Structural Segregation: Assessing the impact of South African Apartheid on Underlying Dynamics of Interactions between Networks and Territories

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Session 6B - Accessibility

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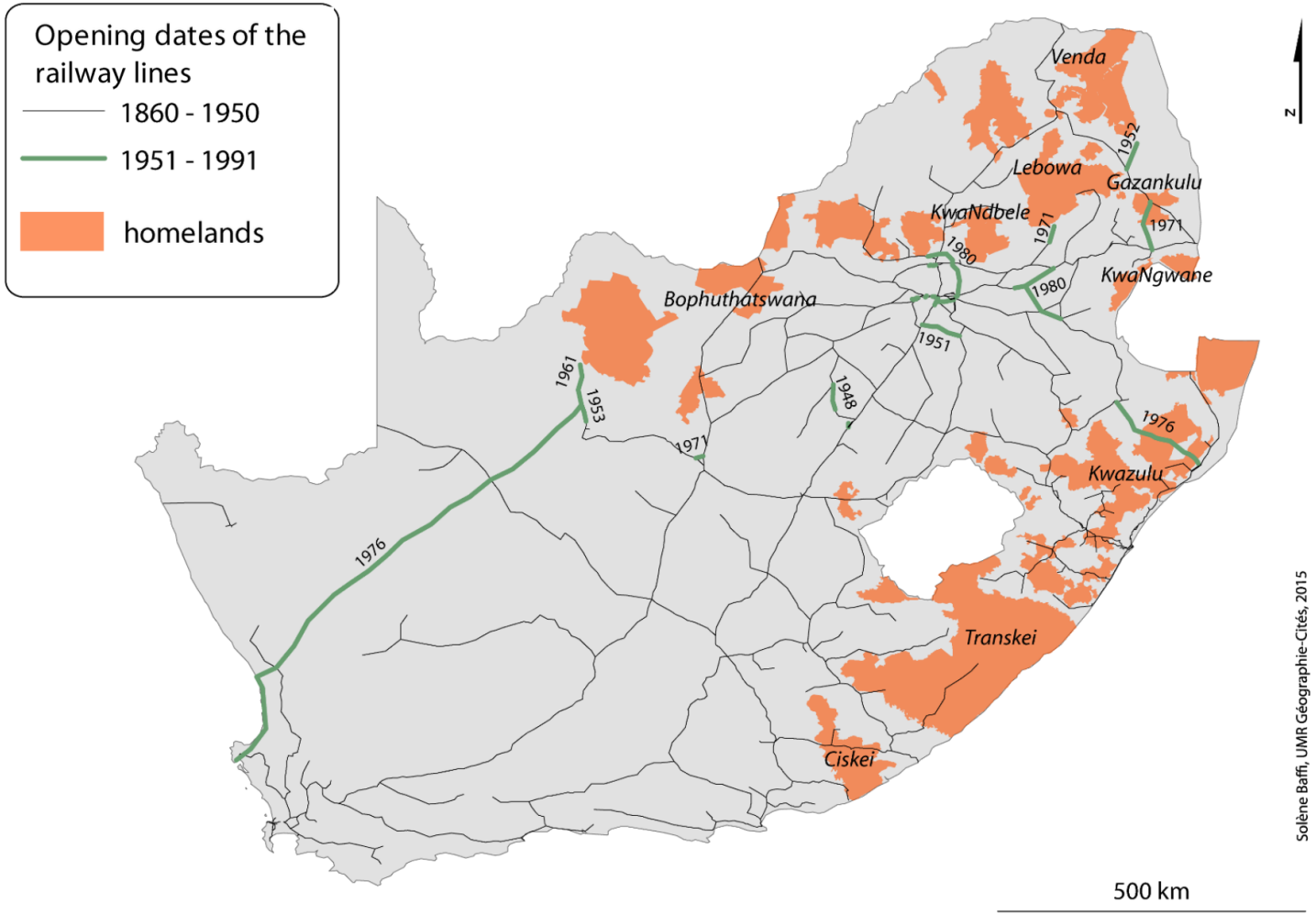
Technical artefacts sublimate human madness

Context

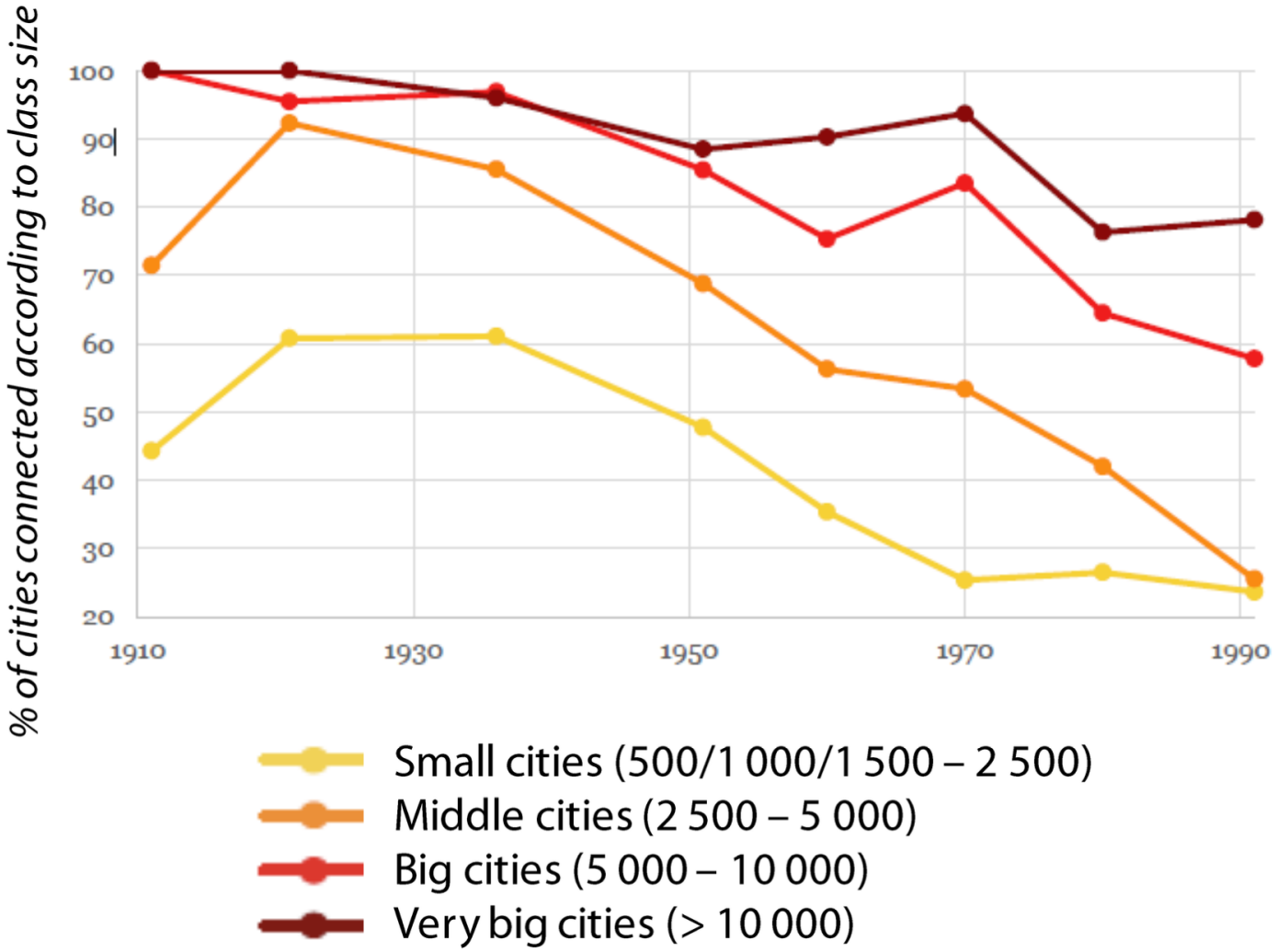
Interactions between Networks and Territories in South Africa

The de-structuring effects of the segregation laws during apartheid



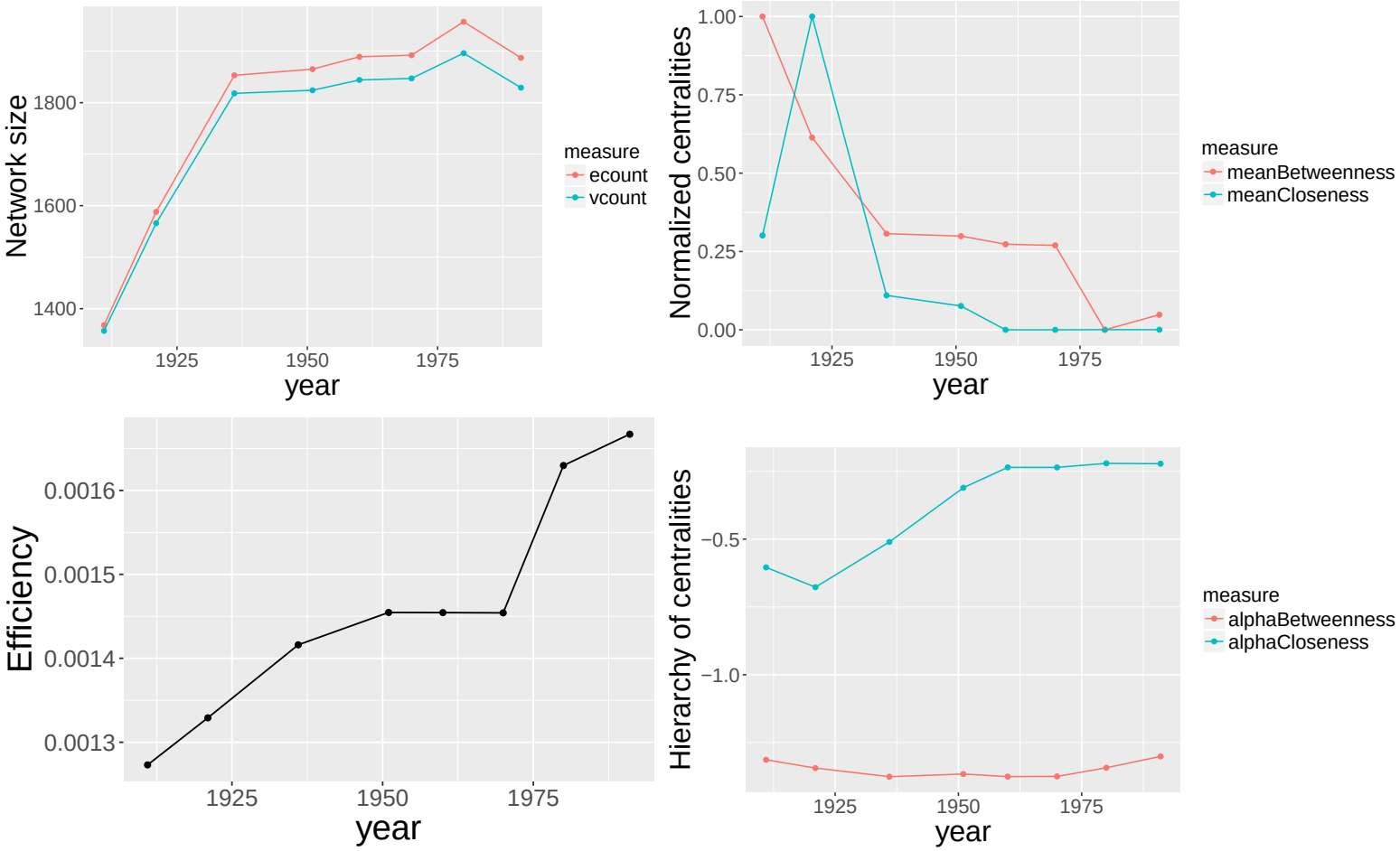
Network Analysis

Connectivity to the railway network : a specific relationship between urban hierarchy and centrality



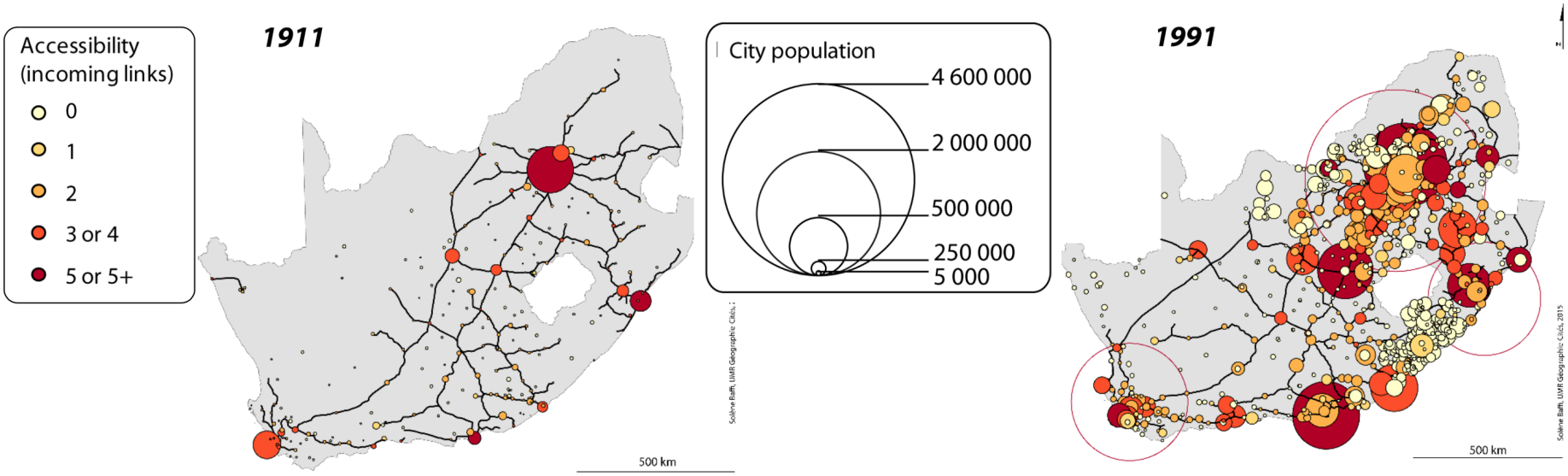
Network Analysis

Evolution of Network measures



Accessibility Patterns

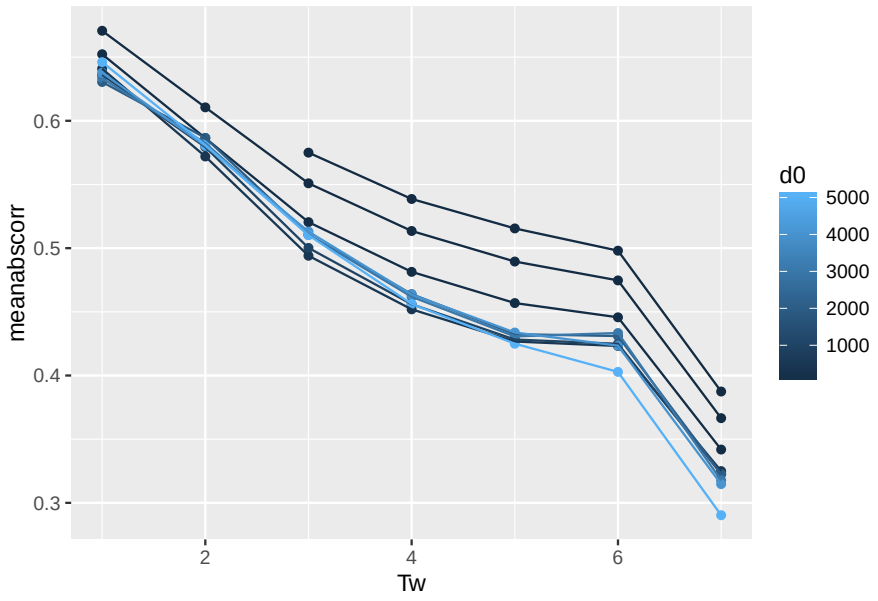
A distorted co-evolution between the system of cities and the railway network

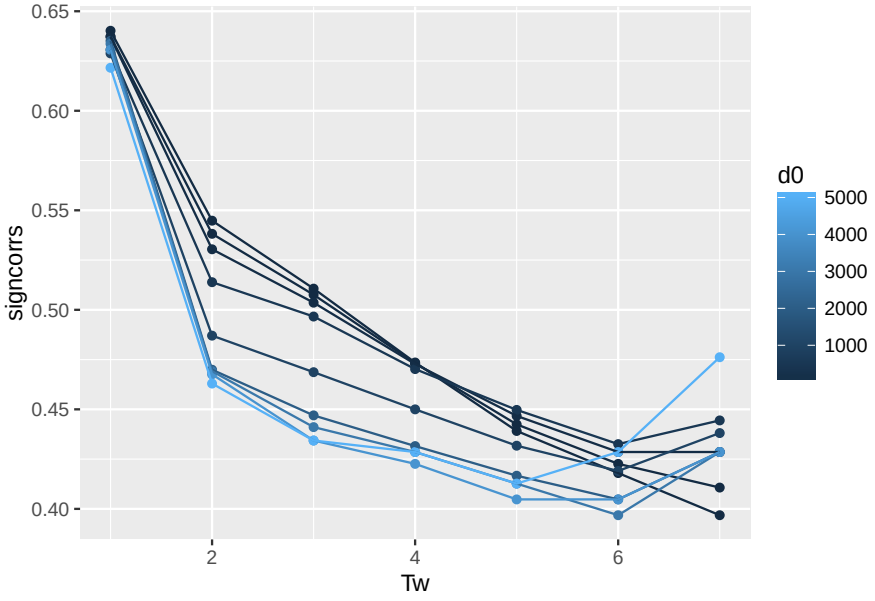


Spatio-temporal causalities

Stationarity scales

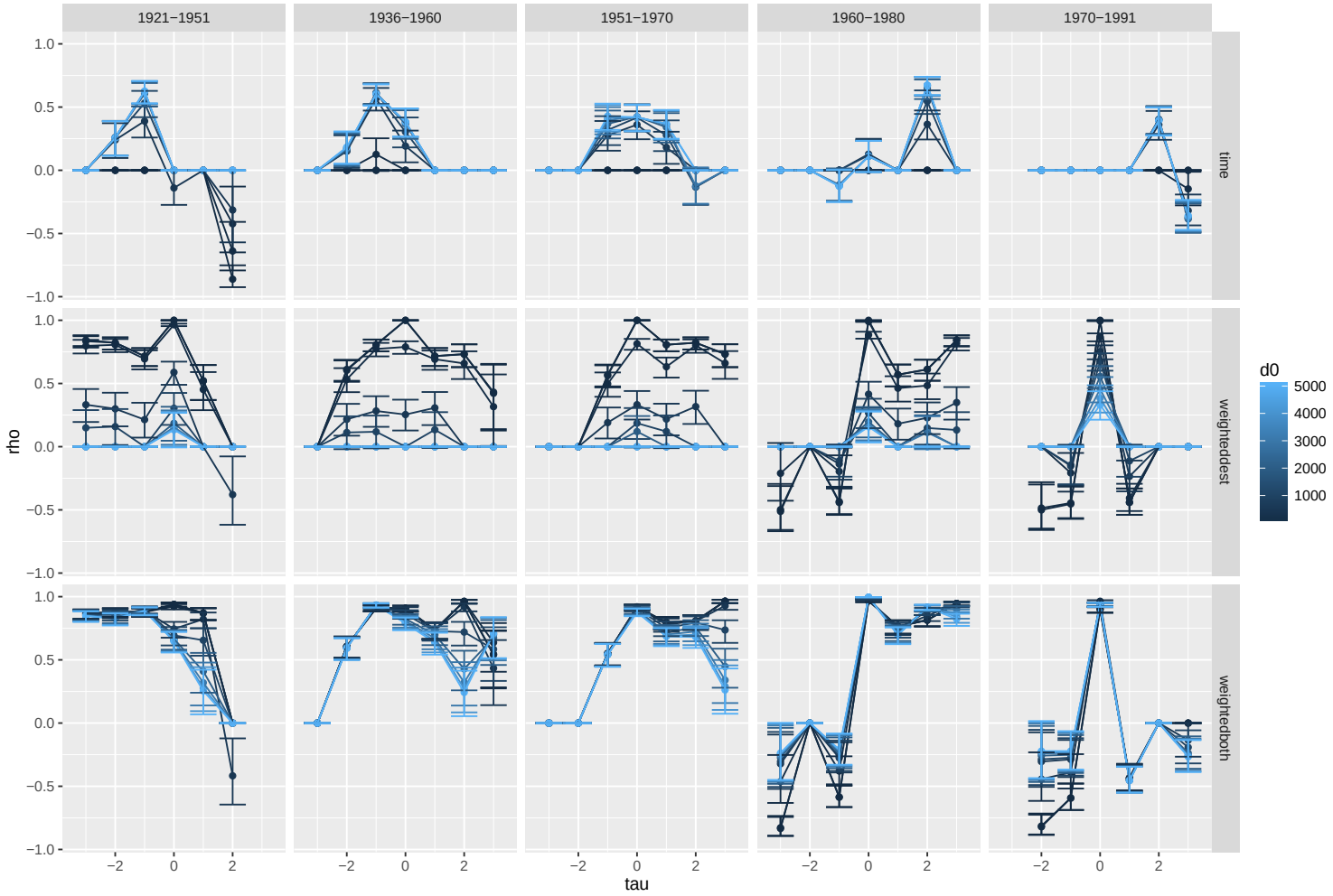
Optimal estimation time window and spatial range for accessibility





Causality Patterns

Clear inversion of the sense of Granger causality suggests a structural segregation effect of the apartheid laws



Discussion

Implications

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Developments

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Conclusion

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- Code et data available at
`https://github.com/JusteRaimbault/CityNetwork/tree/master/Models/SpatioTempCausality/SudAfrica`

Reserve slides

Reserve Slides

Defining co-evolution

Database

Accessibility

P_i populations, d_{ij} network distance matrix, accessibility is given for i by

$$Z_i = w_i \sum_j w_j \exp\left(-d_{ij}/d_0\right)$$

with d_0 decay parameters and weights w_i are $1/N$ or $P_i/\sum_j P_j$ depending on modality.

References I