



Excel

DRH Intermediate Tutorial

Calculations and Formulas | Basic Functions

July 2023

Content

Exercise: Finding age proportion from census data

We will look at:

1. Navigating NZ dot stats to access 2018 census
2. Extracting data from Open Data sources
3. Calculating proportion of children 0-14 years old and elderly above 65 years in relation to general population
4. Briefly discuss graph making and further application of data

NZ Dot Stats

<https://nzdotstat.stats.govt.nz>

1. Use 2018 Census, **Population and Migration** > Age and sex night population count (**2nd option**)
2. Customise
 - a. Year: Select 2018 only [1/3]
 - b. Age group: Expand options select [14/148]
 - i. Deselect Total people
 - ii. 0-4, 5-9, 10-14
 - iii. 15-29 select each bracket
 - iv. 30-64 select each bracket
 - v. 65 years and over
 - c. Area: Expand Total – New Zealand by **Territorial Authority** [563/2386]
 - i. Expand Auckland (but don't select Auckland)
 - ii. Select and highlight Okakura Peninsula
 - iii. Select level within node (select items)
3. View data
 - a. Total should have 4 pages
4. Export
 - a. Export to XLS file

The screenshots illustrate the steps to access and export specific census data:

- 1) Stats NZ NZ.Stat**: The main navigation page with 'Data by theme' and 'Popular queries' tabs. The '2018 Census' is highlighted in the 'All Themes' list.
- 2) Age and sex by ethnic group (grouped total response)**: The 'Customise' dropdown is selected.
 - 2a) Year**: The year '2018' is selected from the list.
 - 2b) Age group**: The 'Age group [1/148]' dropdown is expanded, and '30-34 years', '35-39 years', '40-44 years', '45-49 years', '50-54 years', '55-59 years', and '60-64 years' are selected.
- 2c) Customise selection**: The 'Area' dropdown is expanded to show 'Total - New Zealand by Territorial Authority'. 'Okakura Peninsula' is selected. The 'Select level within node' option is chosen.
- 3) View Data**: The 'View Data' button is clicked, leading to the data table.
- 4) Data Table**: The table shows columns for 'Area', 'Sex', 'Ethnic group', and 'Year'. The 'Export' button is used to download the data as an Excel file.

Excel – Manipulations

1. Open in Excel (might have error code just ignore) and click yes
 - a. File > save as > excel workbook
2. Replace missing and confidential data
 - a. Ctrl + F, click replace tool
 - i. (..) no space, replace with Null
 - b. Should have replaced 162 units
3. Create new column titled Total
 - a. Use auto sum on the first row and click enter
 - b. Click and hold the bottom right of the cell and drag + sign down to the last cell at the bottom (this will copy the sum equation to all the rows below)

Excel – Calculations

1. Add new column name: Proportion of People 65 years and over
 - a. Equation = number of 65 years and over/total number
 - b. Drag corner of cell to the bottom
 - c. Format the data into percentage if you wish:
Highlight the numbers then Home > Number > Percentage

2. Do the same for Children (age 14 and below)
 - a. Make a new column for children 14 and below
 - b. Equation = SUM(Cell 1, cell 2, cell 3) or go to Formulas: Insert Function
 - c. Then make another column for proportion of children
 - d. Equation = number of 14 years and under/total number
 - e. Drag the corner of cell to the bottom to copy the equation


	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
	0-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	60-64 years	65 years and over	Total	Proportion of 65 and over
	96	99	108	90	69	75	75	93	81	96	105	168	108	213	1476	=P8/Q8
	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	Null	0

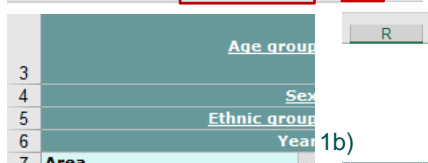
	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	0-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	60-64 years	65 years and over	Total	Proportion of 65 and over	Children 14 and under
	96	99	108	90	69	75	75	93	81	96	105	168	108	213	1476	14%	=E8

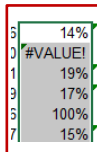
	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	0-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	60-64 years	65 years and over	Total	Proportion of 65 and over	Children 14 and under	Proportion of 14 and under
	96	99	108	90	69	75	75	93	81	96	105	168	108	213	1476	14%	303	=S8/Q8

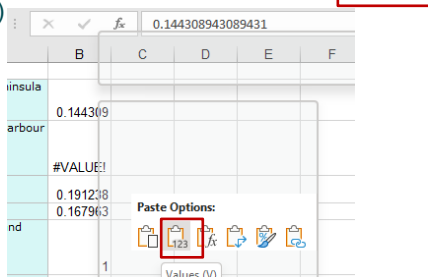
Excel – Finalising

1. At the bottom left of your screen, make a new sheet and copy over the areas and proportions
 - a. Select everything under area > copy and paste into new sheet
 - b. Go back to the original sheet select from the first percentage of proportion of 65 and over and highlight down to the last percentage
 - c. Copy the proportions into the new sheet and **make sure to paste as values**
 - d. Do the same for proportion of children

1) 

1a) 

1b) 

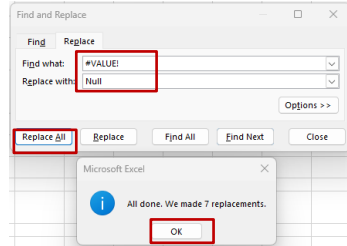
1c) 

	A	B	C	D
1	Area	Proportion of Elder	Proportion of Children	
2	Okahukura Peninsula	0.144308943	0.205284553	
3	Inlet Kaipara Harbour South	#VALUE!	#DIV/0!	
4	Cape Rodney	0.191238416	0.193765796	
5	Wellsford	0.167962675	0.231726283	
6	Oceanic Auckland Region East			
7	South Head	0.146682189	0.213038417	
8	Kaipara Hills	0.102790015	0.227606461	
9	Dome Valley-Matakana	0.205714286	0.194285714	
10	Oceanic Auckland Region West			
11	Warkworth West	#VALUE!	#DIV/0!	
12	Puhoi Valley	0.316486161	0.174488568	
13	Warkworth East	0.153658537	0.195934959	
14	Sandspit	0.240421456	0.188697318	
15	Tawharanui Peninsula	0.306306306	0.126126126	
16	Te Kuru	0.297583082	0.140483384	
17	Snells Beach	0.106356968	0.226161369	
18	Barrier Islands	0.287215412	0.176007005	
19	Algies Bay-Scotts Landing	0.24	0.163076923	
20	Inlets other Auckland	0.396039604	0.111386139	
21	Wainui-Waiwera	1	0	
22	Parakai	0.174460432	0.174460432	
23	Helensville Rural	0.164893617	0.231382979	
		0.121031746	0.196428571	

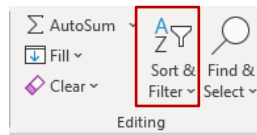
Excel – Finalising

1. Ctrl + F to open Find and Replace
 - a. Replace #VALUE! with Null or 0
 - b. Replace #DIV/0! with Null or 0
2. Ctrl + A twice to select all the data on your sheet
 - a. Home > Editing > Sort & Filter > Custom Sort
 - b. Sort by > Area > A to Z
3. Ctrl + A again to change the data to percentage

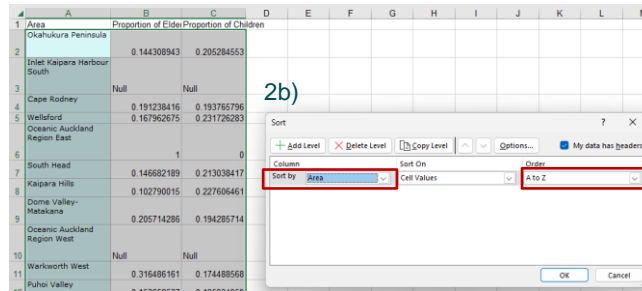
1)



2a)



2b)



	A	B	C	D
1	Area	Proportion of Elder	Proportion of Children	
2	Akoranga	34%	9%	
3	Albany Central	6%	6%	
4	Albany Heights	7%	18%	
5	Albany South	15%	16%	
6	Albany West	23%	17%	
7	Alfriston	16%	19%	
8	Algies Bay-Scotts Landing	40%	11%	
9	Anselmi Ridge	30%	19%	
10	Anzac Avenue	7%	4%	
11	Aorere Central	9%	24%	
12	Aorere North	8%	27%	
13	Aorere South	7%	25%	
14	Ararimu	11%	22%	
15	Ardmore	14%	20%	
16	Army Bay	18%	19%	
17	Auckland Airport	13%	15%	
18	Auckland-University	6%	9%	
19	Avondale Central (Auckland)	14%	15%	
20	Avondale North (Auckland)	9%	18%	
21	Avondale Rosebank	11%	21%	
22	Avondale South (Auckland)	9%	17%	
23	Avondale West (Auckland)	8%	20%	

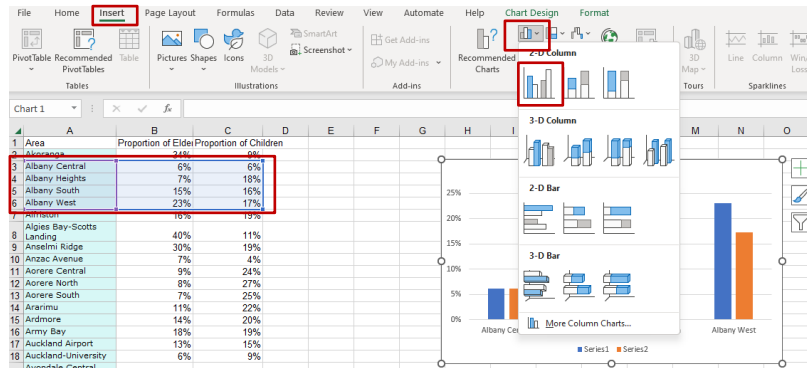
Your finalised sheet should look like the above

Excel – Graph making

1. Graph making

- a. Highlight a selected data set (for the tutorial use: Albany Central, Albany Heights, Albany South, Albany West)
- b. Insert > Graph > 2D column
- c. Add Axis Titles, Data label
- d. Right click on graph > Select Data > Rename Series 1 to Elderly > Rename Series 2 to Children > OK

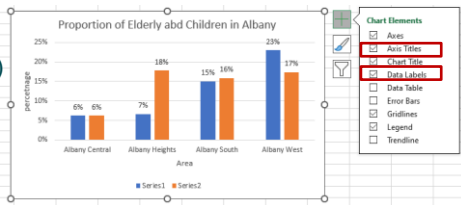
1b)



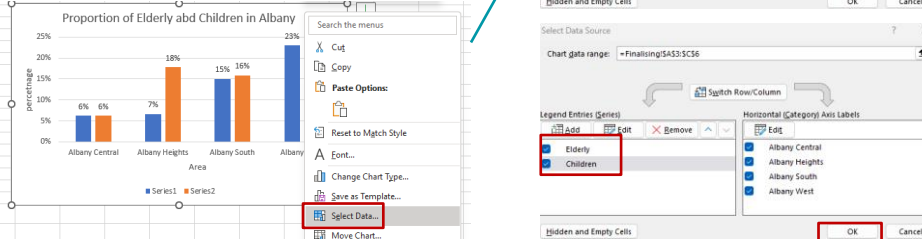
1a)

Area	Proportion of Elderly	Proportion of Children
Albany Central	6%	6%
Albany Heights	7%	18%
Albany South	15%	16%
Albany West	23%	17%

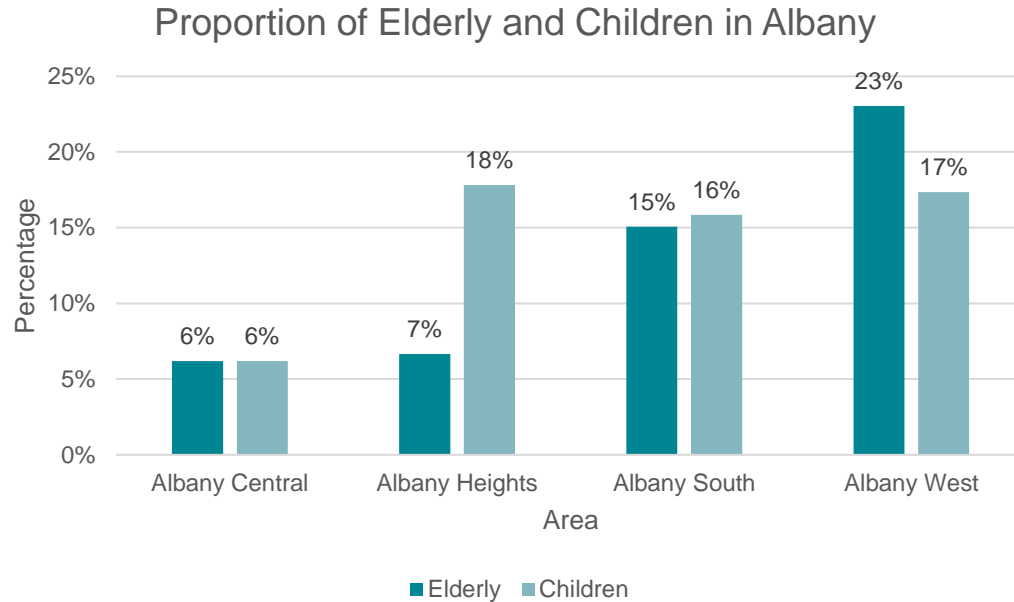
1c)



1d)



Excel – Final Product



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