

Elections in Berlin – Are we right?

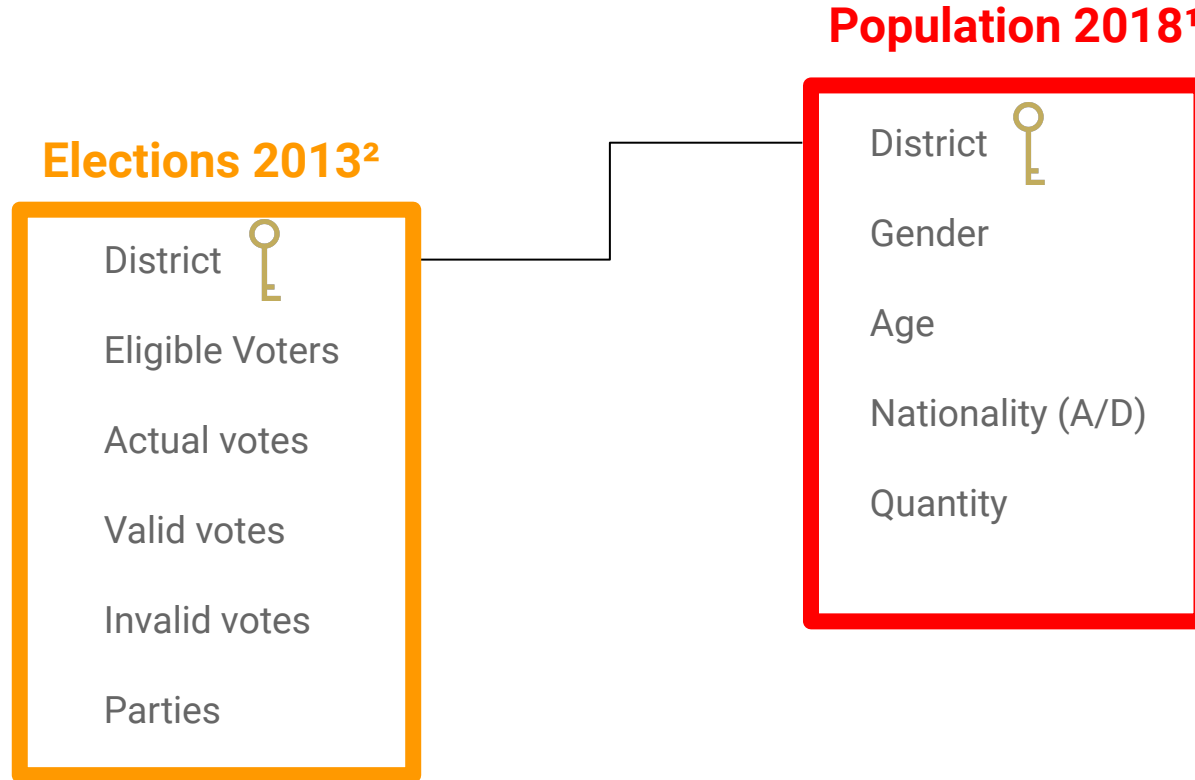
TEAM BERLIN

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23.08.2019

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Our Database



Questions

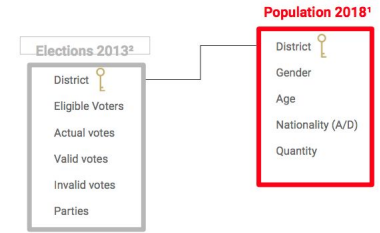
1. Who is not voting?
2. Is Berlin rightwing ?
3. Where you live is what you vote?
4. Is there a relation between district and party preference?
5. Is there a relation between age and party preference?

Population in million (M)

Total population in Berlin

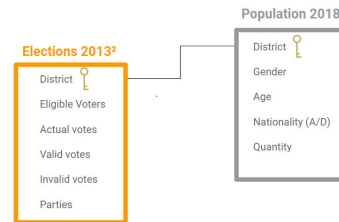
3.7M

```
4 #How many people live in Berlin? In millions
5 SELECT SUM(haufigkeit)/1000000
6 FROM population;
```

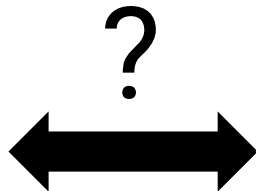


1. Who is not voting?

Population in million (M)



Eligible voters in Berlin
2.5M

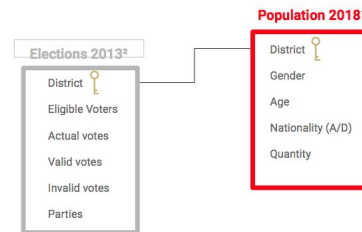


Total population in Berlin
3.7M

```
8 #Total of eligible voters in Berlin? In millions
9 SELECT SUM(wahlberechtigte)/1000000 AS Eligible_Voters
0 FROM elections;
```

1. Who is not voting?

Population in million (M)



```
63 #German (D) and non_german (A) living in Berlin
64 SELECT staatsangeh AS Nationality,
65 SUM(haufigkeit)/1000000 AS Population
66 FROM population
67 GROUP BY staatsangeh;
```

Nationality	Population_in_Mio
A	0.7485
D	2.9997

Non-German in Berlin

0.7M

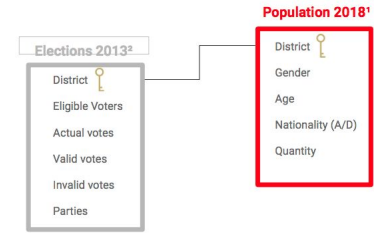
3,7 M - 0.7M → 3,0 M

...

Eligible voters in Berlin

2.5M

1. Who is not voting?



```
eligibility_results=eligibility.groupby('eligibility', as_index=False).agg({'haufigkeit':'sum'})
eligibility_results['percentage']=eligibility_results['haufigkeit']/summ*100
eligibility_results.head()
```

	eligibility	haufigkeit	percentage
0	eligible	3087952	82.386074
1	uneligible	660196	17.613926

Age > 18

82%

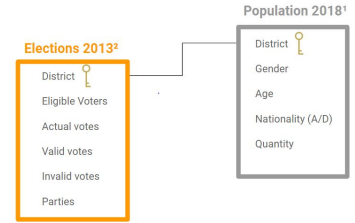
82% * 3,0 M →

Eligible voters in Berlin

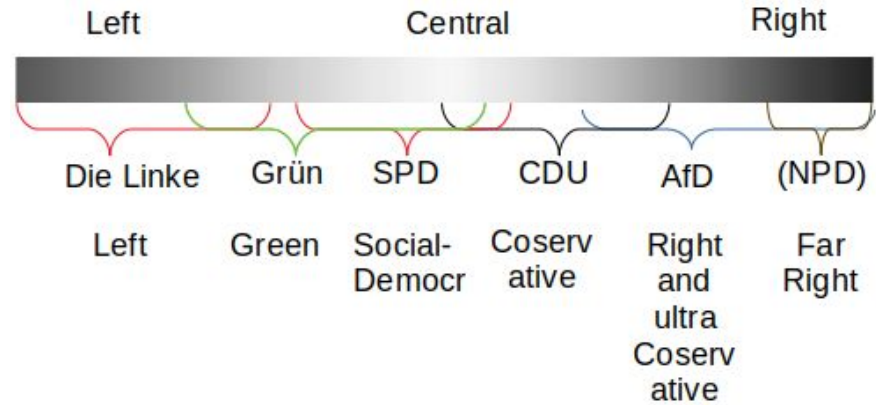
2.5M



2. Is Berlin rightwing?



- CDU | Conservative 30,0%
- SPD | Social 25,5%
- GRÜNE | Green 18,6%
- DIE LINKE | Leftwing 13,6%
- AfD | Rightwing 3,8%
- Rest 8,4%



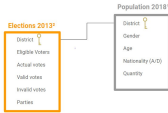
NEIN!





- Marzahn-Hellersdorf
- Friedrichshain-Kreuzberg

3. Where you live is what you vote?



District	RightWing	Conservative	Social	Green	LeftWing	Rest
Mitte	3.0239	23.8815	28.2572	18.4411	16.6557	9.7407
Friedrichshain-Kreuzberg	1.8335	12.3441	17.5790	43.0315	15.7188	9.4931
Pankow	3.8300	22.8978	20.6602	17.3634	27.1879	8.0608
Charlottenburg-Wilmersdorf	3.7807	36.7302	31.8109	14.1373	6.4988	7.0422
Spandau	4.3476	39.9515	37.6789	4.0952	6.8788	7.0480
Steglitz-Zehlendorf	4.2323	42.4673	29.2173	11.8025	5.2619	7.0187
Tempelhof-Schöneberg	3.6696	34.9830	26.2168	20.3613	7.3502	7.4191
Neukölln	3.0060	30.5628	32.3316	11.7090	11.7221	10.6685
Treptow-Köpenick	3.9584	22.5935	17.8452	5.0226	42.1703	8.4100
Marzahn-Hellersdorf	4.8547	25.6633	17.0882	3.1138	38.9065	10.3733
Lichtenberg	4.2754	22.7365	19.5433	4.2174	40.3046	8.9228
Reinickendorf	4.4712	44.9607	29.4871	6.7160	6.5006	7.8644

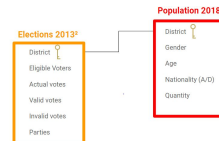
Minimum

Maximum



- Marzahn-Hellersdorf
- Friedrichshain-Kreuzberg
- Steglitz-Zehlendorf
- Charlottenburg-Wilmersd
orf

4. Is there a relation between age and party?



	Bezirk	Age Mean	Eligible Voters	Voters	Valid	invalid	CDU (Cons.)	DIE LINKE (Left)	SPD (Soc.Dem.)	GRUNE	AfD (Far Cons. & Right)	Others
0	Charlottenburg-Wilmersdorf	45.634399	8.786943	76.573741	98.569370	1.430630	36.730150	6.498781	31.810934	14.137257	3.780726	7.042152
1	Friedrichshain-Kreuzberg	38.096569	6.957088	74.210239	98.608610	1.391390	12.344102	15.718799	17.578998	43.031505	1.833546	9.493051
2	Lichtenberg	42.513666	8.199526	67.435522	98.369553	1.630447	22.736478	40.304640	19.543333	4.217416	4.275379	8.922754
3	Marzahn-Hellersdorf	43.666745	8.140102	65.116587	98.435441	1.564559	25.663345	38.906524	17.088245	3.113837	4.854711	10.373339
4	Mitte	38.920472	8.144771	69.370115	98.388122	1.611878	23.881486	16.655659	28.257186	18.441117	3.023864	9.740689
5	Neukölln	41.438589	8.206630	68.482992	97.797266	2.202734	30.562796	11.722080	32.331564	11.709010	3.006034	10.668516
6	Pankow	40.799758	11.464139	74.407416	98.628721	1.371279	22.897762	27.187860	20.660212	17.363420	3.829971	8.060775
7	Reinickendorf	44.698311	7.300662	72.968393	98.049954	1.950046	44.960689	6.500562	29.487091	6.716024	4.471237	7.864396
8	Spandau	43.730274	6.584300	69.890414	97.922087	2.077913	39.951467	6.878808	37.678900	4.095225	4.347634	7.047967
9	Steglitz-Zehlendorf	46.295058	8.780198	79.787916	98.542204	1.457796	42.467337	5.261880	29.217251	11.802521	4.232281	7.018730
10	Tempelhof-Schöneberg	43.975604	9.388886	75.323367	98.281087	1.718913	34.982975	7.350180	26.216848	20.361279	3.669635	7.419083
11	Treptow-Köpenick	44.678630	8.046755	73.603499	98.526340	1.473660	22.593507	42.170306	17.845150	5.022603	3.958446	8.409988

Youngest

Oldest

4. Is there a relation between age and party?

As we could see there is a correlation between average age of inhabitants in a district and the tendency to vote for certain parties.

Old people → Conservative party



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Thank You!
Questions?

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Source

¹ <https://daten.berlin.de/datensaetze/einwohnerinnen-und-einwohner-den-ortsteilen-berlins-am-31122018>

² [https://daten.berlin.de/datensaetze/bundestagswahl-2013-berlin-nach-wahlbezirken-endg%C3%BCltiges-er](https://daten.berlin.de/datensaetze/bundestagswahl-2013-berlin-nach-wahlbezirken-endg%C3%BCltiges-ergebnis)

- Binning ages

```
collapsed1=work_population.groupby(['bezirk', 'altersgr'], as_index=False).agg({'haufigkeit':'sum'})

collapsed1.loc[collapsed1['altersgr'].str.startswith('0'), 'Age_Group'] = 'young'
collapsed1.loc[collapsed1['altersgr'].str.startswith('1'), 'Age_Group'] = 'young'
collapsed1.loc[collapsed1['altersgr'].str.startswith('2'), 'Age_Group'] = 'young'
collapsed1.loc[collapsed1['altersgr'].str.startswith('3'), 'Age_Group'] = 'intermediate'
collapsed1.loc[collapsed1['altersgr'].str.startswith('4'), 'Age_Group'] = 'intermediate'
collapsed1.loc[collapsed1['altersgr'].str.startswith('50'), 'Age_Group'] = 'intermediate'
collapsed1.loc[collapsed1['altersgr'].str.startswith('55'), 'Age_Group'] = 'old'
collapsed1.loc[collapsed1['altersgr'].str.startswith('6'), 'Age_Group'] = 'old'
collapsed1.loc[collapsed1['altersgr'].str.startswith('7'), 'Age_Group'] = 'old'
collapsed1.loc[collapsed1['altersgr'].str.startswith('8'), 'Age_Group'] = 'old'
collapsed1.loc[collapsed1['altersgr'].str.startswith('9'), 'Age_Group'] = 'old'

collapsed2=collapsed1.groupby(['bezirk', 'Age_Group'], as_index=False).agg({'haufigkeit':'sum'})
collapsed2 = pd.merge(collapsed2, collapsed, on='bezirk')
collapsed2['ratios_procent'] = np.where(collapsed2['haufigkeit']!=0, collapsed2['Amount_per_age_group']
/ collapsed2['haufigkeit'] *100, 0)
```

- Collapse and Sort

```
filtered_collapsed2=collapsed2[(collapsed2['Age_Group']=='old')]
filtered_collapsed2.sort_values("ratios_procent", ascending = False)
```

	bezirk	Age_Group	Amount_per_age_group	haufigkeit	ratios_procent
0	Charlottenburg-Wilmersdorf	intermediate	120460	341327	35.291670
1	Charlottenburg-Wilmersdorf	old	126503	341327	37.062113
2	Charlottenburg-Wilmersdorf	young	94364	341327	27.646216
3	Friedrichshain-Kreuzberg	intermediate	135440	289120	46.845600
4	Friedrichshain-Kreuzberg	old	56464	289120	19.529607
5	Friedrichshain-Kreuzberg	young	97216	289120	33.624792
6	Lichtenberg	intermediate	105952	290493	36.473168
7	Lichtenberg	old	93603	290493	32.222119
8	Lichtenberg	young	90938	290493	31.304713
9	Marzahn-Hellersdorf	intermediate	90986	268739	33.856642
10	Marzahn-Hellersdorf	old	98682	268739	36.720387
11	Marzahn-Hellersdorf	young	79071	268739	29.422972
12	Mitte	intermediate	156461	383457	40.802750
13	Mitte	old	87810	383457	22.899569
14	Mitte	young	139186	383457	36.297681