Building functional and low carbon cities

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The issue:
• Cities need to be:
  • Functional
    • Productive
    • Liveable
  • Low carbon
• Trajectory for both, one, or neither?
• Shift trajectory seeing city as a whole
**Contexts:**

- Two contexts:
  - Existing urban areas
  - New/ developing urban areas

- Concentrate on new urban areas – and developing economies
  - Risk of lock-in to inappropriate urban form/ structures.
  - Imperatives of making developing cities productive and liveable.

- Scale:
  - African urban popn will treble by 2050.
  - Increase in African urban popn ≈ total urban popn Europe + North America.

![Graph showing urban population projections for Europe, Latin America and the Caribbean, North America, Asia, and Africa from 1950 to 2050.](image)
Cities and development

- Urbanisation goes with development: two way causality
- ‘The Triumph of the City’
- BUT: Challenge for developing cities – particularly in Africa:
  - Urbanising early – at low income levels
  - ‘Dysfunctional’ – failing to deliver either productivity or liveability.
  - Possibly on a path to relatively low-density & high emissions.

THIS TALK:
- Functional cities – key facts.
- African cities – what is going wrong?
- Policies – for growth and for emissions
I: Cities are high productivity:
- Productivity increases with city size (elasticity ≈ 0.05)
  - Evidence base – largely developed countries
- Benefits of scale & specialisation achieved via connectivity & density

II: Cities are capital intensive and infrastructure intensive
- Capital: residential/ business/ public
- Infrastructure: utilities, public services, public goods, transport
  - Necessary to mitigate downsides of human proximity
  - Necessary to promote connectivity
- Infrastructure can be self-financing via taxation of land values
III: Efficient land use:

The monocentric city

- Many productive activities cluster → high employment density, esp. at centre
- Residential density gradients
- Efficient use achieved by land-price/ rents

Climate implications?

- Density economises on space, travel.
- But, employment clustering → commuting
- Role of transport technology: density varies hugely across ‘well-connected’ cities.

(Atlanta/Barcelona; same pop, 12 x area, 6 x transport CO2 emissions)
I: Housing and land use

- 65% of population in slums
- Failure to build formal structures
- Sprawl – leapfrog development
- ‘Hodge-podge’ of use

Causes:
- Land tenure – competing claims
- Inappropriate regulations and policy
  - Building regulations, plot size: standards too high so are ignored
- Lack of mortgage finance
- Low incomes & low expectations of future growth

Consequences:
- Low liveability
- Low connectivity ➔ high commuting times, high business costs:
African cities: what is going wrong?

II: Infrastructure – lagging not leading:
- Local public goods and services: e.g. street layout, utilities
- City wide public services: e.g. transport

Causes:
- Funding challenge
  - The infrastructure gap: requires 15-20% GVA over 30 years
- Weak governance

Consequences:
- Informal housing, sprawl
- Low connectivity – high commuting times & costs
  - high business costs
- Transport emissions
African cities: what is going wrong?

III: Production and productivity:
- Lack of formal sector employment
- Almost total absence of manufacturing exports/tradable sector

Causes:
- High business costs
  - Low connectivity – workers, suppliers, markets
  - Poor access to land
  - High nominal wages (compensating differential)

Consequences:
Risk of being stuck in low-level trajectory:
- Few jobs/low income
- Low expectations of future growth
- Weak tax base → poor infrastructure

Poor housing
- Low connectivity
- High business costs
- Little business investment
Policies for functional and low carbon cities

Have painted a picture of two cities.... and of risks with current path

Changing the path to avoid a low-level trap?

Long-run complementarities: density/ formal structures/ transport systems/ functionality/ low emissions intensity.

Policies:
- Residential density requires private investment: remove obstacles
  - Land tenure
  - Mortgage finance
  - Building regulations – not too high or will be ignored.
Policies for functional and low carbon cities

- Recognising the value of density – and choosing appropriately

- Luanda (Kilamba):

- South Africa, Dar es Salaam

- Addis Ababa
Policies for functional and low carbon cities

- Infrastructure: leading not lagging:
  - Transport – to facilitate growth but not sprawl
  - To (credibly) coordinate private investment

- Business: lowering costs to enable job creation
  - Ability to assemble land
  - Ability to cluster

- Governance & finance
  - Revenue base – land taxation.
  - Clear authority – authorizing environment