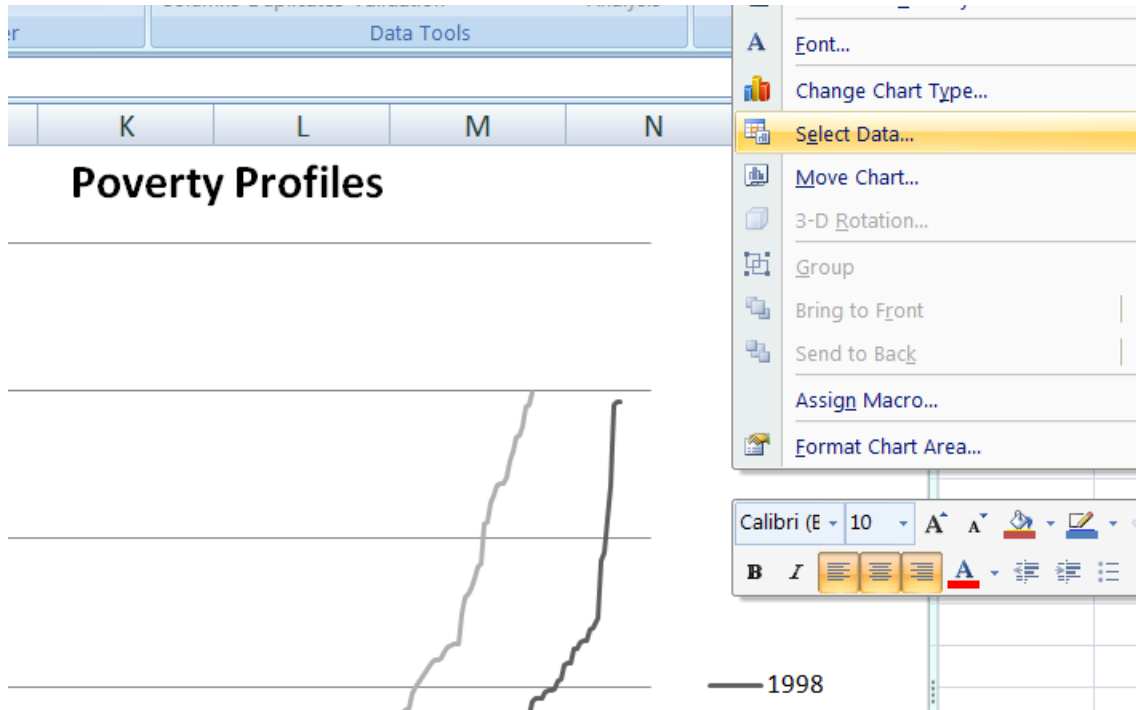


- To prevent the copy function from working like this and preserve the same cell location when you copy a formula, use the dollar symbol (\$). So below, the first reference to B2 will always be copied as B2, while the second reference to B2 to change to match the current row number when we copy the formula

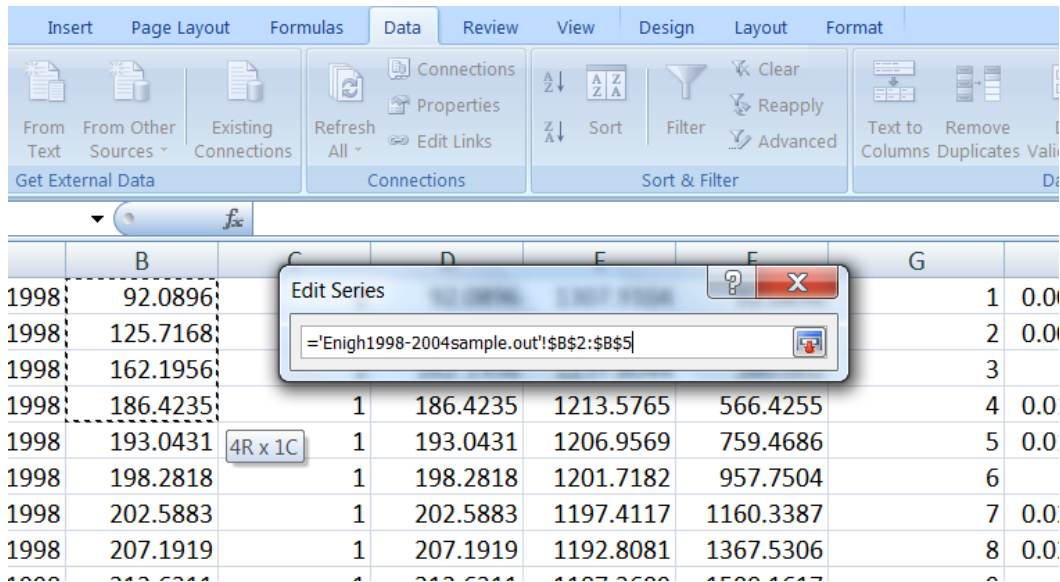


- Making graphs:
 - Select the data that you want to use in the Graph

- On the menu, select Insert-> Graph-> and then the type of graph
- Excel will automatically guess at how you want to use the data to make the graph, but if Excel guesses wrong, you can correct it by right-clicking on the chart area and opening the Select Data option

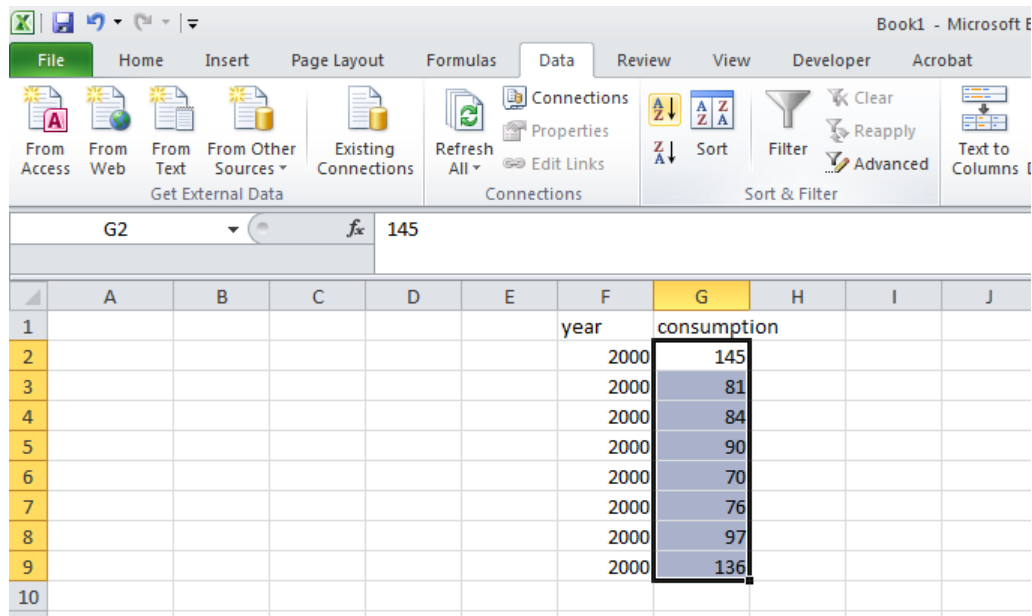


- In the “Select Data” dialogue, you can edit the name and data for each data series (each data series will be displayed as one line on the graph). To choose the data, you can select a data range or give its location by cell name.



- To add axes labels and titles, select the Layout tab while the graph is selected (new version of Excel), or right-click on the chart and choose chart layout (old version of Excel)

- To sort a range in Excel, highlight the range of rows you want to sort, then go to Data->Sort



- The format for entering the formula for covariance is $\text{COVAR}(A1:A5;B1:B5)$, where each pair of cell locations describes a range of data.
- If you want to estimate a regression equation of the type $Y = \alpha + \beta X + \varepsilon$, where X can contain multiple variables, use the formula:

`=LINEST(Ybegin:Yend,Xbegin:Xend,true,true)`

The array of X s will contain more than one column of X variables to do a multiple regression. You need to leave two spaces under the formula to obtain the R^2 and F statistic. You need to have as many columns covered around the formula as you have X variables plus one for the constant term.