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AN INTERNATIONAL CENTRE SUPPORTED BY DEUTSCHE BANK

LSE Works: LSE Cities public lecture

Better Growth, Better Climate: cities and the new climate economy

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Chair

Suggested hashtag for Twitter users: **#LSEworks**

LSE events

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CITIES AND THE NEW CLIMATE ECONOMY
the role of transport and urban form

LSE Works Lecture and Discussion
London, 29 January 2015

THE **NEW** CLIMATE **ECONOMY**
The Global Commission on the Economy and Climate

Philipp Rode, LSE Cities / New Climate Economy - Cities
London School of Economics and Political Science

LSE Cities

CONTENTS

23% of global CO2 [energy related]

from transport

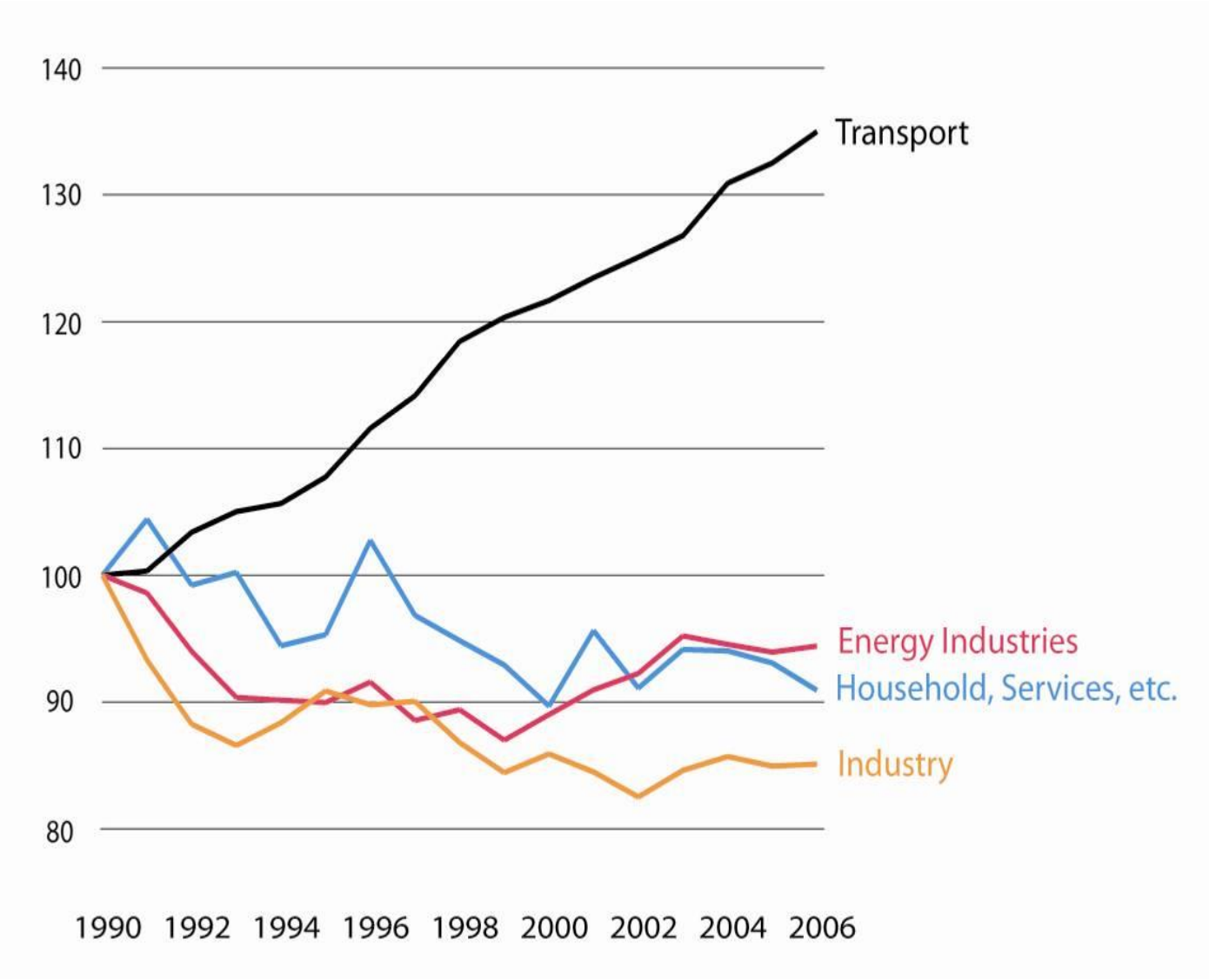
doubling of emissions by 2050

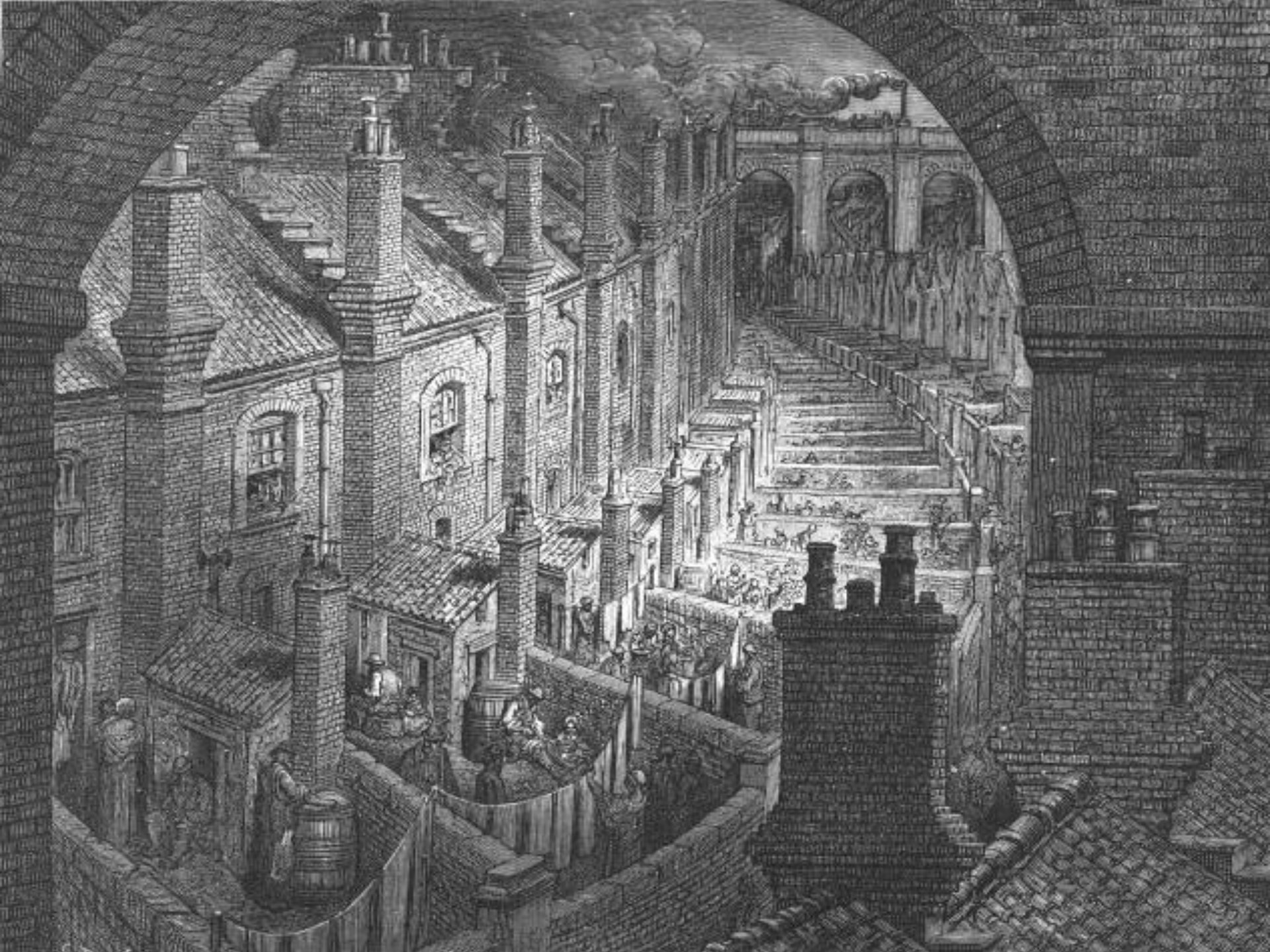
emissions from transport under BAU / fastest growing emissions

10 billion trips per day

in urban areas worldwide / increasingly motorised

EU27: INCREASING CO2 EMISSION ONLY FOR TRANSPORT

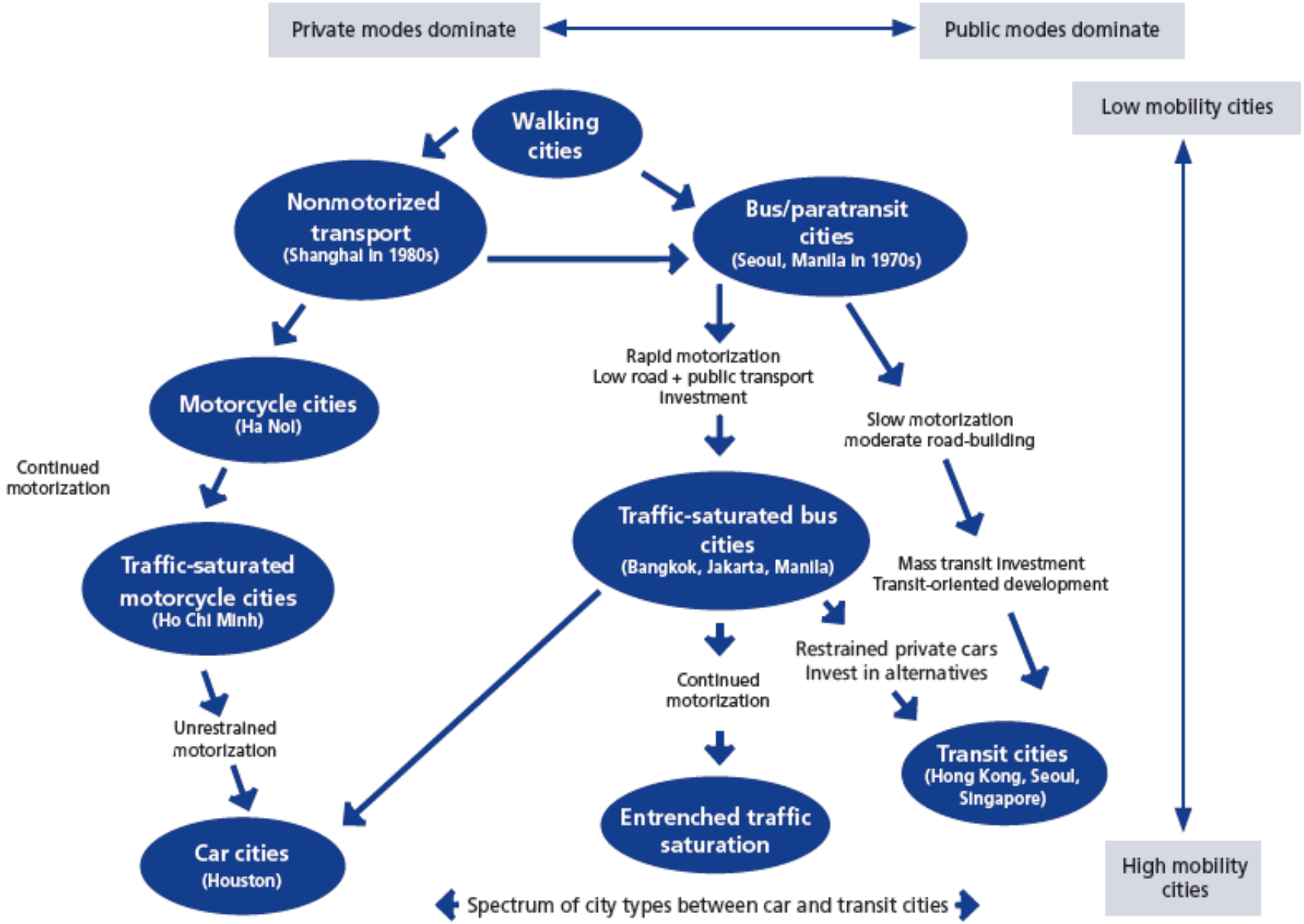





KOESTER & ZANDER
THE CUNARD LINE
GOODFRIEND SHIRTS

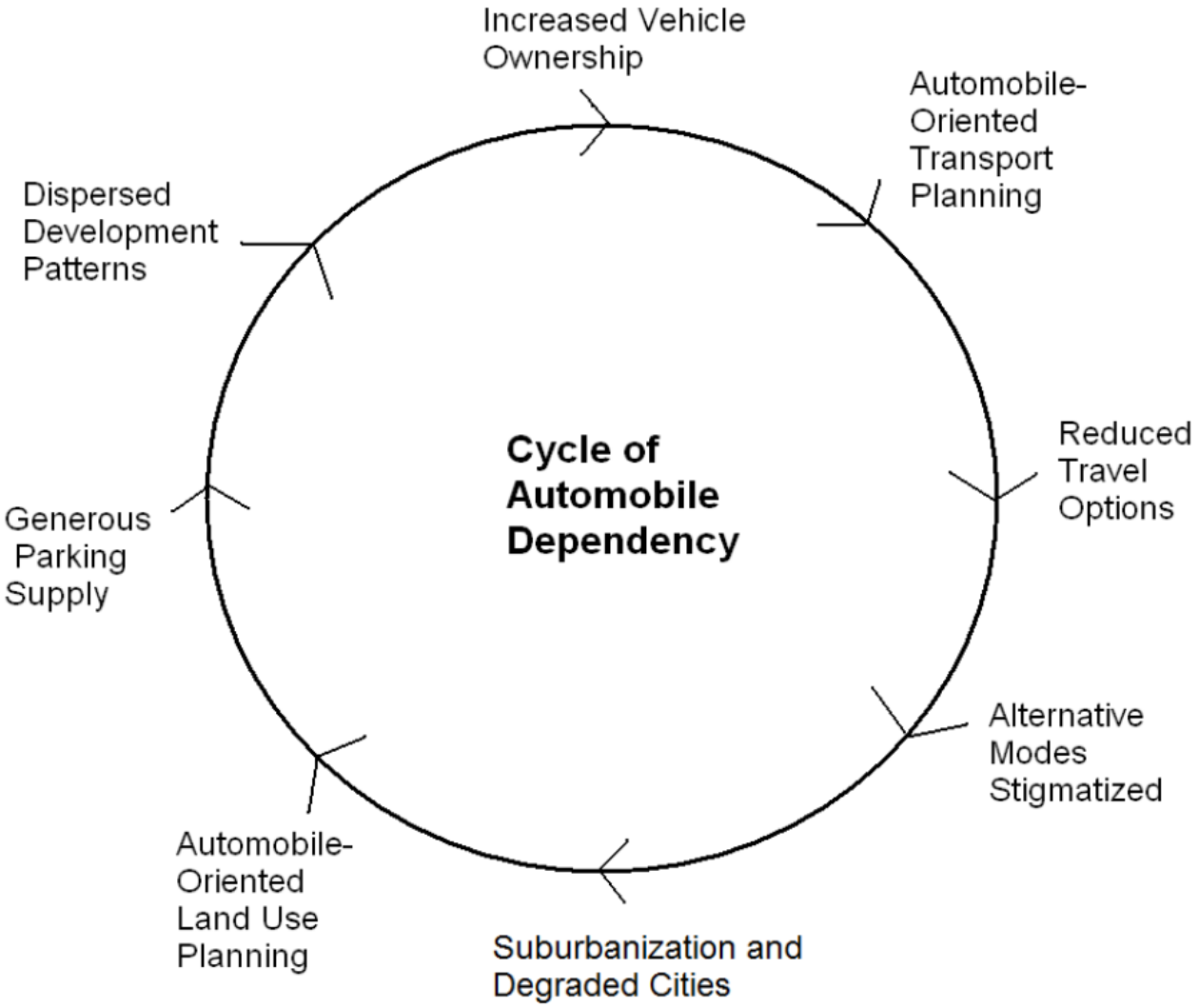
THE EVOLUTION OF URBAN ACCESSIBILITY PATHWAYS

Source: ADB 2009 based on Barter



THE SELF-REINFORCING CYCLE OF SPRAWL AND AUTOMOBILE DEPENDENCE

Source: Litman 2014



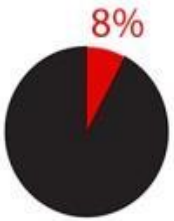
URBAN FORM AND INFRASTRUCTURE: LOCKING IN MOBILITY PATTERNS

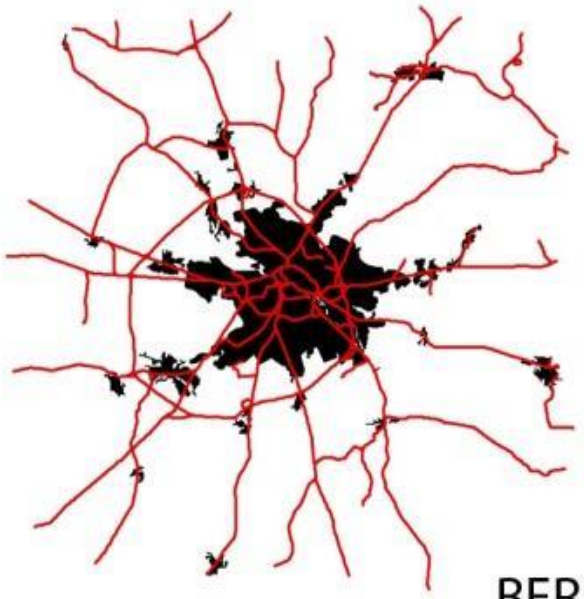
Source: LSE Cities 2014

ATLANTA

Pop 5,430,549
GDP per capita 54,853$

580 people per km² (average)
5% population living 500m from rail based public transport network

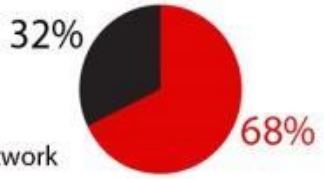




BERLIN

Pop 4,280,544
GDP per capita 37,147$

3,930 people per km² (average)
33% population living 500m from rail based public transport network



LEGEND:

urban area
rail based public transport network

0 15 60 km

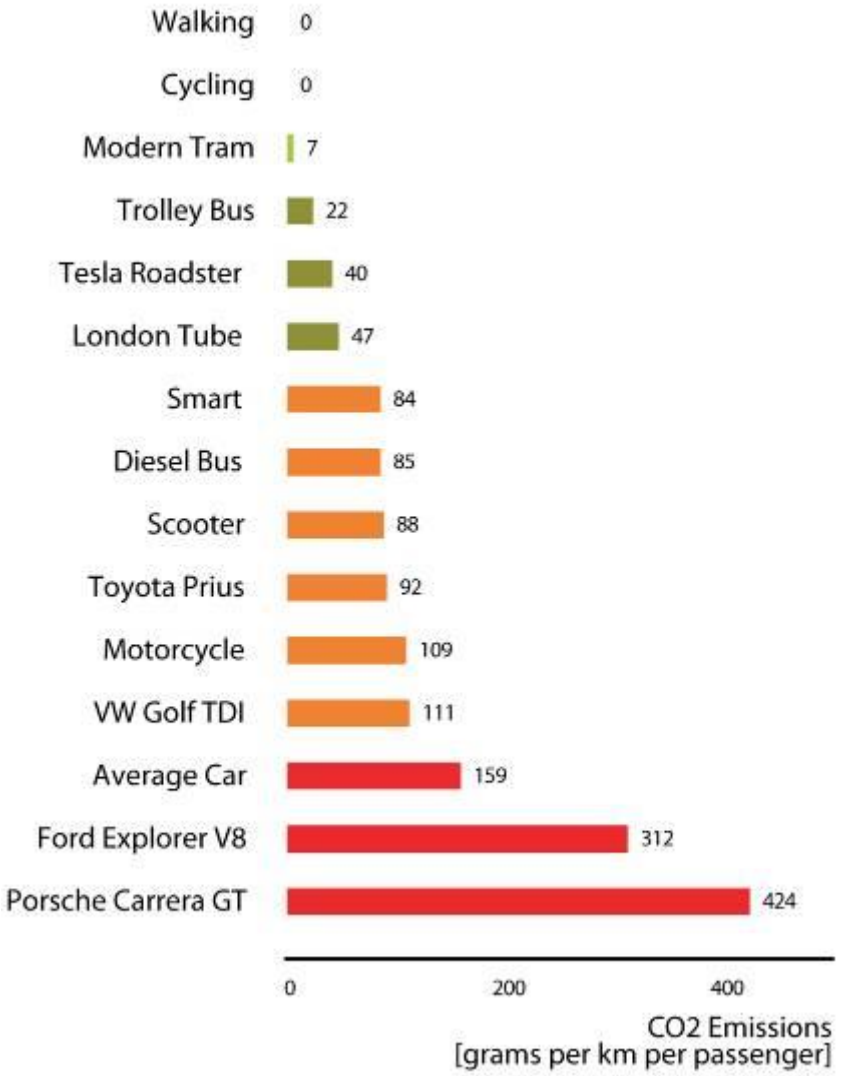
Modal share in political city:

% Private motorised

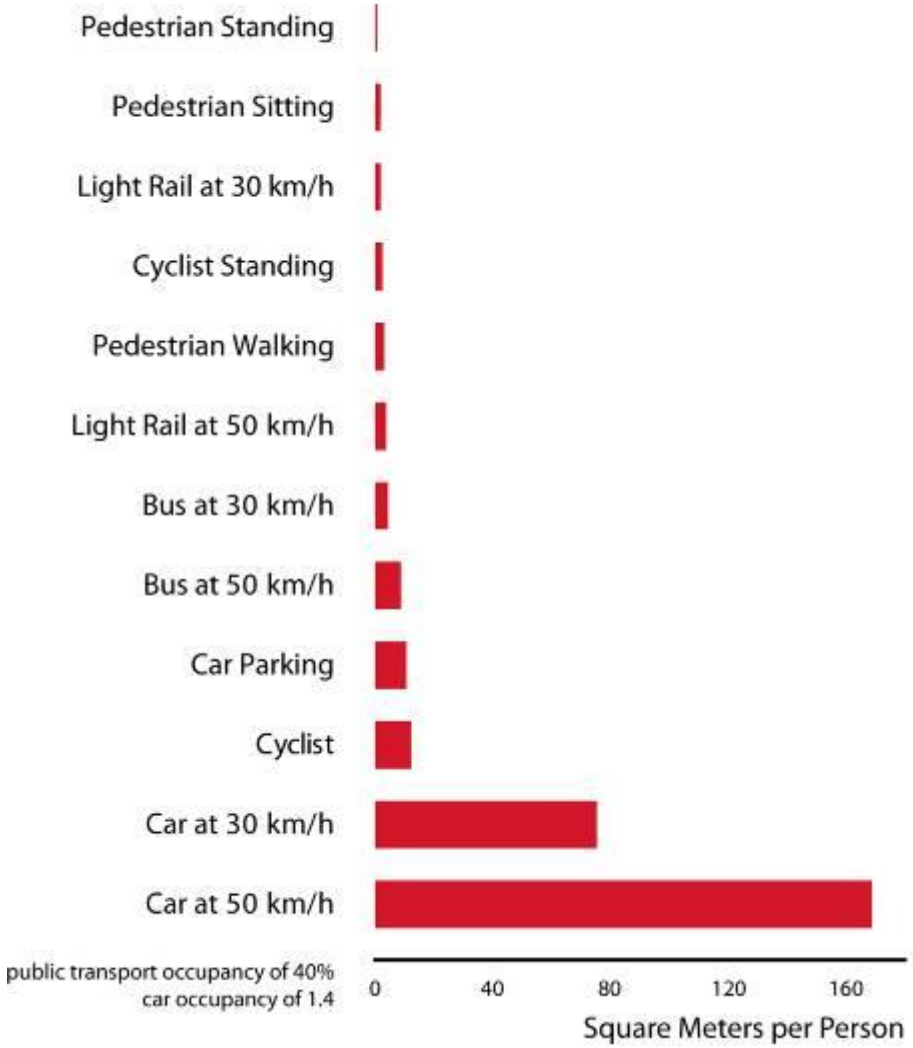
Public transport, walking and cycling %

IMPACTS OF URBAN TRANSPORT MODES

Environmental impact

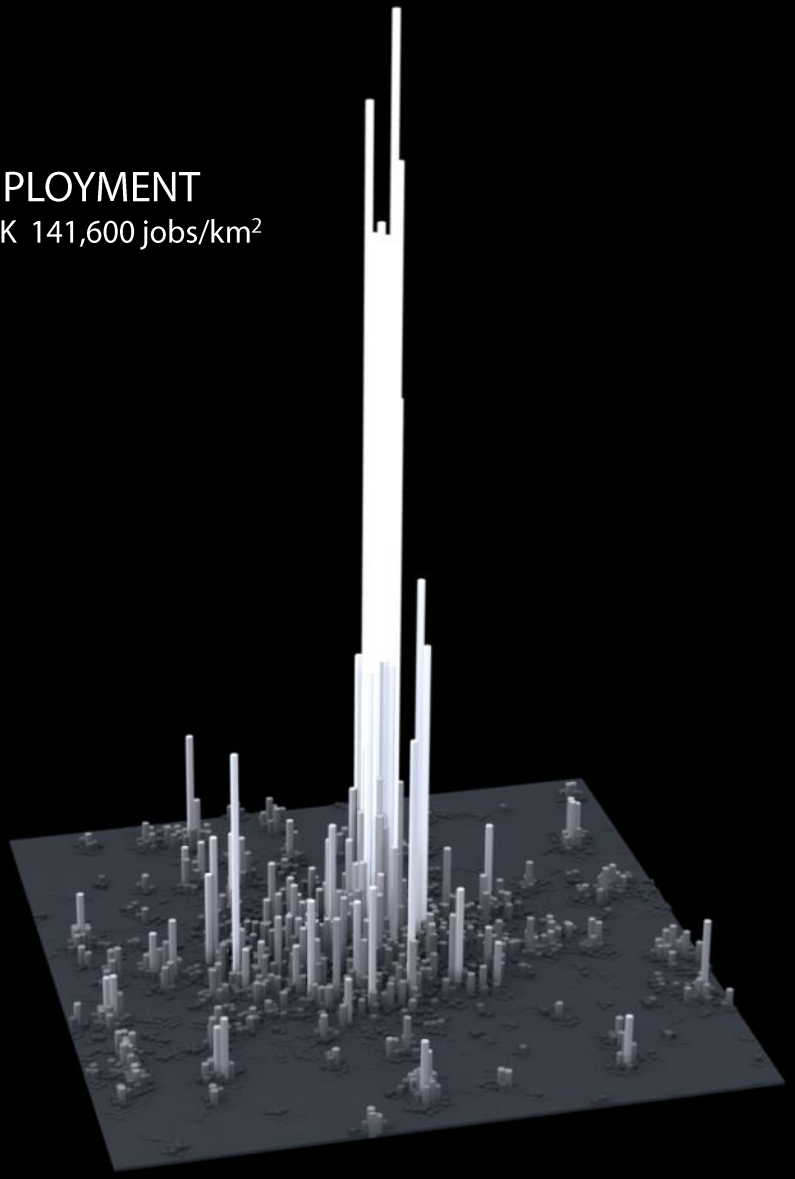


Space Consumption

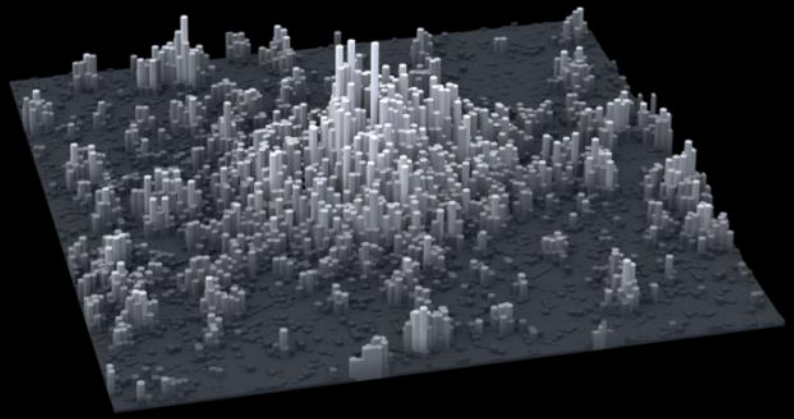


LONDON | LOCATION OF WORKING AND LIVING

EMPLOYMENT
PEAK 141,600 jobs/km^2



RESIDENTS
PEAK 27,100 pp/km^2

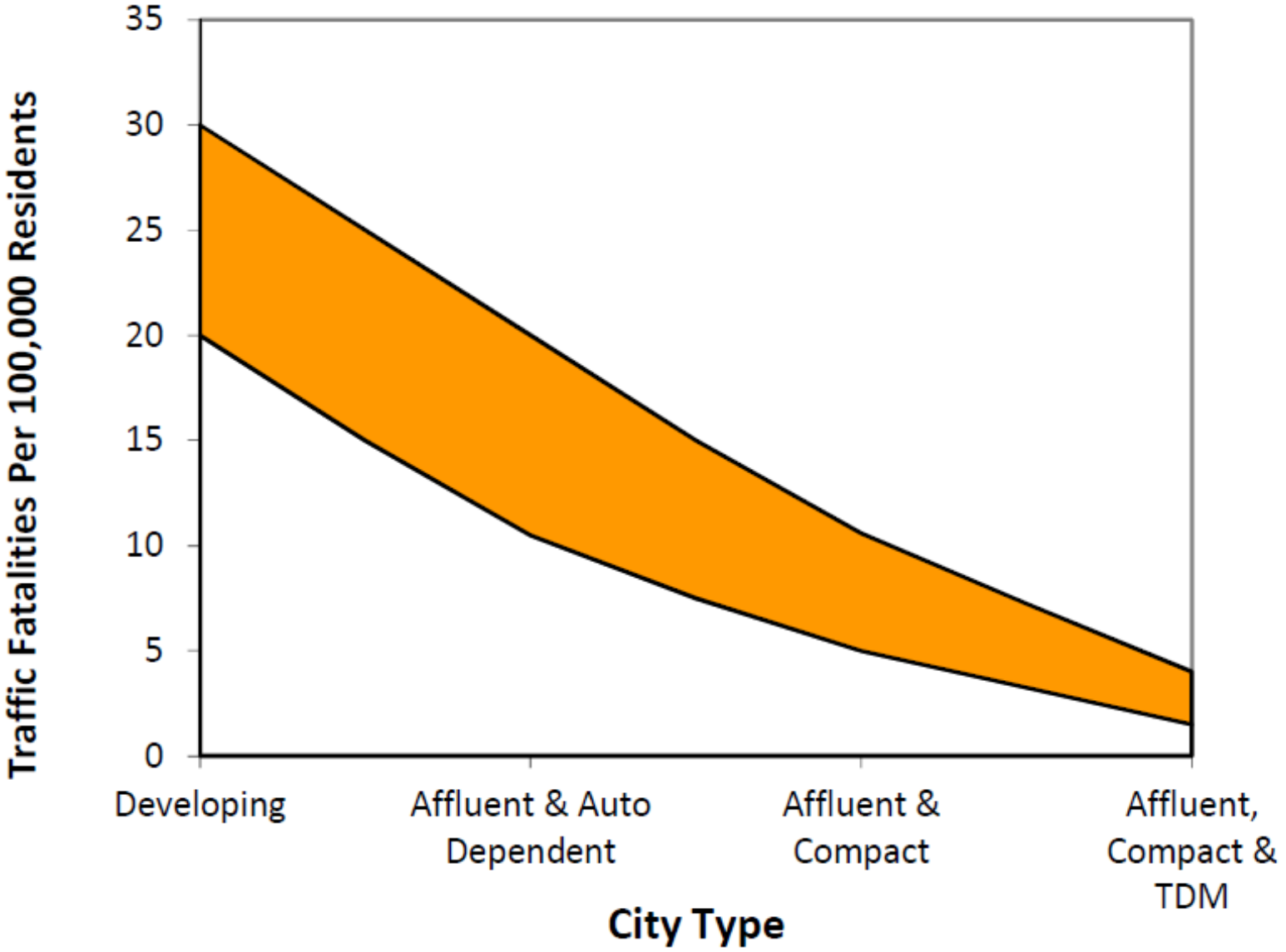


CONGESTION: LOSS OF PRODUCTIVITY IN URBAN AREAS

Up to 15% of GDP in Beijing (Creutzig and He 2009);
Buenos Aires 3.4%, Mexico City 2.6% and Dakar 3.4% (World Bank 2002)

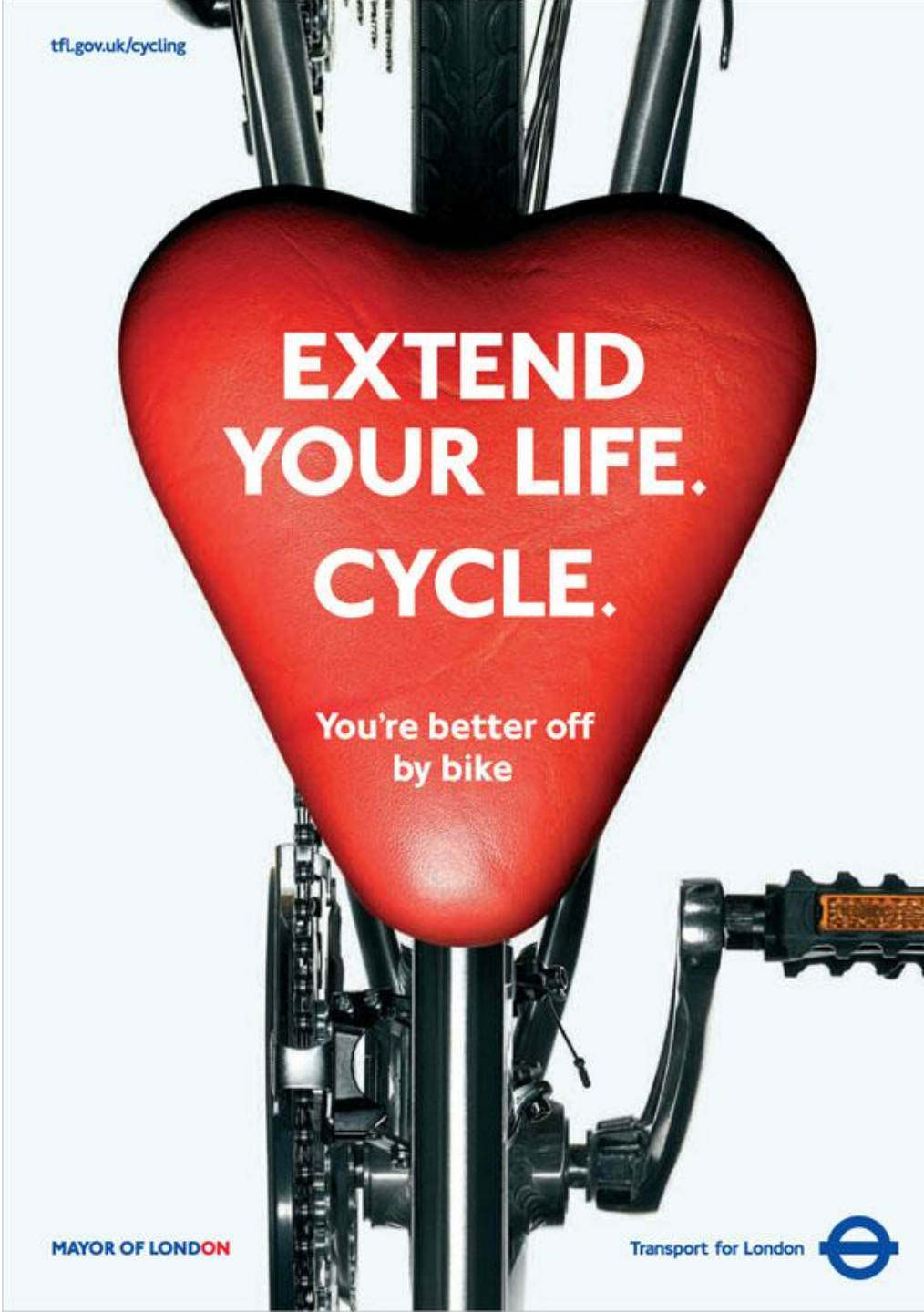
TRAFFIC FATALITIES

Source: Litman 2014

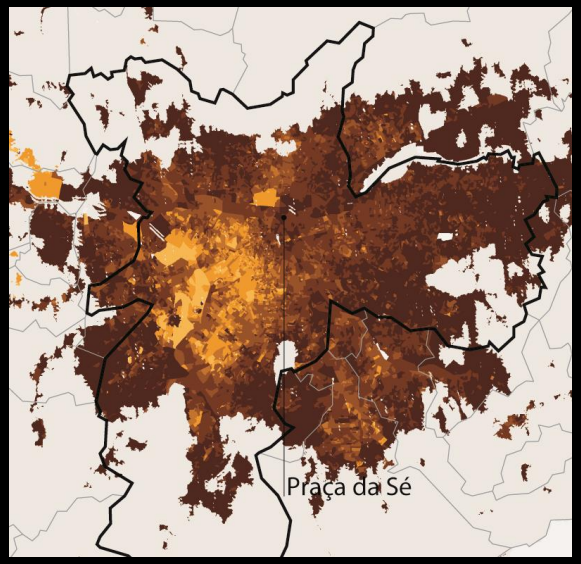


HEALTHIER LIFESTYLES

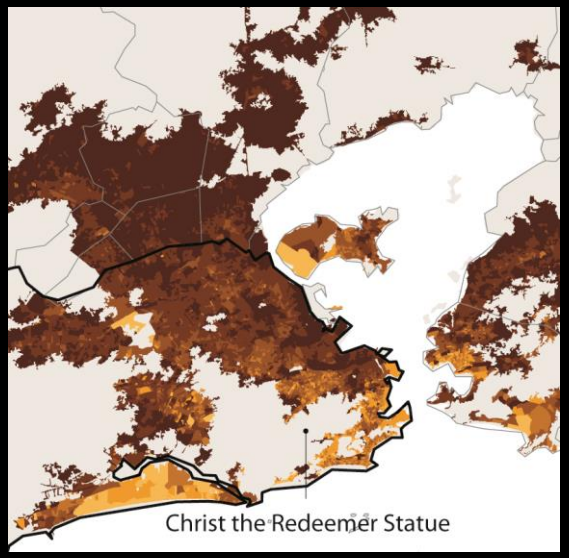
- It is estimated that physical inactivity accounts for 3.3 per cent of all deaths globally and for 19 million disability-adjusted life-years
- About 60 per cent of the world population do little physical activity
- 40 million Americans classified as obese
- Two 15 minutes trips by bicycle every day are enough to satisfy basic cardiovascular health
- Copenhagen and Munich rank amongst the top 10 healthiest and safest cities



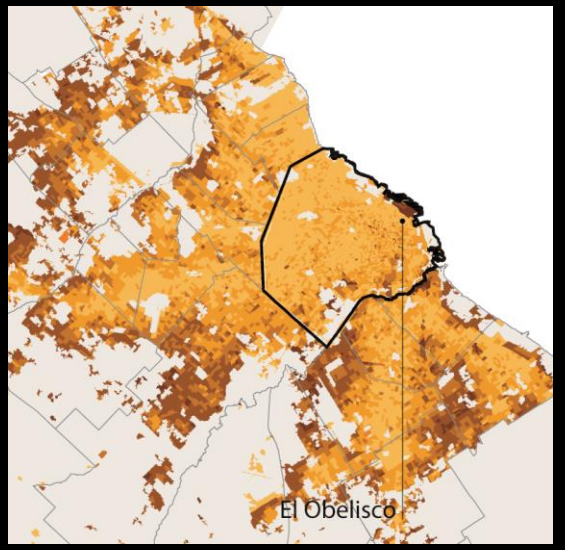
SOCIAL EXCLUSION: PERIPHERALISATION OF THE DISADVANTAGED



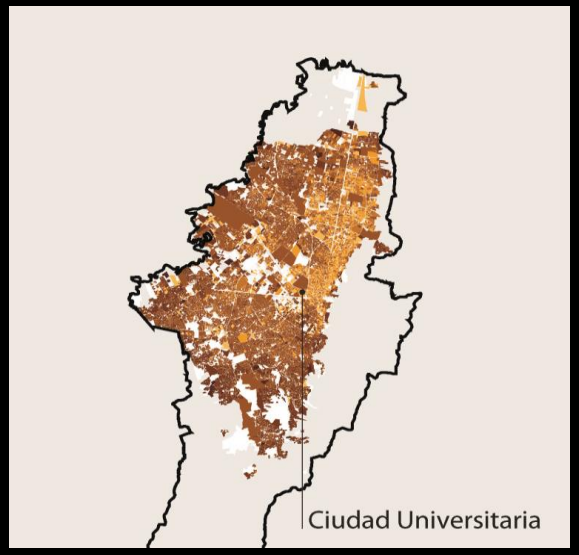
SAO PAULO



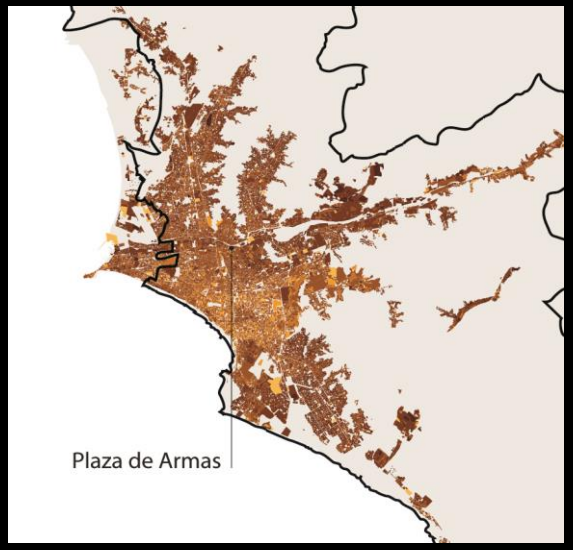
RIO DE JANEIRO



BUENOS AIRES



BOGOTA

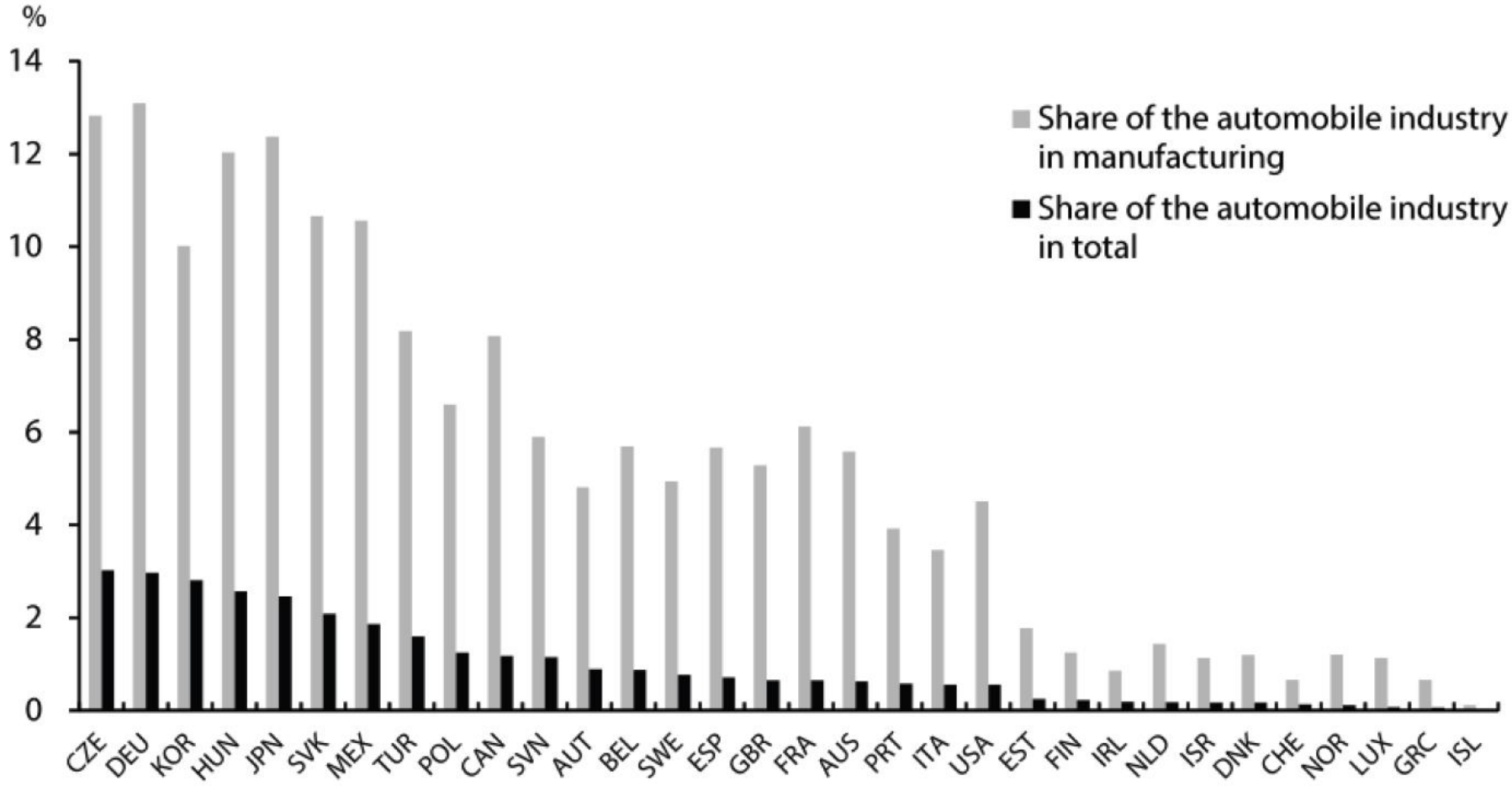


LIMA


WILLIAM NICOL DRIVE
SKP 813 GP
RVJ 068 GP

AUTOMOBILE INDUSTRY VALUE ADD AS % OF TOTAL

Source: OECD 2011

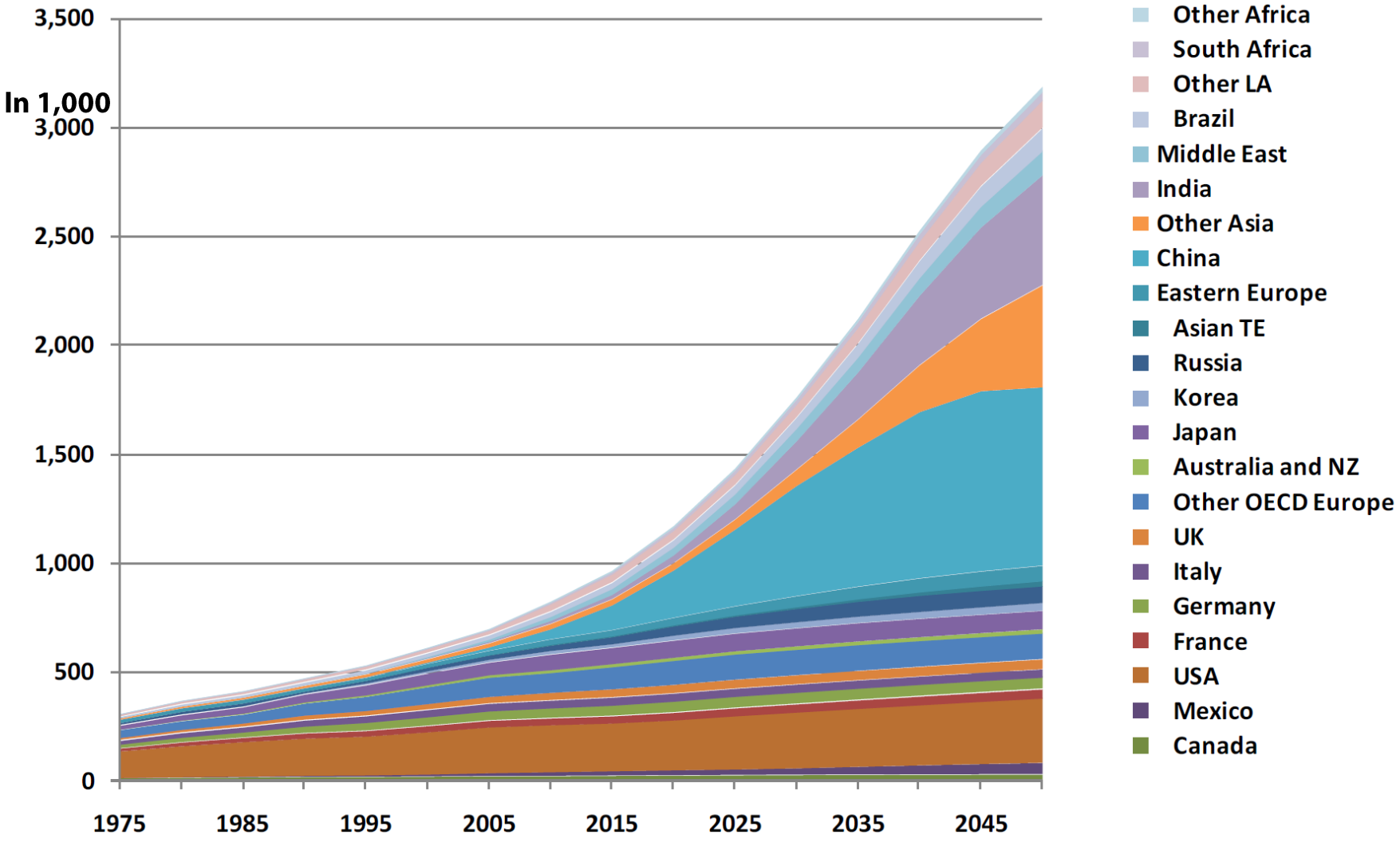


3x increase

of urban land from 2000 to 2030 (Seto et al 2012)

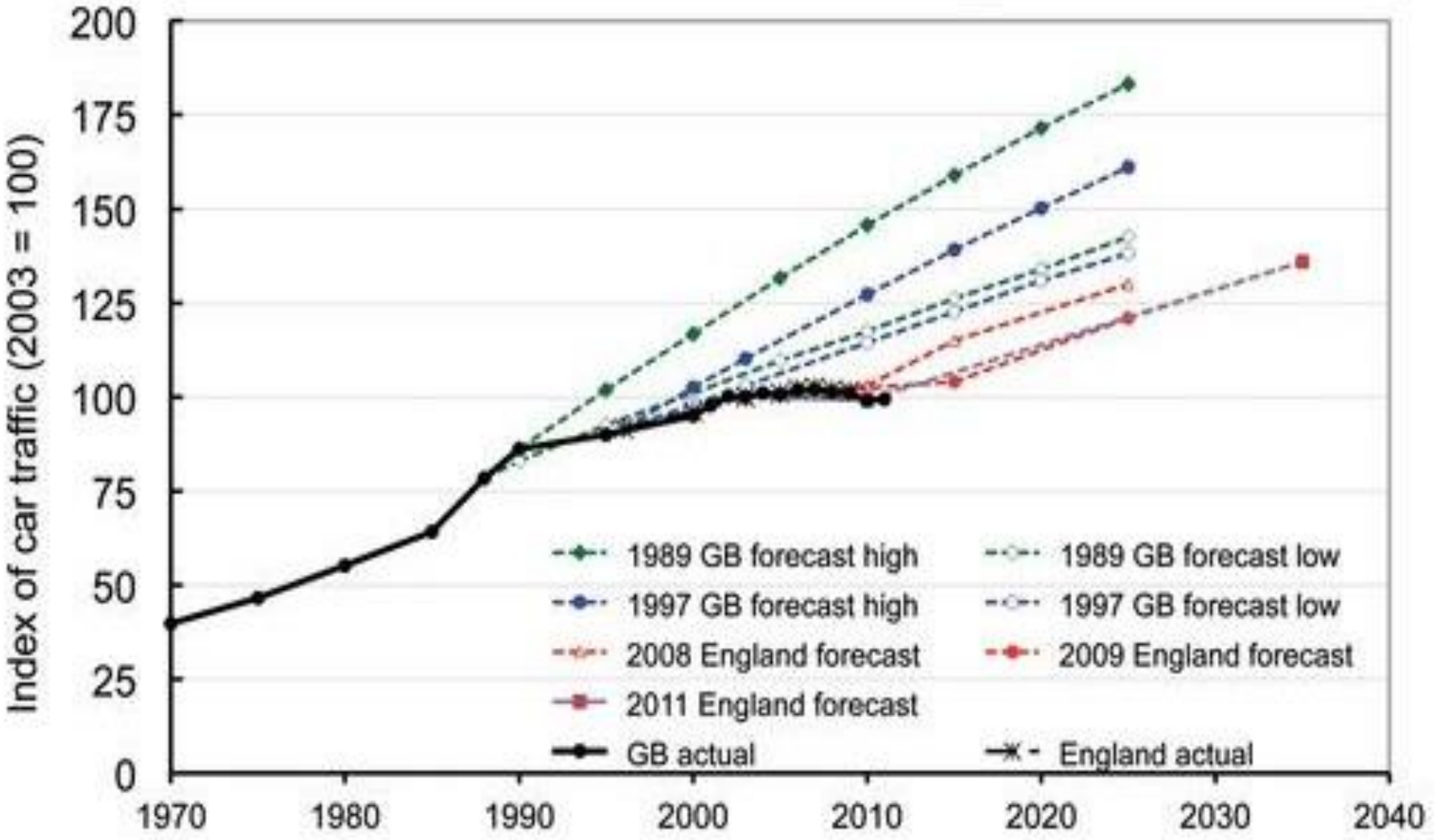
TOTAL STOCK IN MOTOR CARS

Source: Fulton/IEA 2008



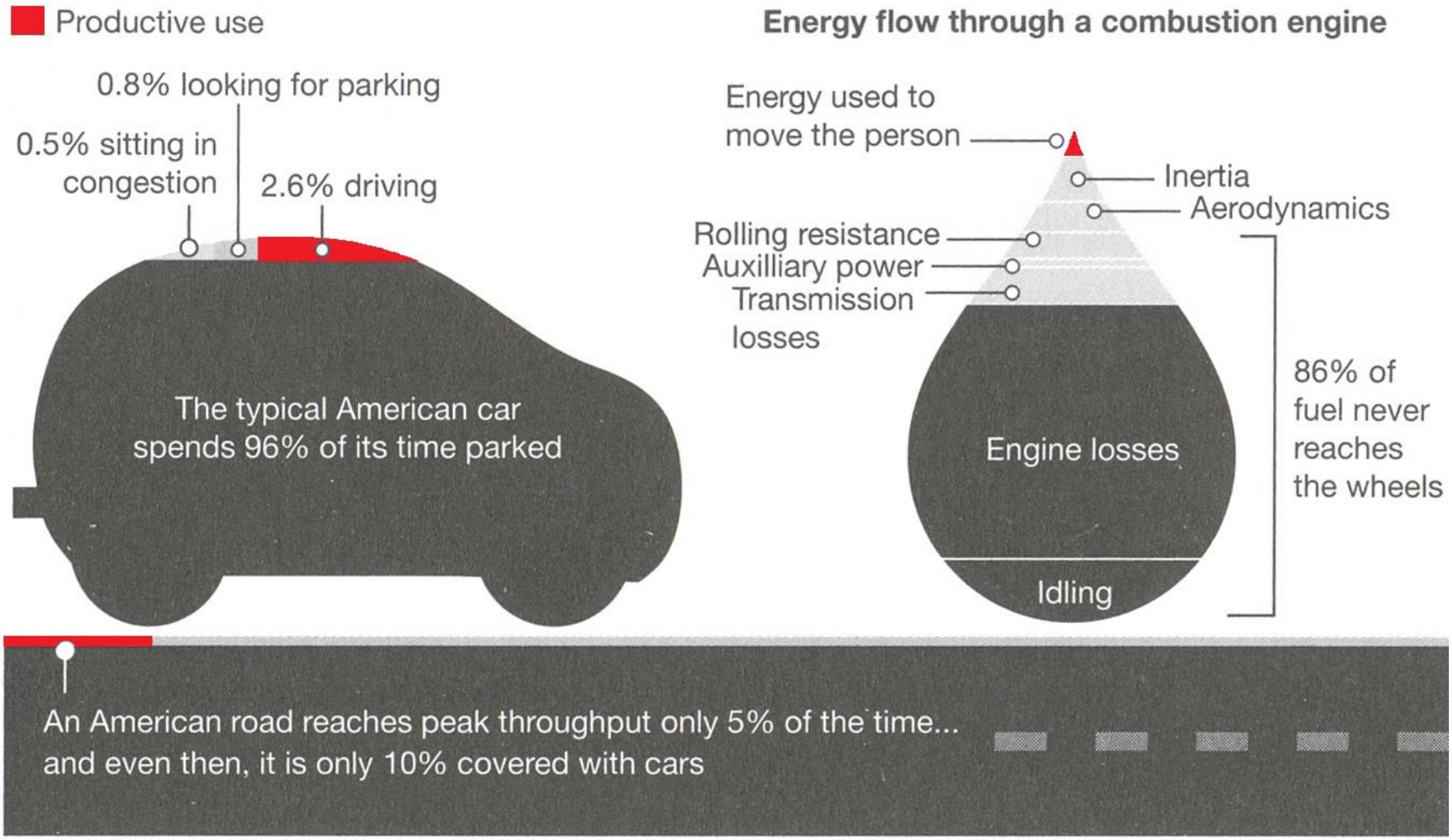
UK DEPARTMENT FOR TRANSPORT TRAFFIC FORECASTS VS. ACTUAL

Source: Goodwin 2012 and Williams Derry 2013



WASTE IN FUEL, CARS, AND ROADS CAUSED BY AUTOMOBILITY

Source: Heck and Rogers 2014

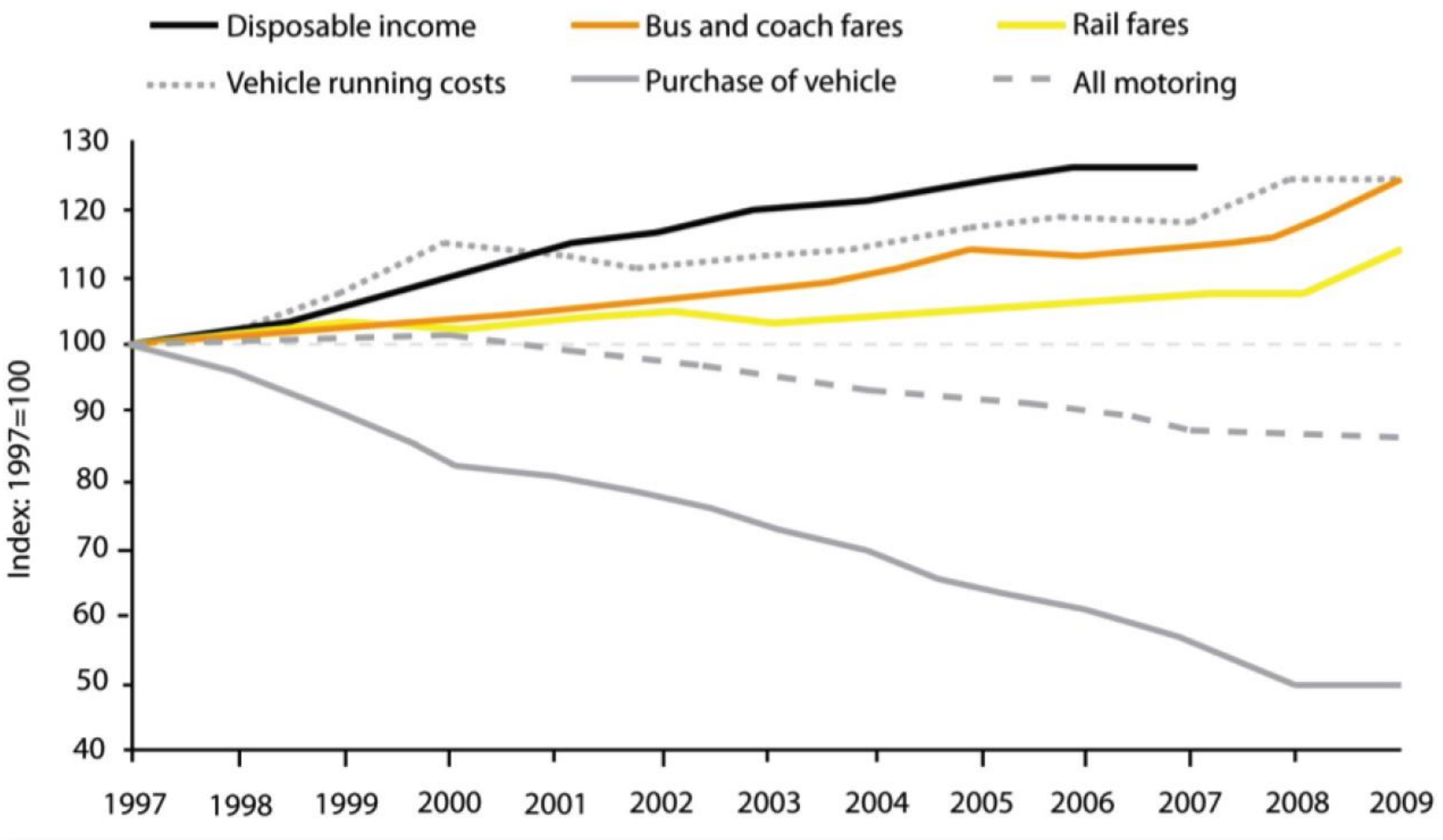


AUTONOMOUS VEHICLES: FULL MOBILITY, 1/3 OF VEHICLES

MIT Study (Spieser et al 2014) suggests that a shared-vehicle mobility-on-demand systems can meet the personal mobility needs of the entire population with a fleet whose size is approximately 1/3 of the total number of passenger vehicles currently in operation.

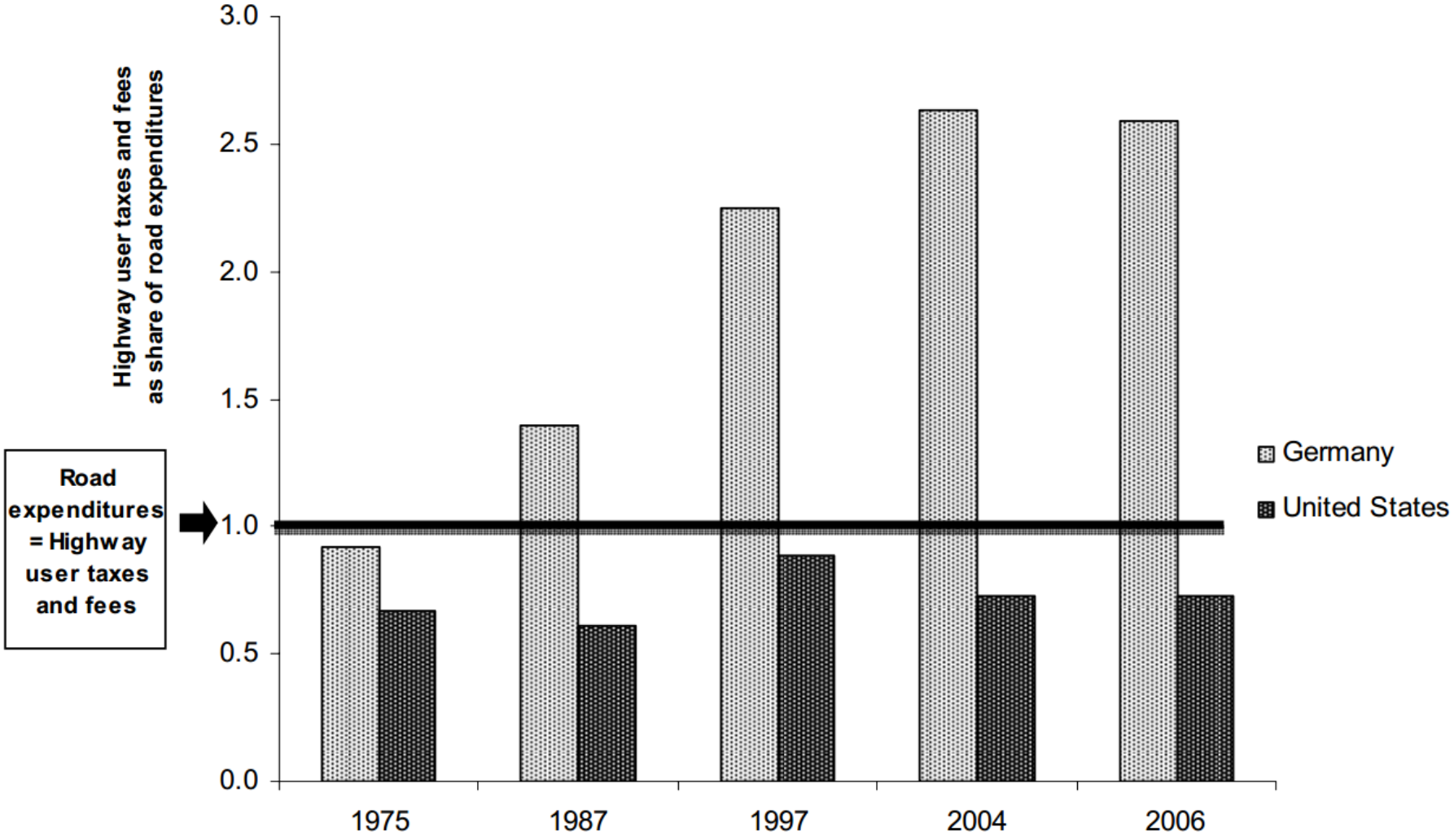
UK REAL COST OF TRANSPORT AND INCOME

Source: Office of National Statistics (2010)



HIGHWAY TAXES & FEES AS SHARE OF TOTAL PUBLIC ROAD EXPENDITURES

Source: Buehler, Pucher and Kunert 2009



COPENHAGEN
CYCLING

MEDELLIN
METROCABLE

PARIS
VELIB

BOGOTA
TRANSMILENIO

LONDON
CONGESTION CHARGE

HONG KONG
RAIL PROPERTY POLICY

SAO PAULO
BUSES

NYC CYCLING

BERLIN
E-MOBILITY

ZURICH
TRAMS

DELHI
BRT

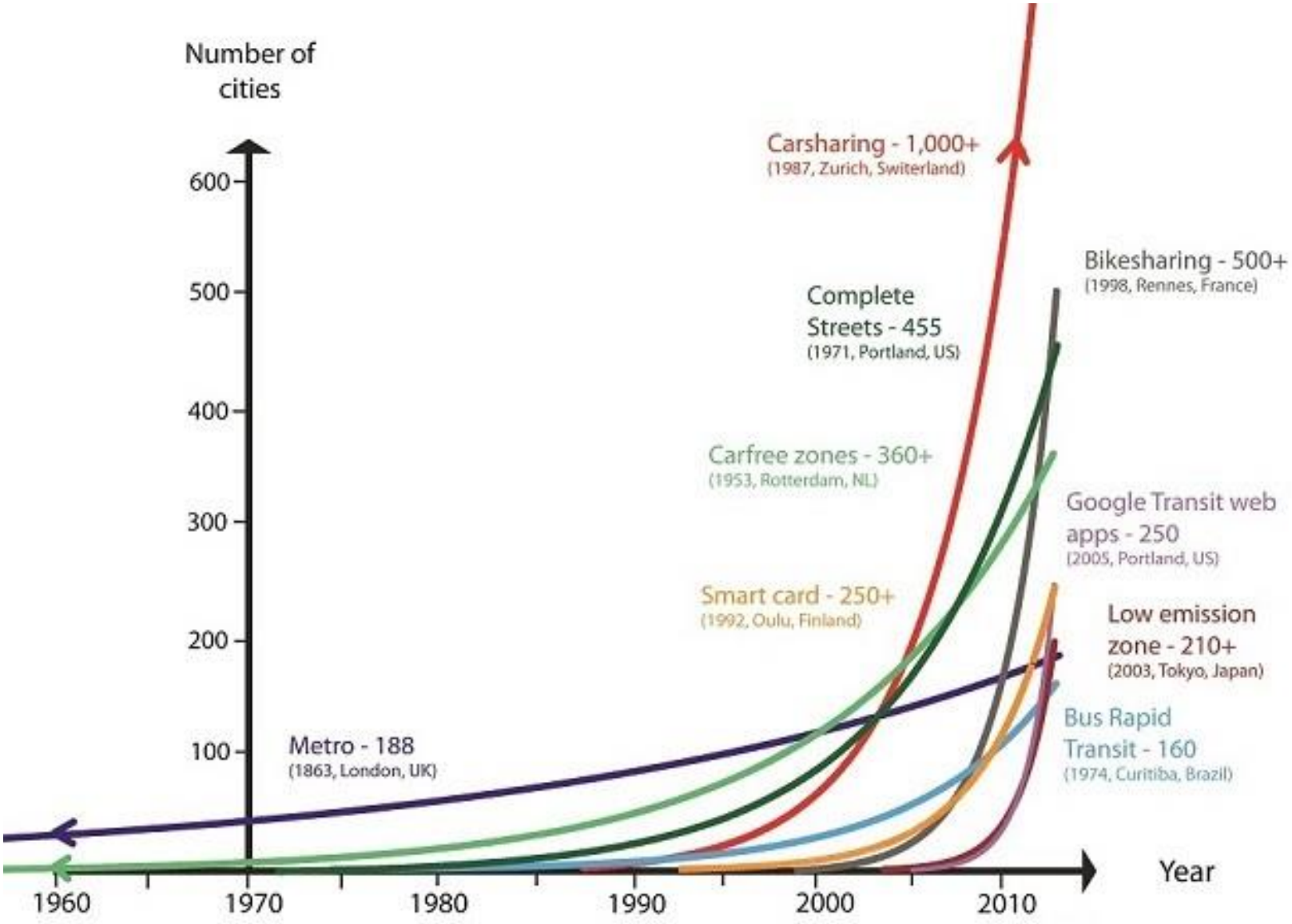
ADDRESSING MARKET DISTORTIONS

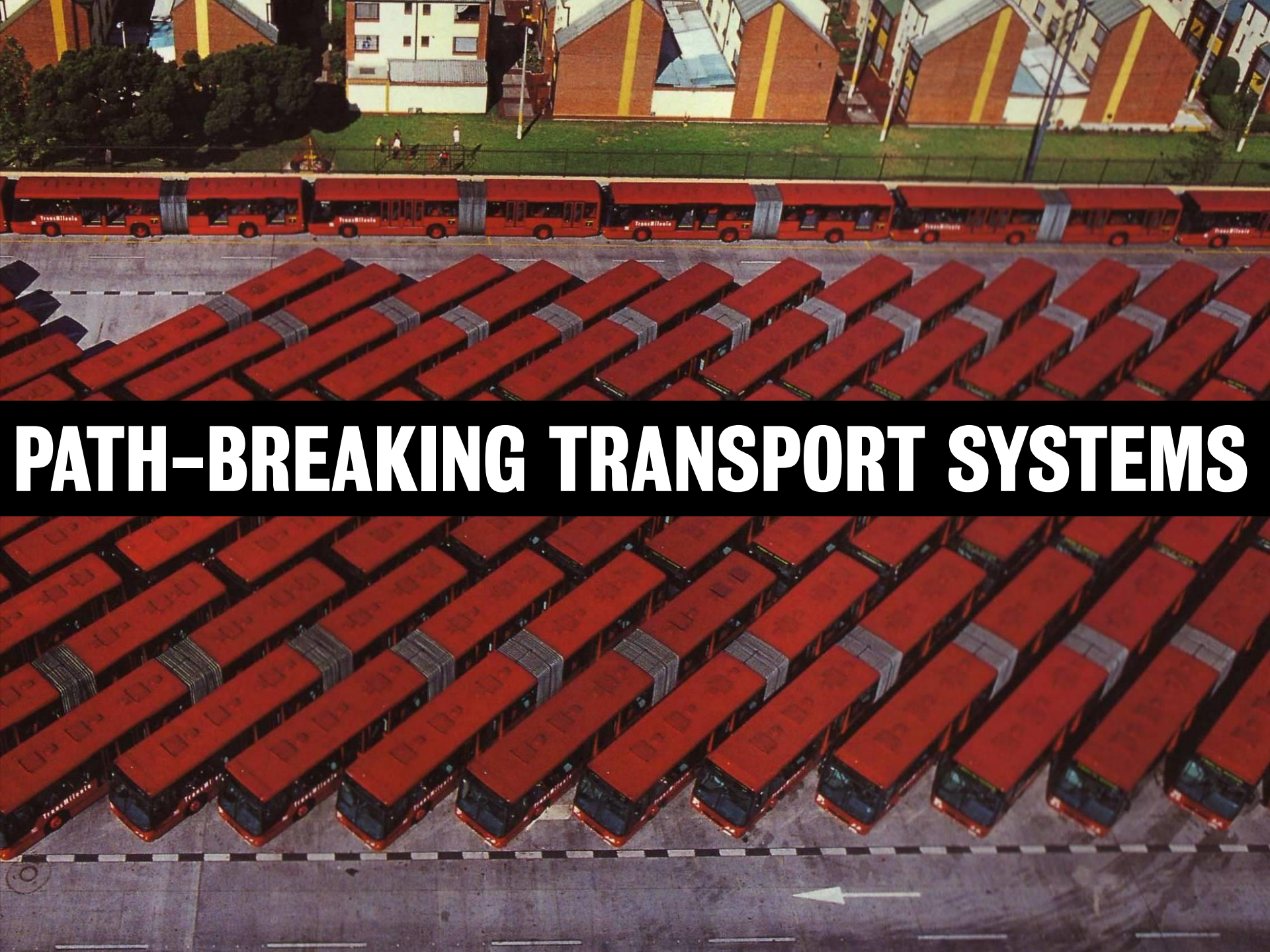
Source: Litman 2014

Distortions	Impacts	Reforms
Restrictions on density, mix, and multi-family housing.	Reduces development densities and increases housing costs.	Allow and encourage more compact, mixed development.
High minimum parking requirements.	Reduces density and discourages infill development. Subsidizes automobile ownership and use.	Eliminate minimum parking requirements, set maxima, require or encourage parking unbundling.
Underpriced public services to sprawled locations.	Encourages sprawl. Increases government costs.	Development and utility fees that reflect the higher costs of providing public services to sprawled locations.
Tax policies that support home purchases.	Encourages the purchase of larger, suburban homes.	Eliminate or make neutral housing tax policies.
Automobile-oriented transport planning.	Favors automobile travel over other modes. Degrades walking and cycling.	More neutral transport planning and funding.
Transport underpricing (roads, parking, fuel, insurance, etc.).	Encourage vehicle ownership and use.	More efficient pricing.
Tax policies that favor automobile commuting.	Encourages automobile travel over other modes.	Eliminate parking tax benefits or provide equal benefits for all modes.

SUSTAINABLE URBAN TRANSPORT ADOPTATION

Source: Embarq 2014





PATH-BREAKING TRANSPORT SYSTEMS


B026


CARMELITE
RIVER
NO ENTRY


Berlin Friedrichstraße
TRAVESTIE-BALLETT
17.-29.04.2007
ADMIRALSPALAST BERLIN
DB
BAHNHOF FRIEDRICHSTRASSE
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