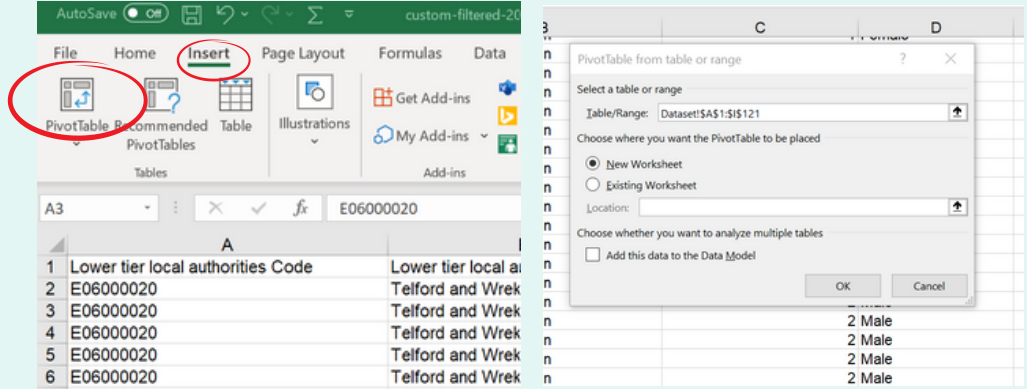


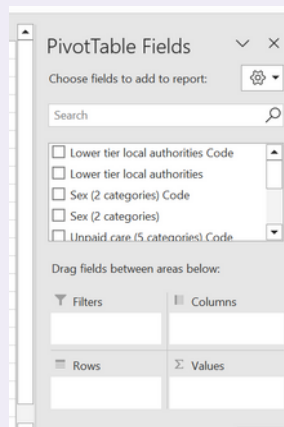
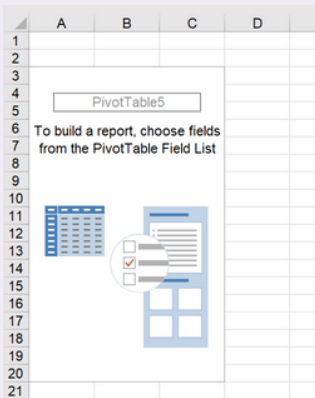
# USING EXCEL PIVOT TABLES TO EXPLORE CENSUS DATA

Excel will present ONS census data in the form of a list, but how do we interpret that data so that it tells us something useful about the women in our communities? Excel PivotTables allow us to quickly summarise data from a list with just a few clicks of the mouse. Here's how:

1. Click anywhere in your Excel list, then near the top left of your screen click 'Insert' then 'PivotTable'. In the dialog box that pops up, make sure the correct range of data is selected in the Table/Range box, choose 'New Worksheet', then click 'OK'.



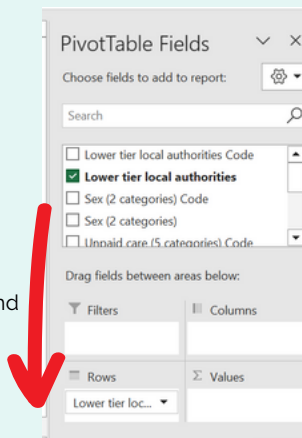
2. You'll see a new sheet open in your workbook containing two things: on the left is the makings of your PivotTable. There's not much in it at the moment because you haven't created it yet. On the right is the PivotTable Fields pane. This is where we drag and drop our fields (which are the column headings in our original list) into the four areas (Filter, Columns, Rows, Values) to build our table.



3. The 'Columns' section is where you'll place the fields that make up the columns of your table. The 'Rows' section is where you'll add fields that you want to be row headings. The 'Values' section is where you put what you want to measure (in census data we usually put 'Observations' in this section). The 'Filters' section is where you place fields that you want to be able to filter your whole table by.

4. Now you need to decide what it is that you want to summarise inside the table. What do you want to know? In this example, I want to know the proportion of people who provide 50+ hours of unpaid care per week for women in my selected local authorities (LAs). First, I drag 'local authorities' to the rows area. You'll see each LA pop up in your table on the left.

Drag and drop to move fields around

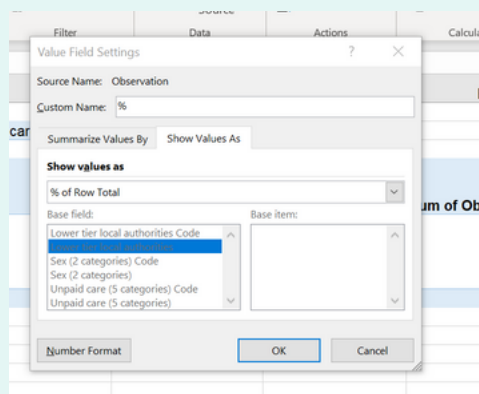


|    |                    |  |
|----|--------------------|--|
| 1  |                    |  |
| 2  |                    |  |
| 3  | <b>Row Labels</b>  |  |
| 4  | Birmingham         |  |
| 5  | Coventry           |  |
| 6  | Shropshire         |  |
| 7  | Telford and Wrekin |  |
| 8  | <b>Grand Total</b> |  |
| 9  |                    |  |
| 10 |                    |  |
| 11 |                    |  |

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5. Next I drag 'Sex' into the Columns area, 'Observations' into the Values area, and 'Unpaid Care' into the Filters area. The result is the table you see to the right. Note the filter at the top where I can select between different levels of unpaid care.

| Row Labels         | Male         | Female       | Grand Total  |
|--------------------|--------------|--------------|--------------|
| Birmingham         | 18817        | 10664        | 29481        |
| Coventry           | 5040         | 3350         | 8390         |
| Shropshire         | 4996         | 3533         | 8529         |
| Telford and Wrekin | 3467         | 2433         | 5900         |
| <b>Grand Total</b> | <b>32320</b> | <b>19980</b> | <b>52300</b> |



6. Instead of viewing the values as the sum of observations (e.g. the number of people in the census), it would be very useful to also be able to see them as percentages of the total. Thankfully you can do this easily in a PivotTable without doing any calculations or even adding any formulas. Just drag the 'Observations' field into the Values area another time, click on the arrow on the right-hand-side, then select 'Value Field Settings'. In the dialog box that pops up, change the name to '%', click on the 'Show Values As' tab, then select '% of Row Total' (you may want to choose a different percentage option depending on your table). Once you've clicked 'OK', you'll see that your percentages are now showing as columns in your table.

7. You can keep adding fields and moving things around in your table. In the version below, I've moved 'Sex' to the rows area and 'General Health' to the columns area. Now I can see, for example, that over 42% of females who provide 50+ hours of unpaid care in Telford and Wrekin are experiencing poor health, which is the highest proportion among all of my selected LAs.

| Row Labels         | Sum of Observation |                 | %             |                 | Total Sum of Total % |                |
|--------------------|--------------------|-----------------|---------------|-----------------|----------------------|----------------|
|                    | Good health        | Not good health | Good health   | Not good health |                      |                |
| Birmingham         | 17820              | 11661           | 60.45%        | 39.55%          | 29481                | 100.00%        |
| Female             | 11446              | 7371            | 60.83%        | 39.17%          | 18817                | 100.00%        |
| Male               | 6374               | 4290            | 59.77%        | 40.23%          | 10664                | 100.00%        |
| Coventry           | 5040               | 3350            | 60.07%        | 39.93%          | 8390                 | 100.00%        |
| Female             | 3027               | 2013            | 60.06%        | 39.94%          | 5040                 | 100.00%        |
| Male               | 2013               | 1337            | 60.09%        | 39.91%          | 3350                 | 100.00%        |
| Shropshire         | 5244               | 3285            | 61.48%        | 38.52%          | 8529                 | 100.00%        |
| Female             | 3142               | 1854            | 62.89%        | 37.11%          | 4996                 | 100.00%        |
| Male               | 2102               | 1431            | 59.50%        | 40.50%          | 3533                 | 100.00%        |
| Telford and Wrekin | 3331               | 2569            | 56.46%        | 43.54%          | 5900                 | 100.00%        |
| Female             | 2000               | 1467            | 57.69%        | 42.31%          | 3467                 | 100.00%        |
| Male               | 1331               | 1102            | 54.71%        | 45.29%          | 2433                 | 100.00%        |
| <b>Grand Total</b> | <b>31435</b>       | <b>20865</b>    | <b>60.11%</b> | <b>39.89%</b>   | <b>52300</b>         | <b>100.00%</b> |

The very best way to master PivotTables is to have a play around in the PivotTable Fields area. Drag and drop things into the different sections, see what it looks like in your table, and change it if it doesn't work. You can remove things at any time by dragging them out of the fields area and starting again, so don't worry about doing it 'wrong'!

**PivotTables advanced exercises:**

- i) Once you've created your PivotTable, create a PivotChart by clicking anywhere in your table, then click 'Insert', 'PivotChart'. Explore the options for creating user-friendly charts and graphs that look good in reports and social media graphics.
- ii) Explore the 'Value Field Settings' option (right click on your chosen field in the values section as you did in step 6). There are lots of different ways you can summarise and format your values that might be useful when exploring census data. Again, have a play around and see what you can discover!