

LDC Urban Climate Change Adaptation: Challenges and Opportunities

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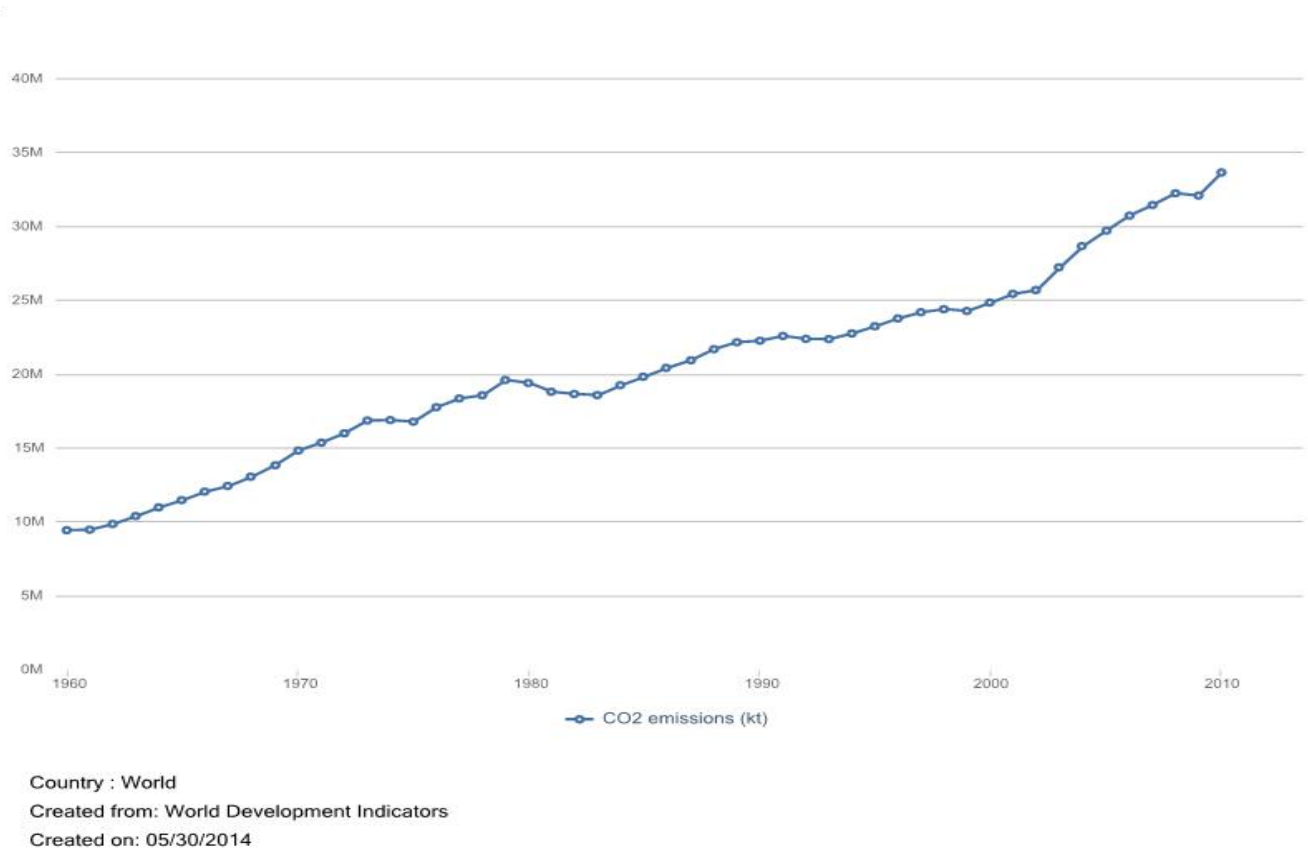


Introduction

- Urbanization should bring about poverty reduction through raising economic opportunities and learning
- **BUT**, In the absence of global carbon pricing, urbanization is likely to increase global GHG emissions
- The COP 21 did not price carbon → more global free riding
- Unchecked climate change raises great challenges for reducing LDC poverty both in rural and urban areas.



Rising Global CO2 Emissions Caused by Rising Energy Consumption



The Rise of Spatially Refined Climate Science

- Known Unknowns
- We know that different geographic areas will face different threats including;
 - temperature and rainfall extremes
 - sea level rise
 - natural disaster frequency and severity
- Climate Scientists step up and improve and refine their climate forecasts
 - The Internet broadly spreads this information



Adaptation in Developed Cities: places vs. people

- The Population has already urbanized
- Durable capital already invested in but the capital depreciates and must be maintained
- Middle class can self protect through market goods
- Mature real estate and insurance markets → spatial risk pricing and general equilibrium effects
- New anticipated risks are priced --- home owners as residual claimants → interest group lobbying local leaders to invest in adaptation
- My 2010 book Climatopolis



Adaptation in LDC Cities: places vs. people

- The population is now urbanizing
- Rural Population facing drought and heat → “Environmental refugees” on the move
- Emerging Middle class
- Emerging real estate and formal insurance markets



Three LDC urban climate change adaptation questions

- 1. Do local leaders have an incentive to protect the urban poor against quality of life insults?
- 2. What are the likely consequences of using international aid to defend **places** rather than people?
- 3. Through increasing the count of potential migration destinations, can the growth of new cities facilitate adaptation?



Question #1

- Do local leaders in the developing world have strong incentives to protect the urban poor?



A few ideas from my co-authored 2016 Princeton Press book



A LDC Mayor's Incentives to Invest in Protecting the Urban Poor?

- Feler L, Henderson JV. Exclusionary policies in urban development: Under-servicing migrant households in Brazilian cities. *Journal of Urban Economics*. 2011 May 31;69(3): 253-72.
- The Finding: To deter low-income migrants, localities in Brazil withhold public services to the informal housing sector.



An Optimistic Hypothesis

- Voting in democracies and accountability
- Labor intensive industries and comparative advantage
- Rational migrants selecting their “ best city”
- Slums and upward mobility and Engel Curves
- the LDC urban poor and their children’s skill formation



Question #2

- Financing place based adaptation
- Example of coastal Sea Walls
- What are the unintended consequences of using revenue to defend **places** rather than people?
- Boustan LP, Kahn ME, Rhode PW. Moving to higher ground: migration response to natural disasters in the early twentieth century. *The American Economic Review*. 2012 May 1:238-44.



The Crowding Out Hypothesis

- If place based investments are perceived to make a risky area safer, will **more people** move there?
- Spatial moral hazard
- Does public investment in disaster mitigation displace private self protection?
- How should this possibility affect the World Bank's evaluation of the risk and return to different investment projects?



Local Public Finance

- Short term mayors who don't have access to resources
- Incentives to tackle medium term challenges?
- Ability to issue Municipal bonds and attract international capital?
- Land taxation and local quality of life ---Is land more expensive in cities with higher quality of life?



Local Public Finance in US Urban History

- Cutler DM, Miller G. Water, water everywhere. municipal finance and water supply in American cities. In Corruption and Reform: Lessons from America's Economic History 2006 Mar 8 (pp. 153-184). University of Chicago Press.
- When US cities could issue municipal bonds, this financed water systems which sharply reduced urban death rates from infectious disease



Question #3: Can the growth of new cities facilitate adaptation?

- A system of cities as local quality of life insurance
- Paul Romer's Charter Cities concept
- Fuller B, Kahn ME. Climate adaptation through migration: A role for charter cities.
- Fixed cost and variable cost of creating a new city?
- How durable? Who pays for it?



The System of Cities in a Given LDC in the year 2040

- For any LDC, total population count? Total number of cities? Total urbanized population?
- In Vern Henderson's World Cities data set
- Bangladesh has 31 cities
- India has 144 cities
- Indonesia has 54 cities
- Vietnam has 25 cities
- Zipf's Law Revisited



A Suggestion for More World Bank Data Collection

- Does urbanization have a causal effect on reducing poverty and enhancing climate shock resilience?
- Representative panel data sets tracking rural people as they move to LDC cities
- Where go and where within the city do they locate?
- Housing quality, sickness, durable goods ownership
- In slums in LDC cities, disease exposure and risk from rainfall events
- Income and productivity measures
- Banerjee's work on government official report cards



Conclusion

- The system of cities is a model of the city size distribution and city industrial specialization
- Cities as “differentiated products” where one attribute is safety and resilience (i.e higher ground)
- Migration as a strategy for self protection



Competition and Diversity

- Which nations have a large enough “menu” of cities to choose from?
- What is the fixed cost of creating a new semi-durable city?
- What are different public financing tools to allow individuals to protect themselves through migration
- How foster city competition for jobs and people
- The poor as an urban asset

