## Calculating per cents

Summary: When working with data, we frequently should perform simple calculations to give the numbers meaning. In this instance, we will work with Canadian Citizenship and Immigration Canada's Refugee claimants by top 50 countries of citizenship.

The "Refugee claimants by top 50 countries of citizenship" table tracks individuals who successfully make their asylum claims from within Canada, and then become so-called protected persons. They must then apply for permanent resident status. This is why the total numbers are lower than the overall yearly numbers for refugees, which include claims made outside Canada.

For this tutorial, we'll download the table to figure out the percent of totals (a skill also covered in "Calculating Rates and Percentages in a Spreadsheet" tutorial), and per cent increases.

### What you will learn:

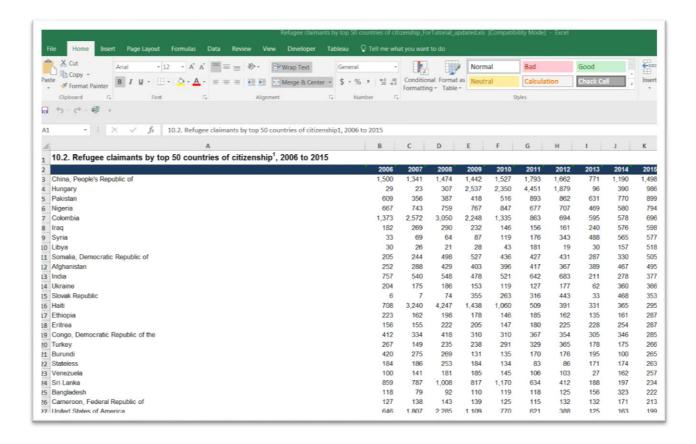
- 1. Percent of total
- 2. Percent increases

#### Task 1: Percent of total:

Once you download the table, paste the website's URL into the first available cell in the first row, and save the table as an updated Excel version (with the "xlxs" extension). Be sure to work from the updated version, leaving the older version of Excel as a backup.

Before working with the table, we always want to do the necessary clean-up, which means that the first row contains the column labels and there is nothing at the bottom. If there is a row that contains the total for each column, which there is in this case, you want to make sure that it is separated from the entire table so that those numbers don't get caught up in the sorting and skew your results.

Because column A doesn't have a title, let's give it one. Call it "Countries".

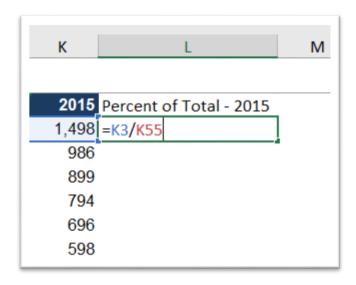


Create a new column in L and label it "Percent of Total – 2015". Use the formula for calculating the percent of total, which is covered on pages 62 to 65 in The Data Journalist. Because we have inserted a blank row between the bottom of the table and the total, the total for the values in

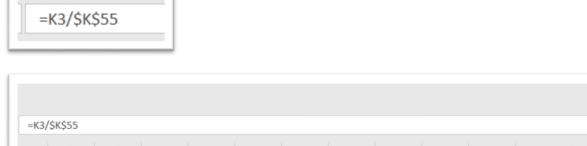
#### column K are in K55.

54			36.856	33,153		25,315	20,471	10,372	13,445	
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# So, your formula looks like this:

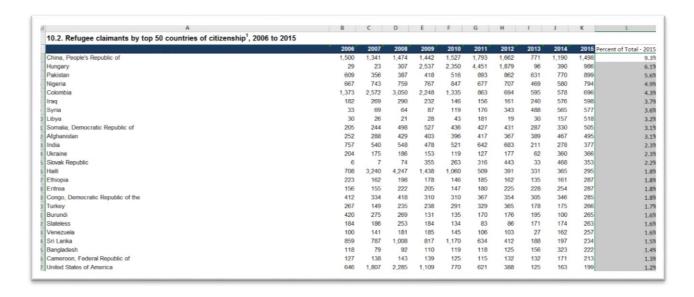


K3 is the first value in column K – "China, People's Republic of" – and K55 is the total at the bottom of column K. Before pressing enter, we want to anchor the total value in K55 to ensure that the numbers for each country are calculated as a percentage of the same total. To do this, we use a dollar sign at either side of the K in K55.



В		С	D	E	F	G	Н	1	J	K	L
ou cou	ntries	of citiz	zenship <sup>1</sup>	', 2006 t	o 2015						
	ntries 1006	of citiz	zenship 2008	, 2006 t	o 2015 2010	2011	2012	2013	2014	2015	Percent of Total - 2015
2						<b>2011</b> 1,793	<b>2012</b> 1,662	2013 771	<b>2014</b> 1,190	<b>2015</b> 1,498	Percent of Total - 2015

Format the number as a percent with one decimal place, and then copy it to the bottom.



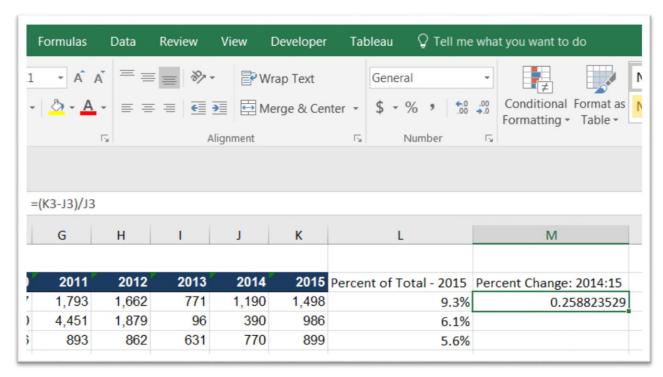
You can now sort column L in ascending or descending order. To get the hang of this and determine how those percent of totals have changed over the years, perform the same calculation for each year, meaning that you will have to insert a new column after each year.

#### Task 2: Percent increases

Many stories have to do with the rate at which events increase or decrease. In this case, we might find a story in the country that produced refugee claimants at the fastest rate from 2014 to 2015, the most recent year for which the data was available at the time this tutorial was prepared.

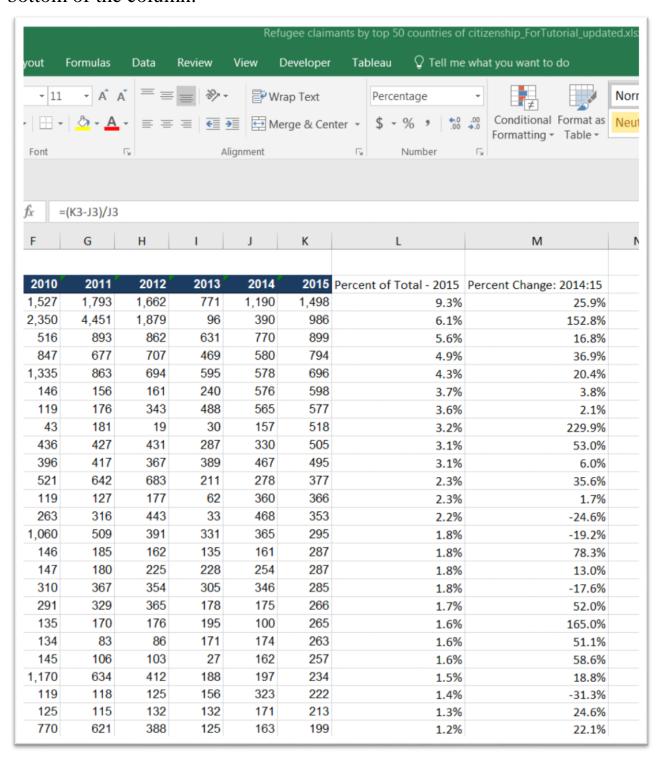
Copy and paste the table into a new worksheet.

We'll use column M to create our percent change from 2014 to 2015. Label M3 "Percent Change:14-15", and plug in the formula for percent change, which is covered on page 64 of our textbook.

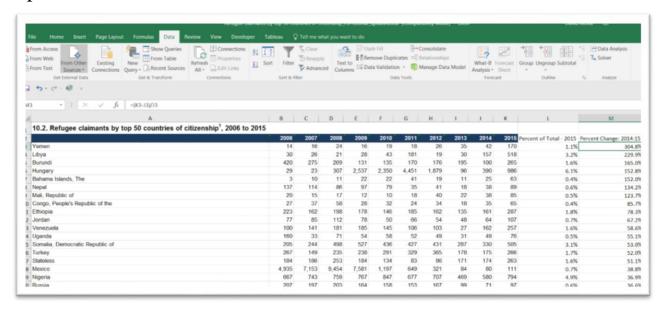


Format the number as a percent change, and the copy the formula to the

#### bottom of the column.

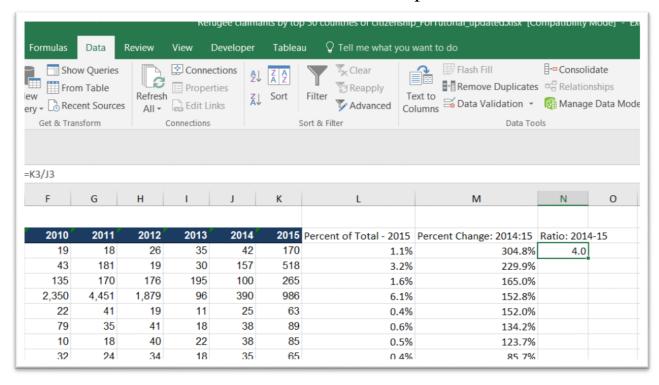


Now we can sort column L in descending order to see which country experienced the fastest increase.



It was the Yemen. In order to express the value in a number that may be more conversational for our story, or story pitch, we might want to calculate it as a ratio. Create new column, which you can call "Ratio: 2014-15". Divide the values in column J into those of column K, and

# format the result as a number with one decimal place.



# Copy the formula to the bottom.

M	N	0
Percent Change: 2014:15	Ratio: 201	4-15
304.8%	4.0	
229.9%	3.3	
165.0%	2.7	
152.8%	2.5	
152.0%	2.5	
134.2%	2.3	
123.7%	2.2	
85.7%	1.9	
78.3%	1.8	
67.2%	1.7	
58.6%	1.6	
55.1%	1.6	
53.0%	1.5	
52.0%	1.5	
51.1%	1.5	
38.8%	1.4	
36.9%	1.4	
36.6%	1.4	
35.6%	1.4	
34.2%	1.3	
26.1%	1.3	
25.9%	1.3	
24.6%	1.2	
22.3%	1.2	
22.1%		

So now we can say that the rate of claims of refugees from Yemen increased 4-fold, a more conversational way of saying it than 304%. Sometimes it makes more sense to use percent increases, when the value is, say, 50%. But once something increases by 100 or 200 percent, it makes more sense to say that it doubled or tripled, respectively. Using per cent increases is a good habit because in many instances, the story is not with the country or the entity that has the most, but with the one that is increasing at the fastest rate.