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# Translocal Collaboration in C40 Cities Climate Network

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# Translocal Collaboration in the C40 Cities Climate Network

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## Abstract

### ABSTRACT

The recent Copenhagen summit highlighted the inability of national governments to agree to binding targets to reduce the emissions of greenhouse gases. Notwithstanding such policy failure at the national level, cities around the world have come together to mitigate global warming. Given that cities account for 80 percent of greenhouse emissions, this is an important development that state centric accounts of global environmental politics tend to overlook.

I probe deeper into an important network that has emerged to facilitate such collaboration. The C40 network seeks to bring together world's key cities which have displayed a commitment to tackle climate change. Cities collaborate by sharing best climate change practices, exchanging personnel, and serving as a pressure group. Thus, the more embedded is a city in this network, higher will be the benefits it can capture by virtue of its participation. I examine the uneven distribution of collaboration ties among cities participating in the C40 climate change network. Specifically, I study why we observe variations among cities in the number of ties they have with other cities, and what factors influence a given city's decision to collaborate with another specific city.

Using social network analysis, I focus on how homophily, an attribute of network structure, and policy performance, an attribute of a given node (or city), influence the distribution of collaboration ties. Homophily suggests that that collaboration is more likely among cities with similar structural characteristics. Employing a recently developed network analysis technique, Exponential Random Graph Model, I find that collaboration between cities is more likely when these cities are located in the same continent. Further, I find that cities with higher level of performance in the climate change area tend to attract more potential partners in relation to cities with lower level of policy performance.

Important policy implications follow from my analyses. Given that some cities are less likely to find collaborative partners because of their location, policy intervention is required to correct the structural inequities. Second, cities with superior policy performance will serve as magnets for other cities looking for partners, and will therefore corner higher benefits in relation to cities with lower levels of policy performance. While networks are often viewed as equitable structures, the benefits from participating in the network can be unevenly distributed for reasons which are exogenous (at least in the short term) to the nodal actor. Thus, a conscious policy to redirect network benefits is required if network equity is an important policy objective. More broadly, if the benefits from C40 network are to be evenly distributed, important step need to be taken to encourage ties with cities which are geographically challenged, and which are late comers to this policy (and therefore have low policy performance.)

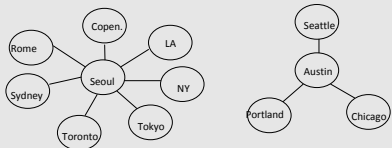
### Keywords

Collaboration, Subnational Climate Change Governance, Network Analysis, homophily, Policy Performance, the C40 Cities Climate Leadership Group

## Puzzle

Why Do cities vary in the number of collaborative ties they have with others in the C40 network?

Why do cities choose to have ties with specific other cities?



## Collective Action: the C40

- A network of cities to tackle climate change collectively
- 40 cities around the World (+19 affiliated member cities)
- Share Best Practices
- Collaboration
- Push national governments for active climate change policy

## Why Collaborate?

### Collaborative Network Formation

- Why forms collaborative networks?
- Exchange of information & resource and pursuit of common objectives

### Outcomes of Collaboration in Networks

- How collaboration in network influence policy outcomes?
- Collaboration in a network is likely to beget better policy outcome.

**Missing questions: Are actors in a network really collaborating with each other? If so, with whom do they collaborate, and why?**

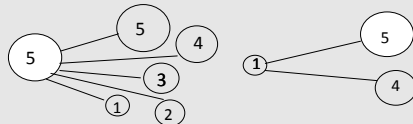
**Asymmetric benefits & equity issue in collaborative relations**

## Policy Performance (IV)

### Magnet Effect of Policy Performance

- Would-be collaborators: gain benefits from highly performed cities
- Highly performed actors: gain positive reputation as a leader

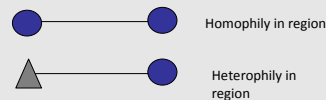
**H1: Cities that achieved higher level of policy performance are likely to collaborate with other cities**



## Homophily in Region (IV)

- Reduction of transaction cost
- Similarities in institutional context and culture

**H2: Cities seek collaborative ties with cities which are located in the same region.**



## Data

### DV: Collaboration among C40 member cities

- Name generation survey of 59 cities, 2010
- Collaboration: "process of facilitating and operating in multi-organizational arrangement for solving problems that cannot be addressed by single organization"
- Collaboration with C40 cities involves exchange of information, joint program, sharing personnel, and so on.
- Response rate: 55 % (33 out of 59)

### IVs: Policy Performance (source: City Climate Catalogue)

- Count the number of five local level climate policies. (0-5)
- GHG inventory
- GHG emission reduction target
- Climate action plan
- Policy implementation
- Monitoring

### IVs: Homophily in Region

- Five Continents

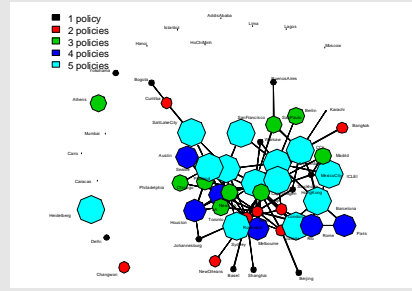
### Controls

- World City Index: Level of globalization at the city level
- Membership in City for Climate Protection program
- Capital city
- City Population
- Annex I under the Kyoto Protocol
- Homophily in Language
- Regime type

## Network Description

### Node: 59 (cities), Ties 95 (collaboration)

- Highly performed cities are located in center; have more ties



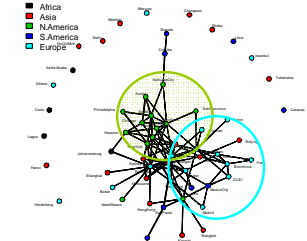
	No policy	1 policy	2 policies	3 policies	4 policies	5 policies	Total
No Policy	0	0	0	0	0	1	1
1 policy	0	0	6 (.07)	3 (.03)	1 (.02)	6 (.04)	16
2 policies			5 (.10)	5 (.07)	4 (.09)	13 (.14)	27
3 policies				2 (.03)	5 (.08)	18 (.13)	25
4 policies					2 (.05)	10 (.12)	12
5 policies						14 (.08)	14
Total	0	0	11	10	12	62	95

Note: numbers in cell = collaboration ties, numbers in parentheses = mixing ratio

## ERG Model

### Homophily in Region

- Homophily in North American Cities and European Cities



	Africa	Asia	N. Amer	S. Amer	Europe	Total
Africa	0	0	1 (.02)	0	1 (.05)	2
Asia		7 (.03)	10 (.04)	2 (.03)	10 (.03)	29
N. Ame			22 (.14)	3 (.03)	13 (.05)	38
S. Ame				2 (.05)	5 (.04)	7
Europe					19 (.07)	19
Total	0	7	33	7	48	95

### ERG model

•  $\text{Logit}(Y_{ij}=1) = \alpha + \beta(g(y, X))_{ij}$

	Model
<b>Edges</b>	-6.97 (1.05)**
<b>City Level</b>	
Policy Performance	.22 (.07)**
Region (Homophily)	1.11 (.24)**
World City	0.18 (.06)**
Climate Protection Pro.	.75 (.24)**
City Population	.01 (.05)
Capital City	.03 (.24)
<b>Country Level</b>	
Annex 1	.21 (.28)
Language	-.49 (.24)*
Regime	-.28 (.35)
Maximum Likelihood	-287
AIC	595.61

## Conclusion

- Collaboration ties are unevenly distributed in the network
- "Magnet Effect": Cities having higher level of policy performance are likely to form collaboration ties.
- Homophily in region matters in collaboration in a translocal network.

### Contributions and Implications

- Unit of Analysis: Cities across the state borders
- Network: Equitable structure? Equity issue in relations
- Policy intervention to enhance collaboration for isolated cities
- Encourage collaboration with geographically challenged and lower levels of performance