



# Urbanisation

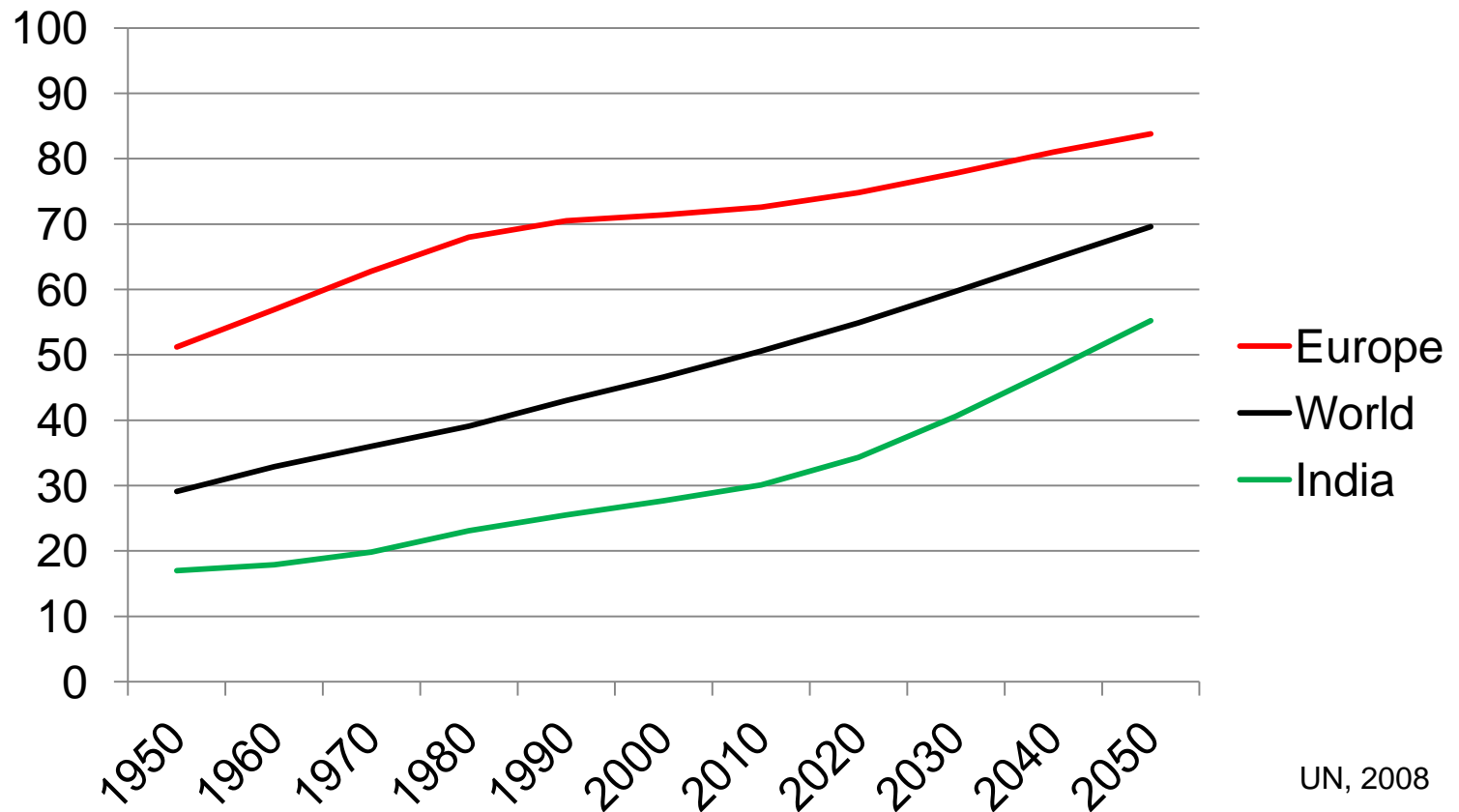
economy, proximity and mobility



Arie Bleijenberg



## Urbanisation: a long lasting trend





## Benefits of urbanisation

CPB, 2010

- › Economies of scale in production and distribution
- › Competition
- › Higher quality
- › Economies of scope
- › Specialisation
- › Better match on the labour market
- › Knowledge spill overs and innovation!
- › Economic growth mainly in cities

*City = Nearness = Accessibility*



However:

- › Congestion
- › Higher prices (salaries, land, real estate, mobility)
- › Pollution and nuisance



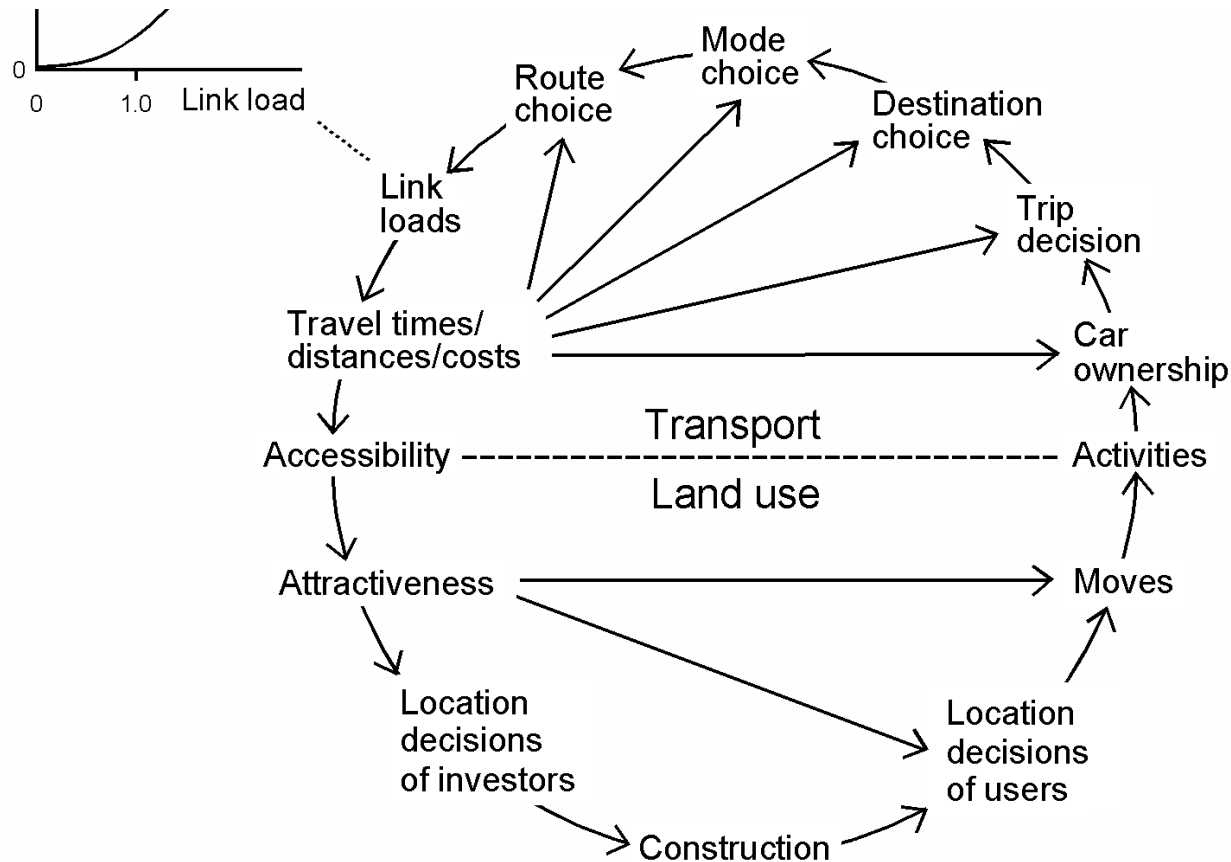
**Accessibility =**

$$\text{Accessibility [1/hr]} = \frac{\text{Speed [km/hr]}}{\text{Distance [km]}}$$

*Accessibility = economic value*

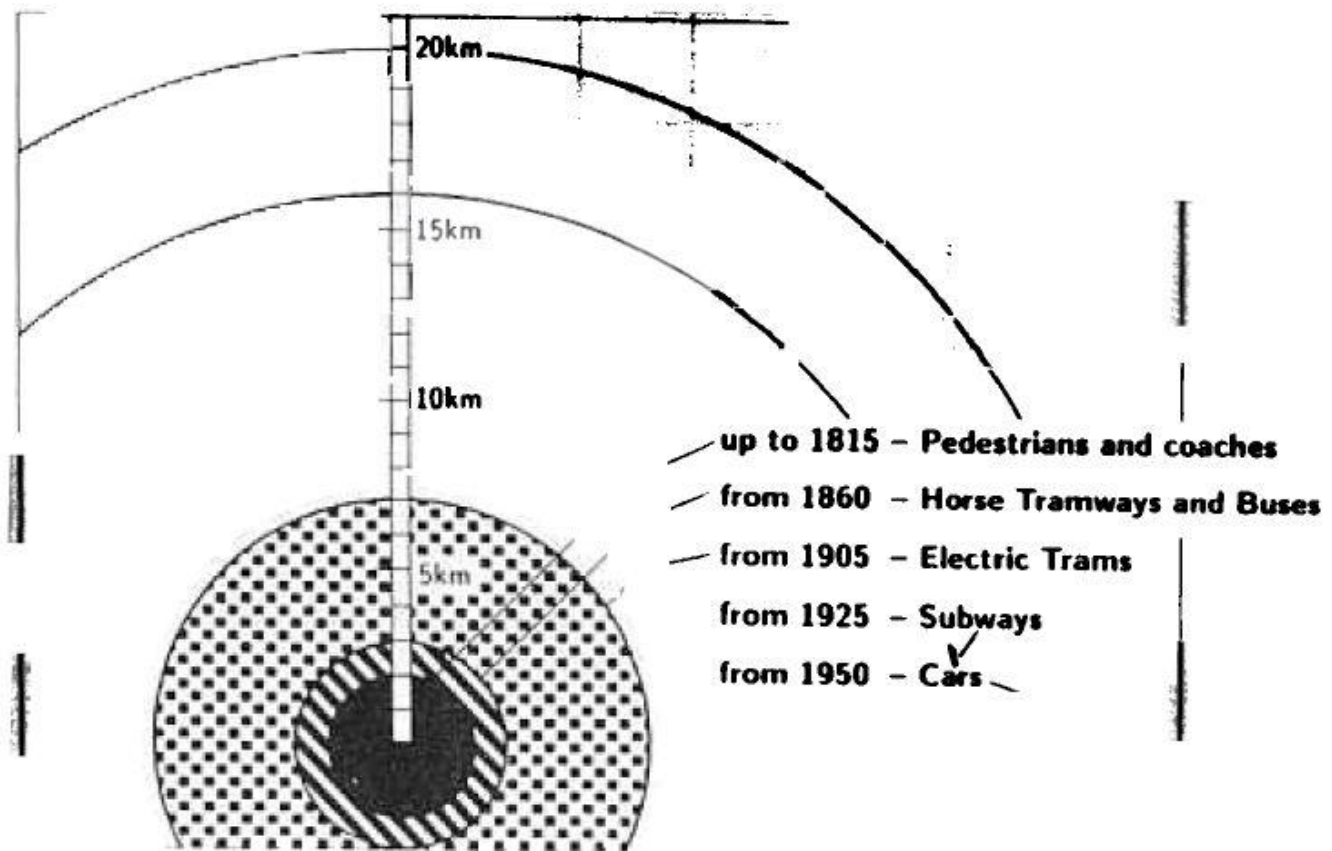


## Paradox of accessibility





## City limits: one hour travel





## Urbanisation follows infrastructure (=accessibility)

Railway station 1880



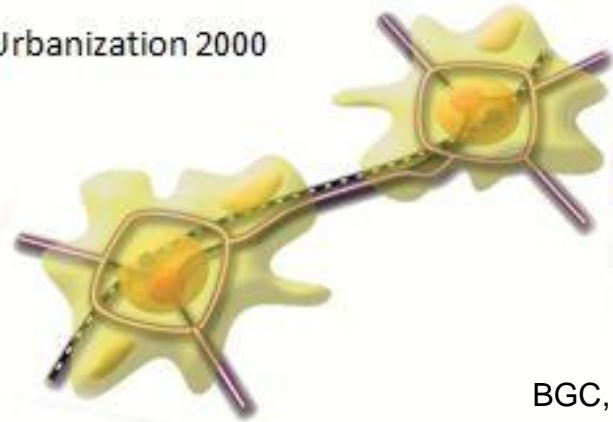
Urbanization 1930



Ring road 1960



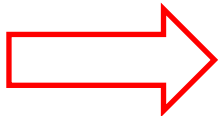
Urbanization 2000

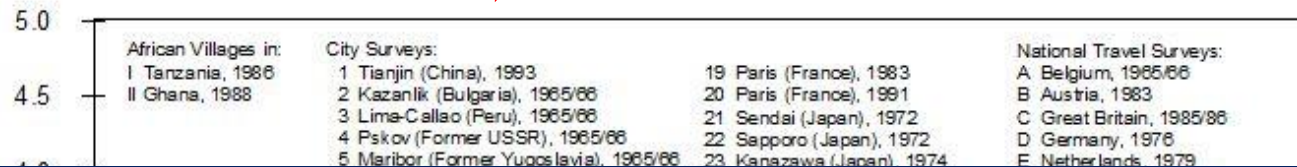




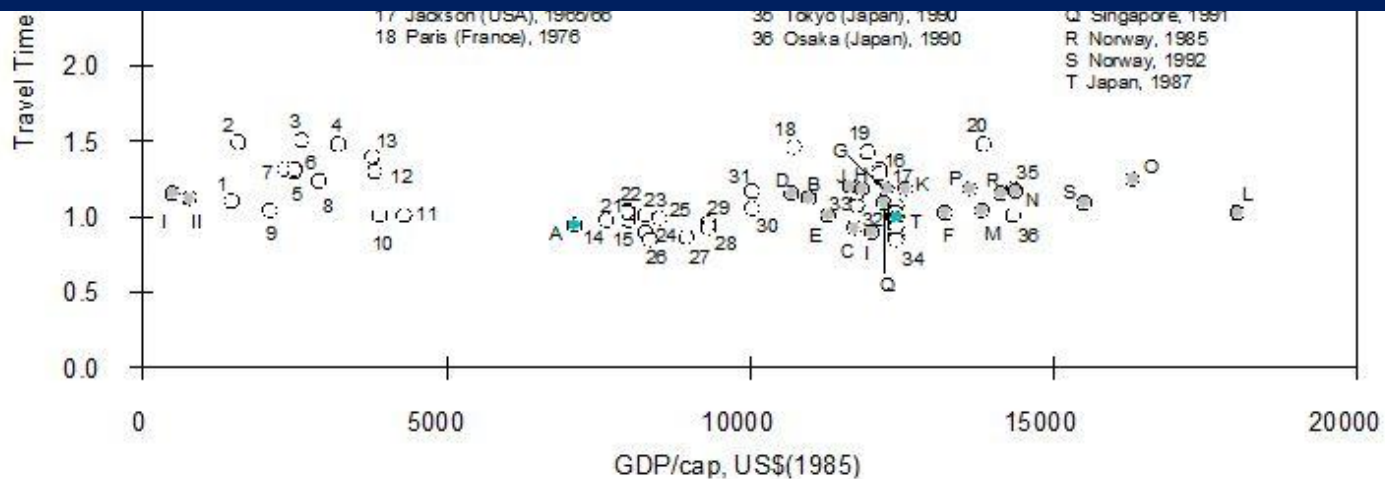


## Constant travel time!

Speed  Distance



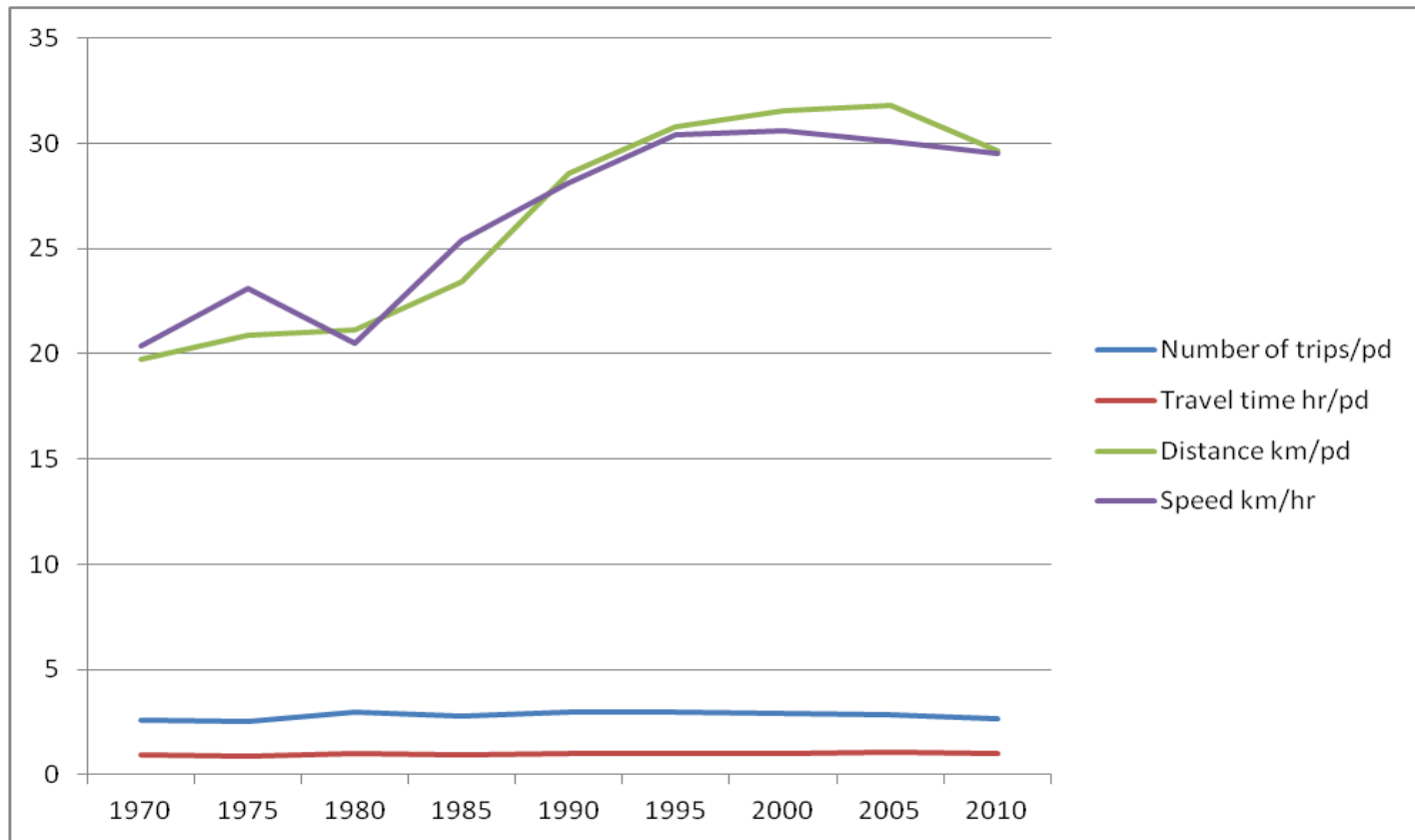
**Mobility [pkm/day] = Population [p] x  
Travel time [1,1 hr/day] x Speed [km/hr]**





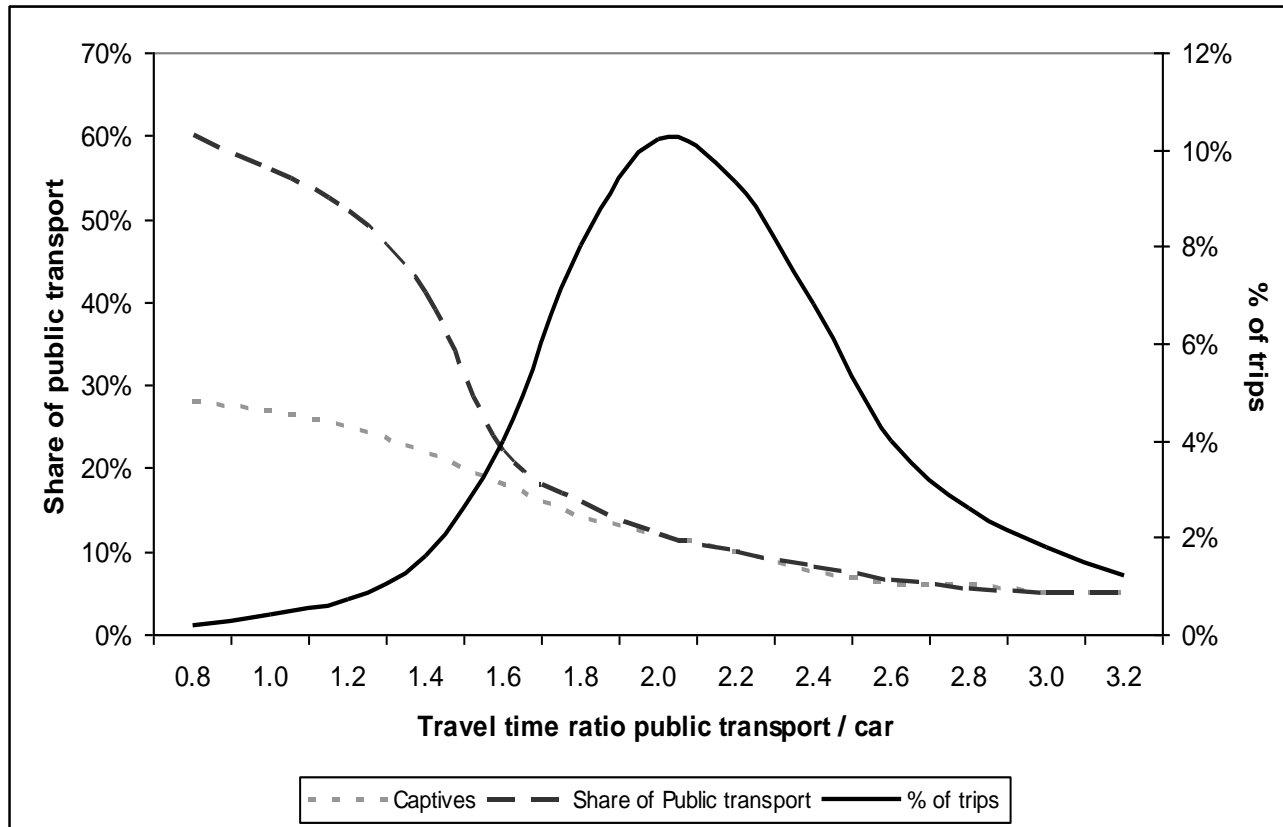


## Growth and stabilization in Great Britain



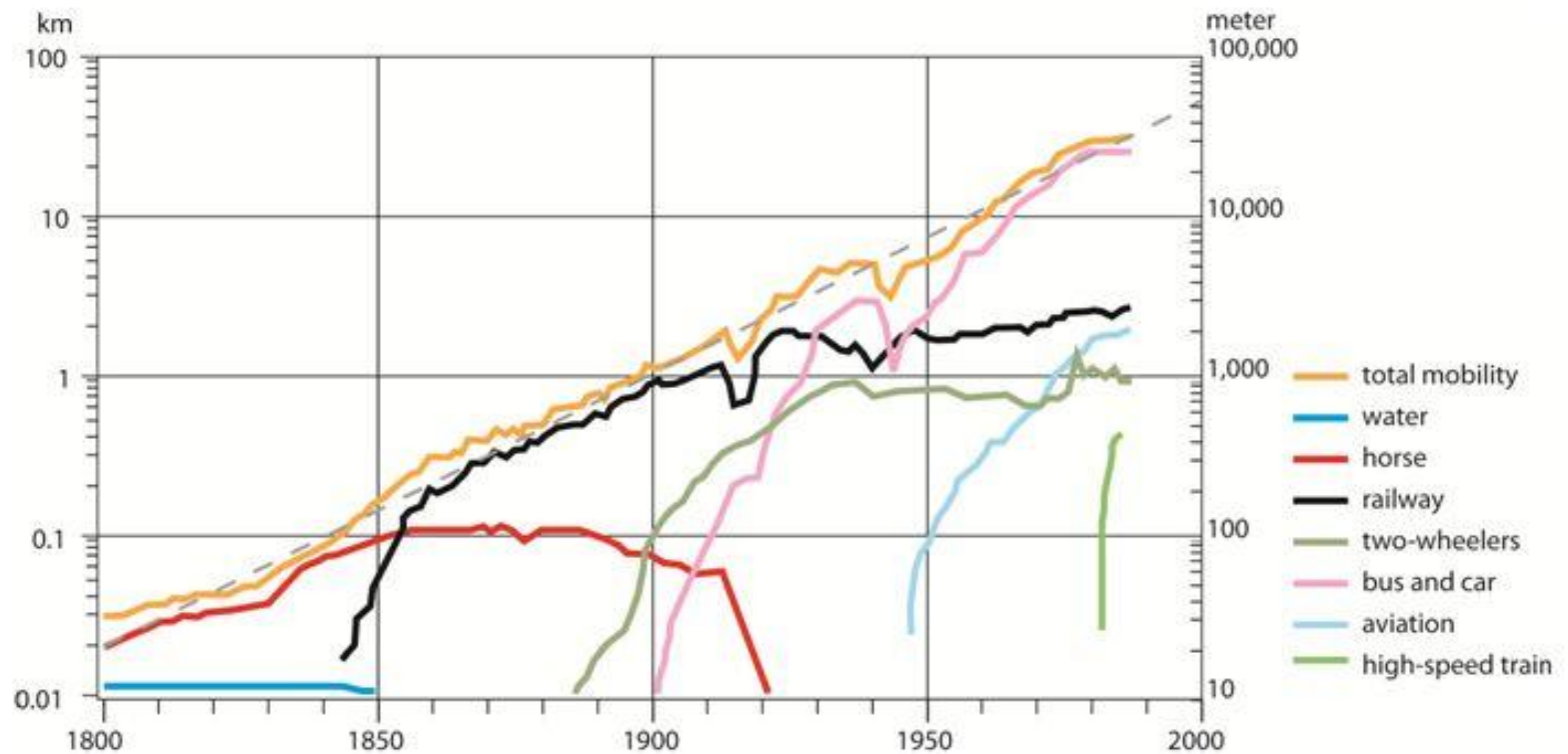


## Car and PT: speed competition





## Two centuries of mobility growth in France

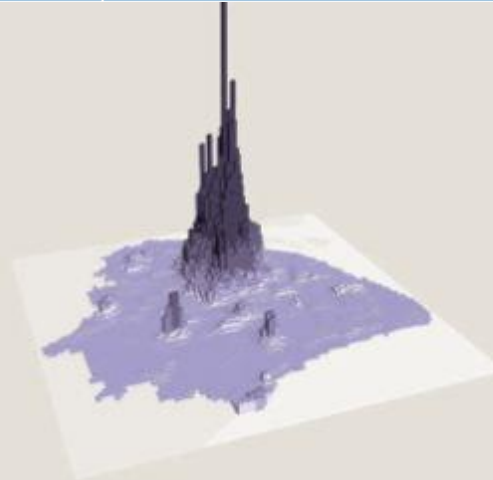




# Urban peaks



**LIMA** PEAK 31,342 pp/km<sup>2</sup>



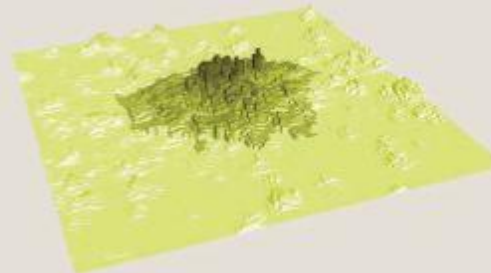
**SHANGHAI** PEAK 96,200 pp/km<sup>2</sup>



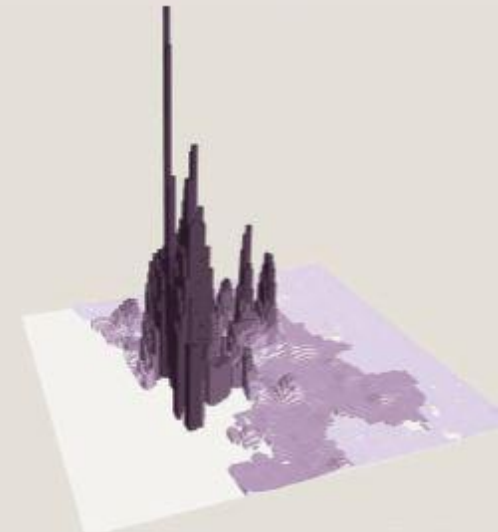
**BERLIN** PEAK 21,700 pp/km<sup>2</sup>



**MEXICO CITY** PEAK 48,300 pp/km<sup>2</sup>



**LONDON** PEAK 17,200 pp/km<sup>2</sup>



**MUMBAI** PEAK 101,066 pp/km<sup>2</sup>



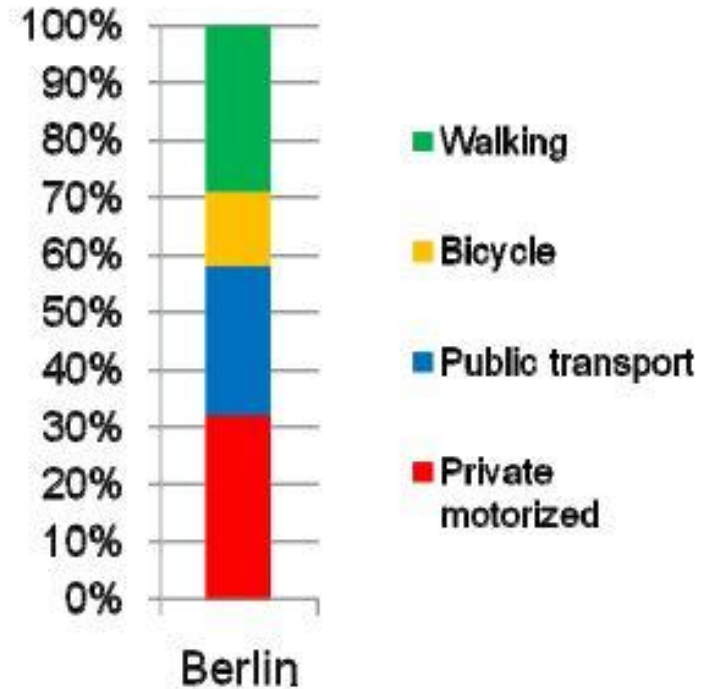
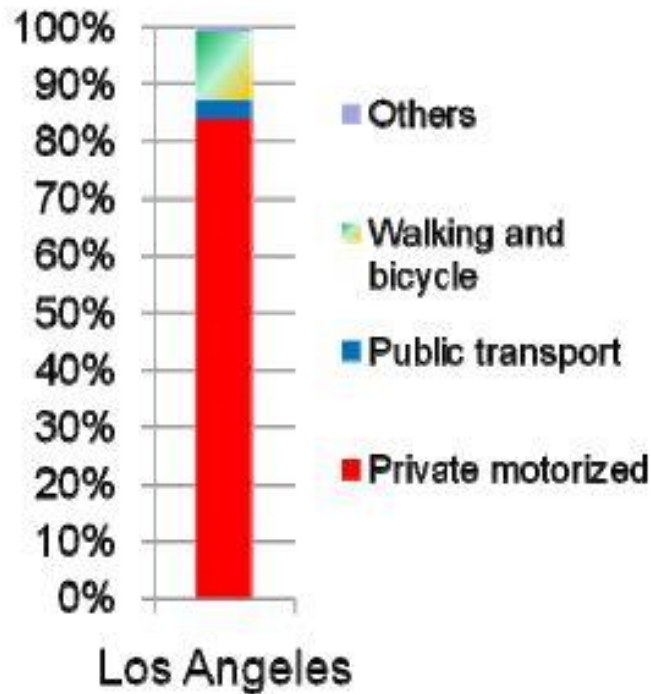
# Daily trips Paris

Trips by Car	14,099,000	(68%)
Trips by Public Transport	6,618,000	(32%)
<b>20,717,000 Total Trips</b>		





## Modal split Los Angeles and Berlin

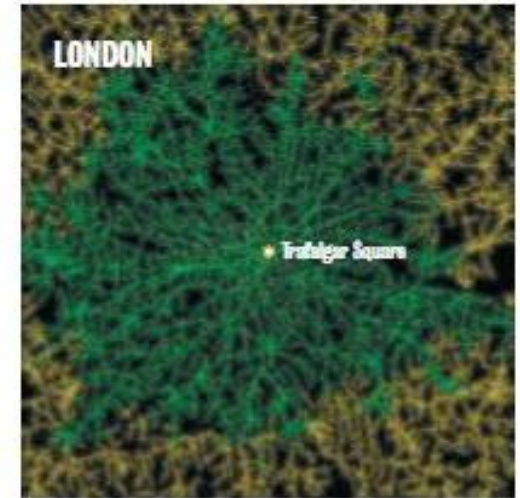
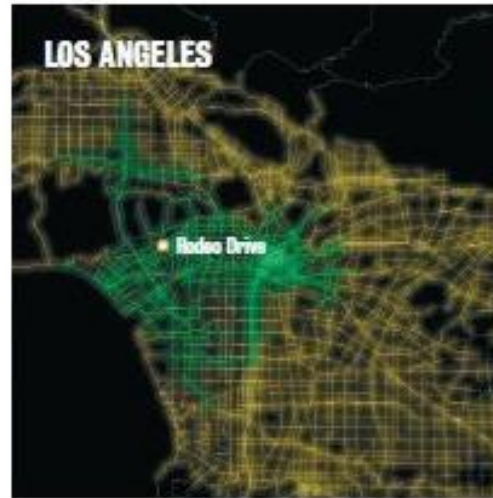




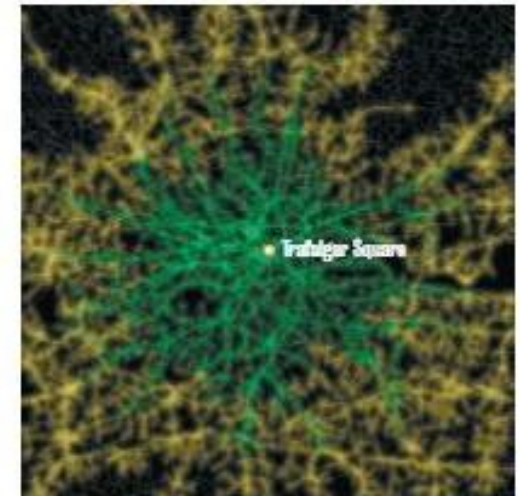
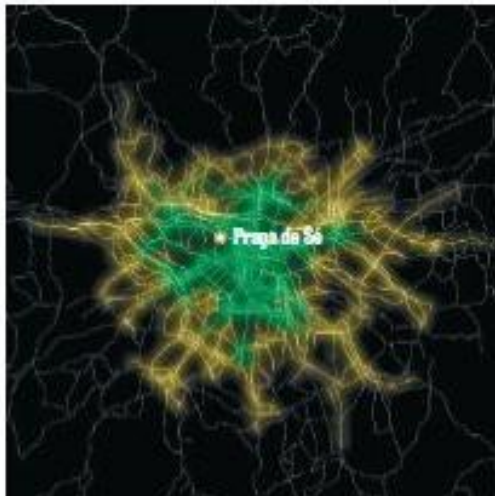


# Accessibility

## TRAVEL BY CAR



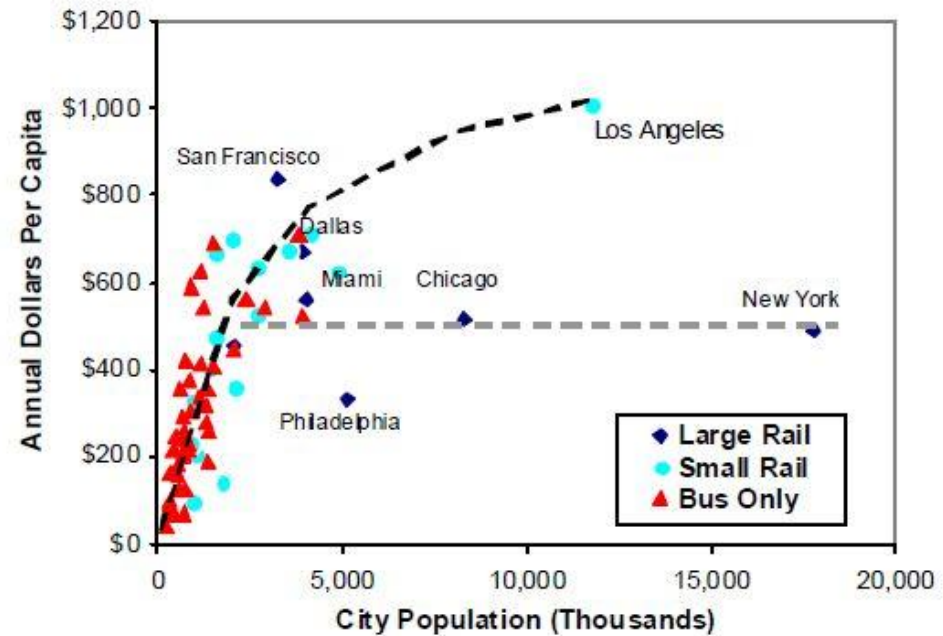
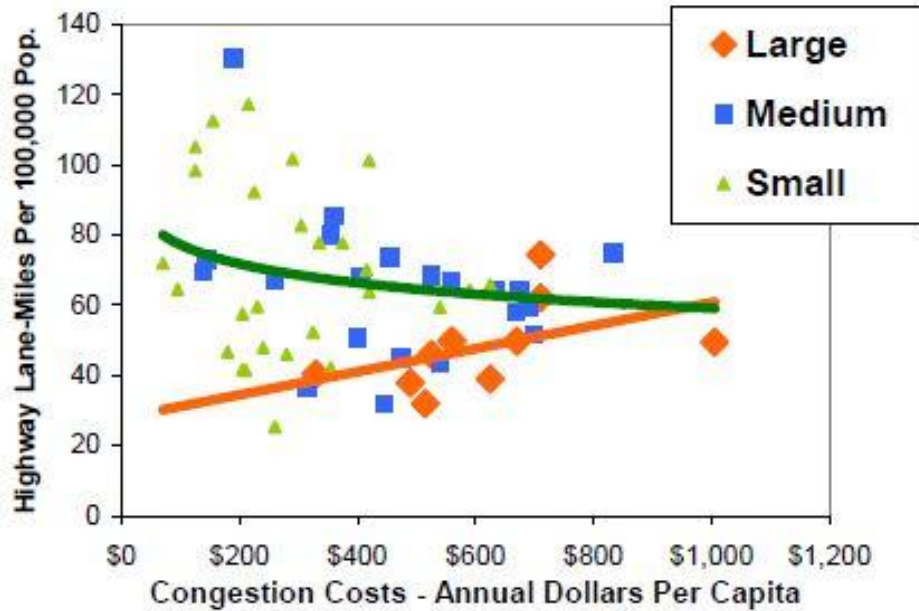
## TRAVEL BY PUBLIC TRANSPORT





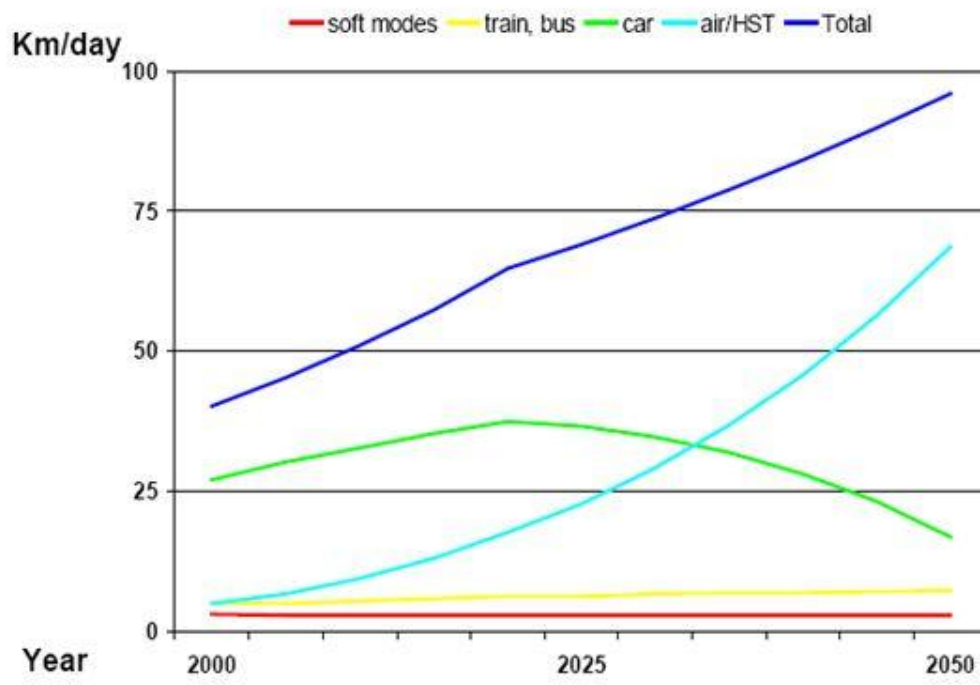


# Congestion, highways and rail

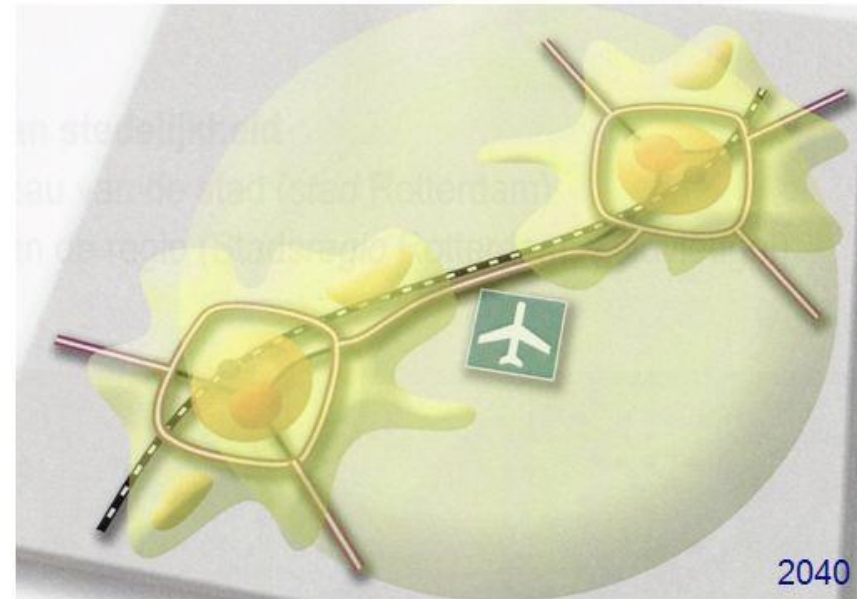




# The sky is the limit



Bleijenberg, 2012

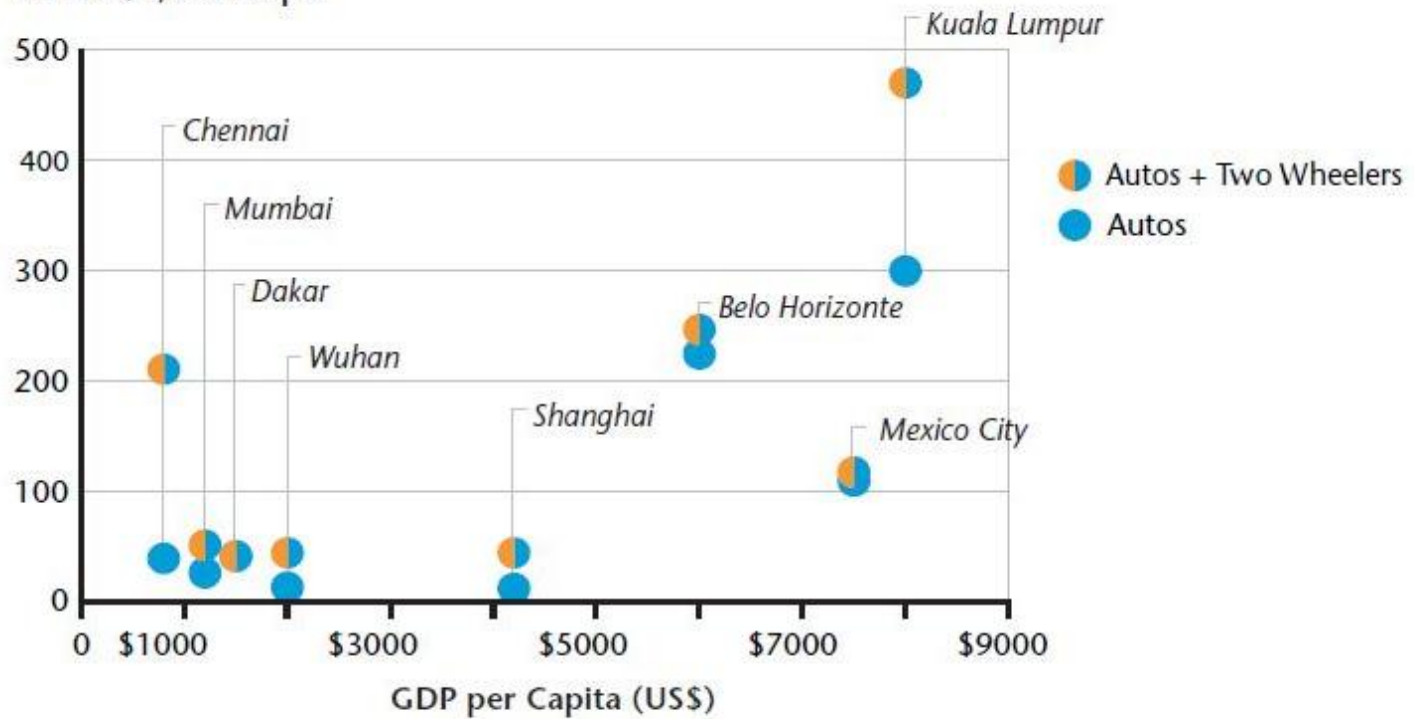


BGC, 2007



## Motorization rates

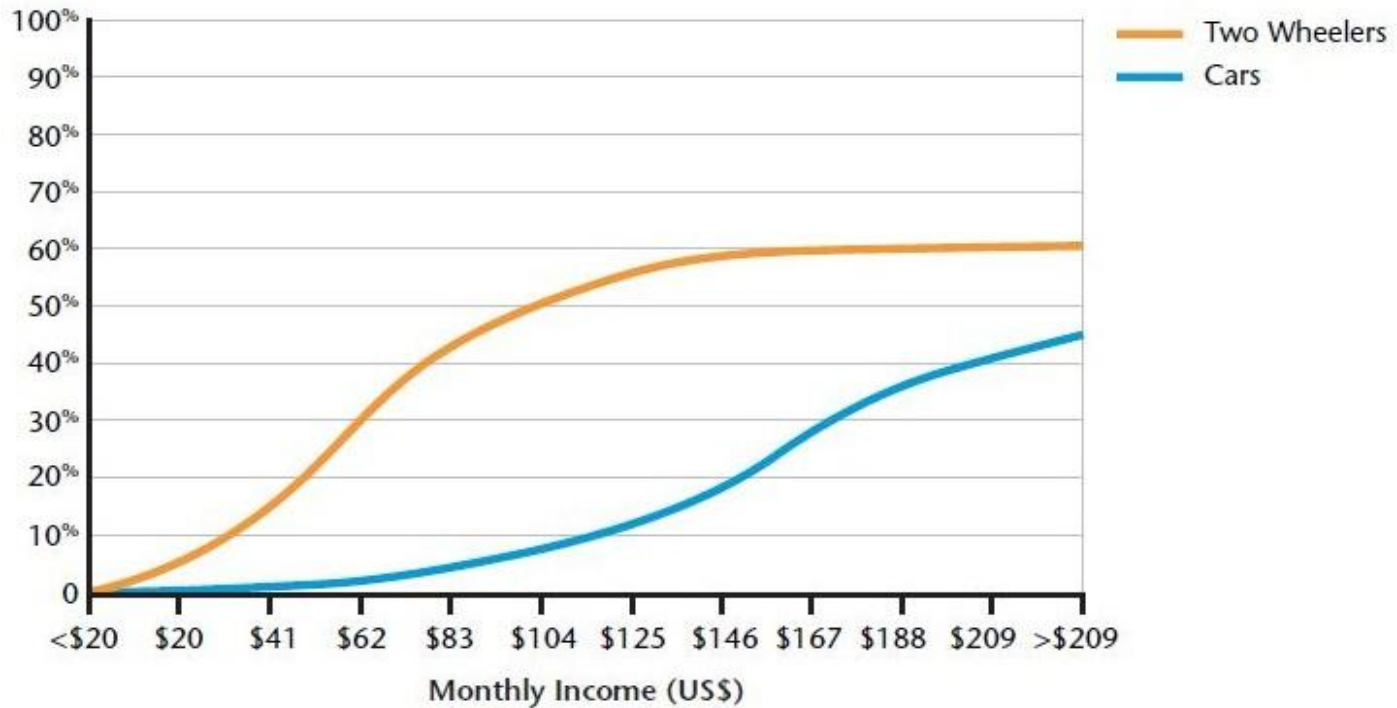
Vehicles/1,000 People





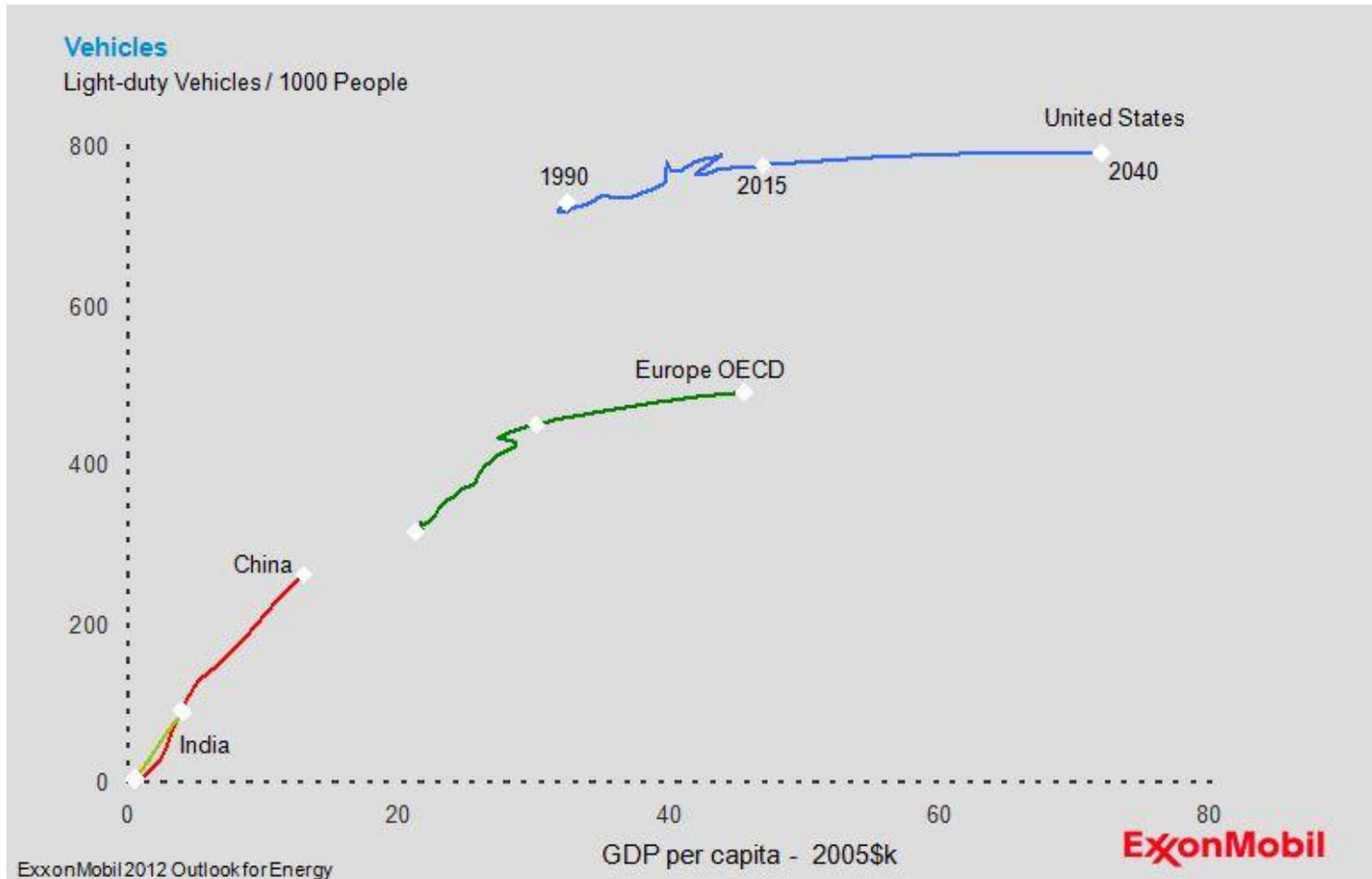
## Vehicle ownership

Percent of Households





# Car ownership





## Mobility and the city

- › Built infrastructure where you want urbanisation
- › Do not built infrastructure where you do not want urbanisation
- › Accept congestion as part of urban life
- › Without mass transit no high urban density
- › Built in high densities around stations, mainly work places
- › Introduce a commuter tax for financing mass transit
- › Move towards economic pricing of transport
- › Use parking policy as an instrument to influence traffic flows
- › Asses new infrastructure plans on its costs and benefits
- › Introduce stringent vehicle and fuel standards to reduce pollution
- › Make airports accessible by mass transit





## Mobility in Delhi (NCT) and urban Netherlands

	Trips/person, day			Average km/trip	
	D 2007	D 2021	N 2003	D 2021	N 2003
Car	0,17	0,24	1,12	11,2	17,2
Two Wheeler	0,19	0,20	0,02	7,4	7,5
Bus, metro +	0,47	0,56	0,23	12,6	10,6
Train (intra, inter)	0,01	0,01	0,09	27,8	46,9
Cycle		0,06	0,77		3,2
Cycle Rikshaw		0,09			
Walking			0,72		1,1
Total/average	0,90	1,20	2,95	9,8	10,0





## Urbanisation: More than accessibility

- › Real estate
- › Spatial structure
- › Infrastructure
- › Demographics
- › Social cohesion
- › Health and education
- › Mobility
- › Economics
- › Governance
- › Environment and energy
- › Safety and security

