

SEIFA: Understanding Area & Population Quantiles

Table 1

Area	Score	Pop'n
A01	779	25
A02	452	15
A03	494	15
A04	493	12
A05	911	40
A06	891	39
A07	841	24
A08	656	20
A09	847	18
A10	561	20
A11	689	21
A12	696	18
A13	325	9
A14	508	10
A15	543	16
A16	708	19
A17	752	20
A18	599	18
A19	734	22
A20	600	19

The example in this fact sheet uses 20 areas that have a total population of 400. The scores and population of each area are listed in table 1.

Quantiles

Quantiles is a collective word that includes quartiles (4), quintiles (5), deciles (10) and percentiles (100).

Only deciles and percentiles are published on the SEIFA spreadsheet but quintile can be derived by adding two deciles together and quartiles can be derived by adding 25 percentiles together.

If we ranked the table according to scores, we can then work out areas quintiles as demonstrated in Table 2.

There are 20 areas in total, so there will be four areas in each quintile. Areas with the lowest four scores make up Quintile 1, the next four in Quintile 2, etc.

This is how deciles and percentiles have been calculated on the SEIFA spreadsheet on the web. Instead of dividing 20 areas into 5 quintiles, it divides over 30,000 CDs for Australia in 10 deciles (or 100 percentiles) based upon the CD rankings.

Alternatively they are also available at a state level and, for example, divide 1000 Tas CDs into deciles and percentiles.

Table 2

Area	Score	Rank	Quintile	Pop'n
A13	325	1	1	9
A02	452	2	1	15
A04	493	3	1	12
A03	494	4	1	15
A14	508	5	2	10
A15	543	6	2	16
A10	561	7	2	20
A18	599	8	2	18
A20	600	9	3	19
A08	656	10	3	20
A11	689	11	3	21
A12	696	12	3	18
A16	708	13	4	19
A19	734	14	4	22
A17	752	15	4	20
A01	779	16	4	25
A07	841	17	5	24
A09	847	18	5	18
A06	891	19	5	39
A05	911	20	5	40

Table 3

Quintile	Area	Pop'n	Pop'n per quintile	% Pop'n per quintile
1	A13	9	51	13%
	A02	15		
	A04	12		
	A03	15		
2	A14	10	64	16%
	A15	16		
	A10	20		
	A18	18		
3	A20	19	78	20%
	A08	20		
	A11	21		
	A12	18		
4	A16	19	86	22%
	A19	22		
	A17	20		
	A01	25		
5	A07	24	121	30%
	A09	18		
	A06	39		
	A05	40		
Total			400	100%

If we grouped the areas according the quintile they fall in, we can create population counts for each area as shown in column 4. It is then possible to work our percentages as shown in column 5.

This table shows that 13% of the population live in the bottom 20% of areas and 30% of the population live in the top 20% of areas.

This is the kind of grouping that can occur with CDs. A recode of these re-grouped CDs can be created, loaded into SuperCROSS (or re-grouped within SuperCROSS) and population counts extracted.

So far we have been looking at data based on an even distribution of the **number of areas**, what if we wanted to examine data based on an even distribution of **number of people**?

There are 400 people in this population, so there will need to be approximately 80 people in each quintile.

If we cumulatively add the population this means the cut-off for each quintile occurs at 80, 160, 240, 320 and 400 people. However, this 'cut-off' cannot 'split' an area, so the cut-off becomes the figure that is closest to having 80 people in each quintile. This is demonstrated in table 4.

Table 4

Area Quintiles (20% of areas in each quintile)			Pop'n Quintiles (20% Pop'n in each quintile)		
Area Quintile	Cumulative No. Areas	Area	Pop'n	Cumulative No. People	Pop Quintile
1	1	A13	9	9	1
	2	A02	15	24	
	3	A04	12	36	
	4	A03	15	51	
2	5	A14	10	61	
	6	A15	16	77	
	7	A10	20	97	
	8	A18	18	115	
3	9	A20	19	134	2
	10	A08	20	154	
	11	A11	21	175	
	12	A12	18	193	
4	13	A16	19	212	3
	14	A19	22	234	
	15	A17	20	254	
	16	A01	25	279	
5	17	A07	24	303	4
	18	A09	18	321	
	19	A06	39	360	
	20	A05	40	400	5

Table 4 show area quintiles against population quintiles. There are 51 people or 13% of the population in the lowest Quintile (or lowest 20%) of areas.

However, 20% (or really 19% which is the closest we can get to 20%) of people live in the lowest 6 ranking areas (the lowest 30% of ranked areas) while a different 20% of the population can be found in just two (10%) of the highest ranked areas.

What should I use?

Use area quintiles when you want to look at the distribution of people based on the kind of area they live in. Use population quintiles when you want to look at counts of areas based on an even distribution of people.

For the most part you will need to use area quintiles and these are what are currently available on the SEIFA spreadsheets on the web.