

# Die Stadt der Zukunft – Globale Perspektiven bis 2020

Presentation

Entwicklung findet Stadt – Globale Perspektiven für  
kommunale Entwicklung

Konferenz

19 Mai 2009

Siemens Forum Wien

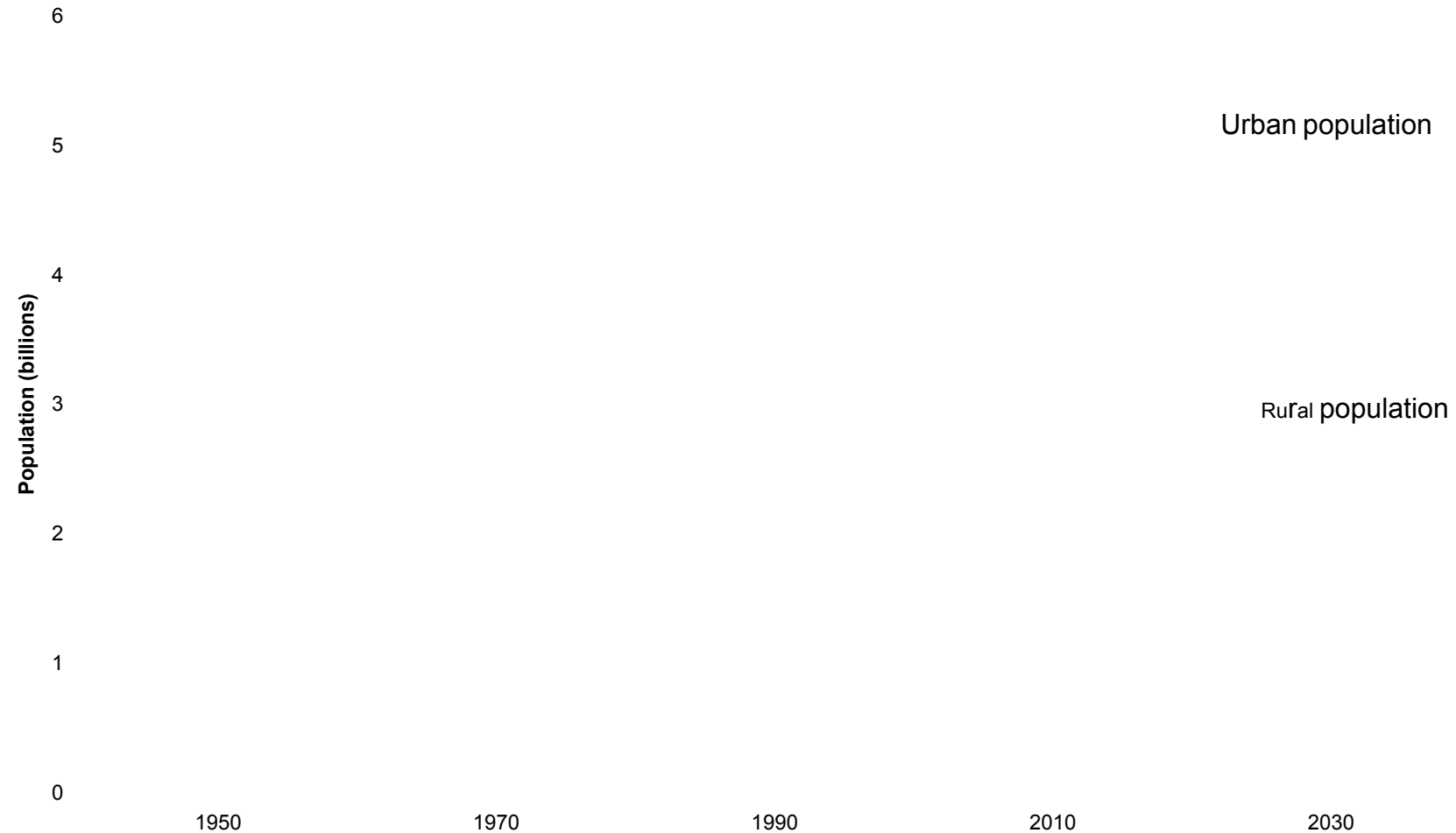
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Imperial College und PricewaterhouseCoopers

London

PwC

# We mostly live in cities now



# Why measure and project the GDP of cities?

## Cities are not only large population centres...



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Why measure and project the GDP of cities?

...they are also centres of production and consumption ....



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Why measure and project the GDP of cities?

... carrying commercial and cultural weight.

The New York Times



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How to measure and project cities' GDP?

## 2005 GDP estimate for Mexico City:

$$\begin{array}{ccccc} \text{2005 city GDP} & & \text{Population} & & \text{GDP per capita}^* \\ \$315 \text{ billion} & = & 19.4 \text{ million} & \times & \$16.2\text{k} \end{array}$$

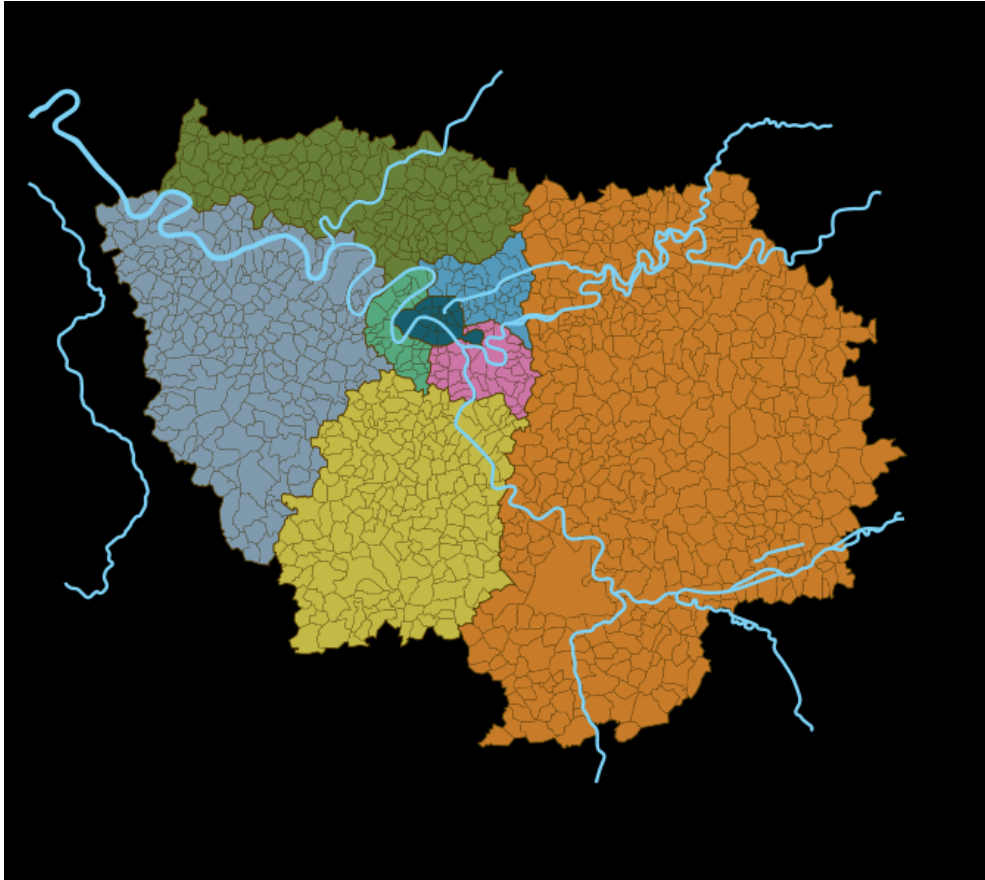
\* Based on 2002 OECD city GDP per capita (\$14.3k), extrapolated to 2005 using inflation rates, national GDP growth rates and city population growth rates

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# How to measure and project cities' GDP?

## Firstly, where exactly are the city limits?



Paris-Île-de-France  
or  
Paris

How to measure and project cities' GDP

So how big was London's population in 2005?

United Nations  
9 million



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Brinkhoff  
12 million

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What do the results show?

The top 10 cities in 2005: bigger than some countries

UK = \$2.3 trillion

Russia

Tokyo = \$1.2 trillion

Spain

New York

Canada

Australia

Los Angeles

Poland

Chicago

\$0.5 trillion =

Paris

London

Philippines

Osaka/Kobe

Belgium

Mexico City

Philadelphia

Washington, DC

Sweden

Switzerland = \$0.3 trillion

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How to measure and project cities' GDP?

## 2020 GDP Estimate for Mexico City:

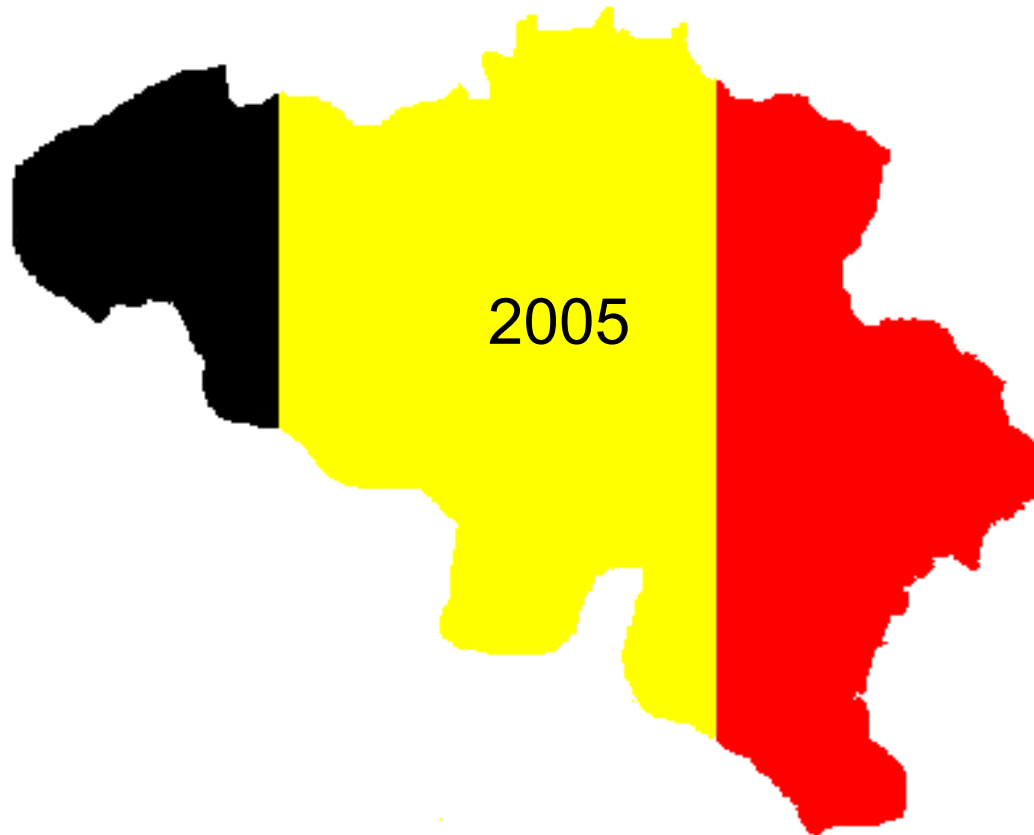
$$\begin{array}{rcl} \text{2005 city GDP} & & \text{Population} \\ \$315 \text{ billion} & = & 19.4 \text{ million} \\ & & \times \text{GDP per capita}^* \\ & & \$16.2\text{k} \end{array}$$

$$\begin{array}{rcl} \text{2020 city GDP} & & \text{Population} \\ \$608 \text{ billion} & = & 22.4 \text{ million} \\ & & \times \text{GDP per capita}^{\wedge} \\ & & \$27.2\text{k} \end{array}$$

\* Based on 2002 OECD city GDP per capita (\$14.3k), extrapolated to 2005 using inflation rates, national GDP growth rates and city population growth rates

<sup>^</sup> Based on the 2005 city GDP per capita estimate (\$16.2k), extrapolated to 2020 using forecast city GDP per capita growth rates, which are in turn derived from forecast national GDP per capita growth rates, adjusting for city-national differentials

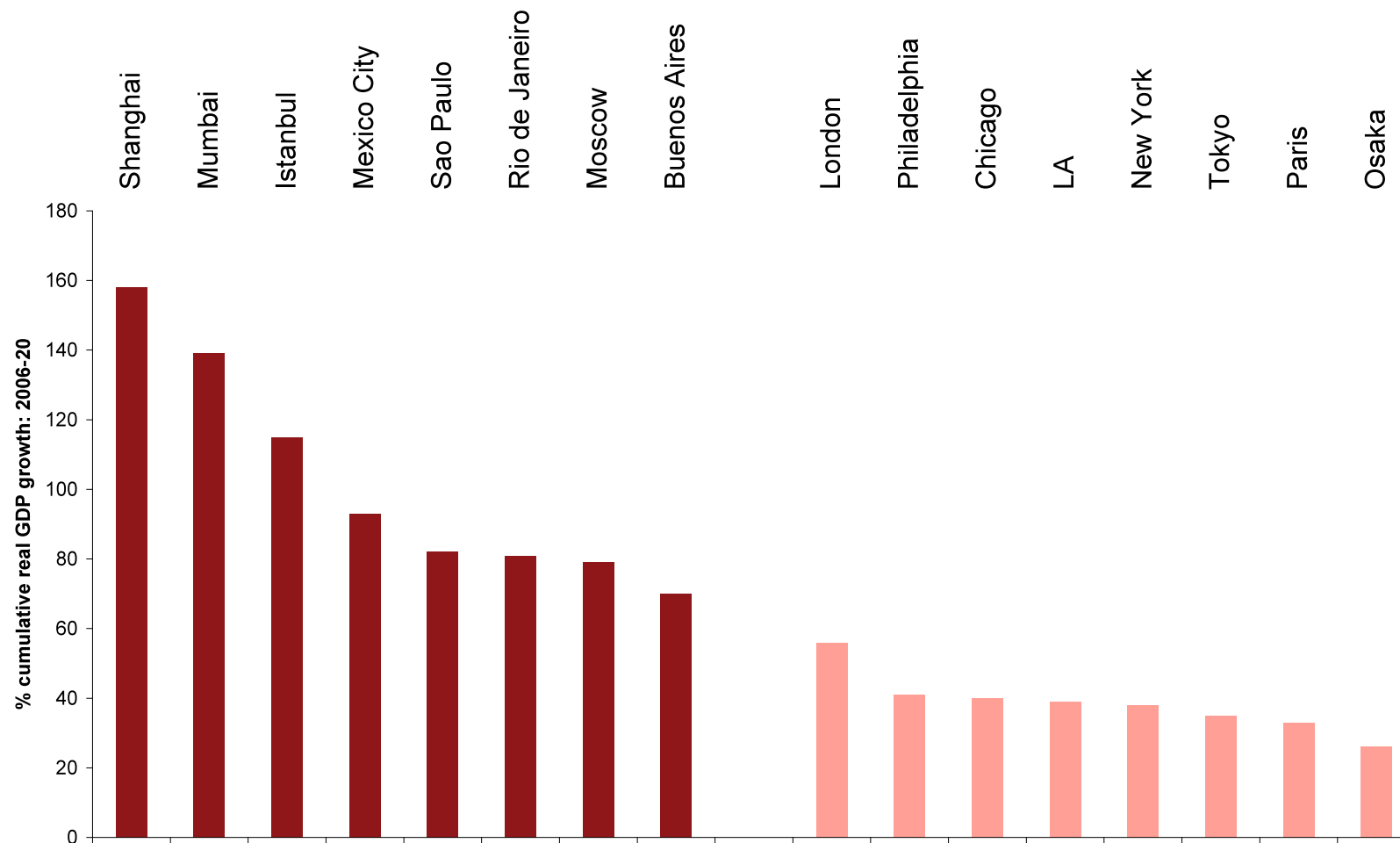
# Emerging market cities are becoming powerful economies



Mexico City in 2020  
=  
1.8 x Belgium in 2005

What do the results show?

## Emerging market cities are catching up...

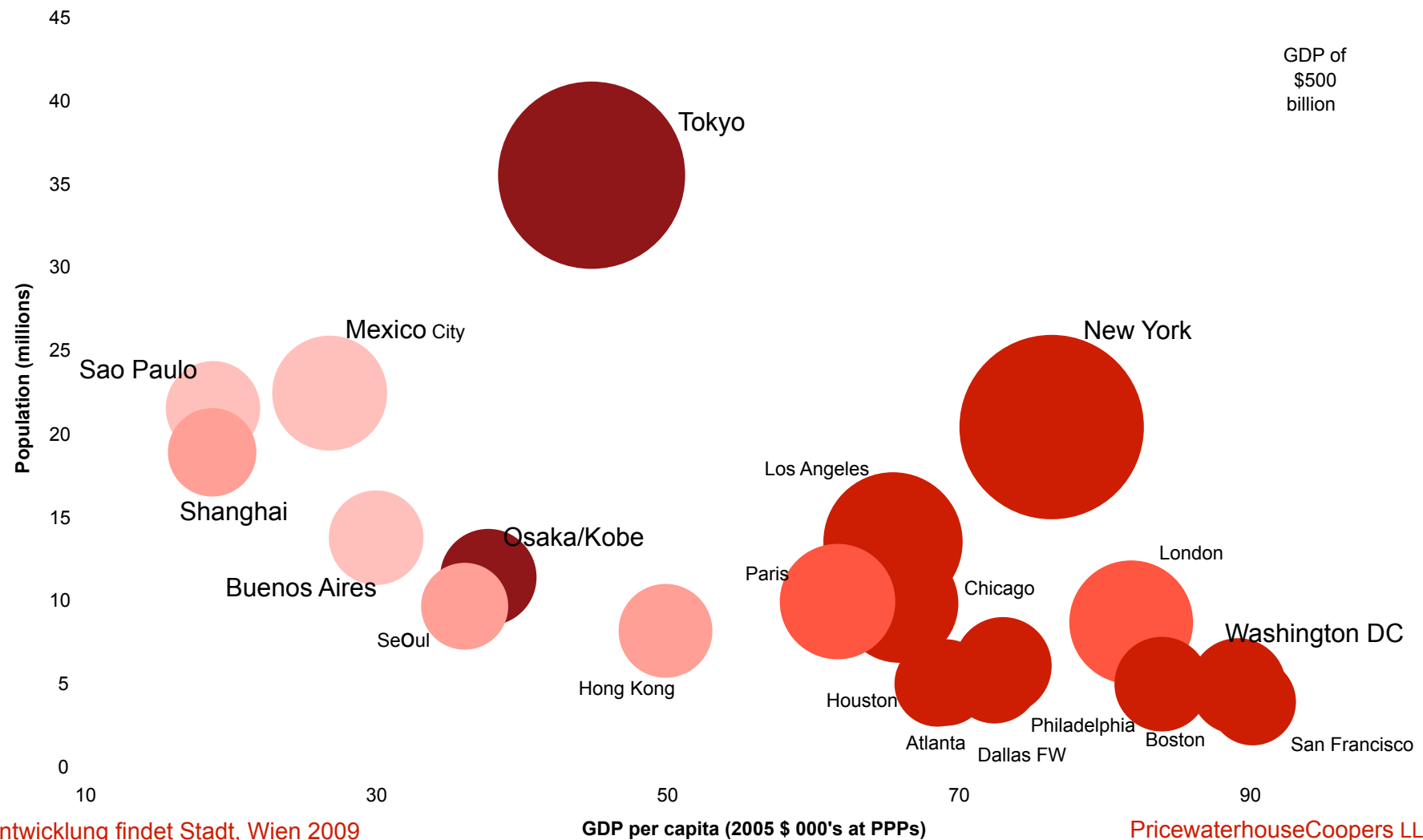


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What do the results show?

... and the top 20 in 2020 are:



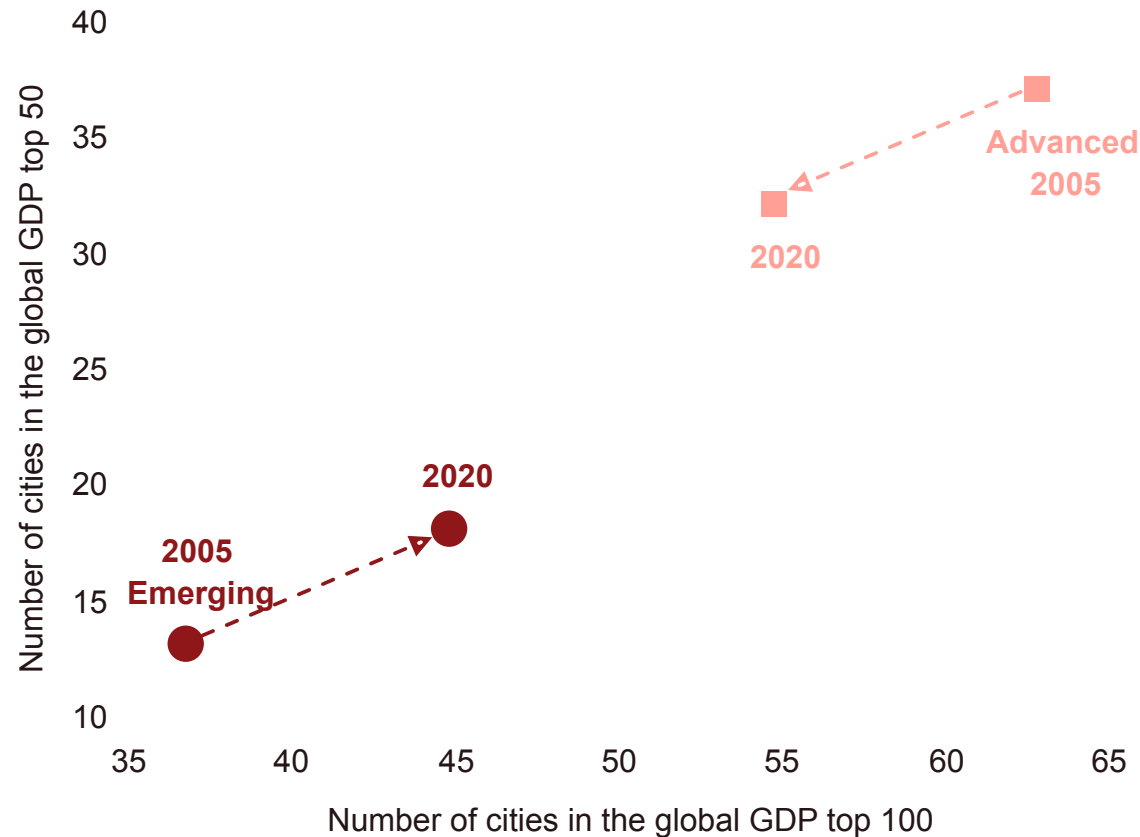
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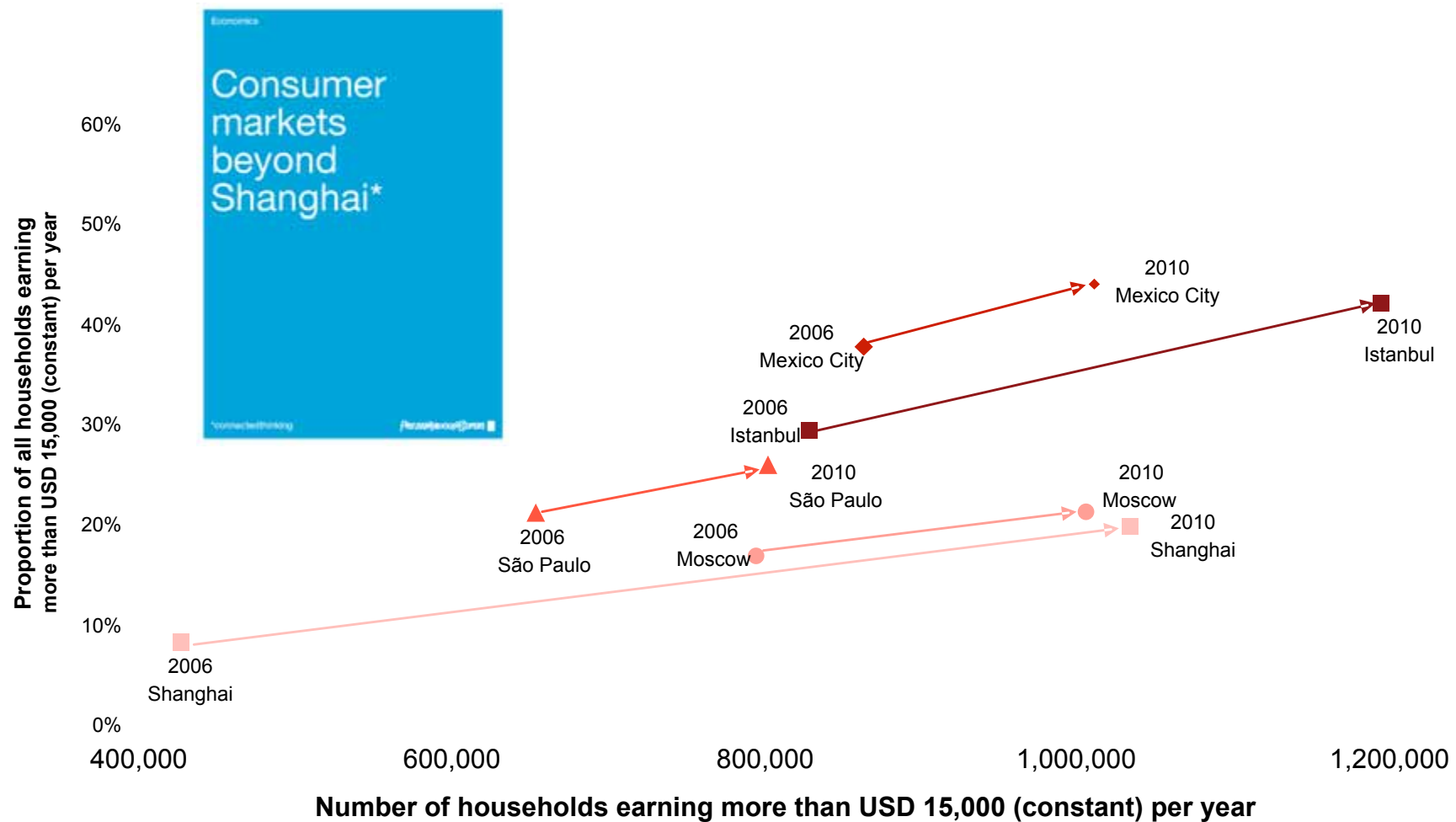
What do the results show?

... and claiming a bigger share of the top rankings.



What are the implications of our findings?

## Cities as consumer markets



**Table 1. Durable consumer goods per 100 households (in 2006 or most recent available)**

	China		India		Total
	Urban	Rural	Urban	Rural	
Automobiles	4.3	...	4.0	0.7	1.7
Bicycles	117.6	98.4	51.9	57.2	55.7
Cameras	48.0	3.7	0.0	0.0	0.0
Computers	47.2	...	0.0	0.0	0.0
Microwave ovens	50.6	...	...	...	...
Motorcycles <sup>a</sup>	20.4	44.6	28.3	7.9	13.6
Refrigerators	91.8	22.5	30.8	4.8	12.1
Telephones	93.3	64.1	...	...	...
Telephones: mobile	152.9	62.1	...	...	...
Televisions <sup>b</sup>	137.4	89.4	70.4	27.5	39.5
Video disc players <sup>c</sup>	70.2	...	8.2	1.7	3.6
Washing machines	96.8	43.0	12.5	0.9	4.1

*Notes:* <sup>a</sup> Data for India includes scooters. <sup>b</sup> Data for China includes only colour TVs. Data for India includes all TVs. <sup>c</sup> Data for India includes VCRs.

*Sources:* Data for China is based on tabulations of the National Bureau of Statistics (NBS) Urban Household Survey and Rural Household Survey, available through CEIC Data. Data for India is from the National Sample Survey Organization's (NSSO) Consumer Expenditure Survey.

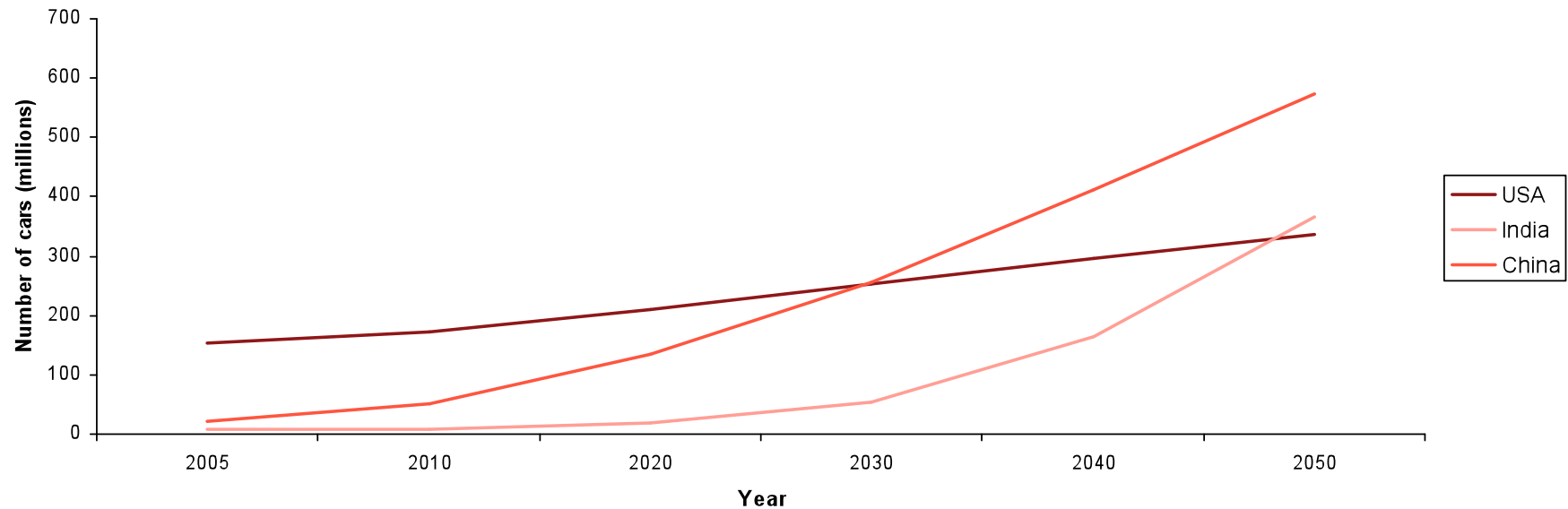
Source: Chamon, M., Mauro P., and Okawa Y. ; 'Mass car ownership in the emerging market giants', in Economic Policy, April 2008, 245-296.

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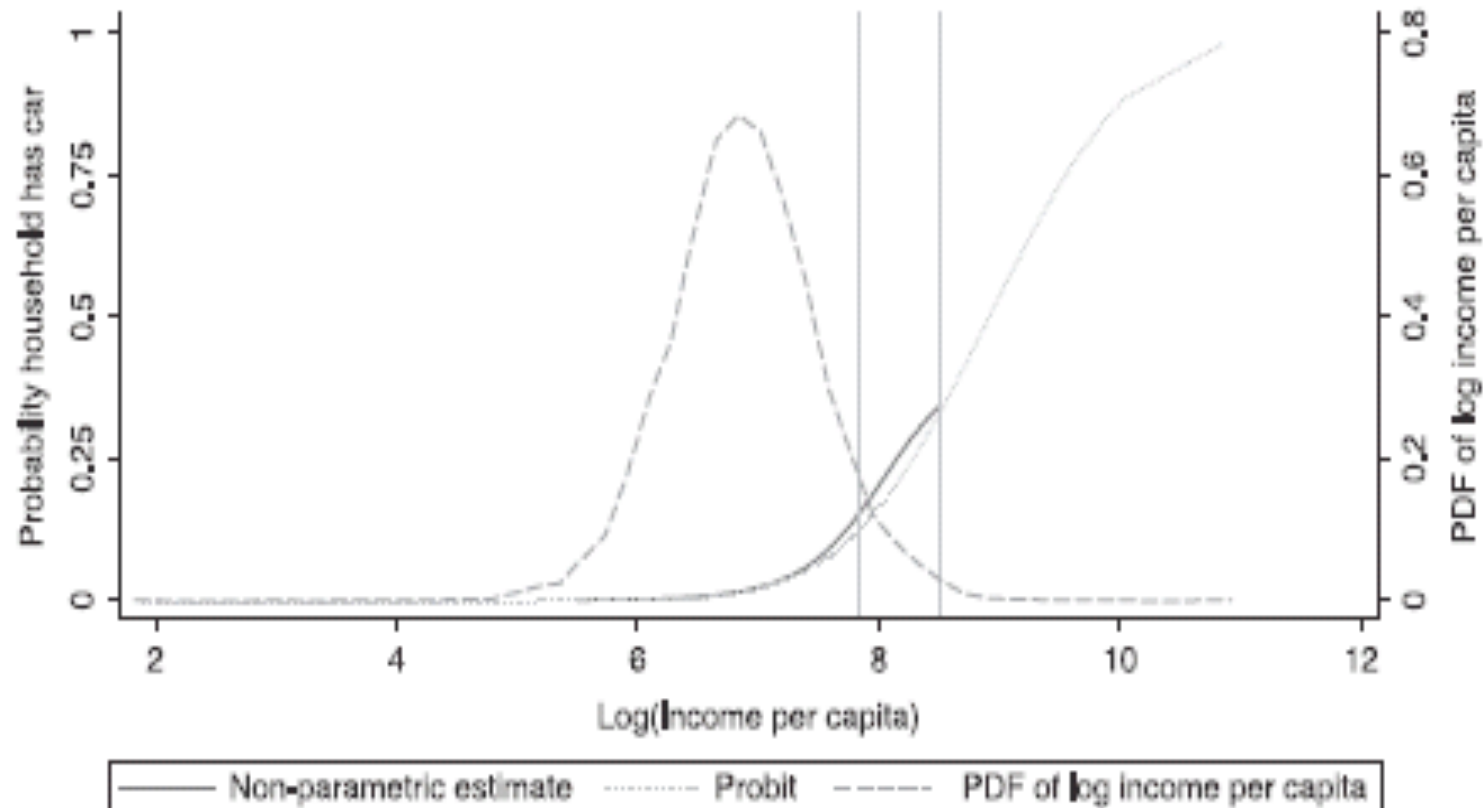
# 3 billion cars by 2050!

Total number of cars by country 2005 - 2050



Chamon, M., Mauro P., and Okawa Y. ; 'Mass car ownership in the emerging market giants', in Economic Policy, April 2008, 245-296.

**Figure 7. Urban China: Probability of household owning a car, non-parametric and probit estimates**



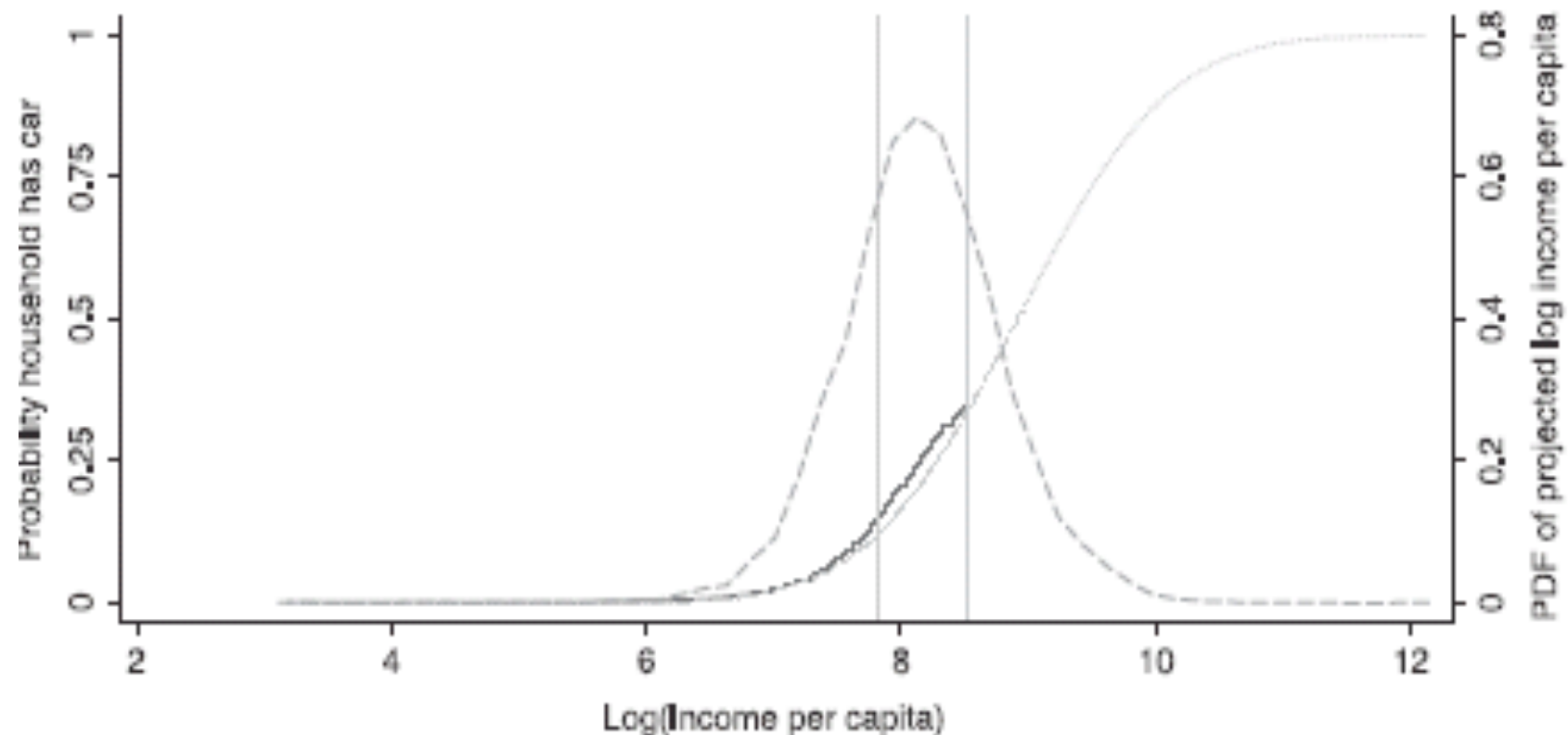
Chamon, M., Mauro P., and Okawa Y. ; 'Mass car ownership in the emerging market giants', in Economic Policy, April 2008, 245-296.

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Figure 8. Urban China: Car ownership pattern in 2030 based on estimates from Figure 7



Chamon, M., Mauro P., and Okawa Y. ; 'Mass car ownership in the emerging market giants', in Economic Policy, April 2008, 245-296.

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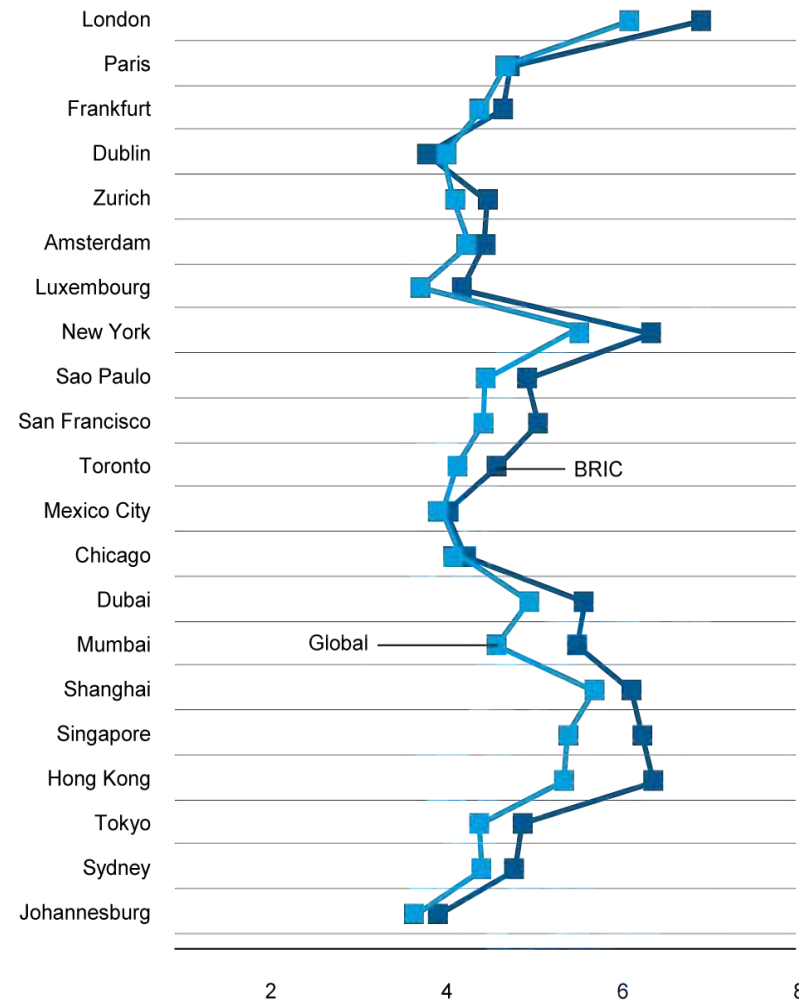
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What are the next steps and research opportunities?

## Measuring the carbon footprint of cities:

- Identify cities for which a carbon footprint has been estimated or which could be relatively easily estimated based on national data, considering both:
  - Locally generated emissions
  - Remotely generated emissions embedded in the city's consumption
- Extrapolate from this to other cities with similar carbon intensity profiles, based on such factors as:
  - Sectoral breakdown of the city's economy (manufacturing v services)
  - Age and energy efficiency of the built environment
  - Transport mode preferences
  - Climatic characteristics (air conditioning and/or heating needs)
  - GDP per capita and household incomes levels
- Conduct sensibility checks by comparing extrapolated estimates of cities which are expected to have similarly sized carbon footprints

# What are the preferred global cities for supporting the expansion of your business by 2012?



# Danke für Ihre Aufmerksamkeit

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# Creating a sustainable future!

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There are plenty of opportunities.  
Let's take them together!

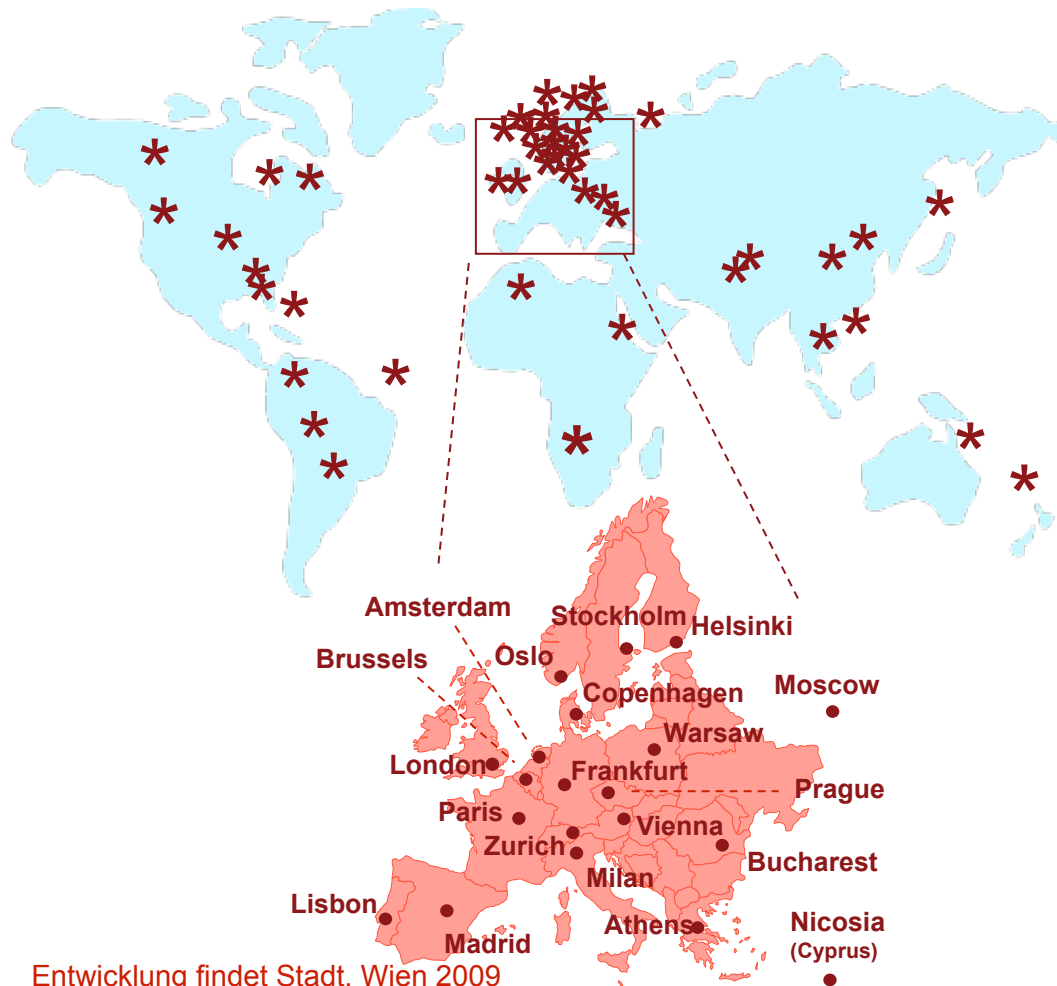
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