

# The Good, the Bad and the Ugly: The Power of Good Design in Visualizing Demographic Data

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## **Abstract**

Data visualisations are becoming increasingly popular in demography. But creating good visualisations of demographic data is not only about knowing how to code in R, Python or HTML. It is also about knowing how to design a visualisation in a clean and engaging way. In this paper, I argue that good design is crucial for visualising demographic data effectively, and that there's an increasing need for demographers to cultivate their design eye. By drawing on my own experience with designing the circular migration plot ([www.global-migration.info](http://www.global-migration.info)) and the work of others in the demographic community, I illustrate how dense and complex datasets can be designed in a clean and engaging way to communicate demographic research effectively. I introduce a new open source Python-Application for creating circular migration plots, and discuss why design is not just a beautification tool.

## Extended Abstract

In demography, the design of visualisations tends to be rather rudimentary. A search on Google suggests that tables and pie charts are a common way of visualising demographic data. I argue that a stronger focus on design helps to increase the visibility and impact of demographic research. Although visibility depends on a range of (sometimes unpredictable) factors, well-designed visualisations do, beyond doubt, attract attention and communicate the findings more effectively. Adding design to the process essentially involves design adaptations to standard (Excel) graphics that are tailored to a specific research topic, dataset, publication medium and audience.

Design in this context is a process that involves not only choosing the chart type that is appropriate to the data, but also to make amendments to the default settings in Excel (or R) to filter unessential information, highlight key findings, and optimise font size and colour scheme. But how can scientists learn to make amendments to the default graphics, and how can one cultivate the design eye? A first step is being able to see the difference between well-designed and poorly-designed data visualisations. A second step is to select a visualisation type that best fits the data at hand, and a third step is to take out all unessential information (and ink). Only then can one start to fiddle with colour scheme, font size, etc.

Migration flows are difficult to visualise effectively. Inspired by Circos, a software developed for the graphical representation of genomic data, we developed the circular migration plot ([www.global-migration.info](http://www.global-migration.info)), which will be updated in fall 2018. The update includes a customised Python-Application for the creation of printable circular plots, and a revised design concept that, among other things, makes the visualisation readable by colour-blind readers. The new design is distinctively different from the default design offered by the Circos software and the default settings of a corresponding R package. I outline why Circos's and R's default settings create a plot that falls significantly short of what is regarded as a successfully designed visualisation. I discuss some of the steps involved in (re-)designing the circular plot and hope to encourage more demographers to embark on a design process to visualise their data more effectively.



