

## Temporal Treemaps: Static Visualization of Evolving Trees

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### World Population Prospects: The 2017 Revision

With the *World Population Prospects* [1], the United Nations present nine different variants for how the population of the world evolved since 1950 and will develop until 2100. The variants differ in the assumptions made on fertility, mortality and net migration. The *Medium* variant, for example, "corresponds to the median of several thousand projected trajectories of specific demographic components" [2]. For details on how the models have been obtained, see [2]. Table 1 provides a summary, showcasing which models share certain assumptions.

As for the hierarchy, countries are grouped geographically into Africa, Asia, Europe, Latin America and the Caribbean, Northern America, and Oceania with a further division into 21 subregions. We color code the first hierarchy level according to Figure 1. Subsequent hierarchy levels are shown through cushions.

Temporal treemaps using both normalization per time step and absolute scale for each variant are shown in Figures 2–10.

Projection variant	Assumptions		
	Fertility	Mortality	International migration
Low fertility	Low	Normal	Normal
Medium fertility	Medium	Normal	Normal
High fertility	High	Normal	Normal
Constant-fertility	Constant as of 2010-2015	Normal	Normal
Instant-replacement-fertility	Instant-replacement as of 2015-2020	Normal	Normal
Momentum	Instant-replacement as of 2015-2020	Constant as of 2010-2015	Zero as of 2015-2020
Constant-mortality	Medium	Constant as of 2010-2015	Normal
No change	Constant as of 2010-2015	Constant as of 2010-2015	Normal
Zero-migration	Medium	Normal	Zero as of 2015-2020

Table 1: Projection variants in terms of assumptions for fertility, mortality and international migration.



Figure 1: Color coding in the first hierarchy level according to regions.

## References

- [1] United Nations. *World population prospects: The 2017 revision*, 2017.
- [2] United Nations. *World population prospects: The 2017 revision, Methodology of the united nations population estimates and projections*. Working Paper No. ESA/P/WP.250, Department of Economic and Social Affairs, Population Division, New York, 2017.

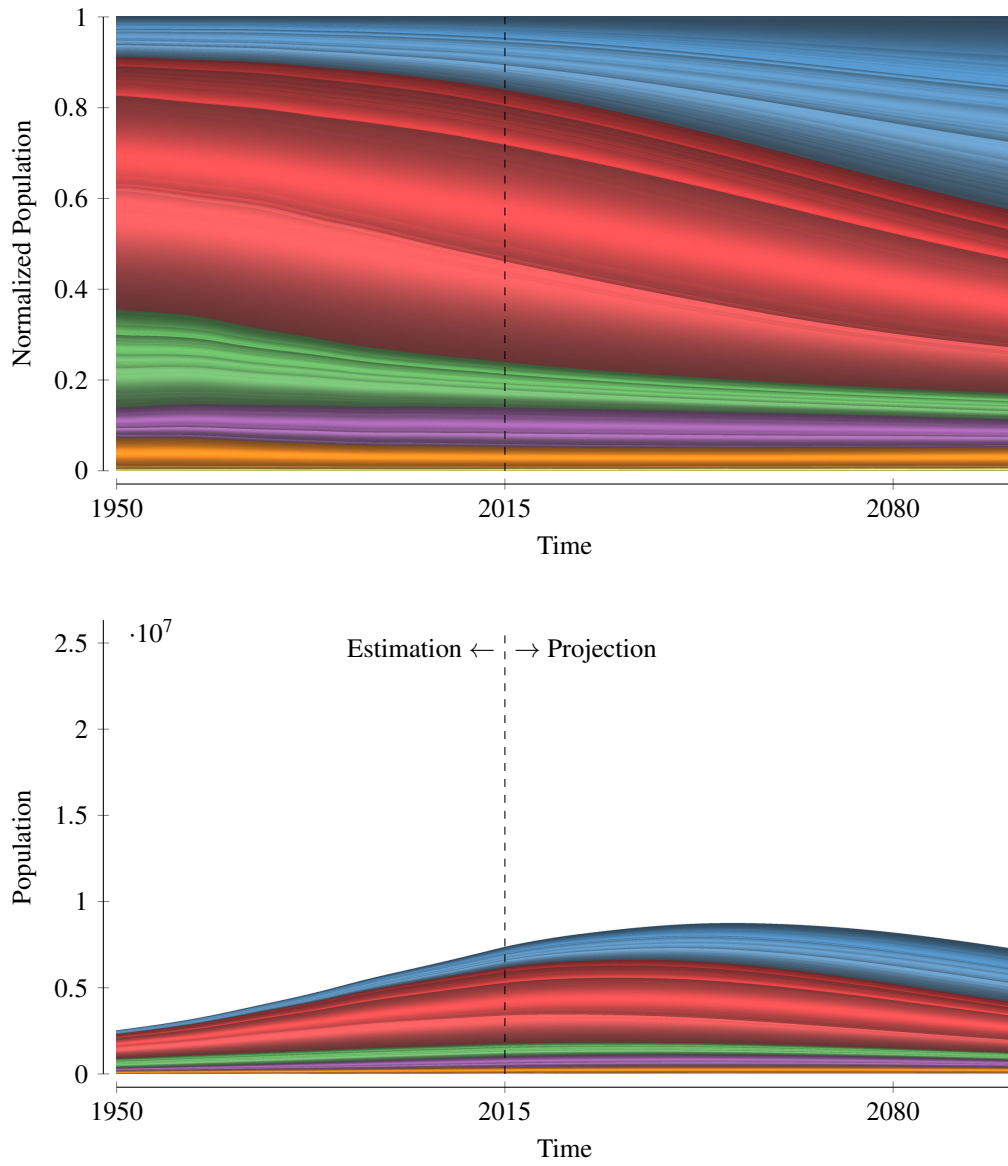


Figure 2: Wold population development according to the *Low fertility* variant.

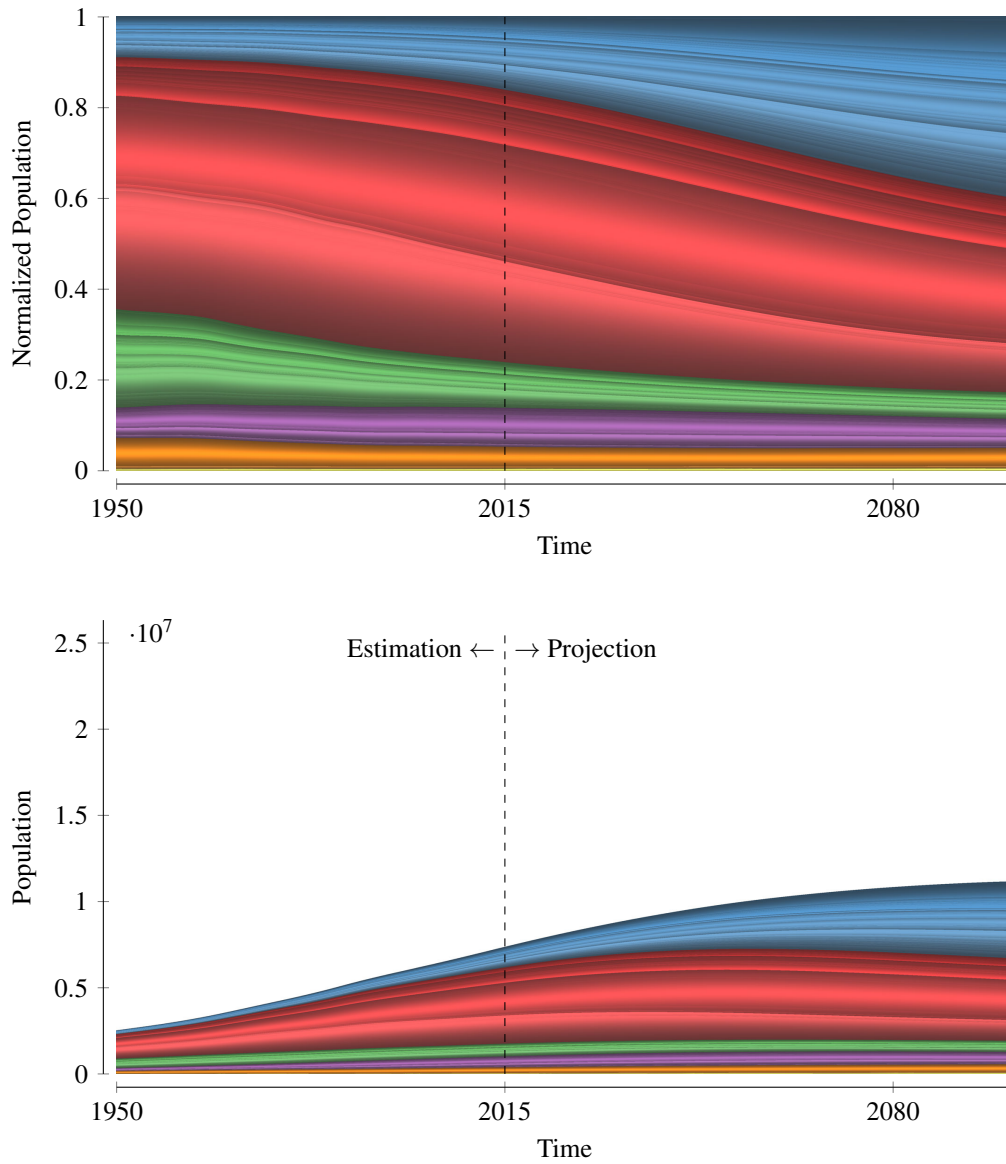


Figure 3: World population development according to the *Medium fertility* variant.

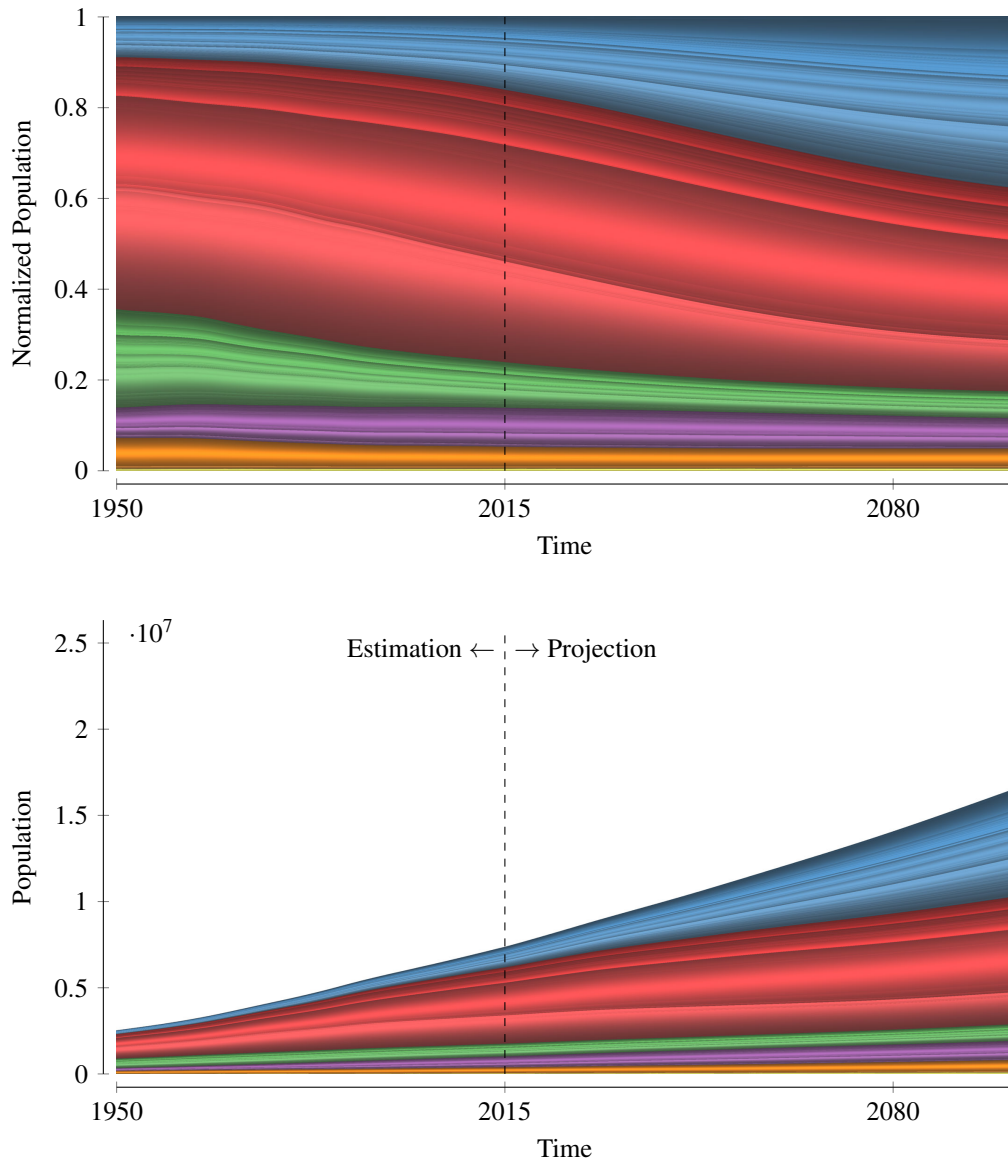


Figure 4: Wold population development according to the *High fertility* variant.

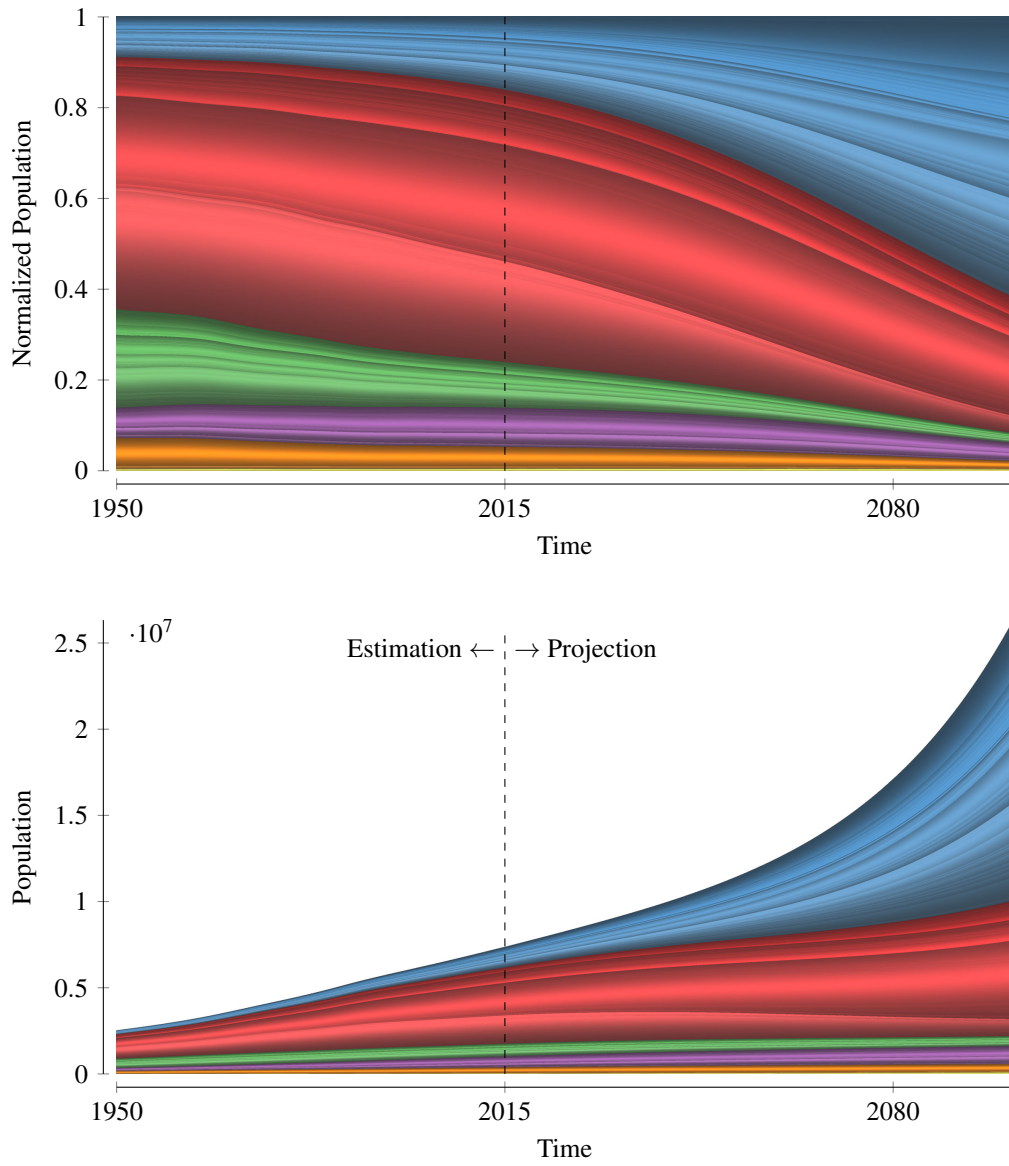


Figure 5: World population development according to the *Constant fertility* variant.

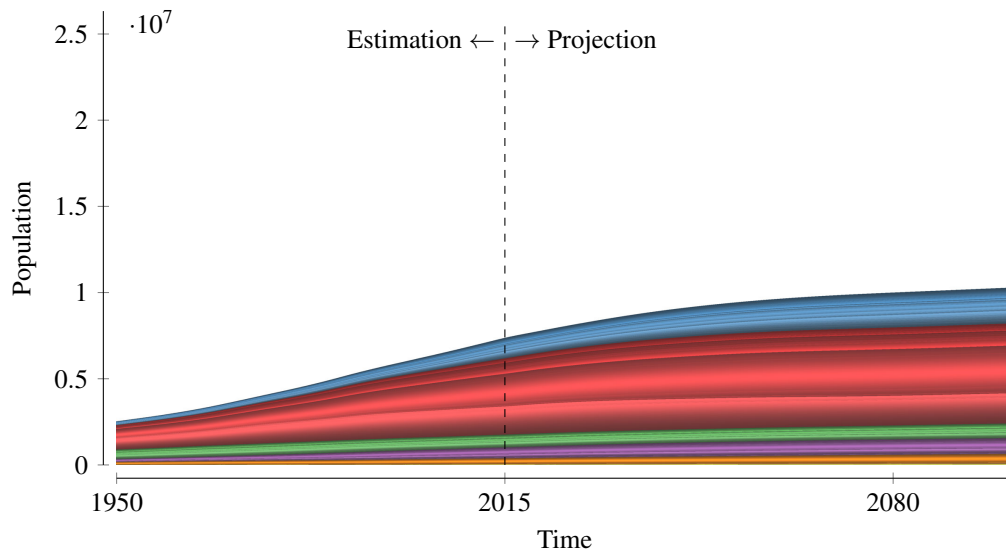
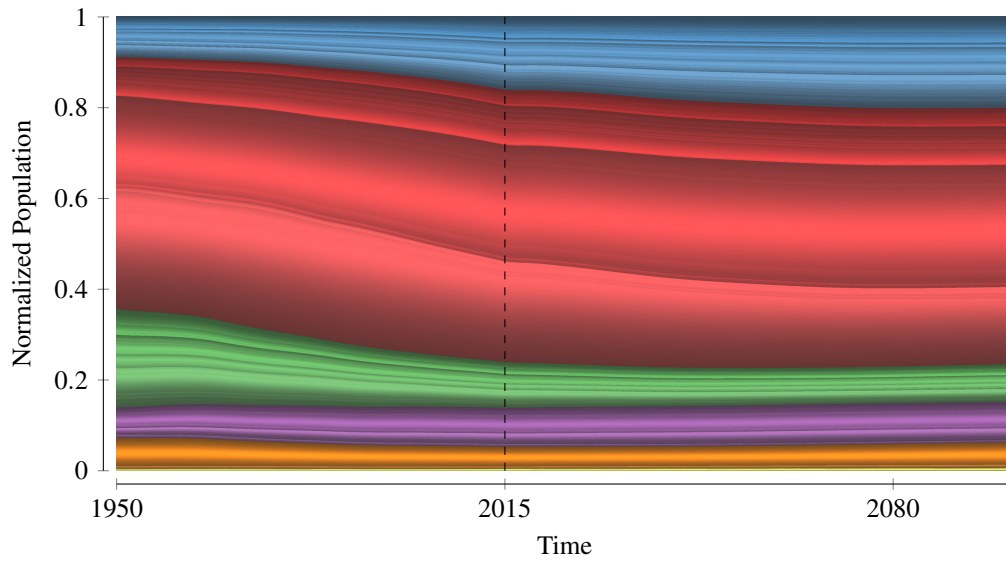


Figure 6: World population development according to the *Instant replacement*

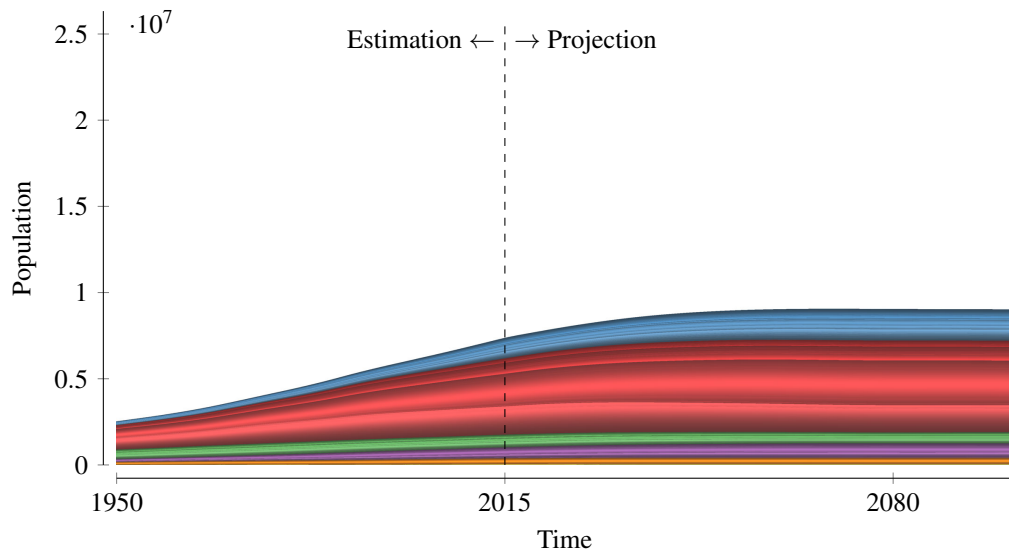
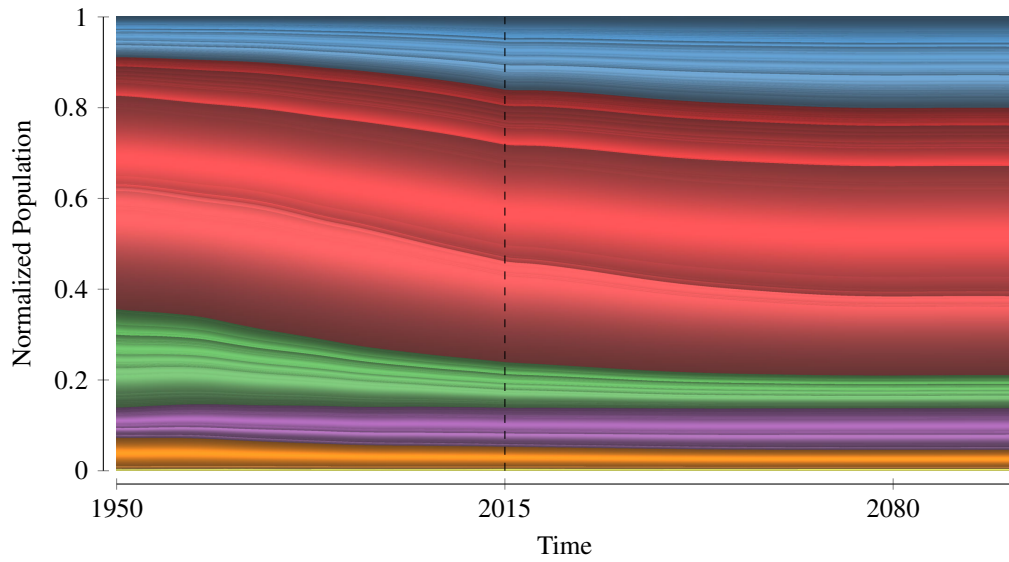


Figure 7: World population development according to the *Momentum*

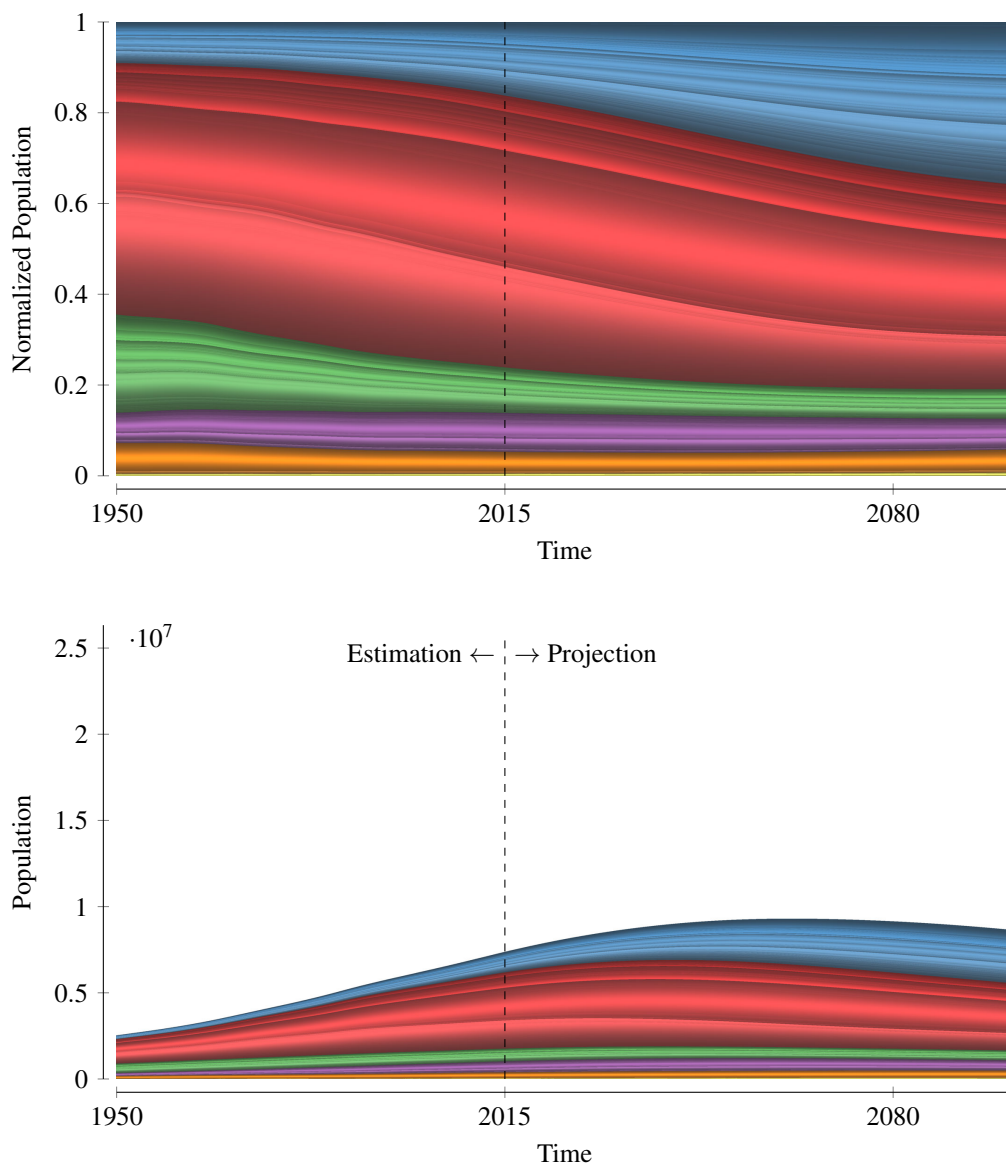


Figure 8: World population development according to the *Constant mortality* variant. It differs from the variant in Figure 3 in the assumptions on mortality.



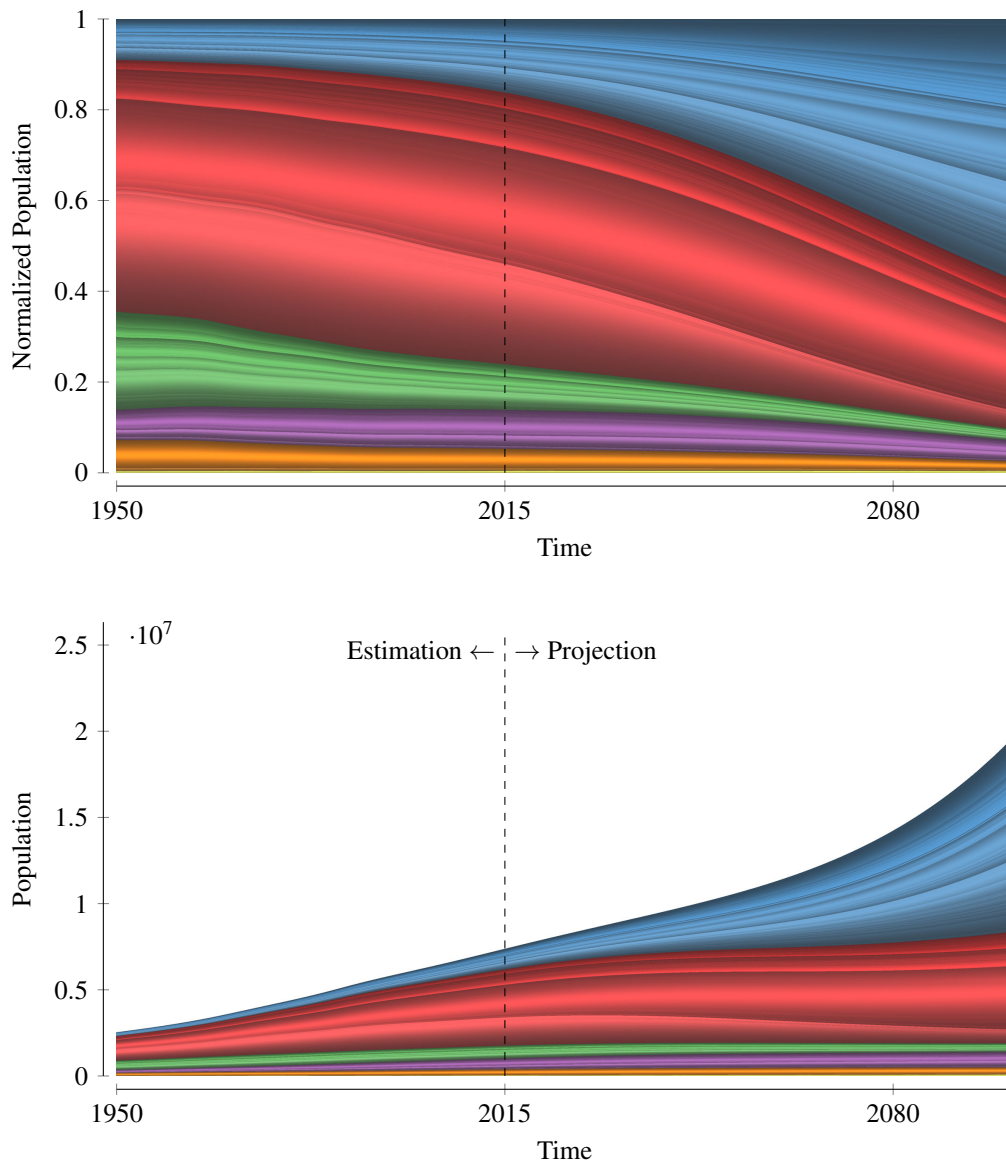


Figure 9: World population development according to the *No Change* variant. For investigating the impact of changing both fertility and mortality, compare to Figure 3.

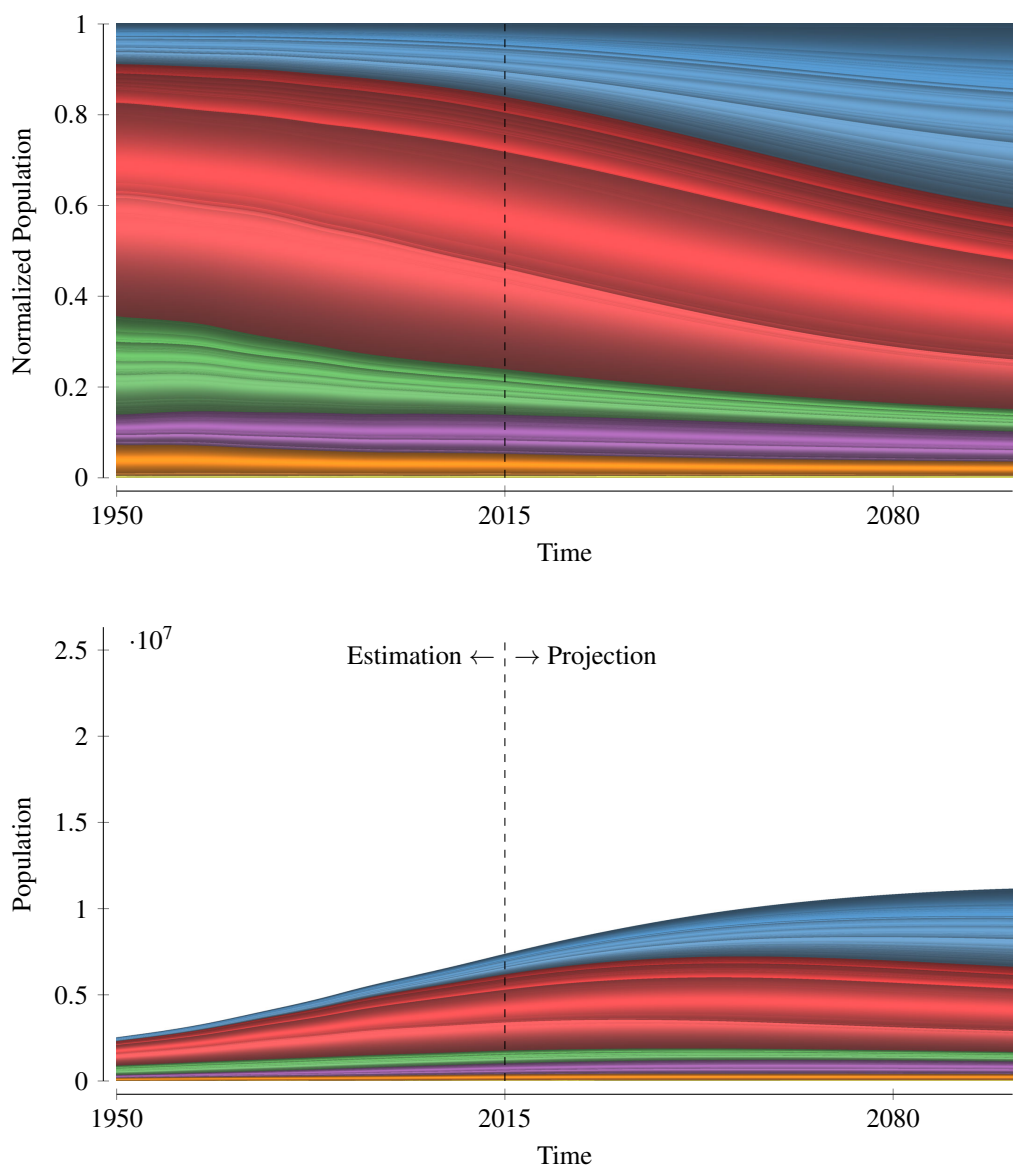


Figure 10: World population development according to the *Zero migration* variant. Compare to Figure 3, for the variant with the same fertility and mortality assumptions, but non-zero net migration.