Graff (2019): Spatial Inefficiencies in Africa's Trade Network

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Big Picture

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    - Common answer: lack of adequate infrastructure
    - Immediate policy implication: build more roads!
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- This paper: (Q1) how much would Africa gain if roads were built in the right place?
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- Creative measure of infrastructure "disadvantage" allows a fresh take on old questions: (Q2) how does ethnic and regional favoritism affect the distribution of government services and (Q3) how does Africa's colonial history affect current economic outcomes?

Discussion

- Thought-proving, ambitious, and clearly written paper
    - hallmark of an impactful paper

- I will engage in some nitpicking and questions:
    1. International trade concerns with simulation within countries
    2. Pro-active nature of infrastructure investments + other uses
    3. Measurement issues
    4. Other types of infrastructure for trade
    5. Population Distribution could be endogeneous

#1 Why Simulate within Countries?

- Is road system efficient once account for international trade?
  - 16/54 African countries are landlocked, so access to ports is crucial
  - Suggestion: simulate with neighboring countries, restrict reshuffling to the country of interest

#2 Is Infrastructure Responsive or Proactive?

- Roads may be built/not built due to strategic reasons (e.g. S.Sudan, Ethiopia, Rwanda, Somalia, DR Congo) and not trade

- Roads may be produced to move productive resources (model is about consumption goods)

  - Taking into account production is important for future work

  - Infrastructure may be built in order to change the distribution of economic activity (e.g. new industrial parks). Model I think is about re-distributing pie and <u>not</u> increasing the pie

  - E.g. the objectives of the Transport Infrastructure and Connectivity Project for Lesotho (WB, Nov 2017) are to: (a) improve access to social services and markets in targeted rural areas of Lesotho; (b) strengthen road safety management capacity; and (c) improve the Recipient's capacity to respond promptly and effectively to an Eligible Crisis or Emergency. There are four components to the project, the first component being improving infrastructure access. This component will improve access of rural population to agricultural and job markets and social services in targeted isolated areas of Lesotho.

#3 Measurement Challenges

- Transportation infrastructure is difficult to measure

- Clever use of open mapping data to calculate transit routes (but depends on internet penetration)

- Speed on the routes is the measure, but does it not conflate infrastructure with congestion?

- Are these simulations realistic in terms of speed?
  - "0.8% of the roads were suggested to exceed 260 km/h" — but this is too high for roads! Restrict to $\leq$120 km/h?
  - An upper limit on how fast goods can move across Nairobi?

- Additional validation would be helpful. Can we audit this measurement and compare some high and low infrastructure areas to verify

#4 Other types of infrastructure instead for trade?

- Maybe estimated 'inefficiencies' are due to not accounting for alternative modes of transportation?

- If trains, boats, and air-freight is responsible for some trade, then it's possible that roads are efficiently constructed for other purposes

- If there are no roads between centroids, then you assume the speed of 4 km/h

- But maybe there are no roads there b/c more efficient to transport by river (e.g DRC)? Also, are people really transporting goods there on foot at this speed? What goods do you have in mind?

#5 Endogeneity of Population Distribution

- The paper takes the distribution of population as given and then re-allocates roads

- But population distribution is endogenous to roads!

- Relocation of roads will lead to equilibrium response by population — will reshuffled roads also become inefficient?

- Question #1: Why relax the assumption in Fajgelbaum and Schaal (2017) about sorting of labor?

- Question #2: Can you claim that this sorting makes your estimates a lower bound (b/c of agglomeration effect)?

#6 Minor Points

1. Currently, urban areas do not need to consume products of other urban areas — need to introduce some monopolistic competition and love for variety

2. How exactly does OpenStreetMap work? If need mobile Internet, Internet penetration must be controlled for

3. Confusing language: "where would planner build new roads?" but the simulation cannot build new routes (as opposed to, e.g., Alder and Kondo, 2018)

4. Can you focus on foreign aid that goes only to roads projects?

5. The paper gets δ^{τ}, trade cost parameter, from Atkin and Donaldson (2015). But don't they account for both infrastructure and congestion here?

#6 Minor Points - continued

1. Make your variables in terms of 1,000 km to make the coefficients readable (e.g., not 0.001)

2. Where does data on military usage of colonial railroads come from? Can railroads be used for both military and extractive purposes?

3. Neat use of MDE but need to interpret as % of s.d., otherwise readers cannot know whether MDE is large or small

4. Why not use same countries as examples throughout the paper? E.g., Figures 1-2 have Nigeria but not on Figures 3 and 5. More narratives.

Summing up

- Extremely well-written paper on a salient topic, in a difficult empirical literature that is making vast progress in very short time

- Key contribution to literature is approach to Q1 (fantastic application and modification of Fajgelbaum and Schaal (2017)) . Q2 and Q3 are in a crowded literature hence require a more nuanced approach [e.g. ethnic coalitions: Francois, Rainer & Trebbi (2015), multi-party elections has made electoral calculus more fluid]

- Big policy implications – potential toolkit for donors and countries' leadership (e.g. for CPF and SCD for the WB)

- I learnt a lot, thanks for writing this paper!