Excel Power Pivot tutorial

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What is it?

An add-in for Excel 2010 and more recent versions that works like a relational database, allowing you to use multiple data sources by merging them into one table based on matching information. This lets you analyze more than one set of data, from one or more sources, at a time.

Why use it?

It combines the power of a spreadsheet with key features of a database manager like Access or MySQL, greatly expanding what you can do in Excel. This is ideal for beat reporters and others who have gotten good at spreadsheets, but haven't ventured onward to databases. What Power Pivot does is create a new table that allows you to combine columns from more than one data source into a single workshett that you then can analyze.

When to use it?

When you have data on related subjects with common features (demographics, crime, education, geography, environment, finance, people, government programs and on and on and on) spread across multiple tables, possibly from multiple sources. These common features can include place names, place codes, business names, individual names, dates, identification numbers, or anything, for that matter, that matches and you have good reason to try to connect or 'relate'.

Some examples:

1. A table of age, population, gender and race data and another with income and another with income. The common feature? Place names or place codes
2. A table with public employees' names and another with felony convictions. The common feature? Names and birth dates.
3. A table of businesses with employee and financial data and another with SEC filings or OSHA sanctions. The common feature? Business name or code, and address.
4. A table with daily weather data and roadway accident reports. The common feature? Date, day, or town name or code.
5. A table with police officer names, departments and id numbers and another with traffic tickets. The common feature? ID numbers and police department names.

How to use it:

Remarkably, Microsoft has a tutorial written in something other than a language that has never existed, so it's actually understandable and pretty easy to follow. It starts right at the beginning, with how to start up the PowerPivot add-in (in case it doesn't automatically appear when you open Excel), and proceeds onward through the various things Power Pivot does.

It's here….

https://msdn.microsoft.com/en-us/library/gg413497(v=sql.110).aspx

Lest we rely totally on Microsoft for instructions, here is one small example using data from the NICAR 2017 Excel class taught by MaryJo Webster. Her class data is here, at the top of this page -- under the NICAR 2017 heading:

http://mjwebster.github.io/DataJ/

The following uses the tabs called lookups and PowePivot. One is a table of business data by county. The is a table of census median income and household data, also by county.

1. Toggle back and forth between the two tables and you will see a common feature in both: the county or fips code assigned by the U.S. Census Bureau to counties in Minnesota. They are named 'fipscty' and 'code.' These are the columns you will use to merge the tables.

2. With the 'lookups' tab active, click on the Power Pivot menu at the top of the table and then click on 'add to data model.' MAKE SURE TO CHECK THE BOX SAYING YOUR TABLE HAS COLUMN HEADERS. Hit ok and a Power Pivot windows opens and adds your 'lookups' table and calls it Table1. Right click on Table 1 at the bottom of the screen and rename the table.

3. Go back to your spreadsheet, toggle to the 'PowerPivot' tab and do the same thing to add that to the data model. Once it's done adding (progress is shown in the lower-right corner), rename this one, too.

4. Now what? Now you connect the tables based on the common columns – fipscty and code. To do this, go the Design pull-down menu at the top, click on it and then click on 'Create Relationship.' This will let you link the two tables based on the common columns. In the window that pops up, choose the 'lookups' table and then click on the 'fipscty' column as the one you will use to link to the second table. (NOTE: You will see a list of columns in some versions of Power Pivot and the actual table view in others. Proceed accordingly.)

5. In the next white bar, hit the arrow and choose the second table. Then click on the 'code' column (it may already be highlighted in some versions). Then hit ok. Your tables are now joined on these two columns with common data. SAVE YOUR WORK!

6. Now you can bring in columns from the second table to the first, as needed. To do this, click into the first cell in the first blank column to the right, currently called Add Column. Then type this: =RELATED(followed by the first few letters of the second table name. You should now see a list of the columns from the second table. Scroll to the County column add a closing parentheses and hit enter to finish the formula. Then hit enter. Wait while it works. DON'T GET ANTSY. It needs to finish. You can lock things up if you don't wait. When it's done, the county names will appear where you were typing.

7. Do the same thing again in the next blank column to add more columns from your second table until you have added all the ones you need to do your analysis. In this case, you should add the 'median inc,' 'group' and 'households' columns. SAVE YOUR WORK!

8. Now it's time to analyze, as you see fit, using formulas and/or pivot tables. At this point, you can do formulas right in the Power Pivot window, to do something like employees or businesses per 100 households. IMPORTANT TIP: Doing math is a bit different in Power Pivot. Instead of using cell references, like b2 or h8, you use column names with brackets around them like you would in a database manager. For example, to get jobs per 100 households, you have to type it like this: =([Tot Employ]/[households])*100.

9. You also can do a pivot table off your combined sheet. To do that, click on the Home tab in the Power Pivot table then on the Pivot Table tab. That will open up a sheet shows both tables and lets you pick and choose columns from both tables for analysis. IMPORTANT TIP: If all you want to do is a pivot table using your merged tables, you DON'T have to add columns from the second table to the first like you did above. All you have to do is join them up. But that's if you just want to do a pivot table on your joined data. AND YEH…SAVE YOUR WORK.

10. One last thing…how to get back to your Power Pivot sheet if you close your work. It doesn't just open right back up when you re-open your spreadsheet. To get there, open your spreadsheet, click on the Power Pivot menu, then choose 'Manage.' That'll get you there.