# ipsum

Tilman Graff – University of Oxford

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## 1 Introduction

## 2 The Fajgelbaum and Schaal (2017) model of Optimal Transport Networks

## 3 Towards a spatial measure of network inefficiency

Investigating the patterns behind the spatial distribution of network inefficiency involves a series of steps. First, I construct a representation of the topography of economic activity and infrastructure networks for every African country.[1] Using the model by Fajgelbaum and Schaal (2017) outlined above, I then conduct an optimisation exercise in which existing infrastructure is reallocated within each country to maximise overall welfare. This scenario will produce winners and losers, such that I can derive a measure of network inefficiency over regions by comparing current welfare with welfare under the optimised scenario.

Below, I discuss these steps in more detail.

### 3.1 Network representation

To construct a network database of all African countries, I divide the entire continent into grid cells of 0.5 latitude by 0.5 degrees longitude (roughly 55 by 55 kilometres at the equator). For all of Africa, this amounts to 10,167 cells.

## References

**Fajgelbaum, Pablo D. and Edouard Schaal** (**2017**). Optimal Transport Networks in Spatial Equilibrium. Working paper, National Bureau of Economic Research

[1] As noted below, I exclude the five smallest African countries (Cape Verde, Comoros, The Gambia, Mauritius, and Réunion) as the chosen resolution for the analysis is too coarse to enable sensible network analysis on these countries.