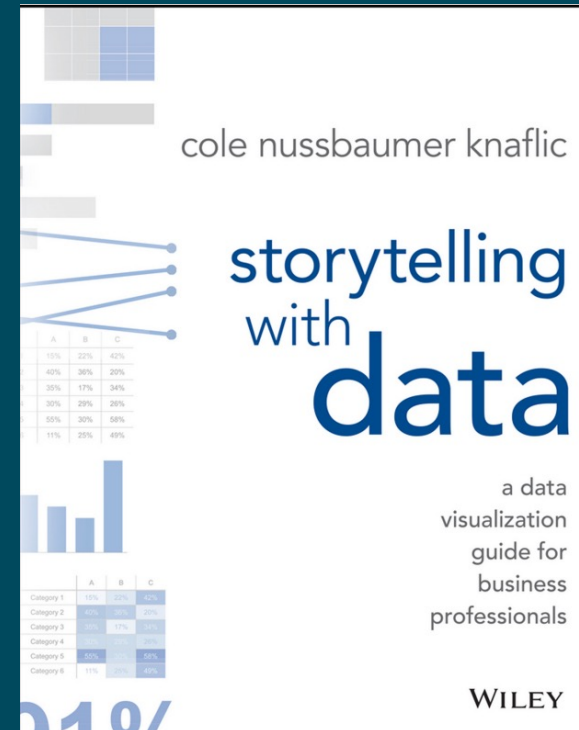
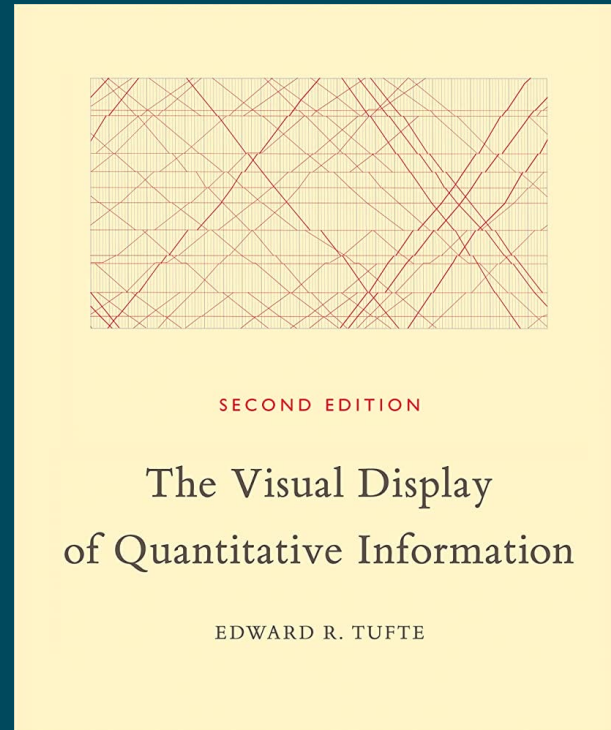


VISUALISERING

Utgångspunkter



Huvudpunkter

- Definiera målgrupp och syfte
- Välj lämplig graftyp och rensa bort "brus" men ge mycket information
- Belys viktiga aspekter
- Säkerställ att grafen kan "stå på egna ben"
- Gör det intressant

Graphics Principles Cheat Sheet v1.1

Communication
Effective visualizations communicate complex statistical and quantitative information facilitating insight, understanding, and decision making.
But what is an effective graph?
This cheat sheet provides general guidance and points to consider.

Principles of Effective Graphic Design

Proximity – group related elements together
Alignment – elements on the same vertical or horizontal plane are perceived as having similar properties
Simplicity – cut anything superfluous, only include elements that add value, limit to 2-3 colors or fonts
White space (empty space) – use white space to minimize distraction & provide clarity
Legibility – sans serif fonts are easier to read, use color for emphasis instead of a new typeface
Color – select colors that present enough contrast to make the graph legible. Choose monochromatic color schemes to prevent clashing. Use dark colors and accent colors to emphasize important information
Visual Hierarchy – use color, font, image size, typeface, alignment & placement to create a viewing order
Focal Points – primary area of interest that immediately attracts the eye, emphasize the most important concept and make it your focal point. Use contrasting colors to draw attention
Repetition – repeating elements can be visually appealing, repeated shapes, labels, colors
Familiarity – using familiar styles, icons, navigation structure makes viewers feel confident
Consistency – be consistent with heading sizes, font choices, color scheme, and spacing. Use images with similar styles

Planning

Why – Clearly identify the purpose of the graph, e.g. to deliver a message or for exploration?

What – Identify the quantitative evidence to support the purpose

Who – Identify the intended audience (specialists, non-specialists, both) and focus the design to support their needs

Where – Adapt the design to space or formatting constraints (e.g. clinical report, slide deck or publication)

Good graph checklist

Clear Communication

- Is the message of the graph as clear as possible?
- Is it easy for someone unfamiliar with the data to interpret the graph?
- Are the patterns/relationships easily identified?
- Is the graph tailored to its primary purpose and audience?
- Is the correct graph type used?

Facilitating Comparisons

- Are elements to be compared grouped together?
- Are labels placed next to data instead of in legends?
- Have categories been ordered for easy comparison?
- Can the plot be read without doing mental calculations?
- Are the estimates of interest plotted (e.g. mean differences with confidence intervals)?

Color for emphasis or distinction

- Are graphical elements displayed in a dark color on a light background?
- Are grid lines drawn with a thin line and a light color such as grey?
- Are colors used sparingly (e.g. max 3)?
- Do all elements in the graph have a purpose (e.g. colors, textures, grid lines)?
- Are the same colors used to mean the same thing in a series of graphs?

Implementation Considerations

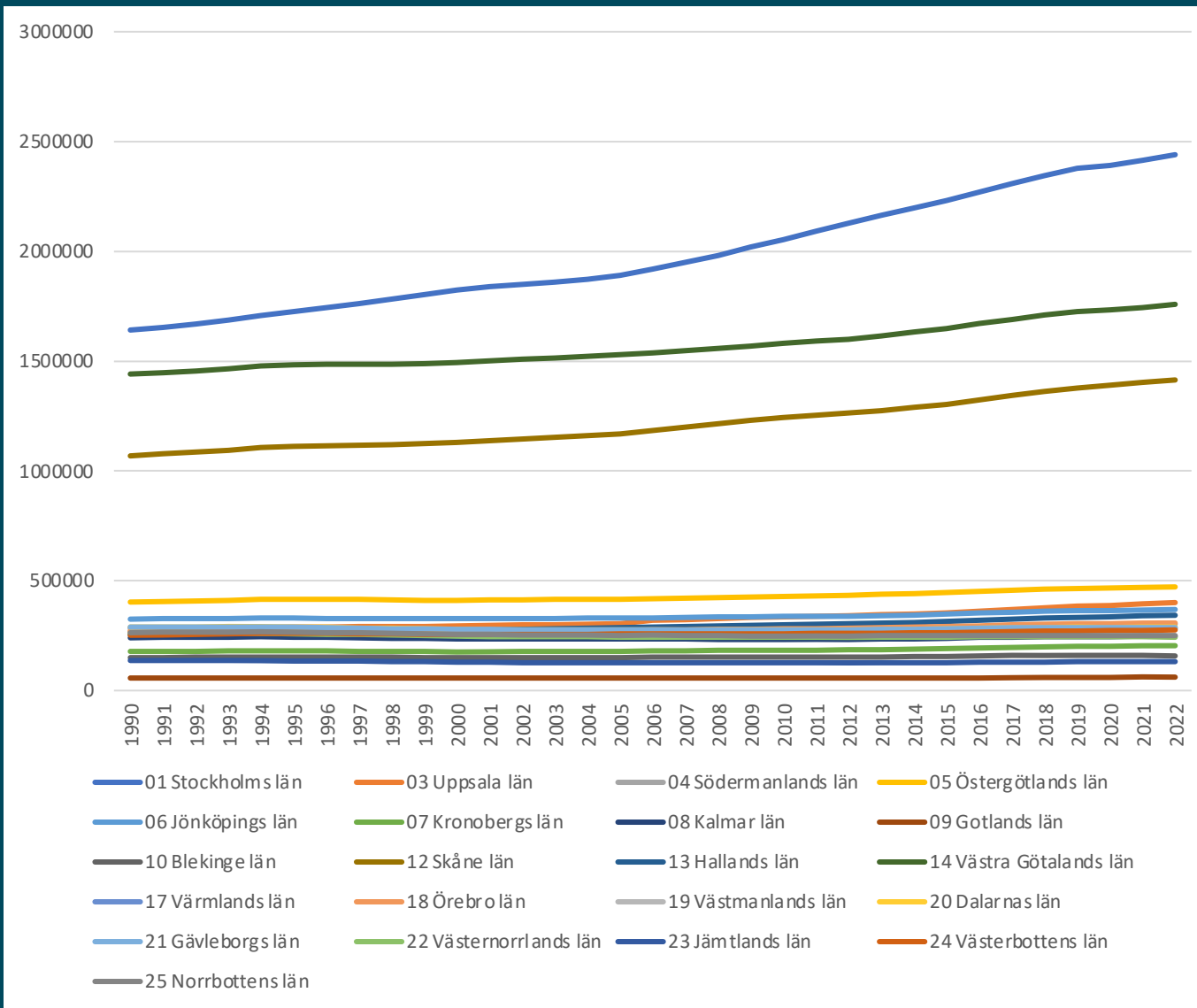
- Are multiple panels plotted on the same scale?
- Are lognormally distributed variables plotted on a log scale?
- Are common baselines used wherever possible?
- Does the orientation of the axes aid interpretation?
- Does the aspect ratio allow the reader to see variations in the data?
- Are data across a disconnected time scale kept disconnected?
- Are data spaced proportionally to the actual time interval (instead of according to visit number)?
- Are data and inferences plotted to support stories about models?
- Are number of patients by group reported if this adds context?

Legibility and Clarity

- Can all graphical elements be seen?
- Does the graph have a clear title, axis labels, annotations and data units?
- Can the font be read without eye strain or effort?
- Are sans-serif fonts used?
- Do text sizes have correct hierarchy (big to small, main text to subtext)?
- Are the elements of the graph clearly labeled (e.g. points, error bars, lines, shaded regions)?
- Are labels oriented horizontally where possible?

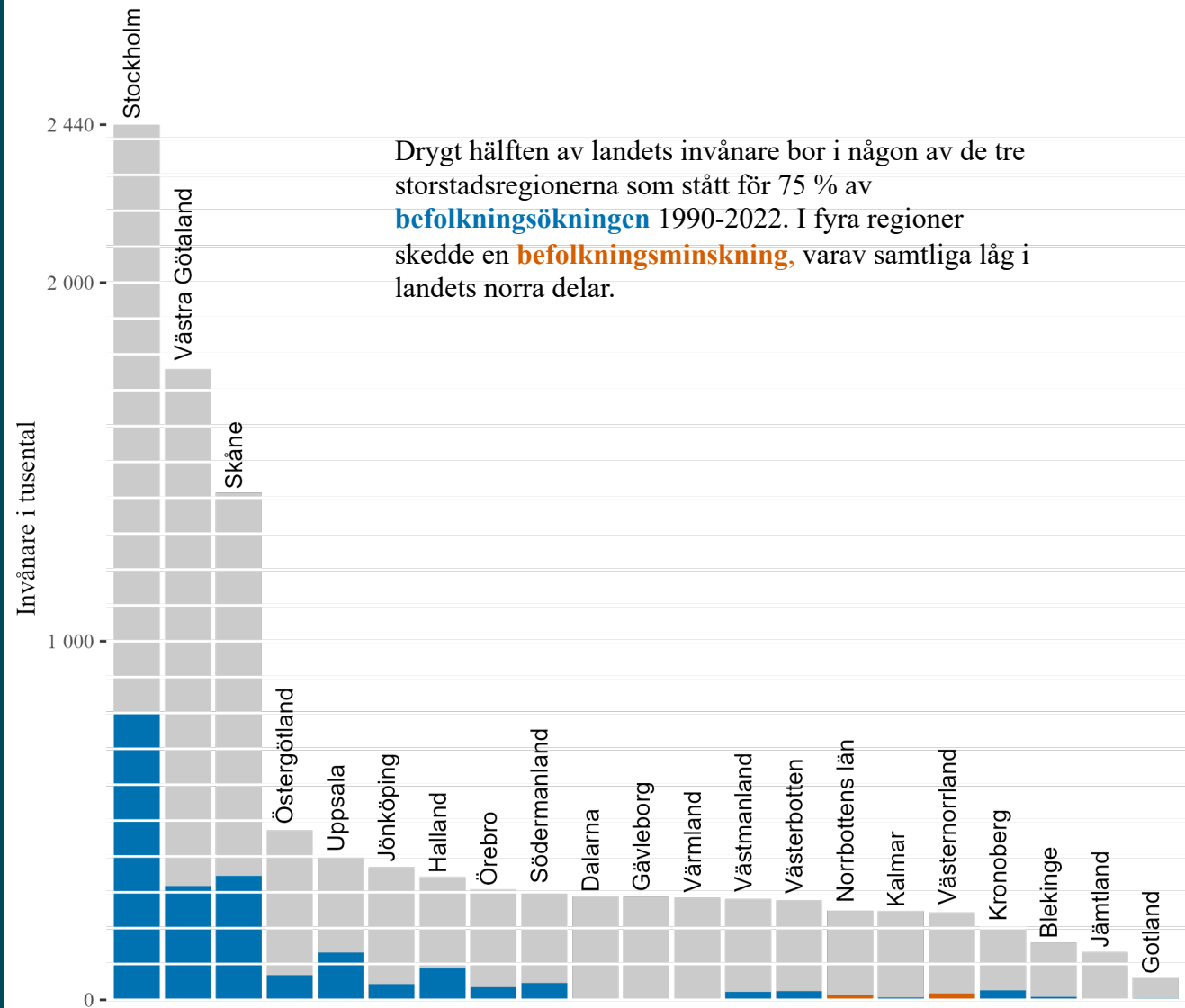
Hur ser fördelas befolkningen mellan regionerna? Hur ser utvecklingen ut?

Vi besvarar faktiskt flera frågor; invånarantal, antal regioner, utveckling över tid. Men...

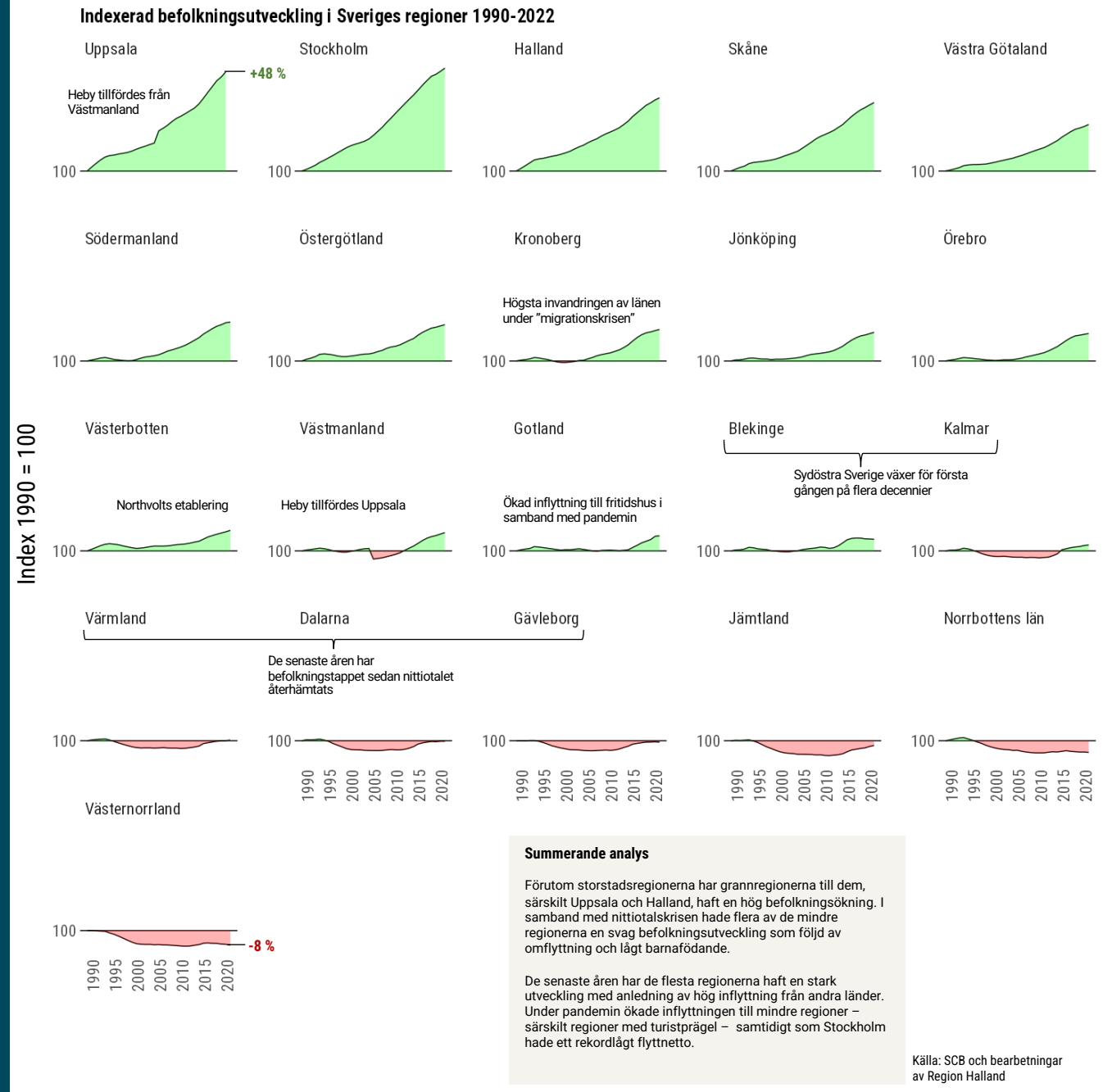


- Grafen har en förhållandevis hög "Data-Ink Ratio" – onödiga element har tagits bort (gridlines m.m.) och det som finns kvar tillför information
- Grafen visar både fördelning (faktiska tal) och förändring – hög "datatäthet"
- Legenden har tagits bort och ersatts med textetiketter i direkt anslutning till staplarna
- Färgläggningen visar nu en relevant dimension (ökning/minskning) samt ökar "datortätheten"
- Sortering från största->minsta förenklar tolkning och avläsning
- Y-axeln slutar vid det högsta värdet som finns representerad i datormängden
- Staplarna har delats upp i relevanta delkomponenter för att vara enklare att avläsa
- Siffrorna uttrycks i tusental
- Grafen "står på egna ben" – förklarings-texter m.m.

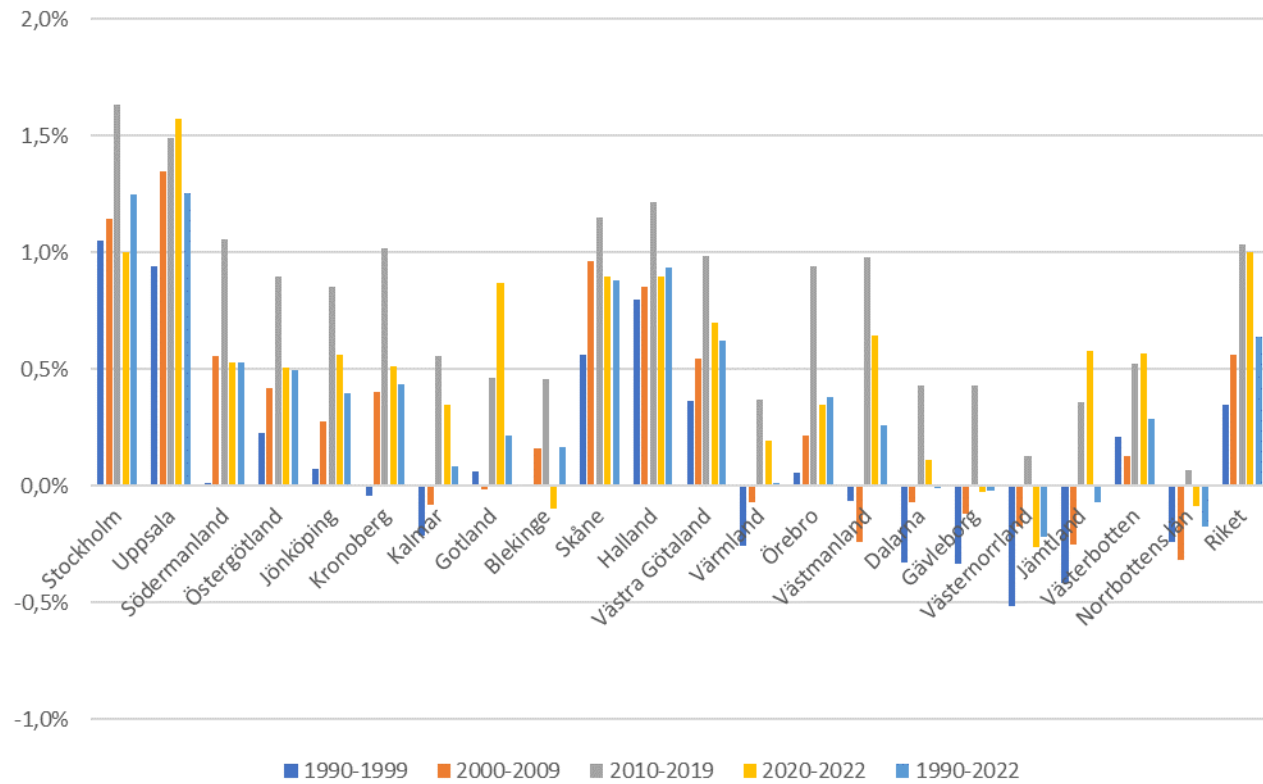
Invånarantal i Sveriges regioner (år 2022) och utveckling (1990-2022)



- Vi använder här både yta, färgläggning och förändring över tid för att visa ett skeende
- Multipla smågrafer skapar jämförbarhet och möjlighet att identifiera trender och tendenser
- I regel är det enklare att avläsa multipla smågrafer jämfört med ett stort diagram med flera grupper
- Återigen förenklar sorteringen avläsning av grafen
- Varje region kan få sin egen story – använd enskilda tydliga exempel för att visa på större trender



Årlig genomsnittlig utveckling



Inspiration och stöd

- [The R Graph Gallery – Help and inspiration for R charts \(r-graph-gallery.com\)](http://r-graph-gallery.com)
- [Top 50 ggplot2 Visualizations - The Master List \(With Full R Code\) \(r-statistics.co\)](http://r-statistics.co)

Frågor

- Har du/ni någon praxis för visualiseringar?
- Är det värt arbetsinsatsen att göra bra visualiseringar?