

# Urban Transport: Introduction

# Outline

- **Urban Transport Today**
- **Urban Transport Policy**
  - **The Land Use-Transport link**
  - **Road congestion as a Policy Driver**
  - **Transit as a Critical Element**
- **Arguments in support of Transit**

*Thanks to Mikel Murga for providing many of the figures throughout this presentation*

# US Urban Transport Today

## Trends in Modal Split for Daily Travel in the United States (1969-2001)

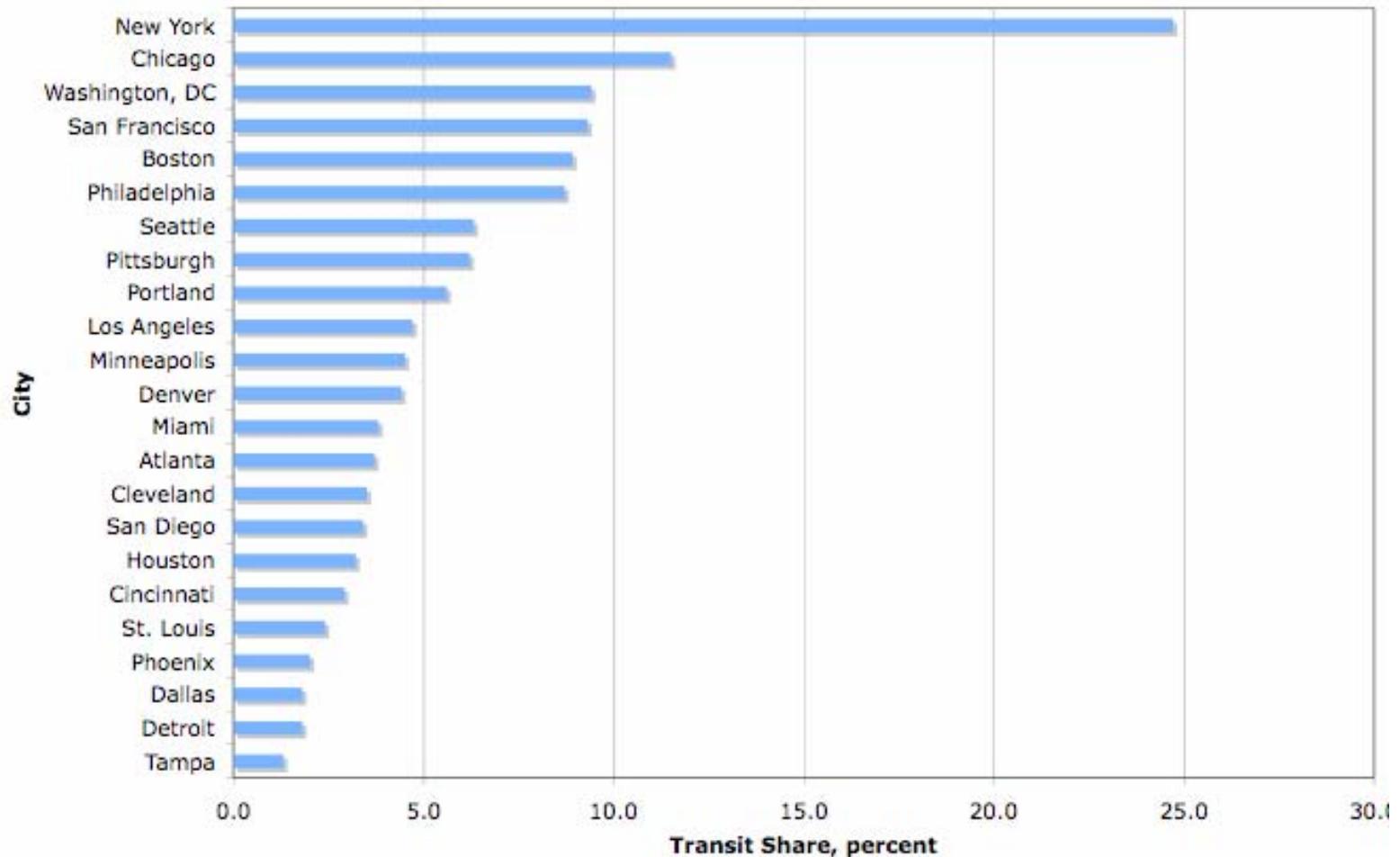
Mode of Transportation	1969	1977	1983	1990	1995	2001
Auto	81.8	83.7	82.0	87.1	86.5	86.4
Transit	3.2	2.6	2.2	2.0	1.8	1.6
Walk	n/a	9.3	8.5	7.2	5.4	8.6
Bicycle	n/a	0.7	0.8	0.7	0.9	0.9
Other	5.0	3.7	6.5	3.0	5.4	2.5

Source: Socioeconomics of Urban Travel: Evidence from the 2001 NHTS by John Pucher and John L. Renne. *Transportation Quarterly*, Vol. 57, No. 3, Summer 2003 (49–77). Eno Transportation Foundation, Inc., Washington, DC.

Federal Highway Administration, *Nationwide Personal Transportation Surveys 1969, 1977, 1983, 1990, and 1995*; and *National Household Travel Survey, 2001*.

# Transit Share of Commute for Metropolitan Areas Over 2 Million in Population (2000)

Transit Share, 2000 in Cities of Over 2 Million Population



Sources: U.S. 2000 Census *Journey to Work* (<http://www.census.gov/prod/2004pubs/c2kbr-33.pdf>) and U.S. Department of Transportation Census Transportation Planning Package <http://www.fhwa.dot.gov/ctpp/jtw/>

# US Urban Transport Today: Metropolitan Areas

## Trends in the Modal Split of the Home-to-Work Journey (1990-2000)

<b>Modal Split % 1990-2000</b>	<b>Car</b>	<b>Transit</b>	<b>Non-Motorized</b>	<b>Work at home</b>
<b>Greater Boston</b>	<b>82.7-82.7</b>	<b>8.6-9.0</b>	<b>6.2-5.1</b>	<b>2.5-3.2</b>
<b>Chicago Counties</b>	<b>79.5-81.5</b>	<b>13.4-11.5</b>	<b>4.9-4.2</b>	<b>2.1-2.9</b>
<b>NY-NJ-CT-PA</b>	<b>65.8-65.7</b>	<b>24.8-24.9</b>	<b>7.0-6.4</b>	<b>2.4-3.0</b>
<b>San Francisco - Oakland</b>	<b>81.3-81.0</b>	<b>9.3-9.5</b>	<b>5.9-5.5</b>	<b>3.5-4.1</b>
<b>Washington DC- Baltimore</b>	<b>81.5-83.2</b>	<b>11.0-9.4</b>	<b>4.8-3.9</b>	<b>2.7-3.5</b>

Source: Journey to Work Trends in the United States and its Major Metropolitan Areas 1960-2000

# **US Urban Transport Today:**

## **Significant Influences**

- **Suburbanization of homes, employment and attractors**
- **High car ownership and low operation costs**
- **Extensive urban road infrastructure**
- **Government policies towards roads and public transport**

# Suburbanization: 2000 Journey to Work

## A. Total Trips (in millions of daily trips)

	Jobs in:		
Homes in:	Central City	Suburbs	Total Homes
Central City	28.2 (27%)	9.2 (9%)	37.4 (36%)
Suburbs	20.8 (20%)	44.6 (43%)	65.4 (64%)
Total Jobs	49.0 (48%)	53.8 (52%)	

## B. Share of 1990-2000 Increase

	Jobs in:	
Homes in:	Central City	Suburbs
Central City	5%	14%
Suburbs	16%	65%

## C. Public Transport Mode Share

	Jobs in:	
Homes in:	Central City	Suburbs
Central City	14%	6%
Suburbs	6%	2%

# US Urban Transport Today

- **High car ownership levels**
  - 600 cars per 1000 population
- **High car usage**
  - 10,000 veh-km per capita annually
- **Low taxes, fees and user charges for car ownership and use**
  - Sales taxes range from 5-8%
  - Users pay only 60% of road infrastructure costs in US
  - Petrol taxes are from 10-20% of European levels

# US Urban Transport Today

- **Urban parking supply is relatively widely available and often free**
  - **95% of car commuters enjoy free parking**
  - **380 parking spaces per 1000 central city workers in 10 largest US cities**
- **Highly developed urban road system**
  - **6.6 metres of road per capita in 10 largest US cities; 3 times European levels**

Source: The Urban Transportation Crisis in Europe and North America, by John Pucher and Christian LeFevre, 1996.

# **US Urban Transport Today:**

## **A Critical Assessment**

- **Public transport has been stabilized**
- **Many new rail initiatives in operation or under construction**
- **Some real success stories: New York City, Houston, Seattle**
- **Institutional change is occurring slowly**
- **Retention of political support**

# The Land Use-Transport Link

- **Transit makes high density central city possible**
- **Even in the US with transit serving only 2% of all person trips, it is critically important in shaping the big cities**
- **The home to work commute in Boston (and in other American cities like Chicago, New York, San Francisco..) shows the critical role of transit in its downtown**
- **The downtown job density makes it impossible to rely solely on the automobile**

# The Land Use-Transport Link

- **As a chicken and egg problem, job density and parking restrictions go hand in hand**
- **But parking restrictions do not impede economic development**
- **In fact, Boston development since its EPA led parking freeze in 1973 has been very impressive**

# The Land Use-Transport Link:

## Boston's 1973 Parking Freeze and ...

Photographs of the Charles River and the Boston skyline. Images removed due to copyright restrictions.

# The Land Use-Transport Link

- **Transit as a critical component of cities:**
  - **Economic Competitiveness**
  - **Quality of the Urban space**
- **In parallel, it requires:**
  - **Adequate parking policies**
  - **Substantial priority that can be easily implemented**

# Road Congestion as the Policy Driver

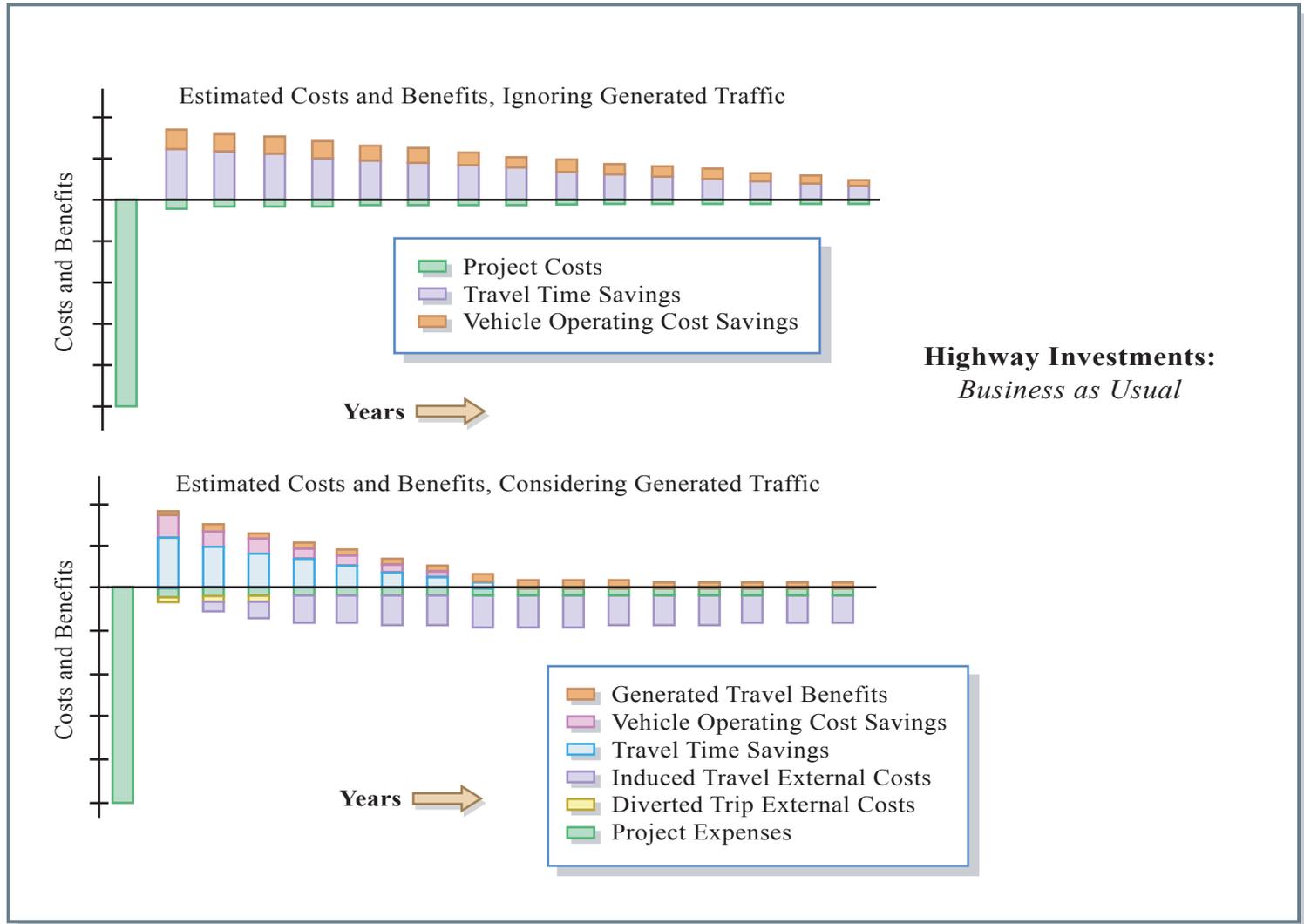
Front cover images from the following books:

Downs, Anthony. *Stuck in Traffic: Coping With Peak-Hour Traffic Congestion*.  
Washington, DC: Brookings Institution Press, 1992. ISBN: 0815719248.

Downs, Anthony. *Still Stuck in Traffic: Coping With Peak-Hour Traffic Congestion*.  
Washington, DC: Brookings Institution Press, 1994. ISBN: 0815719299.

Images removed due to copyright restrictions.

# Road Congestion as the Policy Driver





# Transit as a critical element

- **The high density of jobs and residences needed for a livable environment is only possible with an efficient transit system**
- **Transit can provide not only high economic efficiency, but an attractive and safe environment**
- **All high quality urban cores have a high percentage of non motorized and transit trips**

# The higher the density, the higher...

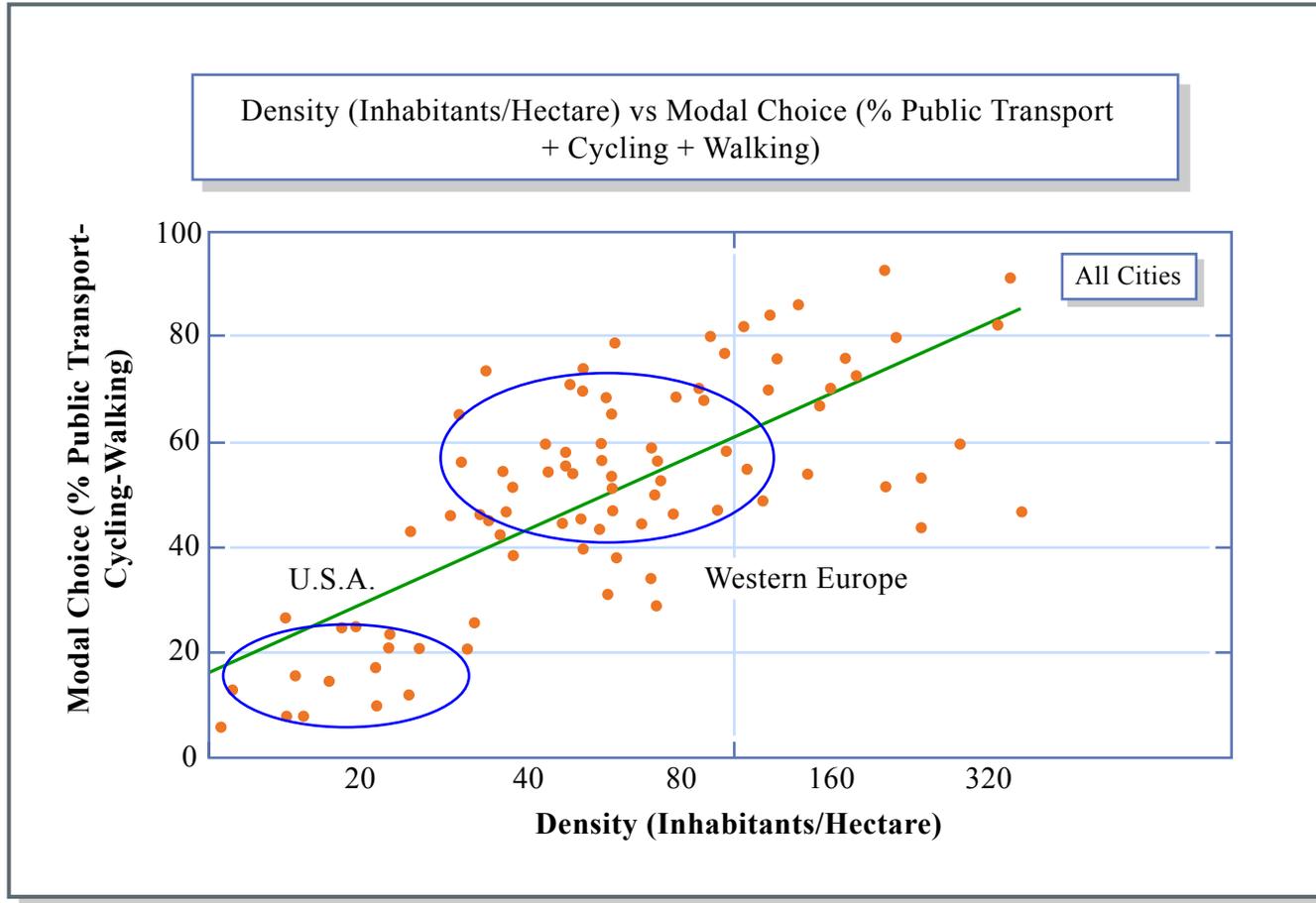
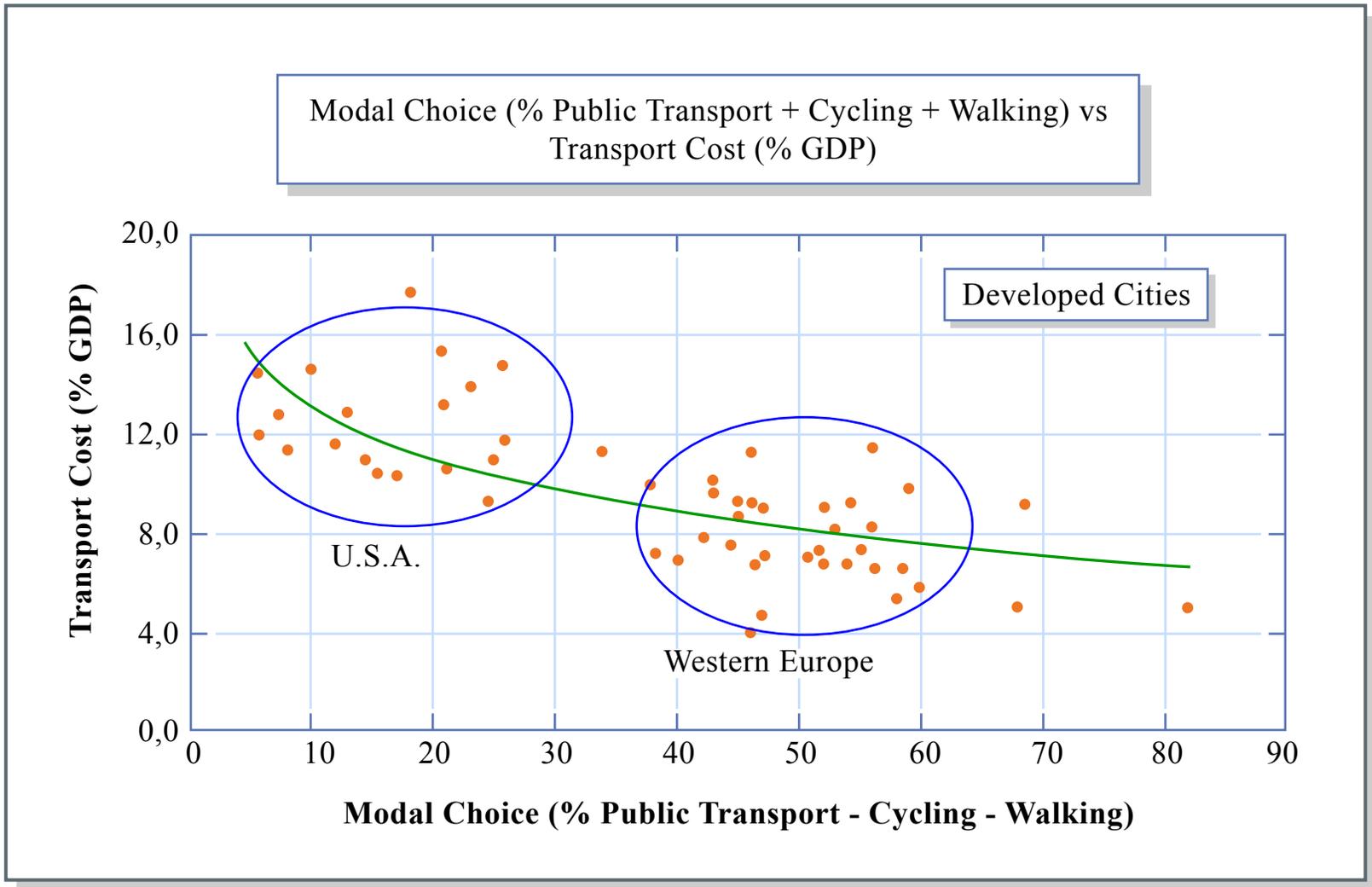


Figure by MIT OCW.

... the percentage of sustainable modes

Source: UITP Millenium Database

# The cost of a balanced system



**Economic sustainability**

Figure by MIT OCW.

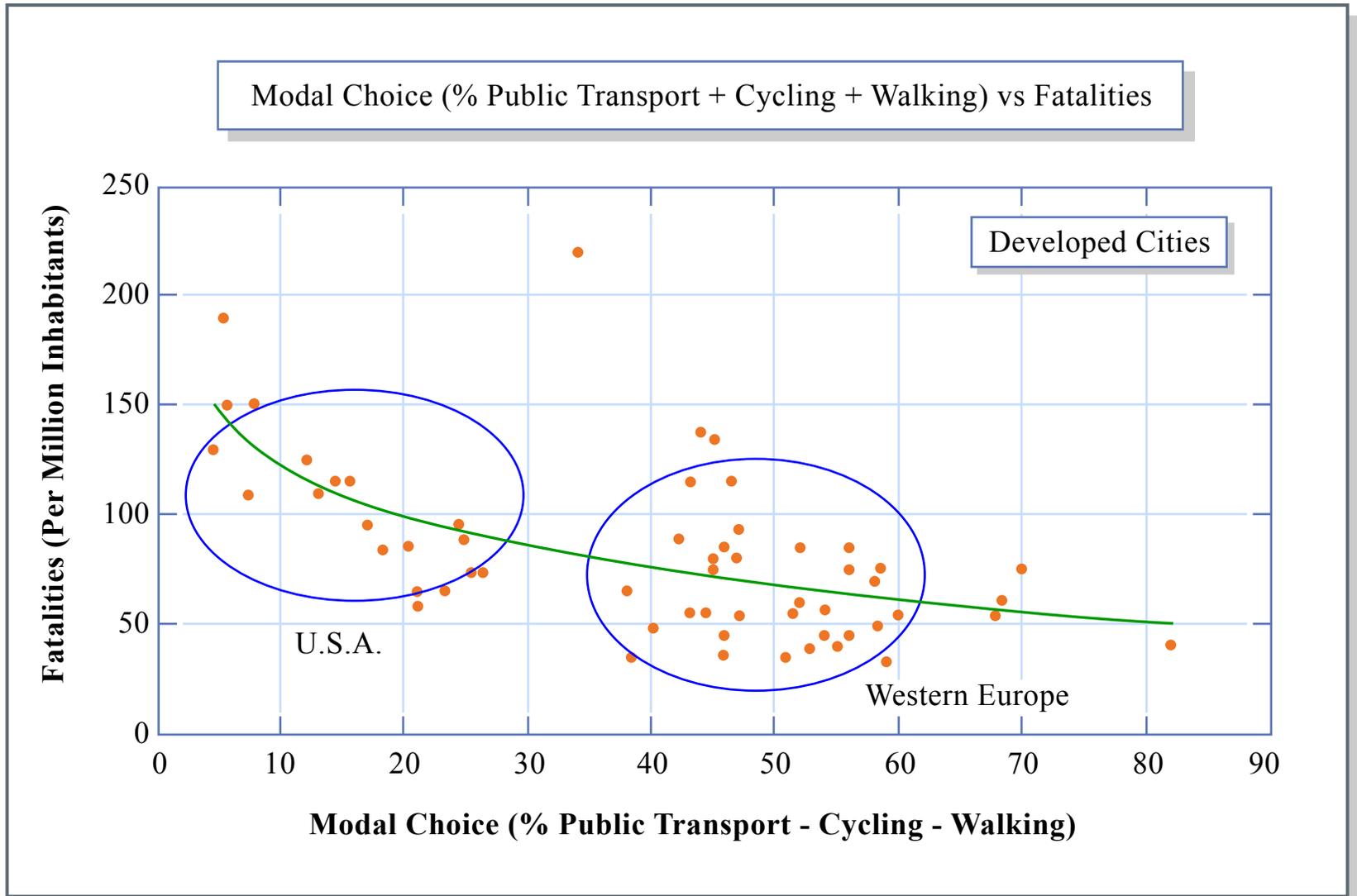
Source: UITP Millenium Database

Nigel H.M. Wilson

1.201, Fall 2006  
Lecture 10

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# The high price of road fatalities



Source: UITP Millenium Database

Nigel H.M. Wilson

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Lecture 10

Figure by MIT OCW.

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# Traditional Arguments Supporting Transit

- **Equity:**
  - *Access for those who cannot or do not choose to drive*
- **Congestion:**
  - *The need for a high-quality alternative*
- **Land use influence:**
  - *Public transport is necessary, but not sufficient to change trends*
- **Environmental:**
  - *Car technology strategies are effective*
- **Energy:**
  - *Car technology strategies are effective*

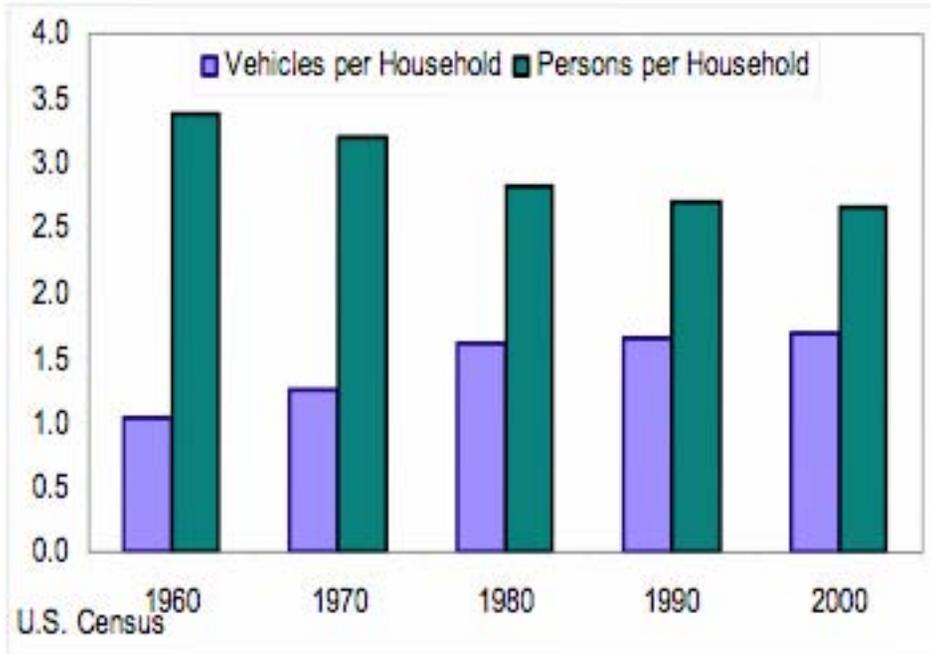
# Other Arguments Supporting Transit

- **Transit allows agglomeration of economic activity in cities:**
  - **New York, Boston, San Francisco, etc. could not have developed without transit**
  - **The current contribution of earlier investments in heavy rail is not valued today appropriately**
  - **New investments bound to have a lasting impact – thus the need for a long view**

# Other Arguments Supporting Transit

- **Transit is a most effective tool to decrease external costs in cities:**
  - **These costs may exceed \$1,000 per person per year (Ref: External Costs Study for the Basque Country, 2006)**
  - **They correspond in order of importance to accident-related costs, impacts on human health, congestion, noise impacts and the current market value of global warming**

# Other Arguments Supporting Transit



- **Business as usual translates into annual congestion cost today of more than \$60 billion/ year (AASHTO)**
- **Implications of the number of automobiles in USA exceeding the number of licensed drivers**