

Constructing Chinese city-level multi-regional input-output tables using China IELab

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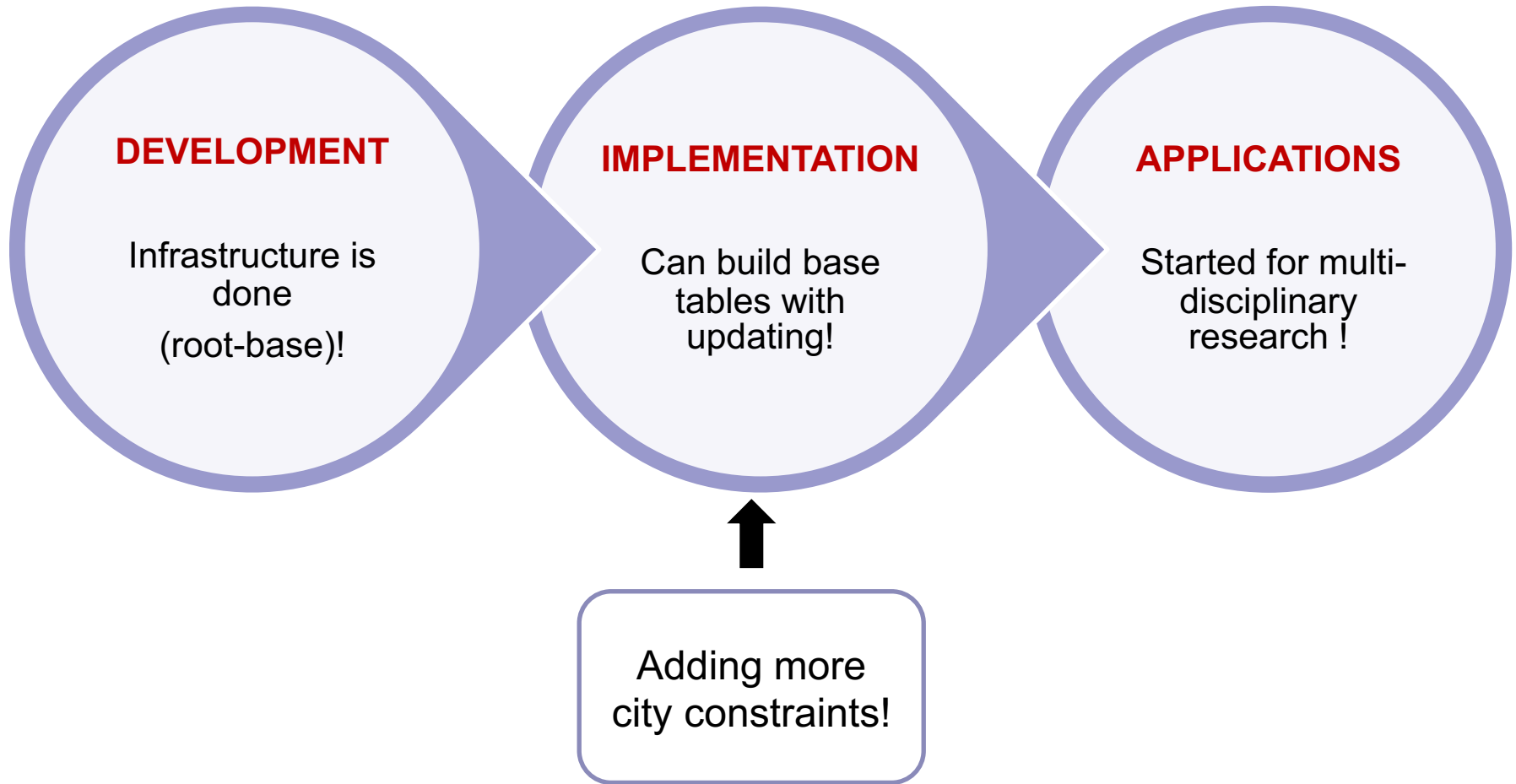
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1. Why do we need city-MRIO tables?

- **Crucial roles of City in the social, economic and environmental sustainability**
- **Various MRIO databases provide Methodology**
- **MRIOs evolution needs city-level tables**

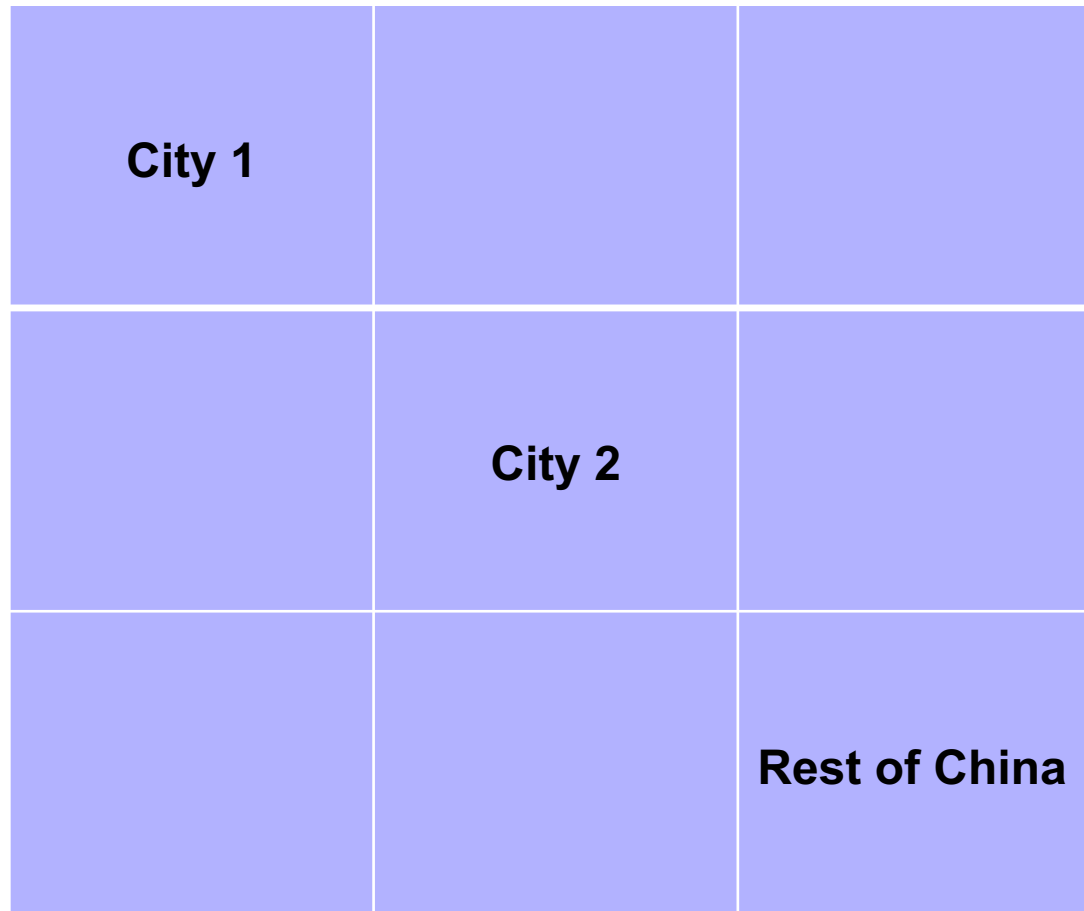
Status of Chinese IELab for city-MRIOs



Chinese IELab: general Structure

MR-SUT			Region 1			Region 2			Region 3			RoW
			Ind 1:n	Com 1:n	FD 1:5	Ind 1:n	Com 1:n	FD 1:5	Ind 1:n	Com 1:n	FD 1:5	Ind 1
Region 1	Ind 1:n		X X									
			X X									
	Com 1:n	X X		X	X X		X	X X		X X	X	
		X X		X	X X		X	X X		X	X	
VA 1:4		X X										
Region 2	Ind 1:n					X X						
						X X						
	Com 1:n	X X		X	X X		X	X X		X X	X	
		X X		X	X X		X	X X		X	X	
VA 1:4					X X							
Region 3	Ind 1:n							X X				
								X X				
	Com 1:n	X X		X	X X		X	X X		X	X	
		X X		X	X X		X	X X		X	X	
VA 1:4								X X				
RoW	Com 1:n			X	X X		X	X X		X	X	
				X	X X		X	X X		X	X	
Satellite		X X			X X			X X				

Case I: Regionalisation within Chinese boundary



Non-survey methods to directly construct city-level MRIOs

Example 1: Economic circle



The Heat map of the 14-city MRIO for BHT

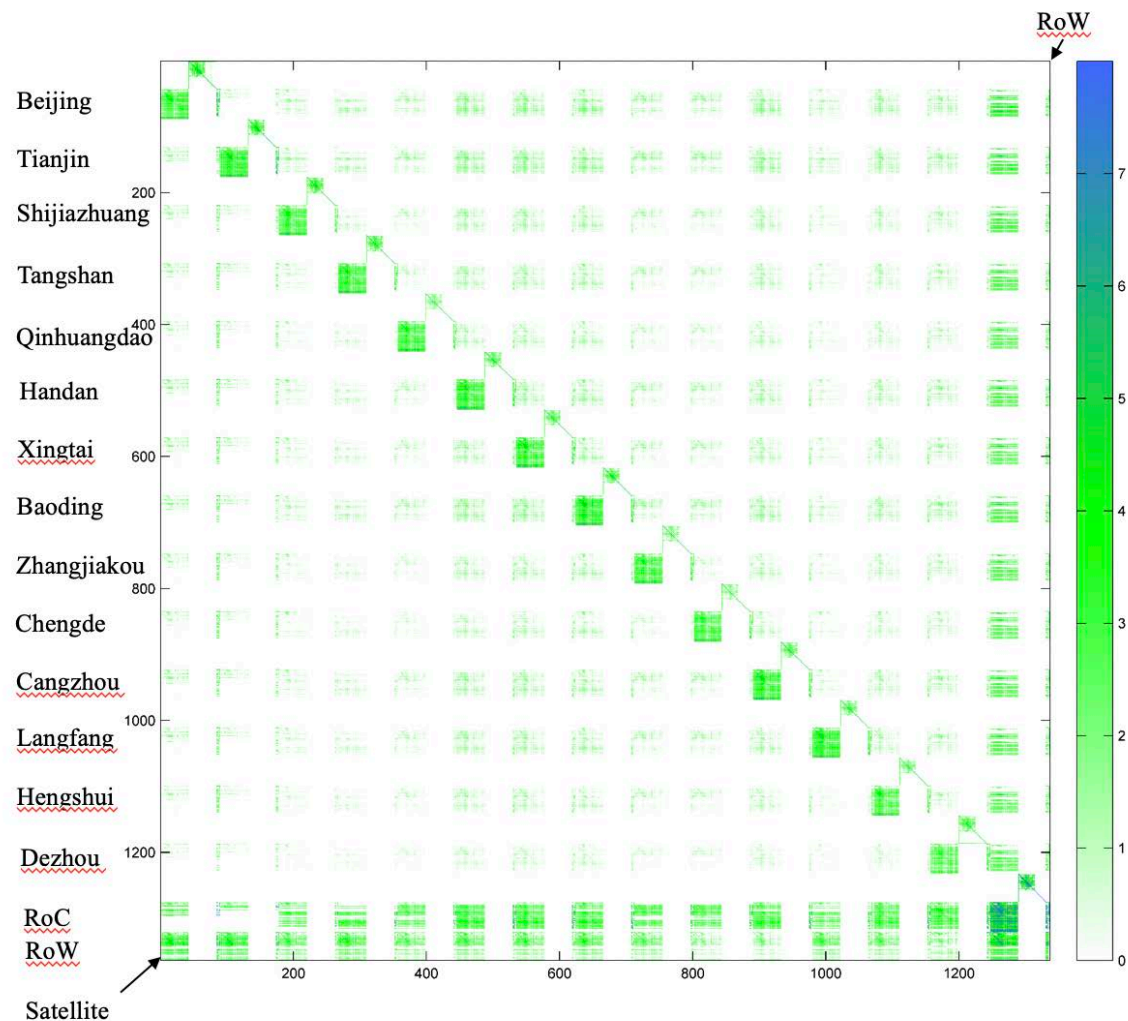
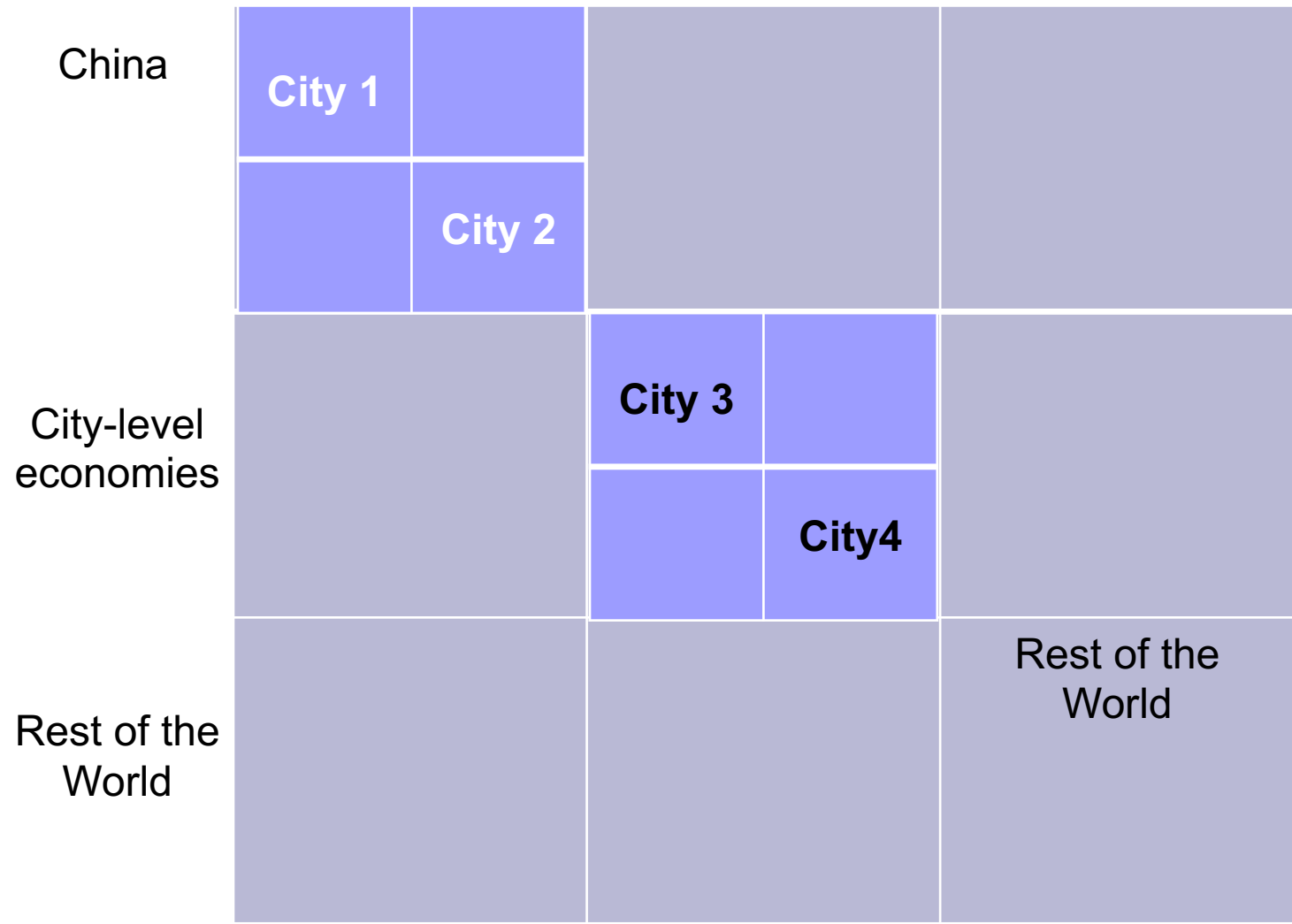


Figure. Heat map of the Beijing-Tianjin-Hebei MR-SUT in basic prices with Satellite indicators.

Case II: Cities linking with city-level economies



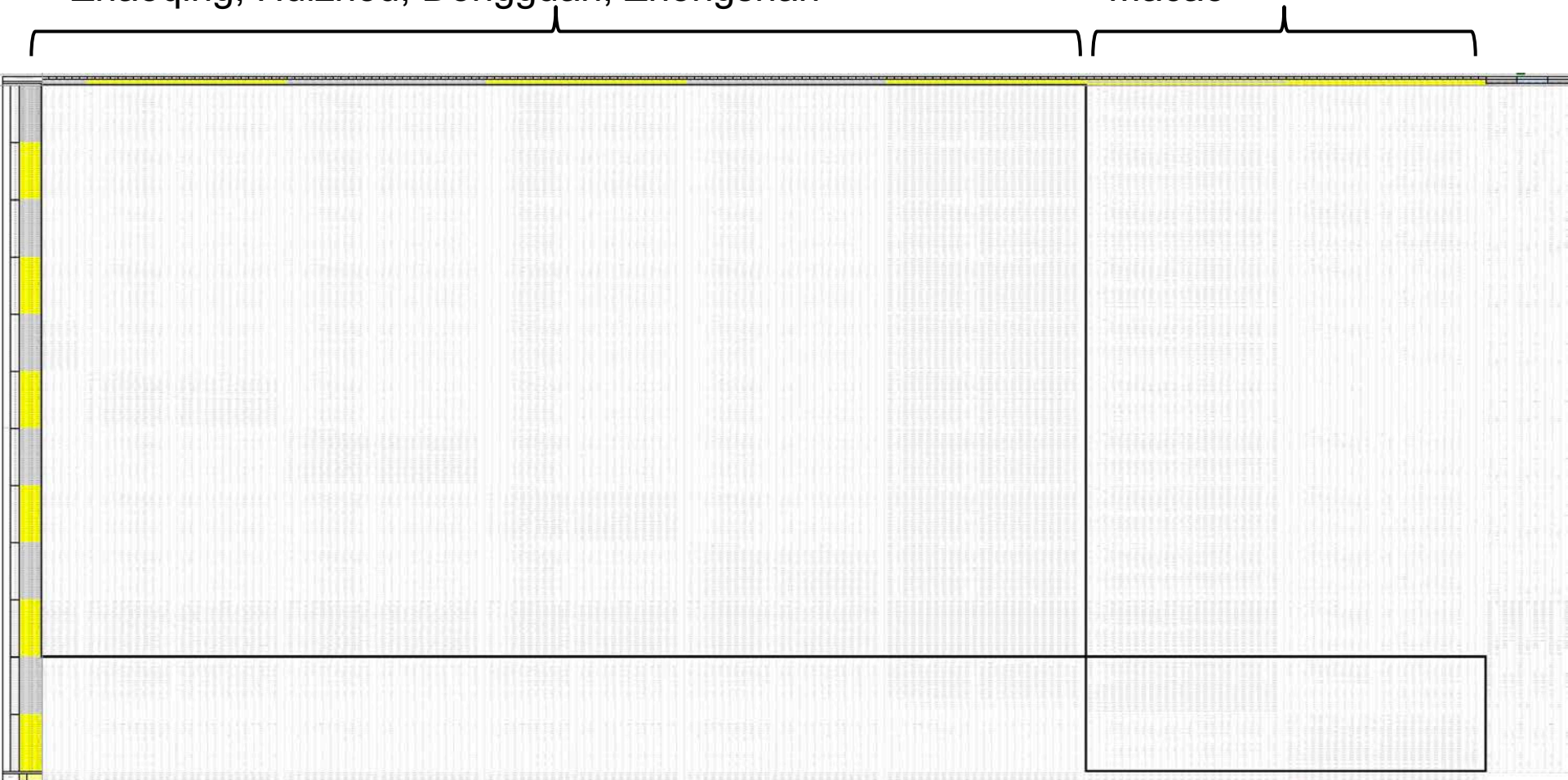
Example 2: GD-HK-MAC Greater Bay Area



Pearl River Delta 9 cities with Hong Kong and Macao

Guangzhou, Shenzhen, Zhuhai, Foshan, Jiangmen,
Zhaoqing, Huizhou, Dongguan, Zhongshan

Hong Kong and
Macao

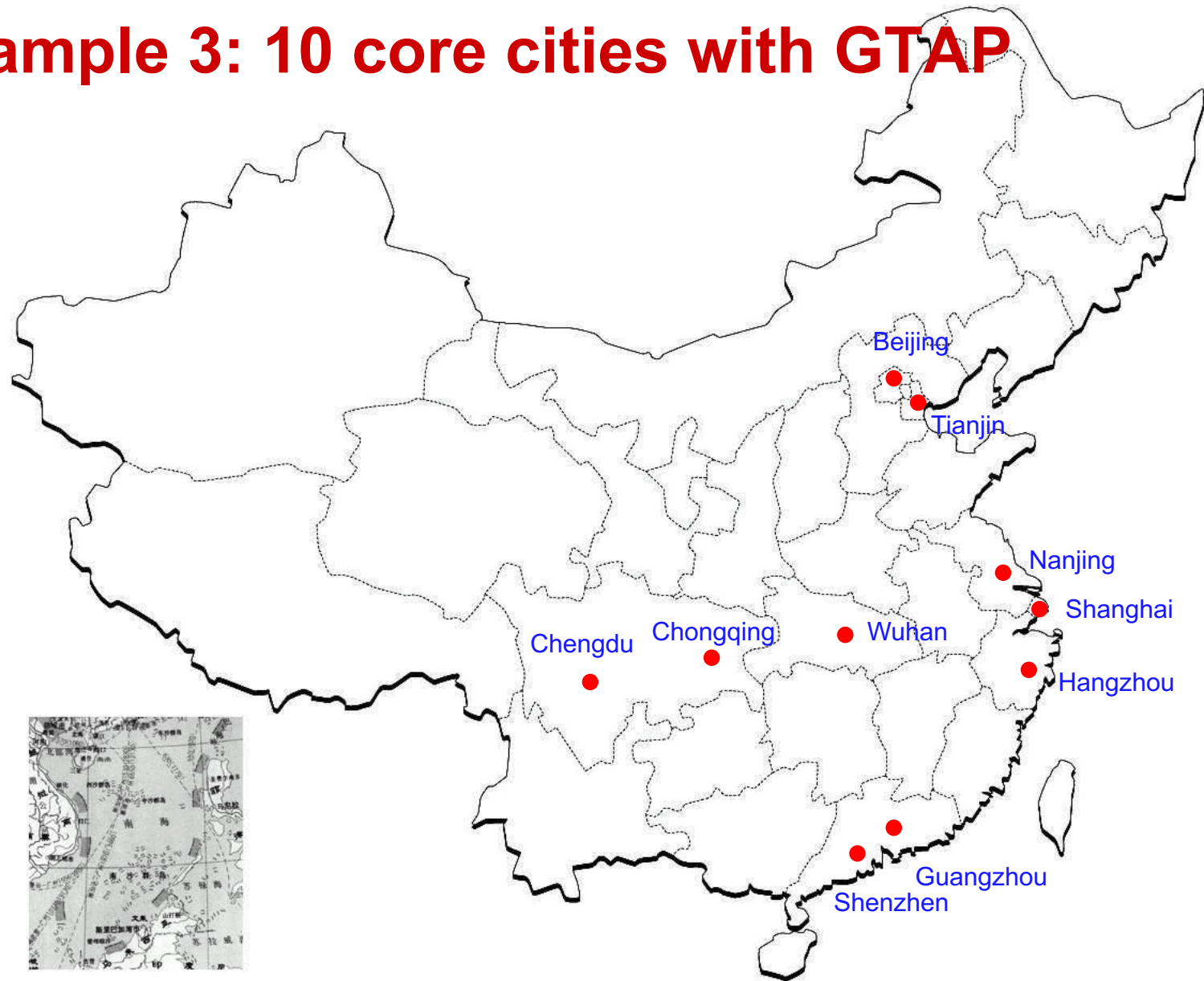


Linking Chinese MRIOs with Eora by cities()

Case III: Cities linking with global countries

China	City		
		Region	
Country 1		Country 1	
Country 2			Country 2 / Rest of the World

Example 3: 10 core cities with GTAP



Chinese MRIO with 10 cities and provinces (37 regions)

MR-SUT	City 1			City 2			Province			RoW
	Ind 1:n	Com 1:n	FD 1:5	Ind 1:n	Com 1:n	FD 1:5	Ind 1:n	Com 1:n	FD 1:5	
City 1	Ind 1:n	x x								
	Com 1:n	x x		x x x		x x x				x x
	VA 1:4	x x		x x x		x x x				x x
City 2	Ind 1:n				x x					
	Com 1:n	x x		x x x		x x x				x x
	VA 1:4	x x		x x x		x x x				x x
Province	Ind 1:n							x x		
	Com 1:n	x x		x x x		x x x		x x		x x
	VA 1:4	x x		x x x		x x x		x x		x x
RoW	Com 1:n	x x		x x x		x x x				x x
	VA 1:4	x x		x x x		x x x				x x



MRIO			City 1 Com 1:n	City 2 Com 1:n	Province Com 1:n	Country 1 Com 1:n	Country 2 Com 1:n	FD 1:m	FD 1:m	FD 1:m	FD 1:m	FD 1:m	FD 1:m	RoW Com 1
City 1	Com	1:n						Y9						
City 2	Com	1:n												
Province	Com	1:n												
Country 1	Com	1:n												
Country 2	Com	1:n												
RoW	Com	1												
VA														



GTAP	Country					FD 1:6	FD 1:6	FD 1:6	FD 1:6	FD 1:6	RoW Com 1	
	Com 1:n	Com 1:n	Com 1:n	Com 1:n	Com 1:n							
Count	Com	1:n										
Row	Com	1										
VA												

GTAP with 140 countries

Final table

- Regions: 10 cities + rest of 27 provinces + 139 countries
- Sector: 10033*10560
- Year: 2015

**Many thanks for lots of researchers in
this group helping the work!**