
INEFFICIENT JAKARTA?

THE ROLE OF INFRASTRUCTURE AND LAND USE POLICIES

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OUTLINE

■ WHY CITIES

- Benefits and costs of agglomeration
- Role of city government

■ CITY PERFORMANCE AND PATTERNS

- Agglomeration economies in Jakarta
- Office rents in Jakarta vs. other cities

■ CONGESTION

- Congestion and economic development
 - Building new vs. managing old capacity
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WHY CITIES?

BENEFITS OF AGGLOMERATION

- Reduce transport distances
 - Economies of scale within firms
 - Economies of scale across firms, households (largely external)
 - SHARING: support specialized suppliers
 - MATCHING: reduced transactions costs in labor, consumer and other markets
 - LEARNING: knowledge spillovers
 - DIVERSIFICATION: law of large numbers
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WHY CITIES?

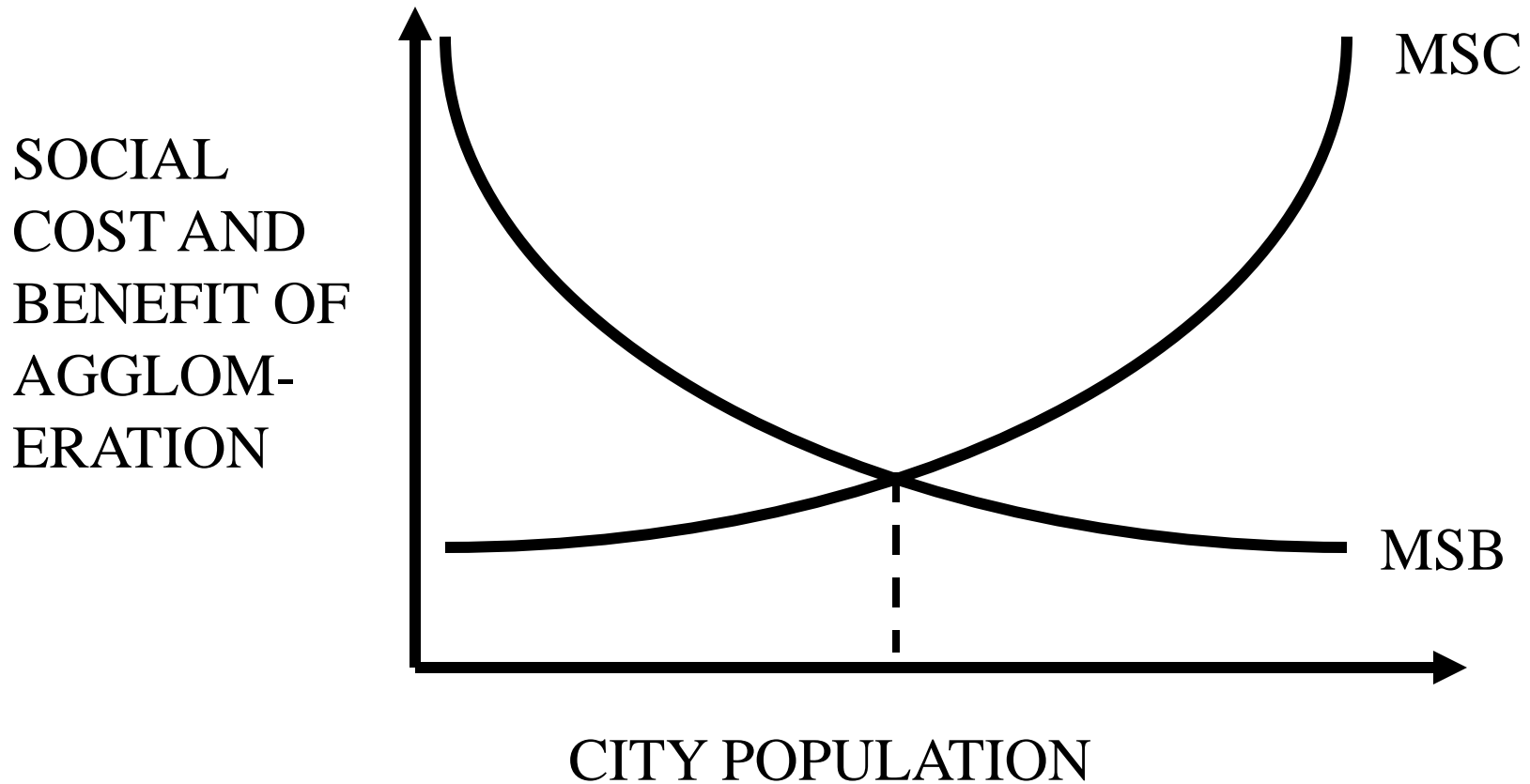
COSTS OF AGGLOMERATION

- High land rents (competition for central locations)
- Congestion, pollution, flooding, disease (**partially external**)

CITY SIZE

- Tradeoff marginal benefit and cost of agglomeration
 - Market solution not necessarily optimal given externalities
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OPTIMAL CITY SIZE (AFTER ALONSO)



ROLE OF CITY GOVERNMENT

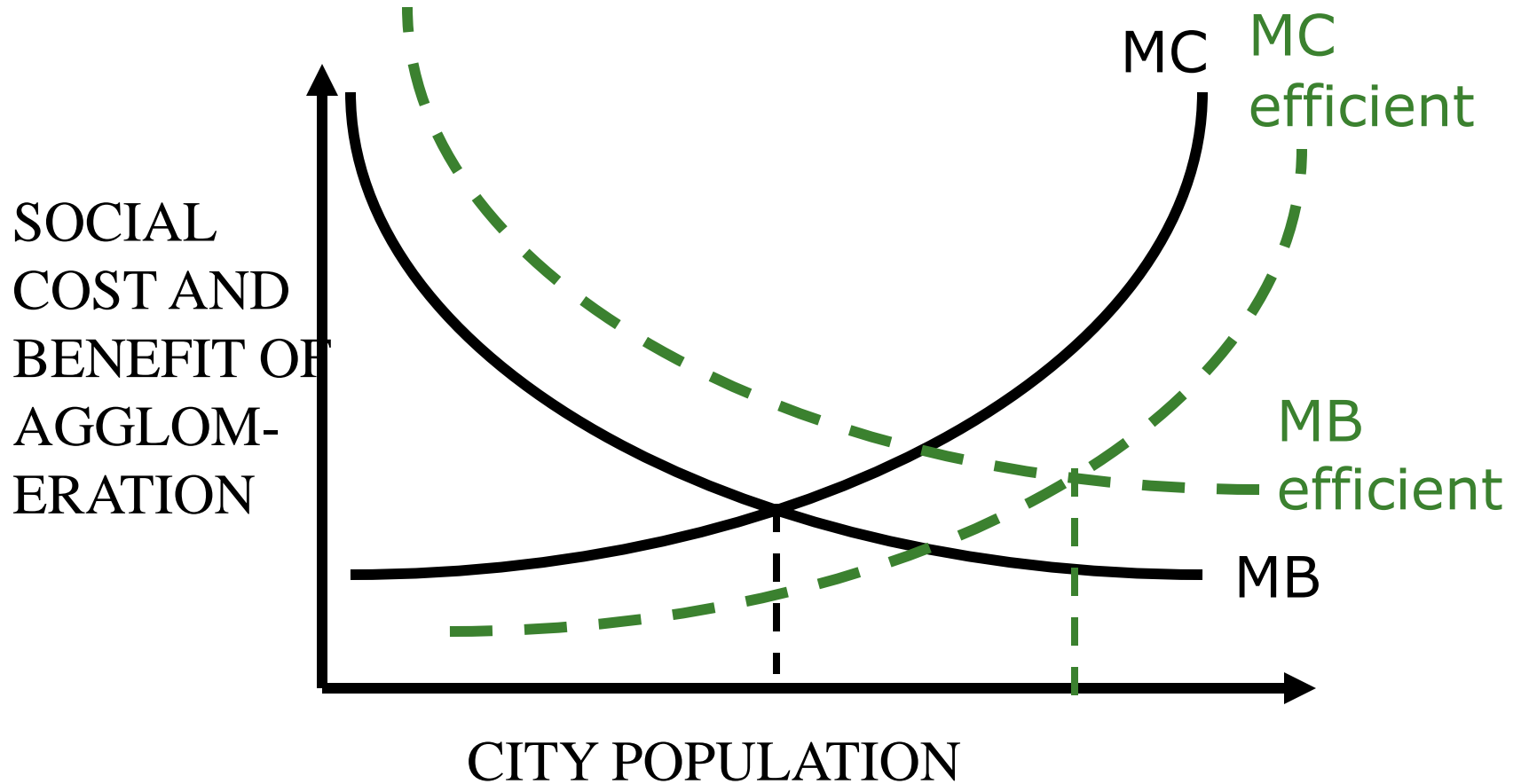
MAXIMIZE AGGLOMERATION BENEFITS

- General business climate
- Nurture and attract clusters

MINIMIZE AGGLOMERATION COSTS

- Efficient infrastructure
 - Transport, water, sewage, sanitation, flooding
 - Efficient land controls
 - Titles, density and use controls, state-owned lands
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ROLE OF CITY GOVERNMENT



AGGLOMERATION BENEFITS: ADDED PRODUCTIVITY

ELASTICITY OF PRODUCTIVITY TO AGGLOMERATION:

META ANALYSIS: Average or base: +0.07
(Industrialized countries, Melo et al. 2009) Services: +0.15

SENSITIVE TO:

INDUSTRY
COUNTRY
CITY SIZE

LESS SENSITIVE TO:

HOW AGGLOMERATION MEASURED

Population or employment, density, market size

INEFFICIENT JAKARTA?

AGGLOMERATION REDUCES NET PRODUCTIVITY?

Blane Lewis, unpublished

RENTS SUGGEST POOR INFRASTRUCTURE-LAND USE COORDINATION?

Class A office rents in CBD as measure of city performance

CENTRAL LOCATION: most acute tradeoff

OFFICES: in every city

CLASS A: consistent definition

Interpret unusually low or high rents as sign of poor policy

HIGH RENTS: overly stringent land use control (low quantity)

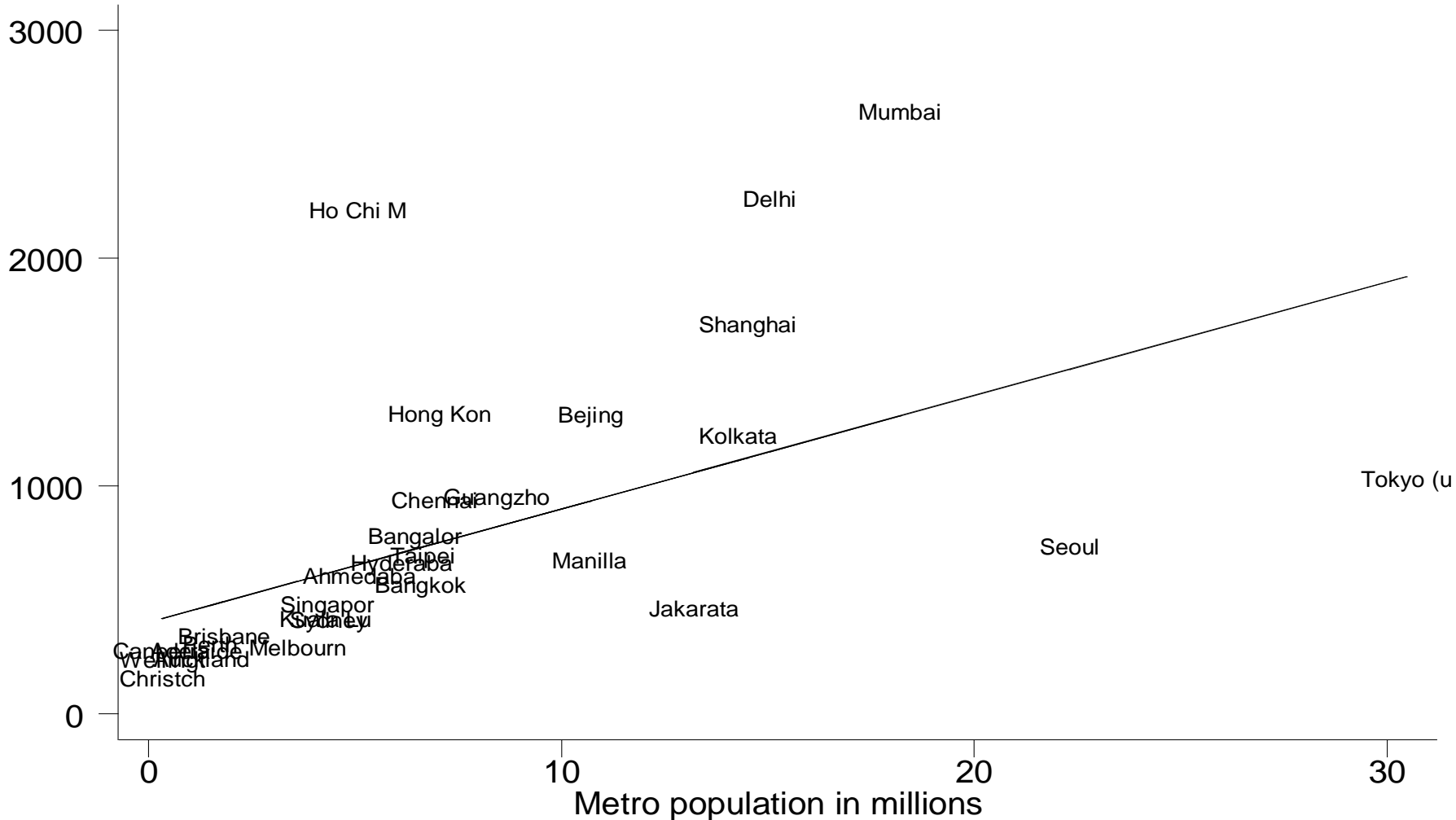
LOW RENTS: undersupply of infrastructure to center (low quality)

THREE ASIAN CITIES

City	Class A office rent (\$m2 in 2005)		Metro pop (mil. In approx. 2000)	Country GDP per capita (\$)	Class A&B offices (mil m2)
	At nom. X rate	At PPP X rate			
Mumbai	537	2609	19.8	718	2.5
Ho Chi Minh	449	2176	5.1	632	n.a.
Jakarta	145	428	22.0	1,302	4.6
Tokyo	1137	995	34.2	35,215	25.9
London	1162	1021	12.0	36,420	22.6
New York	607	605	21.9	42,007	42.0

Rent per square meter

Fitted values



29 Asian Cities, Rents at PPP Exchange Rates

AGGLOMERATION COSTS: TRANSPORT DEMAND AND CONGESTION FROM URBANIZATION

(1) MORE TRAVELLERS	1985	2002	Change
Jabodetabek population (bil.)	≈ 14.2	≈ 23.2	+63%
(2) LONGER TRIPS			
Home to work (km/trip)	6.7	9.6	+43%
Home to school (km/trip)	2.7	5.5	+104%

FROM INCOME GROWTH

(3) MORE TRIPS PER CAPITA			
HH income ('000 Rp/mo.)	600-999	2000-2999	5000-7499
Trips per person	1.87	2.21	2.29

(4) SHIFT MODES:

ANIMAL
POWERED
(walk, bicycle)



MOTORIZED
PUBLIC
(bus)



MOTORIZED
PRIVATE
(car)

EFFECTS OF SHIFT IN MODES

	BICYCLE	BUS	CAR
Passengers per vehicle	1	40	1 - 1.5
Passenger car equivalents (PCE) per vehicle	0.125 – 0.33	2 - 4	1
PCEs if mode carries 100 pass.	12.5 - 33	5 - 10	66 - 100

JAKARTA MODE SHARE 1985-2002 ALL TRIPS

	Share 1985	Share 2002	PCE/ve h	Pass/ve h	PCEs 1985	PCEs 2002
Car, truck	12.1	11.3	1.0	1.2	10.08	9.42
Taxi, bajaj	3.1	1.8	1.0	1.2	2.58	1.50
Motorcycle	10.7	14.0	0.2	1.2	1.78	2.33
Bus	26.9	33.2	2.0	40.0	1.35	1.66
Other motorized	3.0	5.2	0.0			
Non motorized	47.0	36.4	0.2	1.0	9.40	7.28
All modes					25.20	22.19

JAKARTA MODE SHARE 1985-2002 ALL TRIPS

Assuming non motorized all walk

	Share 1985	Share 2002	PCE/ve h	Pass/ve h	PCEs 1985	PCEs 2002
Car, truck	12.1	11.3	1.0	1.2	10.08	9.42
Taxi, bajaj	3.1	1.8	1.0	1.2	2.58	1.50
Motorcycle	10.7	14.0	0.2	1.2	1.78	2.33
Bus	26.9	33.2	2.0	40.0	1.35	1.66
Other motorized	3.0	5.2	0.1	1.2	0.25	0.43
Non motorized	47.0	36.4	0.0	1.0	0.00	0.00
All modes					16.05	15.34

JABODETABEK MODE SHARE 2002-2010 WORK TRIPS

Note: 2010 are preliminary JUTPI estimates

	Share 2002	Share 2010	PCE/ve h	Pass/ve h	PCEs 2002	PCEs 2010
Car, truck, taxi, baja	11.6	13.5	1.0	1.2	9.67	11.25
Motorcycle	21.2	48.7	0.2	1.2	3.53	8.12
Bus	38.3	12.9	2.0	40.0	1.92	0.65
Other motorized	5.3	2.3	0.0			
Non motorized	23.7	22.6	0.2	1.0	4.74	4.52
All modes					19.86	24.53

JABODETABEK MODE SHARE 2002-2010 WORK TRIPS

Assuming non motorized all walk

Note: 2010 are preliminary JUTPI estimates

	Share 2002	Share 2010	PCE/ve h	Pass/ve h	PCEs 2002	PCEs 2010
Car, truck, taxi, baja	11.6	13.5	1.0	1.2	9.67	11.25
Motorcycle	21.2	48.7	0.2	1.2	3.53	8.12
Bus	38.3	12.9	2.0	40.0	1.92	0.65
Other motorized	5.3	2.3	0.1	1.2	0.44	0.19
Non motorized	23.7	22.6	0.0	1.0	0.00	0.00
All modes					15.56	20.20

SOURCES OF CONGESTION RELIEF

COORDINATED LAND USE

NEW CAPACITY

- MRT
- Jabodetabek railroad improvement
- New elevated expressways

EXISTING CAPACITY

- TransJakarta
 - Other bus services
 - Motorcycles
 - Road pricing
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NEW CAPACITY

BENCHMARK

Trips per day in 2002:	motorized	22,000,000
	non motorized	15,000,000
	total:	37,000,000

MRT

Ridership per day (Source: MRT/JTA)	After 5 years:	400,000
	W/ extension etc.	600,000

COMMUTER RAILROAD

Ridership per day (Source: SITRAMP)	Current:	500,000
	W/improvements:	3,000,000

NEW ELEVATED EXPRESSWAYS

6 lanes x 2100 PCEs/ lane hour = 12,600 PCEs hour

MANAGING EXISTING CAPACITY

TRANSJAKARTA

Underutilized: 270,000 trips per day on 97 kilometers
Comparison TransMilenio

THE OTHER BUSES

12,284,000 riders per day in 2002
Average transfers per trip 2.0 (large bus) to 1.2 (small bus)
Motorcycles no transfers and cheaper than PATAS AC

MOTORCYCLES

Congestion: From cars (0.2 vs. 0.8 PCEs/person)?
or buses (0.2 vs. 0.05 PCEs/person)?
Safety

ROAD PRICING

CONCLUSIONS

- Cities are critical to economic growth
 - Land use and infrastructure policies are critical to cities
 - Simple measures suggest Jakarta not doing well
 - Congestion accelerating since 2002
 - Plans should focus on existing capacity
 - Managing existing capacity is harder than building new
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