TOP EMISSION SOURCES: SECTORAL TRENDS IN AIR POLLUTION IN GERMANY (1995-2021)

Ayse Asude Demir

QUESTION & MOTIVATION

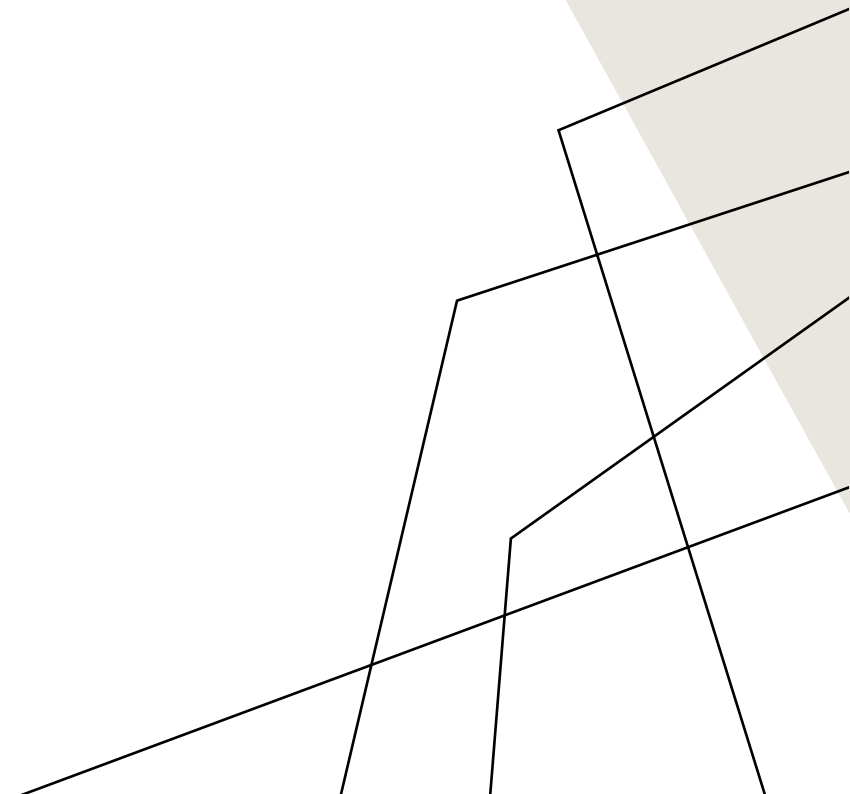
Which industries emit the most air pollutants and greenhouse gases over the years in Germany?

By identifying the economic sectors that generate the most air emissions, we can better target reduction efforts and raise awareness about our consumption habits.

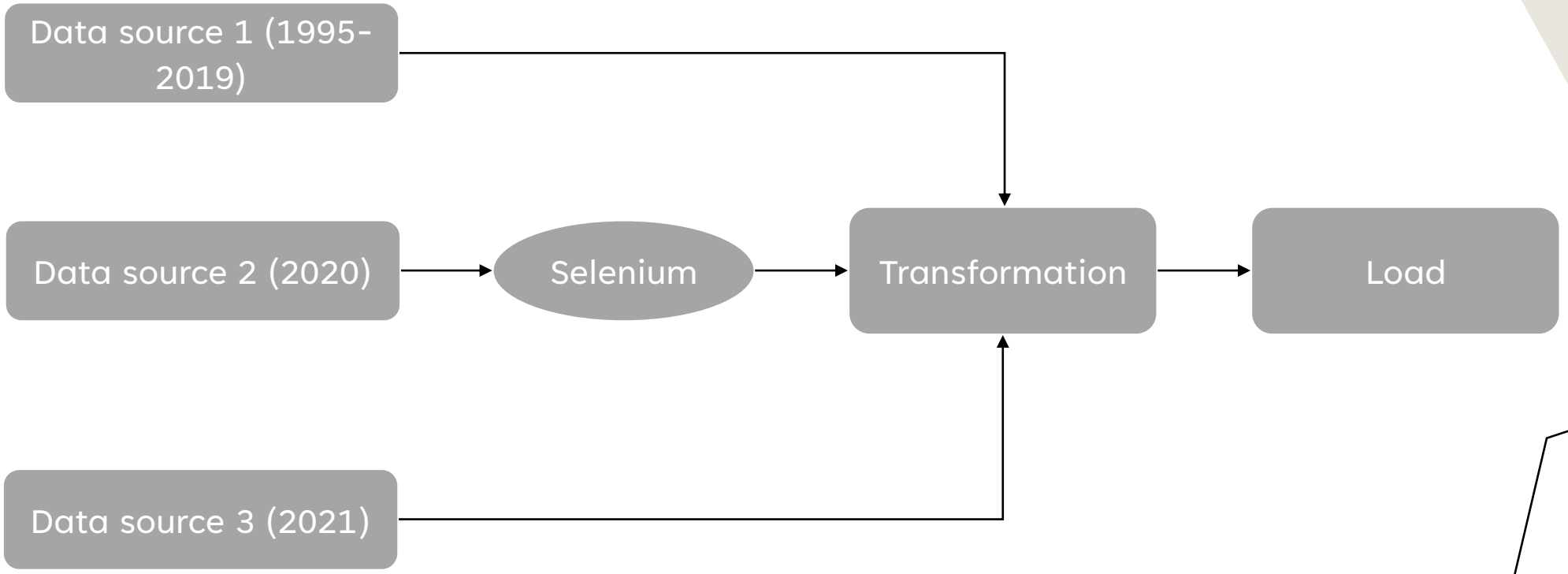
DATA SOURCES

DATA SOURCES

- All the three data sources are provided by The Federal Statistical Office of Germany (Statistisches Bundesamt).
- Data is licensed under the "Data Licence Germany - Namensnennung Version 2.0“.
    - Data can be used, altered, processed, and merged as long as the user ensures the name of the provider, the link to the dataset, and refers to the license text,



DATA SOURCES

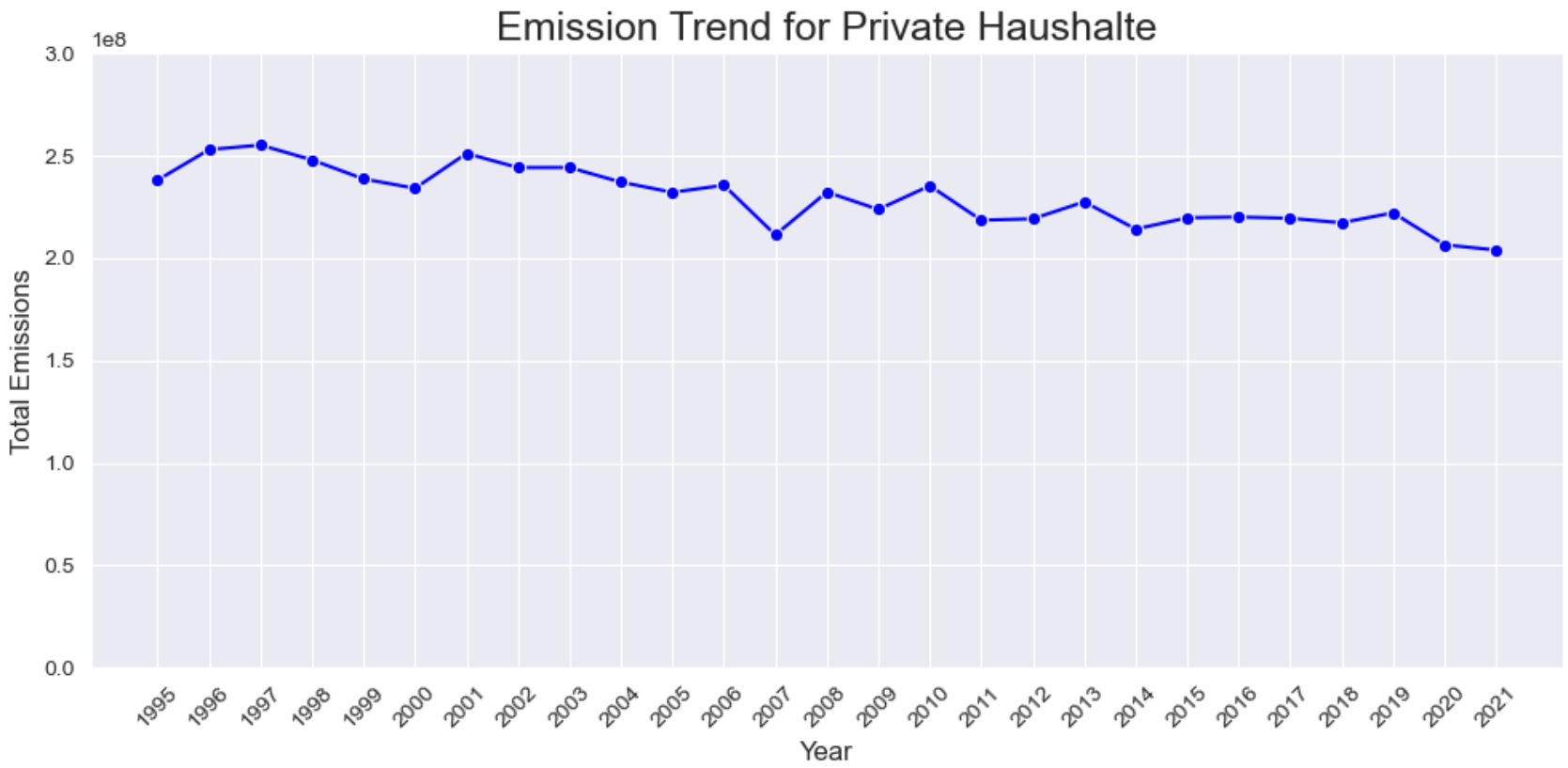


EXAMPLE DATA

	year	economic_sector	Kohlendioxid (CO2)	Methan (CH4)	Distickstoffmonoxid (N2O)	Stickoxide (NOx)	Schwefeldioxid (SO2)	Flüchtige Kohlenwasserstoffe ohne Methan (NMVOC)	Ammoniak (NH3)	Feinstaub (10 µm)
0	2000	Erz.d. Landwirtschaft u. Jagd sowie damit verb...	9751762	1345969	100198	169012	3782	337669	573203	37712
1	2000	Forstwirtschaftl. Erzeugnisse und Dienstleistu...	411683	1284	9	2875	47	17278	2	438
2	2000	Fische und Fischereierz., Aquakulturerz., DL	53113	1	2	669	148	32	0	91
3	2000	Kohle	1036480	662952	5	1116	1551	1378	4	5026
4	2000	Erdöl und Erdgas	2511279	7258	15	1495	336	1092	1	97

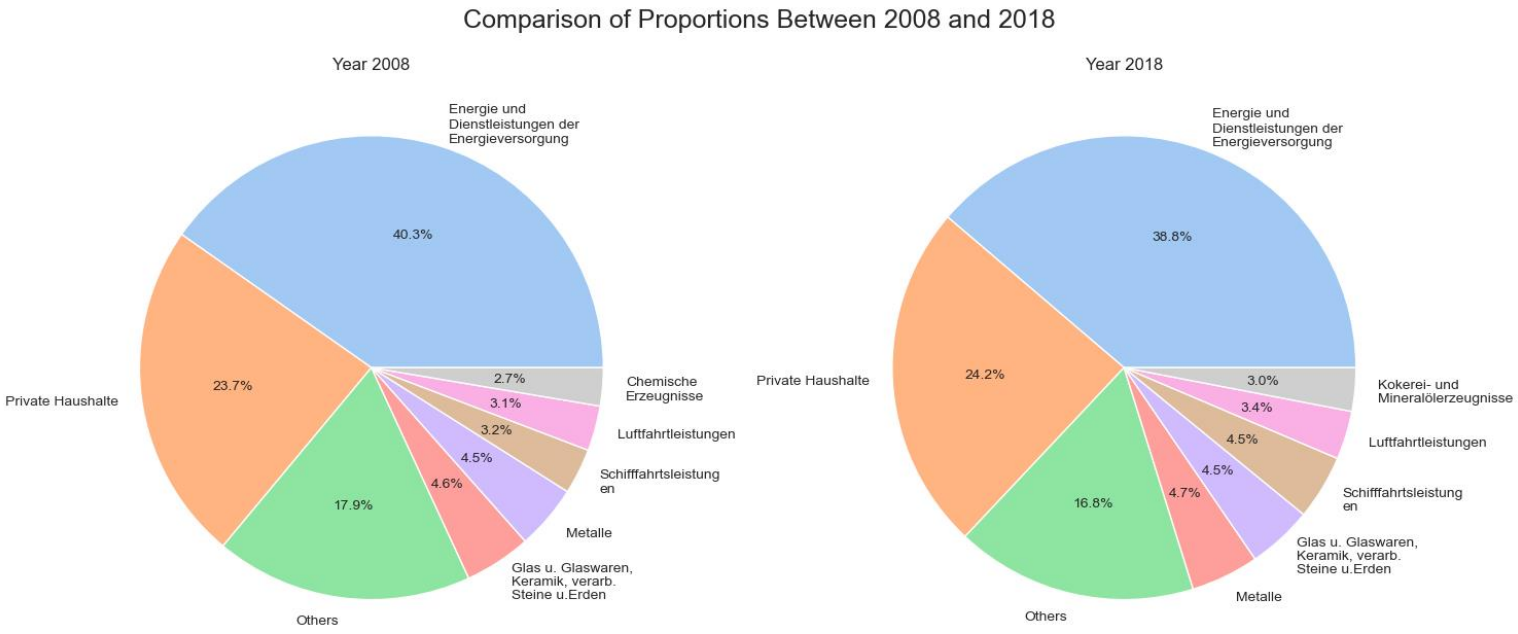
- The data uses the metric “carbon dioxide equivalent” (CO2-eq).
- CO2-eq is used to compare the emissions from various greenhouse gases based on their global-warming potential (GWP)

EXAMPLE TREND



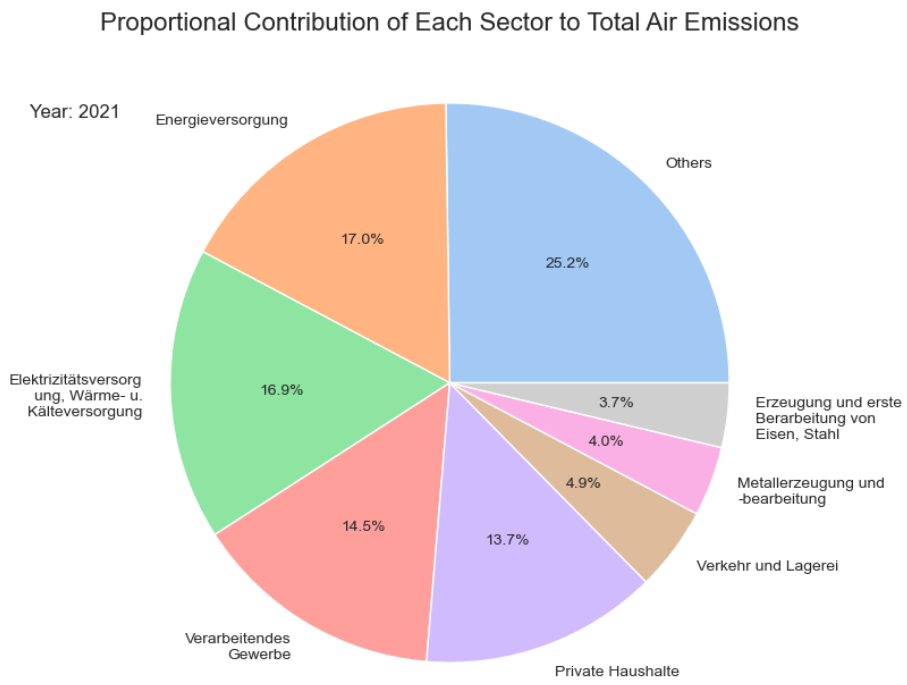
RESULTS

WE ARE INTERESTED IN PROPORTIONS



- When years are compared with each other, we can see that they have similar distributions.

YEARS 2020-2021 HAVE DIFFERENT ECONOMIC SECTORS

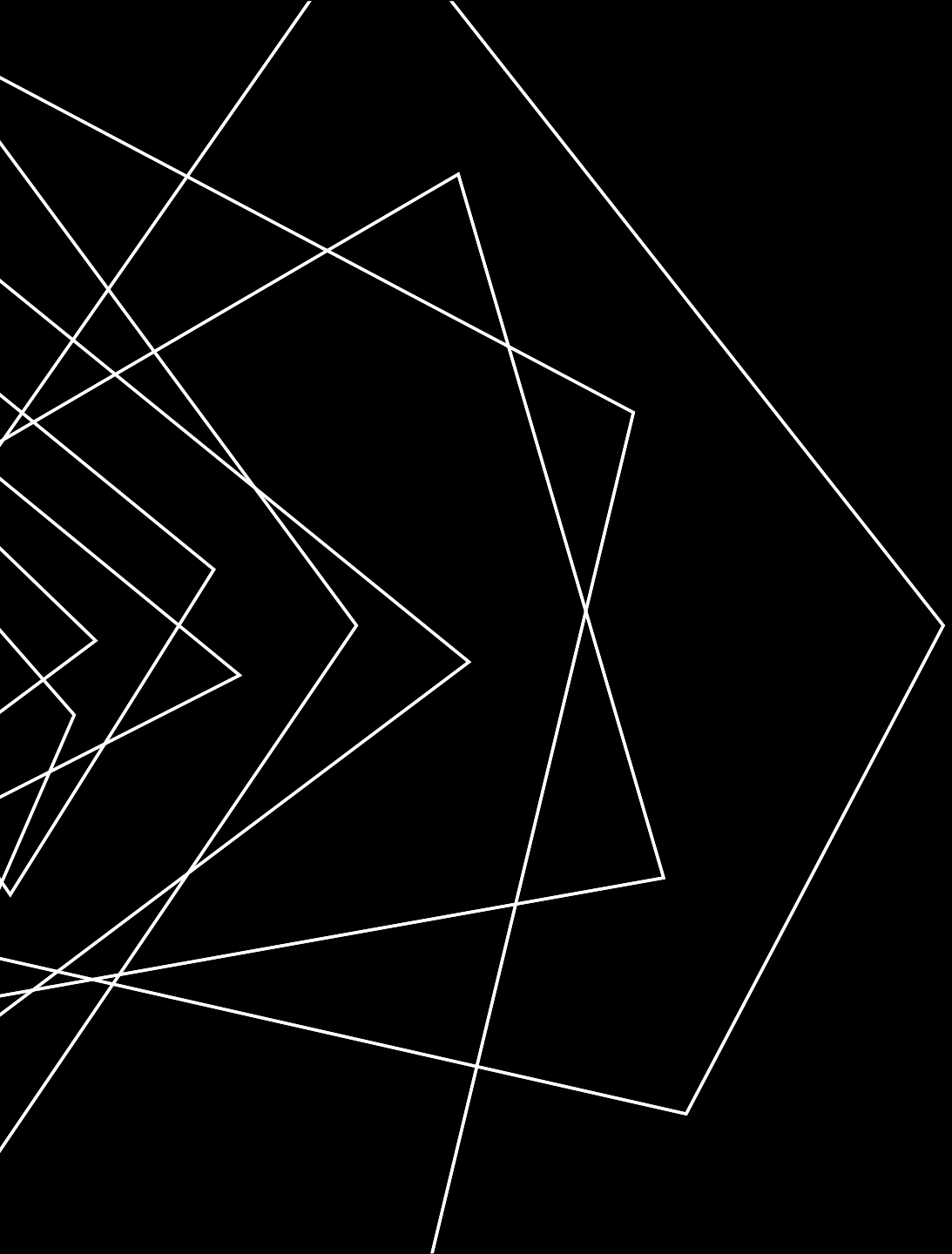


- The difference does not affect the rankings.

CONCLUSION

TOP EMISSION SOURCES

1. Electricity/power supply
2. Private households
3. Metal related emissions
4. Manufacture of non-metallic mineral products
5. Air transport
6. Chemical production
7. Manufacture of coke and refined petroleum products



LIMITATIONS

LIMITATIONS

- Lack of information from the past.
- Inability to conduct detailed city or monthly analyses.