

Excel Tips to help you with the PS477/577 Final Paper Project

Please try working through this sheet BEFORE the training session -- it will allow you to learn much more at the training session. Best of luck, Prof. Ron Mitchell

Basic Formulas (SUM)

Formulas are equations that perform calculations on values in your worksheet. A formula always starts with an equal sign (=). For example, try typing =2+3 in one of the cells. You should get 5, right? But a much more powerful use of a formula is to put the number 2 in cell A1 and the number 3 in cell A2. Then put =A1+A2 into cell A3. You also get 5. BUT, if you now change the 2 in cell A1 to 14, then cell A3 will automatically become 17! That is the power of formulas -- and there are lots of them!

Your project will need the SUM formula in order to make a comparison between those who signed the treaty and those who did not. In order to sum an array or a column of numbers, type "=", "SUM()", leave your cursor in the parentheses and select the range that you want to sum. Click enter. For example, SUM(A1:A5) adds all the numbers that are contained in cells A1 through A5.

When you refer to a range of cells, use a colon (:) to separate the reference to the first cell in the range and the reference to the last cell in the range.

Sorting

To sort data (e.g., so Members are the first set of rows and Nonmembers are below them), go to the "Data" and click on the "Sort" button and select Column from a list. This should be a column that has members/nonmembers values (or whatever other data you want to sort by), i.e. subsets which values you want to summarize and then view on the graphs.

After Sorting you can easily summarize the values for the subset by using the SUM function and selecting the array of cells you want to summarize.

Copying quickly

For PC: Ctrl+C=Copy, Ctrl+V=Paste.

For Mac: Command+C= Copy, Command+V=Paste

Paste Special Values

This can act exactly like paste, or may selectively paste the cell contents, formats, and calculated values. In older versions of Excel, select data, right click to special values and select appropriate option. In newer versions, the option will appear as buttons which you can preview by pointing (but not clicking) on the various options. You will need to use this when pasting or copying a graph to Microsoft Word.

Setting up your data

To get started, you need to get your data and arrange it a bit. Here are the steps:

- Download the Excel spreadsheet of data for your treaty from the Approved Cases page
- Get the list of members and ratification data from the Approved Cases page also

- Insert a new column for Member/Non-member into your spreadsheet (as column B or C or D, or whichever column is just to the LEFT of the column with the first year of data)
- Enter an “m” for all countries that became Members (and then, those without an “m” are therefore Non-members)
- Sort the whole spreadsheet so that Members are together in the top rows and Nonmembers are together below them

Indexing (Scaling)

The goal of indexing or scaling data is to help make two series (e.g., members and nonmembers) easier to compare, and thereby better assess whether the treaty was effective or not. To make the data more comparable, it helps to view both members and nonmembers in terms of each group’s percentage change from some base year (either the year the treaty was signed or, usually better, entered into force). In order to do so, we need to index or rescale the data.

For example, assumed the year your treaty entered into force was 1990 and the 1990 column is column M. Also assume the years are in row 53, the sums for member countries are in row 54, and the sums for nonmember countries are in row 55. Rows 53 through 55 have the “raw” data that we are going to index. Now, to create a whole new array/rectangle for the indexed data, start by copying the years row to row 57. Go to Cell M58 (remember M is the column for the treaty year -- it WILL be different depending on what year your treaty entered into force). Enter the formula “=M54/\$M54”. Copy this formula to all cells in Row 58 by pulling the small square in the bottom-right corner of the cell. The “\$” sign in the formula ensures that we will divide each value in the Row 58 by the same value of the base year. Now click on “%” in the Home tab, Number section. This will convert your numbers after the division to percentages. Do a similar calculation in Row 59 to get the percentages for nonmembers that are in Row 55. Here you will enter the formula “=M55/\$M55” and copy it to the full Row 59. Now you have the data for members as a percentage of the members 1990 level and the data for nonmembers as a percentage of the nonmembers 1990 level. Charting these two rows (see instructions above) will allow you to compare percentage changes of the member and nonmember groups.

Results might look something like the following

	1987	1988	1989	1990	1991	1992
Members	103%	102%	107%	100%	95%	90%
Nonmembers	85%	94%	98%	100%	102%	103%

Check your work

When you are using formulas, you should ALWAYS ensure that the formula you created does what you want it to do. In order to check yourself plug in numbers that you can easily divide, summarize, etc. For example, for indexing we can use the previous example: enter 10 in the cell M54, enter 5 in the cell N54. You should get 100% in M58, 50% in N58.

Creating charts

A “chart” is the term Excel uses for a graph. Charts are generally used to display series of numeric data in a graphical format to make it easier to understand large quantities of data. For our purposes we will

always look at the dynamics of some factor, i.e. we will look at how data on this particular factor behaves over time.

To PREPARE for creating a chart that will look good whether printed in color or black-and-white, you will need to add a specific chart Template to your computer. IMPORTANT: You only need to do this ONCE -- after that you can then use that Template to make as many charts as you want that will have the same format but different data. So, to do this, download the TrainingExample.xls file from the ApprovedCases page on the course website or directly: <http://pages.uoregon.edu/rmitchel/iep/datafiles/TrainingExample.xls> Open that Excel file on your computer and then click on the tab (bottom of the screen) named Template. You will see a chart with 6 lines running diagonally down the chart. Click anywhere in the chart. Then in the menus at the top of your screen you will see two "Chart Tools" menu groups. Click on the Design menu group. Click on the "Save as Template" button near the left-hand side of the menu system. Name the chart ENVCHART (but leave the file extension blank -- Excel will generate it automatically). You have now added a chart TEMPLATE that controls the formatting of any chart that you create which uses it.

NOW, let's make the chart. To create a chart, you first need to select/highlight the array (a rectangle of cells) that corresponds to the data you want to have shown in the chart. IMPORTANT: make sure that the cell in the upper-left corner of the rectangle of cells you want to graph is blank! The first row of the selected array/rectangle should contain the 'years' you want to graph. The first column of the selected array/rectangle should contain the series or groups of rows you want to depict. For example, you could select the "series" that contains the two rows containing Members and Nonmembers. After selecting the array/rectangle, go to the "Insert" tab. Click on the arrow in the bottom-right corner of this tab. An "Insert Chart" window will pop-up, From that pop-up window select "Templates" and then select the chart named "ENVCHART" and click the OK button.

Getting a vertical line on a chart for the year of Entry into Force (or Signature)

The easiest way to get a vertical line on a chart in Excel (to represent the year your treaty entered into force) is to do the following:

- Go to the Chart you want to add the line to.
- Click on the Insert menu
- In the "Illustrations" group, click on the Shapes icon.
- Click on the straight line - it's the line going down diagonally to the right (the 1st one in the "Lines" group).
- Go to the top line in your chart with your cursor, click, and then drag it down and release when you get to the bottom line in your chart.
- If you want to change the size of the line, right-click on the line and click the "Format Shape" option and make changes there.

Modifying charts

To help clarify the information that appears in your chart, you can add a chart title, axis titles. If you use the Template Chart just put your cursor to the "Title" and change it. In order to portray the smaller

period of time, for example, you can start from the beginning and change your array there or right-click on the table, select “Select Data” and change the array in the Chart Data Range.

Copy to Word (JPEG)

To copy a picture of your Chart into your Word document in which you are writing your paper, click on your Chart in the Excel file. Copy it. Go to your Word file. Select Paste Special, Picture (JPEG), click OK.

Parsing Data

If you wish to find your own data, you will most likely need to “parse” the data. Parsing data is a way to import data from some format other than Excel. To do this simply highlight the data, then open the data folder on the menu bar, select text to columns. This will open a new window with two options, select one of the two options that best describes your data and continue to finish.

PC Keystroke

Data Selection/Navigation

CTRL/Shift +SPACEBAR	selects an entire row / column
CTRL+A	Selects the entire worksheet.
Ctrl + 0 / 9	Collapse (Hide Columns / Rows)
Ctrl + Shift + 0 / 9	Expand (Unhide Columns / Rows)
CTRL+ARROW KEY	moves to the edge of the current data region.
CTRL+SHIFT++ or CTRL+ -	Insert/ Delete Selected Cells

Data Manipulation

CTRL+D / R	Fill Down/ Fill Right
CTRL+Z	Undo command
CTRL+'	Copies a formula from the cell above the active cell
CTRL+SHIFT+%	Applies the Percentage format with no decimal places.
F11	Creates a chart of the data in the current range in a separate Chart

Formatting

CTRL+ALT+V	Displays the Paste Special dialog box.
CTRL+B / I / U	Toggle Bold/ Italic/ Underlined
CTRL+C / X	Copies / cuts selected cell
CTRL+1	Format Cells
CTRL+`	Toggle Cell Values/ Formulas

Mac Keystroke

Data Selection/Navigation

Shift/Ctrl + Spacebar	Select Entire Row/Column
⌘ + A	Select Entire Worksheet
Ctrl + 0 / 9	Collapse (Hide Columns / Rows)
Ctrl + Shift + 0 / 9	Expand (Unhide Columns / Rows)
Ctrl + - or Ctrl + +	Delete / Insert Selected Cells
Ctrl + Arrow Key	Moves to the edge of the current data region

Data Manipulation

Ctrl + R / D	Autofill (Copy Paste Right / Down)
⌘ + Z / Y	Undo / Redo Last Action
Ctrl + ' / "	Copy Formula / Value Above
⌘ + Shift + T	Summation (AutoSum)
Ctrl + Shift + %	Applies % format with no decimal

Formatting

⌘ + Shift + V	Paste Special (copy first)
⌘ + B / U / I	Toggle Bold / Underline / Italic
⌘ + 1	Format Cells
⌘ + C / V / X	Copy / Paste / Cut Change all Inputs to Blue:
Ctrl + `	Toggle Cell Values / Formulas