

Practical Session 6

Joint frequency tables and graphs

In this session, we shall see how to construct different types of frequency distribution starting from a table of joint, absolute frequencies.

If you want to know how to create a joint, absolute frequency table starting from individual data, using Excel pivot tables, you should watch [this tutorial](#).

1. Transforming joint, absolute frequencies to relative frequencies.

		Country						
		GB	Germany	France	Denmark	Sweden	Finland	Norway
Opinion	Britain	163	489	322	215	255	250	122
	Rest of EU	1155	958	328	593	490	411	292
	Don't know	309	591	358	215	276	341	169

We first have to calculate the sum of the data. It is useful to put this in the cell to the bottom right of the absolute frequency table.

Then, copy all cells of the table and paste where we want the table of relative frequencies to be.

Now remove the numbers and replace by the original, absolute frequencies divided by the total. We can do this by setting the first cell of the new table equal to the first cell of the original table divided by the dollared (**F4**) sum and dragging the formula.

		Country						
		GB	Germany	France	Denmark	Sweden	Finland	Norway
Opinion	Britain	0.020	0.059	0.039	0.026	0.031	0.030	0.015
	Rest of EU	0.139	0.115	0.040	0.071	0.059	0.050	0.035
	Don't know	0.037	0.071	0.043	0.026	0.033	0.041	0.020
								1.000

2. Calculating marginal frequencies

To calculate marginal frequencies we need to sum each column or sum each row and drag the formulas.

		Country							Total
		GB	Germany	France	Denmark	Sweden	Finland	Norway	
Opinion	Britain	0.020	0.059	0.039	0.026	0.031	0.030	0.015	0.219
	Rest of EU	0.139	0.115	0.040	0.071	0.059	0.050	0.035	0.509
	Don't know	0.037	0.071	0.043	0.026	0.033	0.041	0.020	0.272
Total		0.196	0.245	0.121	0.123	0.123	0.121	0.070	1.000

3. Calculation of conditional distributions.

Now we need to divide each column by its sum (or each row by its sum) in the table above. If we try to drag the formula using **F4** to fix the sum as we did earlier, this will not work as we need the sum to move in the row direction or the column direction. Instead try pressing

F4 twice and then dragging the formula across to get the distribution of opinions within each country.

		Country						
		GB	Germany	France	Denmark	Sweden	Finland	Norway
Opinion	Britain	0.100	0.240	0.319	0.210	0.250	0.250	0.209
	Rest of EU	0.710	0.470	0.325	0.580	0.480	0.410	0.501
	Don't know	0.190	0.290	0.355	0.210	0.270	0.340	0.290
	Total	1.000	1.000	1.000	1.000	1.000	1.000	1.000

To get the distribution of countries for each opinion, you can press **F4** three times in order to drag the formula down.

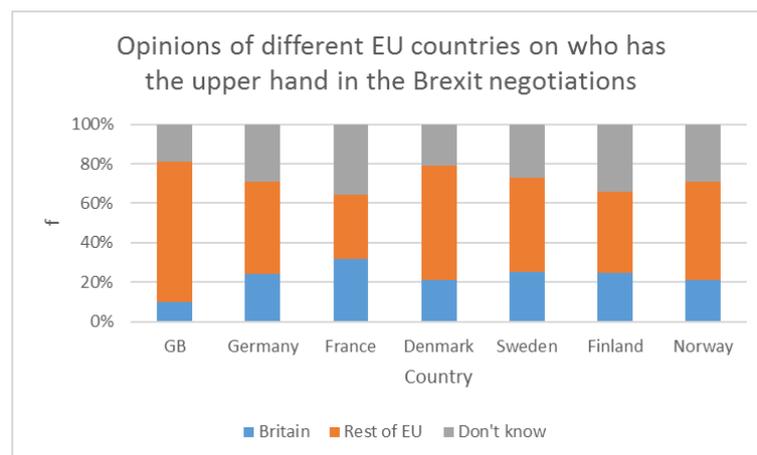
		Country							
		GB	Germany	France	Denmark	Sweden	Finland	Norway	Total
Opinion	Britain	0.090	0.269	0.177	0.118	0.140	0.138	0.067	1.000
	Rest of EU	0.273	0.227	0.078	0.140	0.116	0.097	0.069	1.000
	Don't know	0.137	0.262	0.158	0.095	0.122	0.151	0.075	1.000

4. Stacked bar charts.

To create a stacked bar chart reflecting the conditional distributions of opinion with respect to country, first mark the opinion names and cells for the conditional distribution.

		Country						
		GB	Germany	France	Denmark	Sweden	Finland	Norway
Opinion	Britain	0.100	0.240	0.319	0.210	0.250	0.250	0.209
	Rest of EU	0.710	0.470	0.325	0.580	0.480	0.410	0.501
	Don't know	0.190	0.290	0.355	0.210	0.270	0.340	0.290
Total		1.000	1.000	1.000	1.000	1.000	1.000	1.000

Then you can use the stacked column chart graphics option and change the column labels appropriately to create the following graphic.



5. Multiple bar charts.

These make most sense with absolute frequencies. You can follow the same procedure as previously but select the multiple bar chart option.

