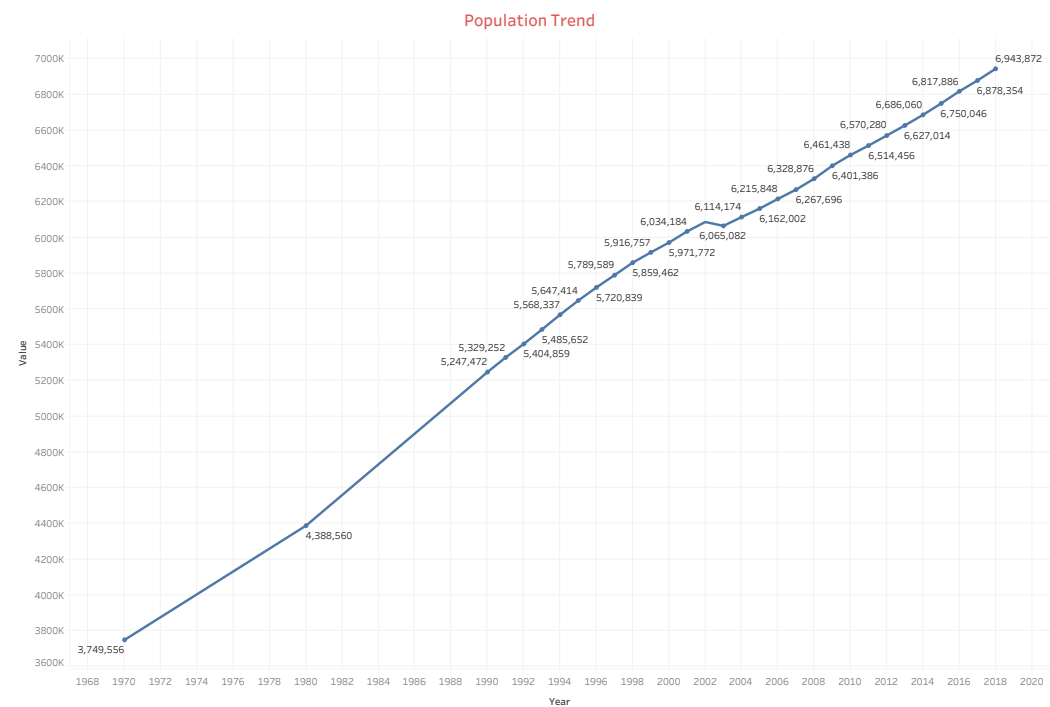# Demographic Analysis

Richa Kurkure
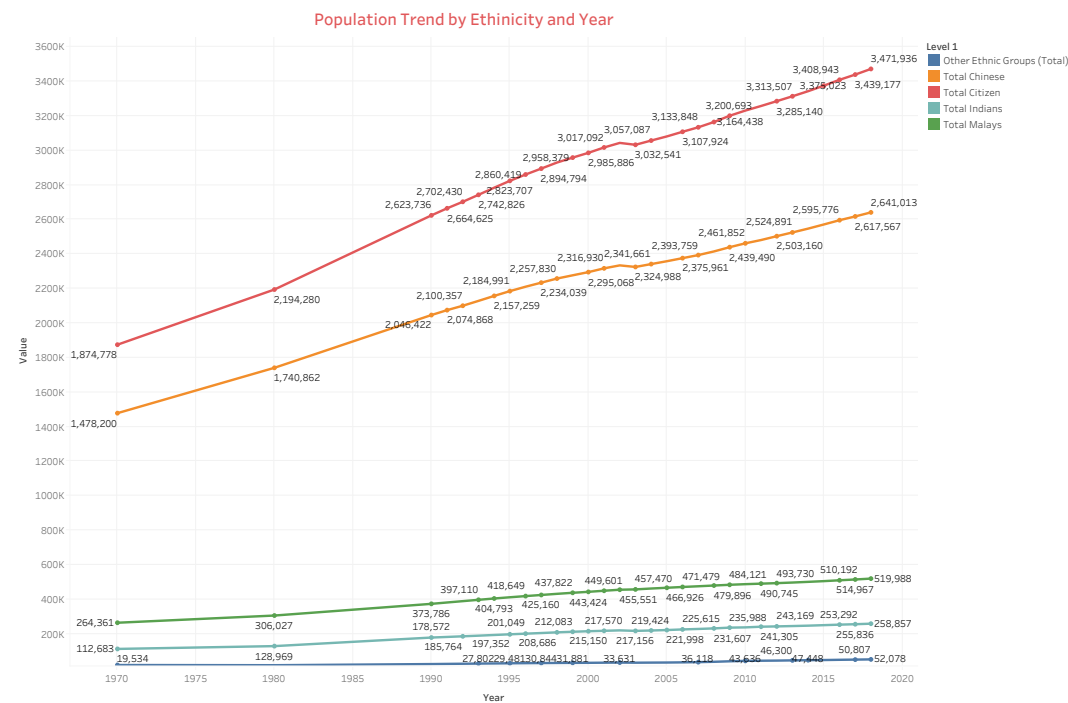
Trend in Data

- Upward Trend in the Data

- The population is on a rise


Population Trend

Population Trend by Ethinicity and Year

The relationship between Population (value) and Ethnicity (Level_1)

- Number of citizens increasing every year.

- Chinese population growing fast in Singapore. Followed by Malays.

- Indian and other Ethnic Group population remains flat. There is no trend.

Break Down of Population by Ehinicity

The plot of sum of Value for Year broken down by Level 1. Color shows details about Level 1. The view is filtered on Level 1 and Year. The Level 1 filter keeps Other Ethnic Groups (Total), Total Chinese, Total Citizen, Total Indians and Total Malays. The Year filter ranges from 1990 to 2018.
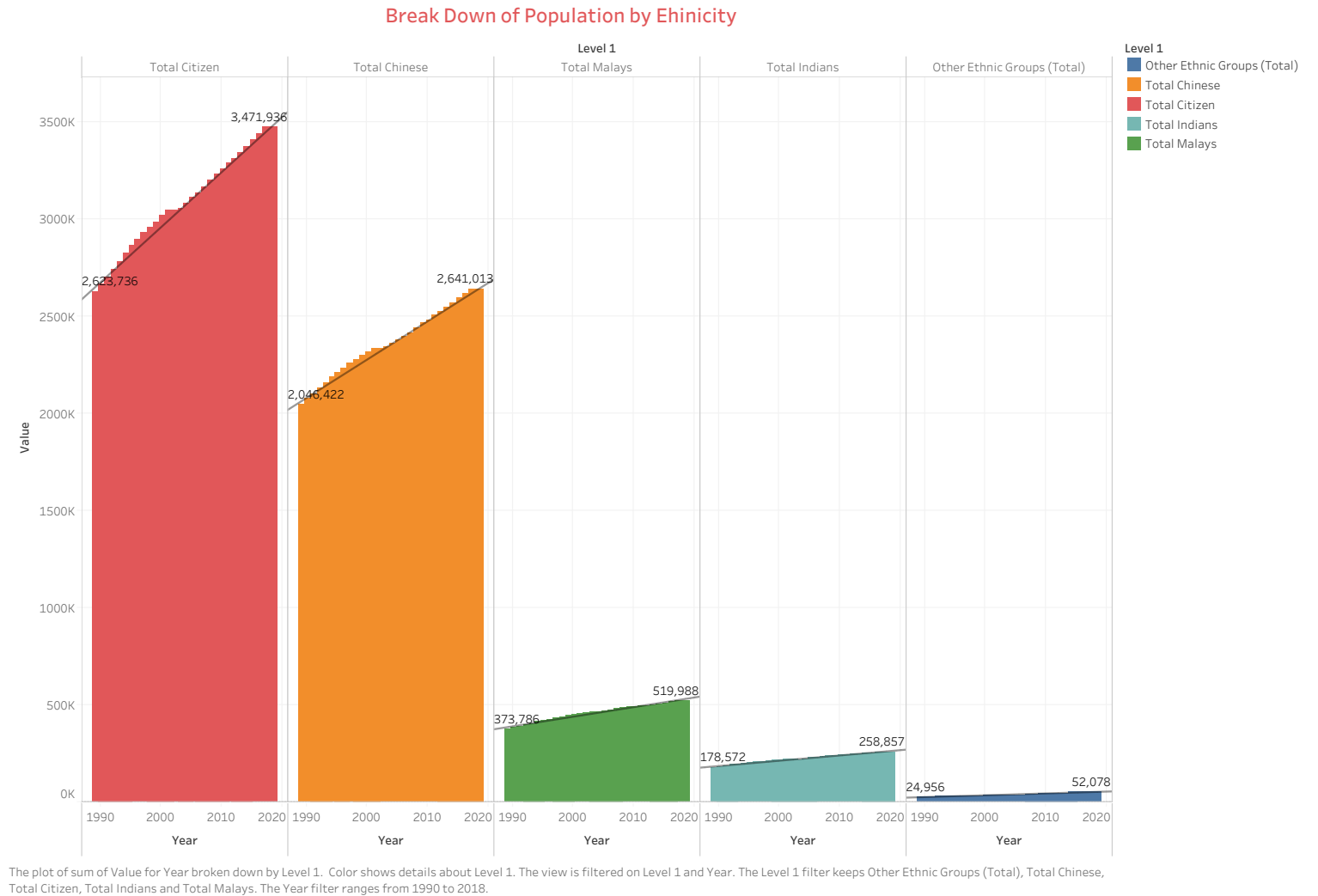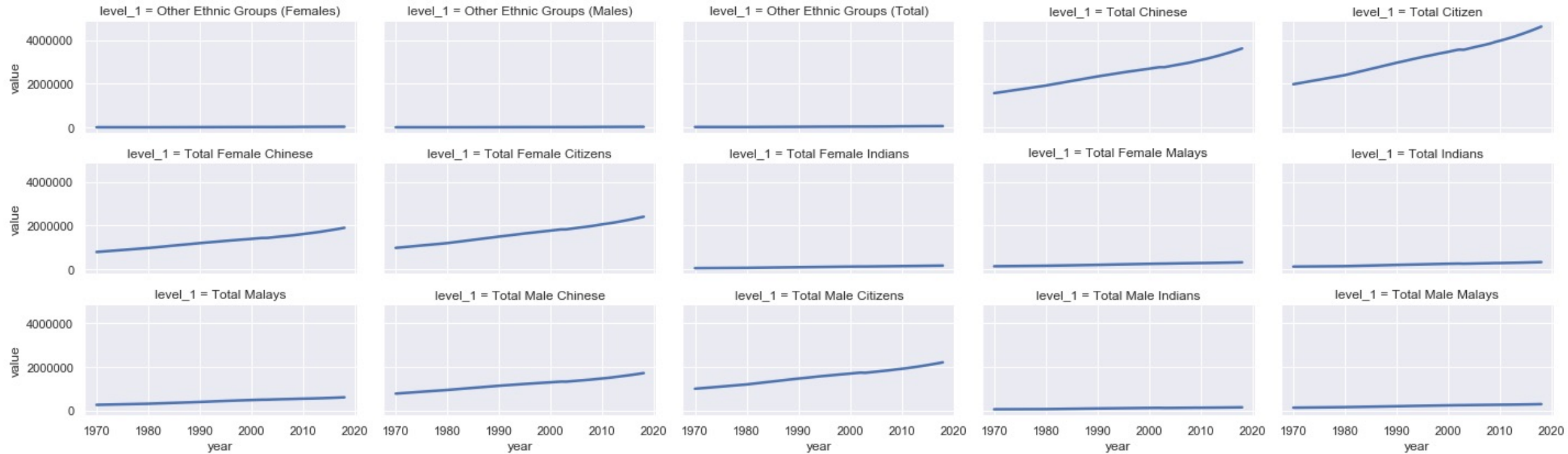
The relationship between Population (value) and Ethnicity (Level_1)

The relationship between Population and Age Group

Population Distribution by Age

Level 2

Value

Level 2	Other Ethnic Groups (Total)	Total Chinese	Total Citizen	Total Indians	Total Malays
0 - 4 Years		118,631	172,621		35,967
5 - 9 Years		126,418	175,796		
10 - 14 Years		126,616	180,222		32,993
15 - 19 Years		143,726	205,723		39,766
20 - 24 Years		168,143	237,046		45,630
25 - 29 Years		179,046	250,958		48,235
30 - 34 Years		157,519	217,874		39,767
35 - 39 Years		172,887	224,625		
40 - 44 Years		181,293	227,556		
45 - 49 Years		194,157	247,329		
50 - 54 Years		203,539	267,845		39,948
55 - 59 Years		216,502	280,396		39,885
60 - 64 Years		207,104	257,548		
65 - 69 Years		168,486	202,905		
70 - 74 Years		110,422	130,055		
75 - 79 Years		77,825	89,536		
80 - 84 Years		46,795	55,232		
85 Years & Over		41,904	48,669		

Sum of Value for each Level 2. Color shows details about Level 1. The data is filtered on Year, which ranges from 2018 to 2018. The view is filtered on Level 2 and Level 1. The Level 2 filter excludes 65 Years & Over, 70 Years & Over, 75 Years & Over and 80 Years & Over. The Level 1 filter keeps Other Ethnic Groups (Total), Total Chinese, Total Citizen, Total Indians and Total Malays.

Level 1
- Other Ethnic Groups (Total)
- Total Chinese
- Total Citizen
- Total Indians
- Total Malays

Population Trend by Age

Level 2

0 - 4 Years	5 - 9 Years	10 - 14 Years	15 - 19 Years	30 - 34 Years	35 - 39 Years	60 - 64 Years	65 Years & Over
479,451	485,459	486,092	489,564	574,150	580,198	515,096	1,052,794
328,628	348,918	359,966	388,282	406,862	427,148	159,702	315,256
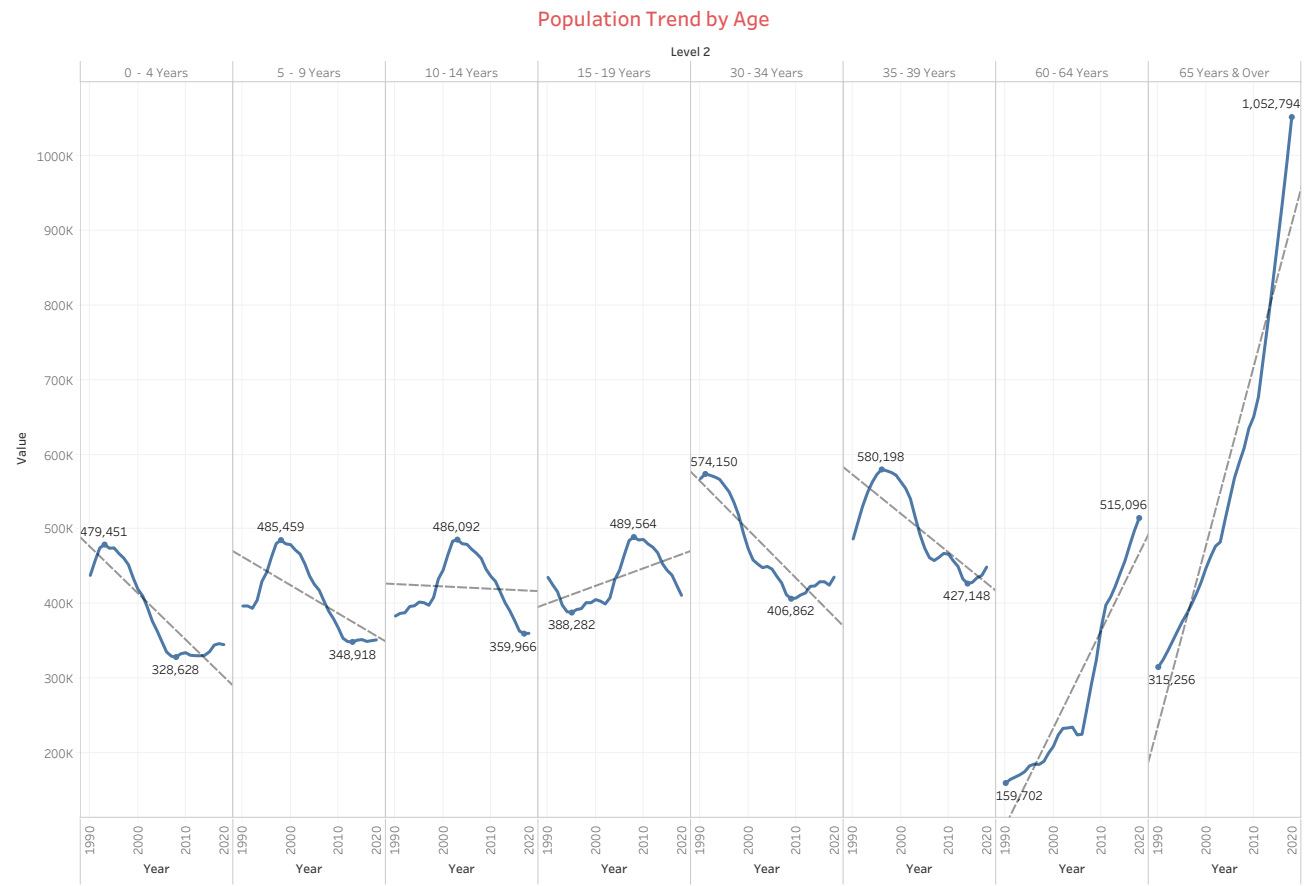
The trend of sum of Value for Year broken down by Level 2. The data is filtered on Level 1, which keeps Other Ethnic Groups (Total), Total Chinese, Total Citizen, Total Indians and Total Malays. The view is filtered on Year and Level 2. The Year filter ranges from 1990 to 2018. The Level 2 filter keeps 8 of 22 members.

The relationship between Population (value) and Age Group (Level_2)

- There is gradual decline in people under 20 years age.

- Most population would be aging out.

- The is a steep increase in the population who are 60+ years and above.
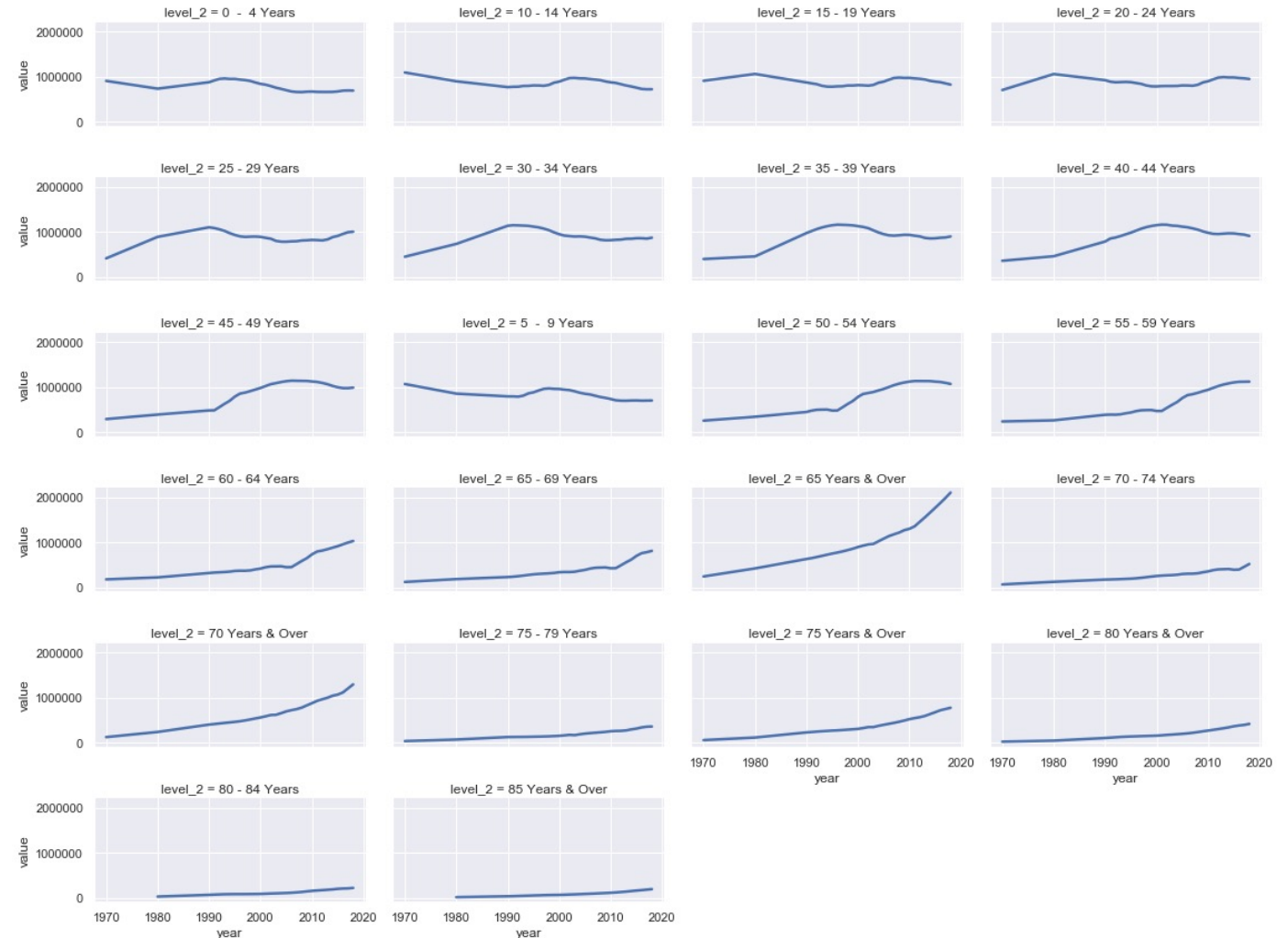
Year Over Year Percentage Change between 1990-2018

- The YOY rate was on a decline between 1990 to almost until 2005.

- Since 2005 the YOY rate looks to gradually increase until 2018.
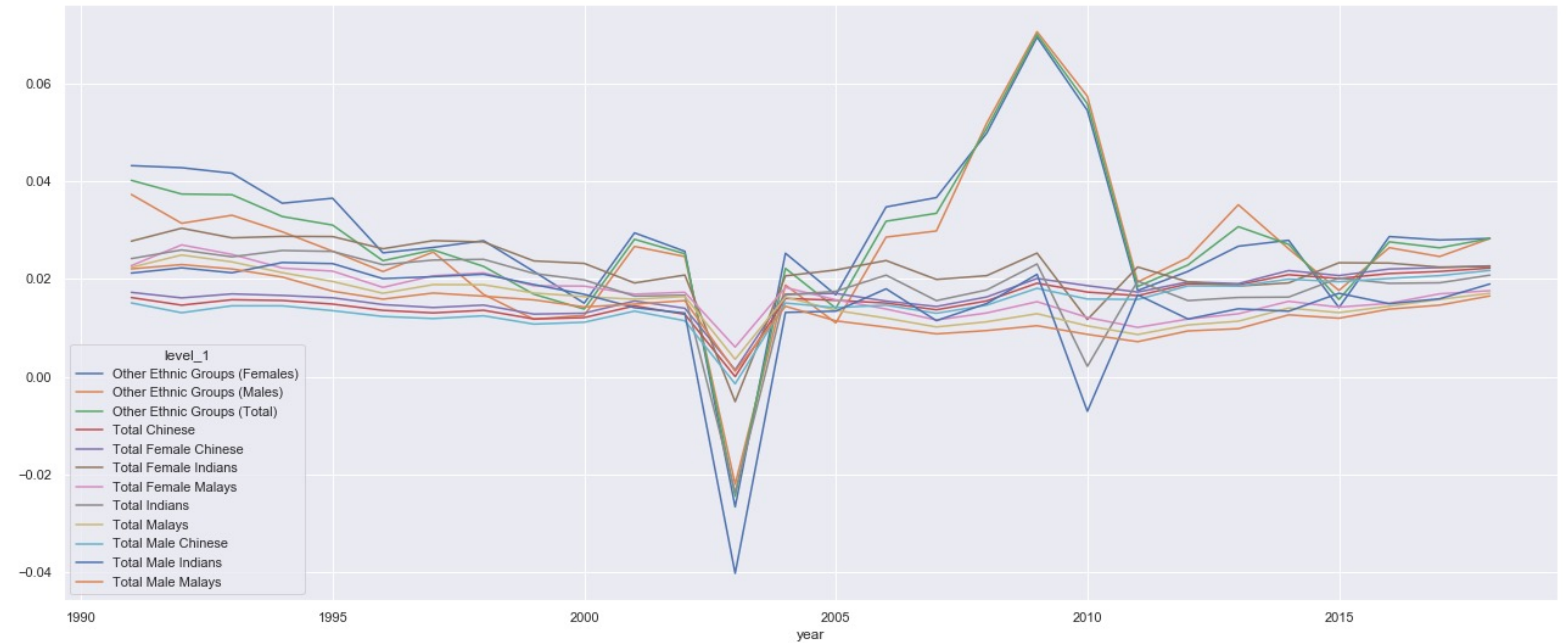
Predictions / Forecasting

- *Baseline Model-* Looking at the YOY rate we can simply calculate the values in future .
  Ex:- 2019 will see a 3% rise in population based on the current analysis.

- Build a Machine learning model like Linear Regression to forecast population based on
  historical data for each category (Ethnicity and Age).

- Build a Time series model using concepts like Moving Average, Exponential
  Smoothening, etc.

Population - Predictions based on Historical Data

By 2022 the population of Singapore is projected to be around 7.2 million

Population Forecast for Next 5 Years
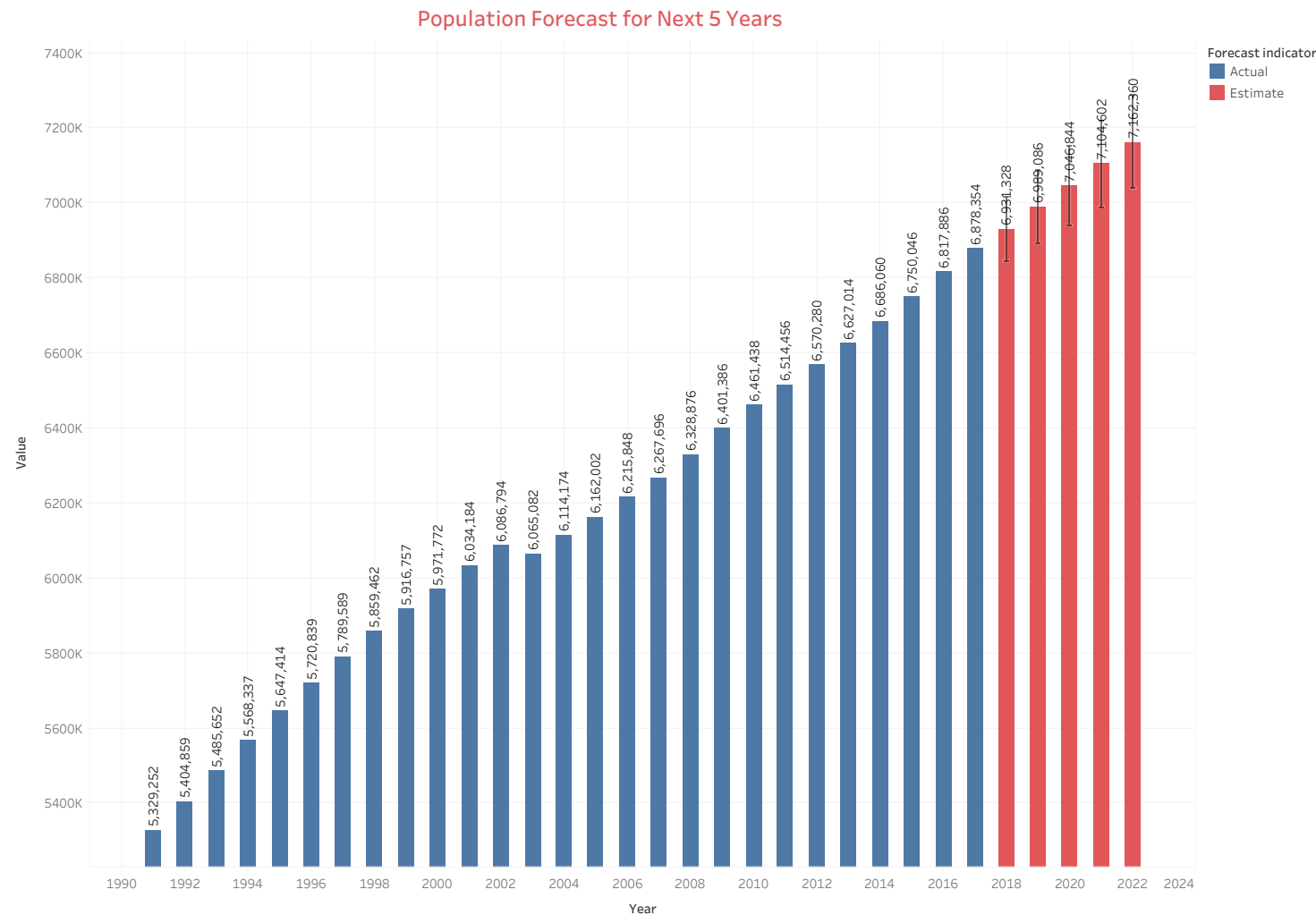
The plot of sum of Value (actual & forecast) for Year. Color shows details about Forecast indicator. The data is filtered on Level 1, which keeps Other Ethnic Groups (Total), Total Chinese, Total Citizen, Total Indians and Total Malays. The view is filtered on Year, which ranges from 1991 to 2018.

Ethnicity - Predictions based on Historical Data

- Chinese will continue to remain the highest ethnicity in Singapore
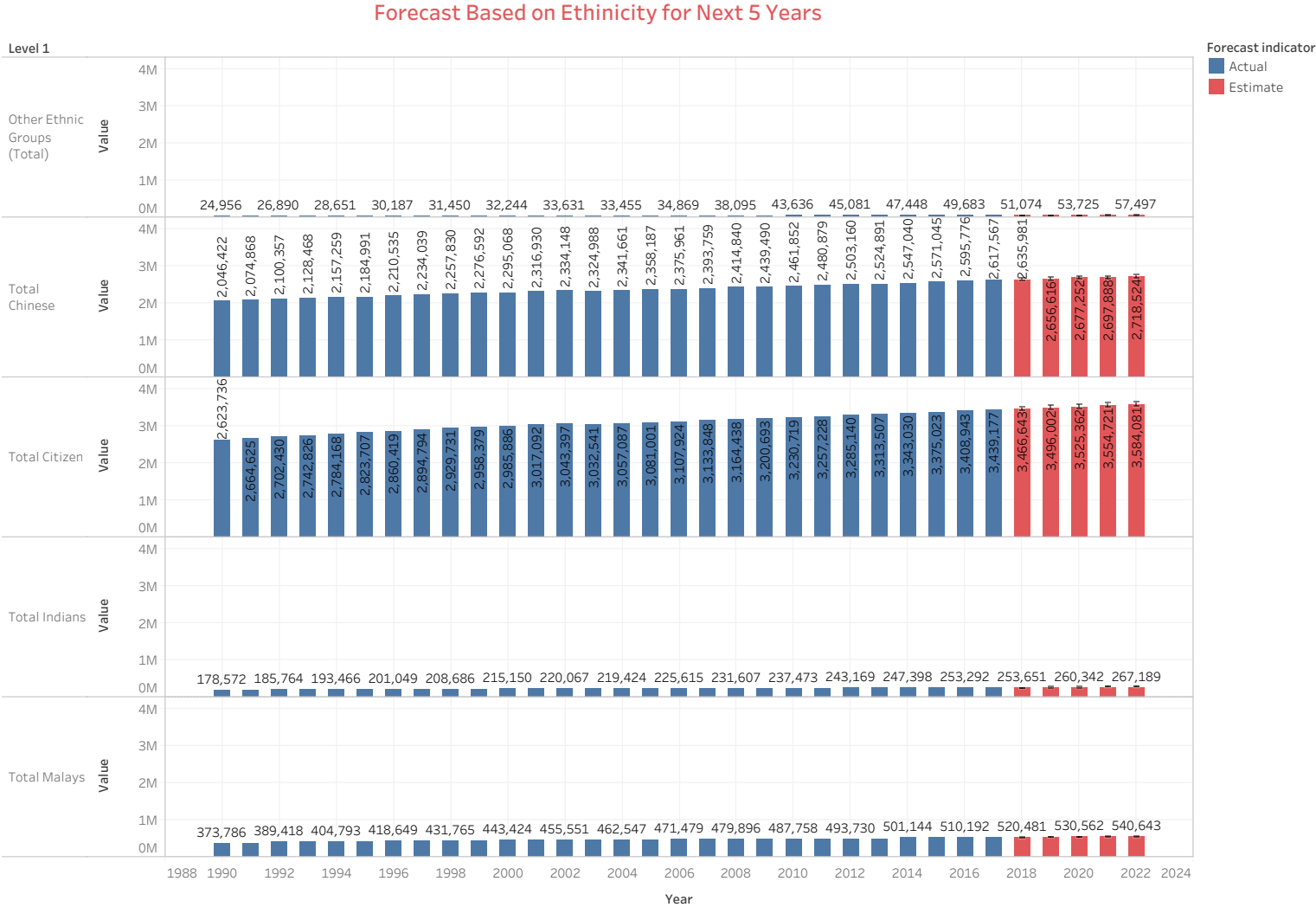
Forecast Based on Ethinicity for Next 5 Years

Level 1

Forecast indicator
- Actual
- Estimate

The plot of sum of Value (actual & forecast) for Year broken down by Level 1. Color shows details about Forecast indicator. The view is filtered on Level 1 and Year. The Level 1 filter keeps Other Ethnic Groups (Total), Total Chinese, Total Citizen, Total Indians and Total Malays. The Year filter ranges from 1990 to 2018.

Age Group - Predictions based on Historical Data

- Most population would be aging out.

- The is a steep increase in the population who are 60+ years and above.

Forcast Based on Age Group for next 5 years

Level 2

Year	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 & Over
2024														
2022	369,132	356,319	300,961	369,249	464,964	610,225	440,275	432,564	466,787	423,795	518,330	604,962	837,417	1,373,973
	364,230	354,980	311,887	380,514	469,585	584,432	438,373	432,213	468,204	435,118	525,024	597,528	756,263	1,288,426
2020	359,393	353,642	322,813	391,778	474,207	559,729	436,480	431,862	469,621	446,442	531,719	590,094	664,249	1,208,205
	354,620	352,303	333,739	403,043	478,829	536,070	434,594	431,512	471,039	457,766	538,413	582,660	602,327	1,132,979
2018	349,910	350,965	344,665	414,307	483,450	513,411	432,717	431,162	472,456	469,090	545,107	575,226	548,832	1,062,437
	346,602	350,616	359,966	424,818	480,624	496,214	425,056	438,100	469,522	488,468	547,388	559,742	498,248	992,990
2016	344,656	349,538	363,490	438,494	484,790	477,068	429,536	434,958	475,350	488,962	557,234	558,804	478,270	936,736
	335,700	352,036	377,588	444,788	491,046	455,380	429,644	428,796	482,946	498,406	561,034	552,270	457,306	883,106
2014	330,954	351,266	390,480	453,824	490,976	441,432	423,970	427,148	484,184	513,000	566,764	541,482	440,892	829,688
	330,322	348,918	401,448	468,508	494,854	415,830	423,408	433,444	480,514	532,386	567,440	528,898	423,752	777,292
2012	330,500	349,298	415,692	475,838	489,618	405,290	414,486	450,126	476,418	546,344	567,556	512,340	409,040	727,734
	331,006	353,786	429,894	480,196	470,224	408,538	411,914	457,660	478,456	557,466	567,578	492,048	398,262	677,428
2010	334,450	367,896	437,040	486,282	449,078	410,644	407,710	466,562	489,660	562,490	561,158	470,768	367,192	650,508
	333,022	380,108	446,460	485,616	435,802	406,656	406,862	467,606	504,890	568,580	551,366	454,742	324,362	635,314
2008	328,628	390,222	460,836	489,564	409,528	404,552	412,168	462,370	524,658	569,222	538,486	436,766	293,070	608,806
	329,762	403,934	467,682	484,776	398,614	396,178	428,074	458,014	538,746	570,400	521,512	421,796	258,574	589,634
2006	335,434	418,338	473,088	465,538	401,420	394,648	436,790	461,882	551,132	571,362	501,004	410,920	225,030	569,262
	349,598	426,024	479,788	444,820	402,262	390,498	446,470	474,794	557,780	565,738	479,644	379,398	224,204	540,984
2004	363,960	437,244	480,588	432,430	396,580	391,270	450,122	493,232	566,578	556,400	463,214	335,444	234,628	512,484
	376,932	453,516	486,092	408,210	395,886	399,884	448,470	516,654	569,662	544,118	445,818	303,506	233,482	482,852
2002	394,878	466,698	484,074	399,756	395,888	423,998	453,290	541,032	579,160	532,918	434,744	270,156	232,918	477,284
	410,466	472,220	465,642	403,574	395,150	433,790	458,872	554,894	580,694	512,032	423,914	235,586	223,884	463,466
2000	419,402	479,382	445,182	405,684	391,530	444,360	473,810	563,700	574,834	490,872	391,502	234,866	208,838	447,810
	434,767	480,427	433,228	401,384	392,581	448,139	494,427	572,464	565,543	473,294	345,935	245,450	199,892	429,233
1998	452,433	485,459	408,445	401,644	401,465	446,955	518,698	576,197	552,836	455,484	312,622	244,846	188,666	413,710
	461,423	480,835	398,095	393,503	419,565	444,134	536,001	578,432	535,416	439,186	276,077	242,800	184,563	399,562
1996	467,447	462,607	401,470	392,324	428,632	450,415	550,013	580,198	513,588	427,909	240,693	233,490	185,071	386,980
	474,967	442,158	402,394	388,282	438,589	465,768	558,515	573,717	491,586	394,503	239,887	218,584	182,695	375,784
1994	474,544	430,088	397,395	389,436	441,640	485,912	566,884	562,977	473,074	347,899	250,972	209,547	174,986	362,986
	479,451	404,793	396,406	398,158	439,556	510,622	570,046	548,918	454,153	314,290	250,392	198,174	170,806	349,892
1992	474,998	394,008	388,060	416,138	437,371	528,571	572,352	531,013	437,554	277,553	248,408	194,248	167,654	336,929
	457,623	397,094	387,176	425,378	443,996	542,290	574,150	509,239	426,460	242,018	239,099	195,145	164,659	324,924
1990	438,134	397,032	383,616	435,454	460,622	550,954	568,022	486,984	393,116	241,322	224,222	193,036	159,702	315,256
1988														

Value (1M 2M 3M per column)

Forecast indicator
- Actual
- Estimate

The plot of sum of Value (actual & forecast) for Year broken down by Level 2. Color shows details about Forecast indicator. The data is filtered on Level 1, which keeps Other Ethnic Groups (Total), Total Chinese, Total Citizen, Total Indians and Total Malays. The view is filtered on Level 2 and Year. The Level 2 filter keeps 14 of 22 members. The Year filter ranges from 1990 to 2018.

Questions?