

Exploring approaches to improve small area population projection in Namibia

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Background: Subnational population forecasts are critical for effective **local government planning**, **resource allocation**, and **policy formulation**. However, producing reliable projections at lower administrative levels remains challenging, especially in fast-growing countries like Namibia. The primary data source, the decennial population census, complicates timely decision-making. Small-area projections face additional challenges related to **data availability** and **quality**.

Aim: This thesis explores alternative data sources and approaches to improve small-area population projections in Namibia. Namibia was chosen due to its reliance on a single projection method, limited subnational projections, sparse subnational data, and its fast-growing, young population. In this context, traditional methods and data can quickly become outdated.

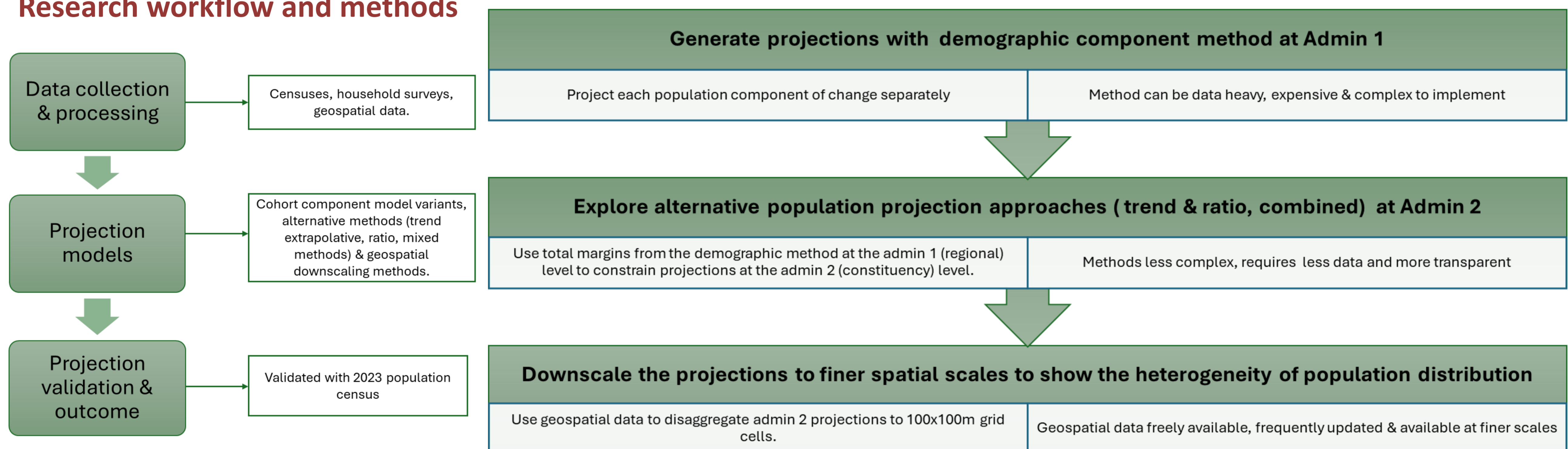
Data Sources:

Last three censuses (2001, 2011, and 2023) at subnational scales matched to digital boundaries, Household surveys from the intercensal period, Geospatial data (built-up areas, land cover, night-time lights, distances to area of interest)

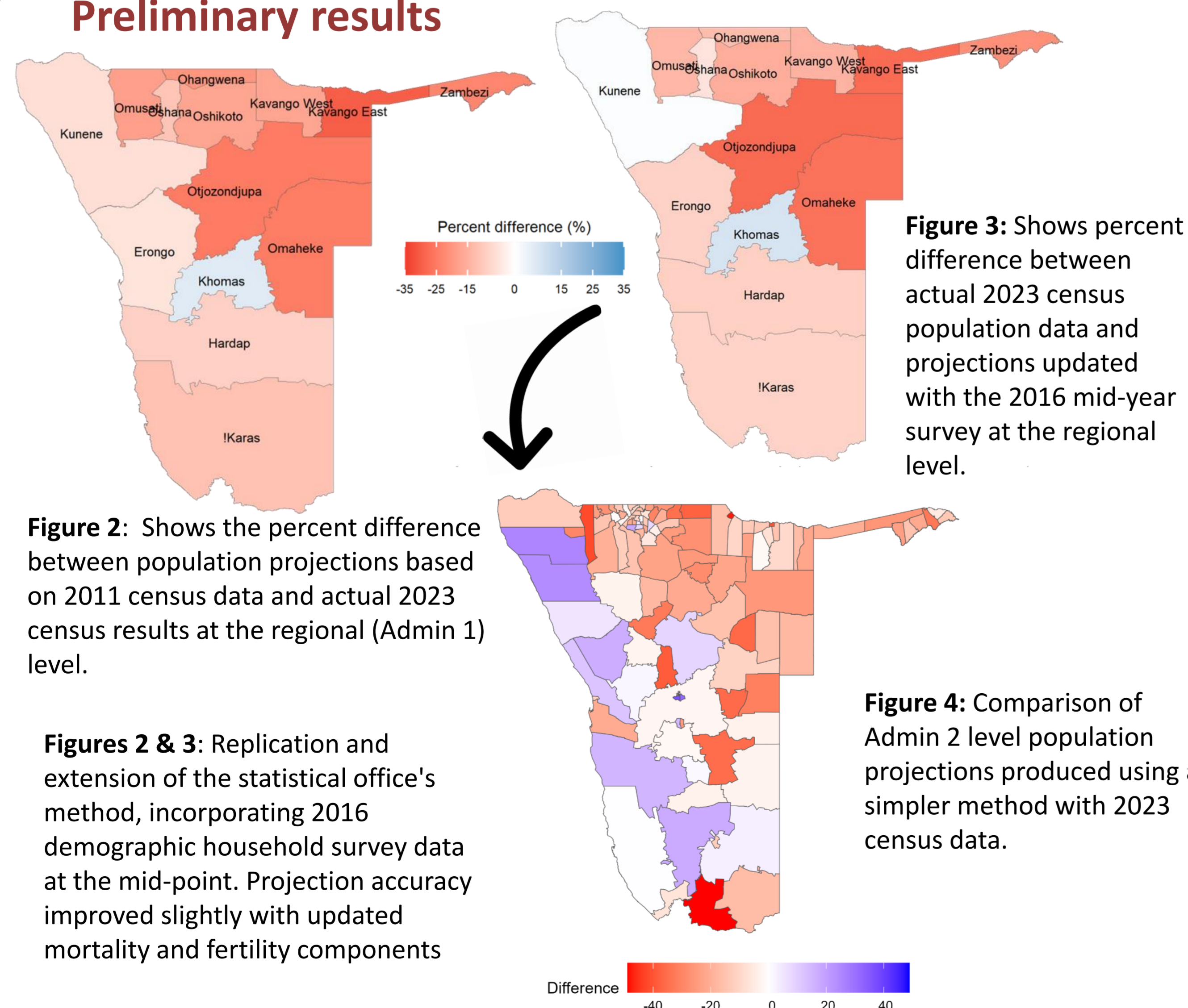
Projection period: 2011 to 2023

Validation and future projection: The 2023 population census results are used to validate methods and project future trends

Research workflow and methods



Preliminary results



Impact

Enhance the statistical system in the country and the southern region of Africa.

Provide **actionable**, evidence-based recommendations for key stakeholders and policymakers on alternative methods for projecting subnational populations in Namibia.

Fostering collaborations and **data sharing** with the Namibia statistics office (NSA) and other statistics offices across low and middle income countries.

Support SDG reporting - contribute to disaggregating statistics at subnational levels, ensuring inclusive systems that leave no one behind.

References

- NSA. (2014). Namibia 2011 Census Population Projections 2011 to 2041. Namibia Statistics Agency. <https://nsa.nsa.org.na/>
- NSA. (2024). 2023 Population and Housing Census Preliminary Report [Population]. Namibia Statistics Agency. <https://census.nsa.org.na/>
- Rayer, S. (2015). Demographic Techniques: Small-area Estimates and Projections. In J. D. Wright (Ed.), International Encyclopedia of the Social & Behavioral Sciences (Second Edition) (pp. 162–169). Elsevier. <https://doi.org/10.1016/B978-0-08-097086-8.31015-7>
- Wilson, T. (2015). New Evaluations of Simple Models for Small Area Population Forecasts. Population, Space and Place, 21(4), 335–353. <https://doi.org/10.1002/psp.1847>