



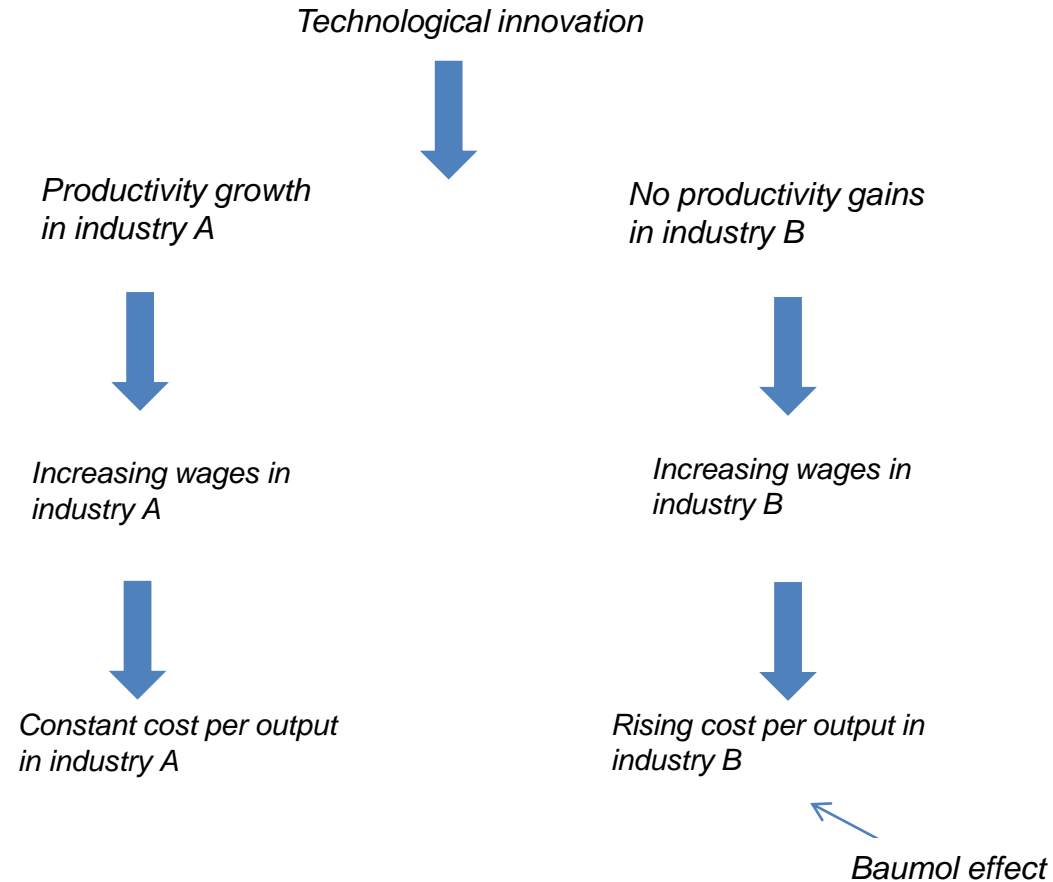
IS LOCAL TRANSPORT FUNDABLE IN THE LONG RUN?

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- The Nature of Baumol's Cost Disease
- Application for Public Transit
 - Comparative Treatment of Germany and the USA
 - Partial Productivity Measures
 - TFP
 - Cost Development
- Affordability
- Policy Implications



- Production Functions for Sector 1 (stagnant) and Sector 2 (progressive)

$$Y_{1t} = aL_{1t} \qquad Y_{2t} = bL_{2t}e^{rt}$$

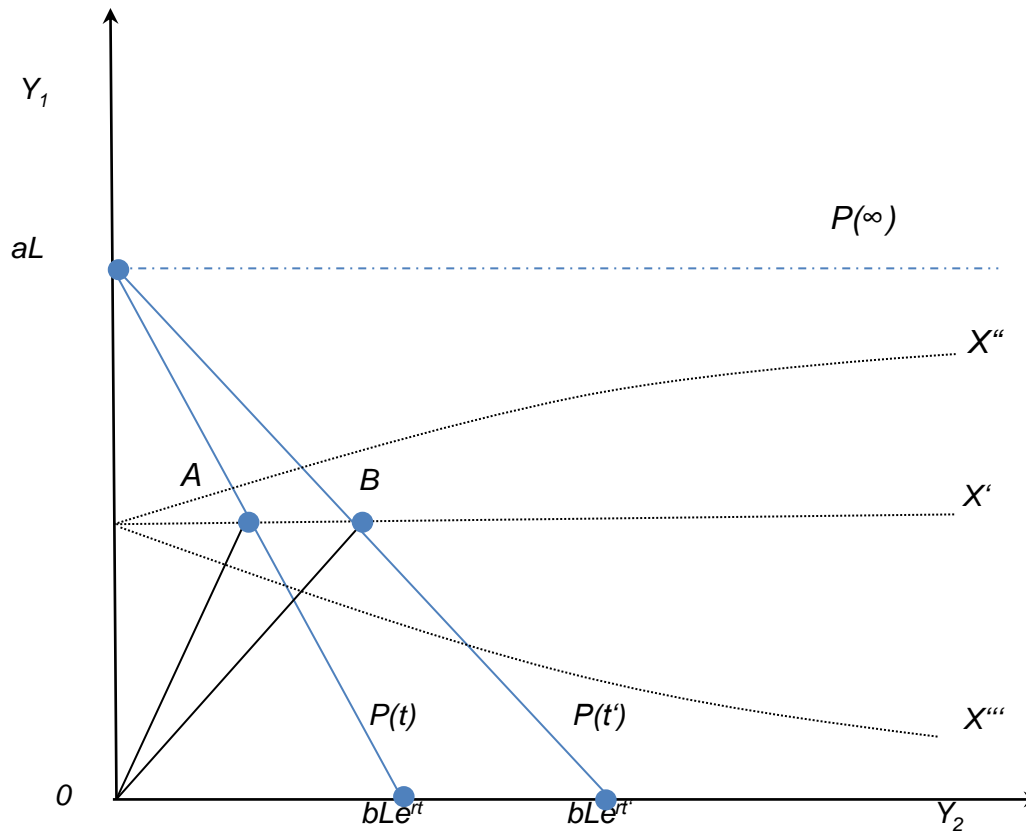
- Wages

$$w_t = we^{rt}$$

- Costs per Unit

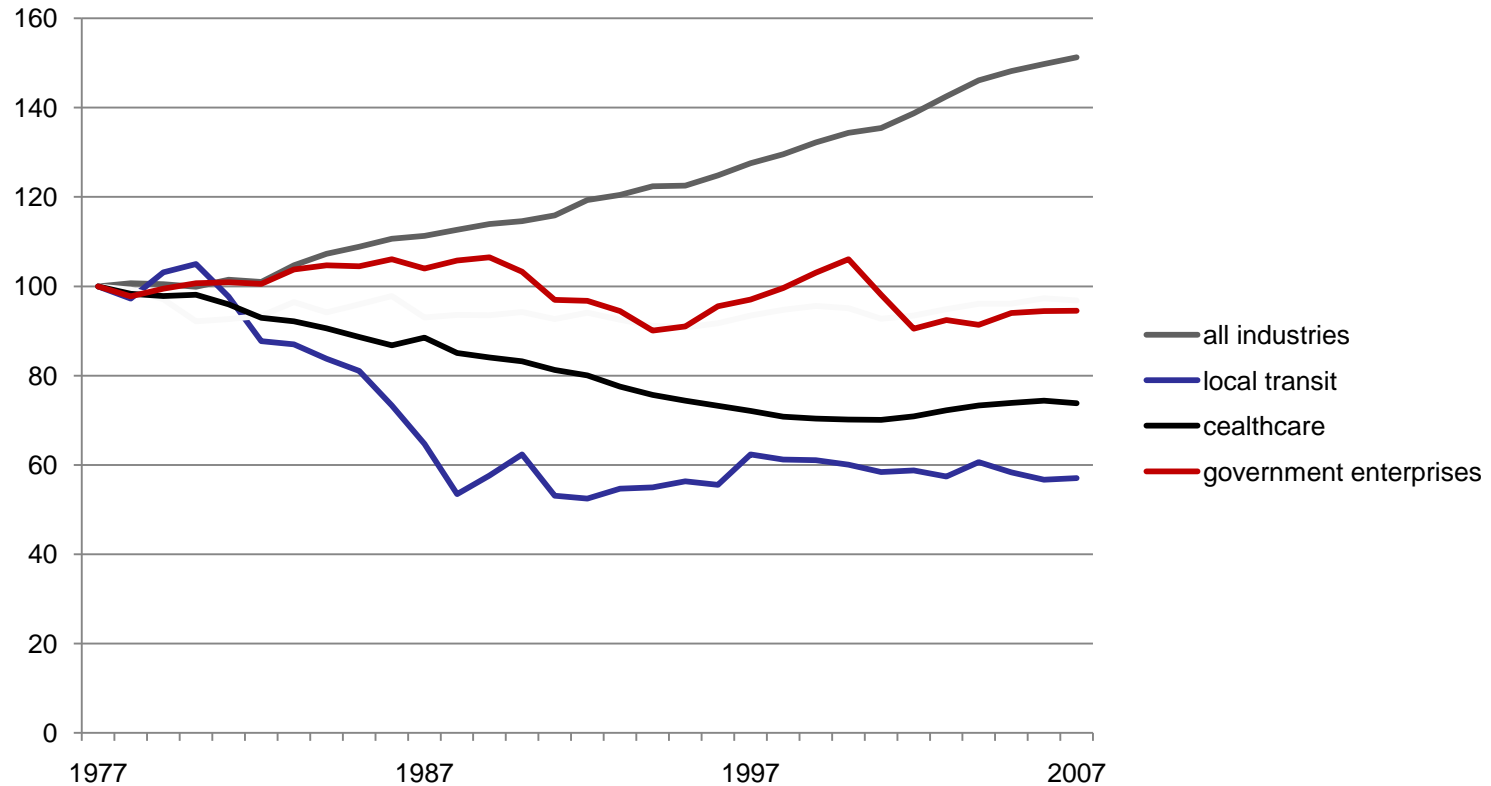
$$C_{1t} = \frac{w_t L_{1t}}{Y_{1t}} = \frac{we^{rt} L_{1t}}{aL_{1t}} = \frac{we^{rt}}{a}$$

$$C_{2t} = \frac{w_t L_{2t}}{Y_{2t}} = \frac{we^{rt} L_{2t}}{bL_{2t}e^{rt}} = \frac{w}{b}$$





- Real GDP per Employee (USA)

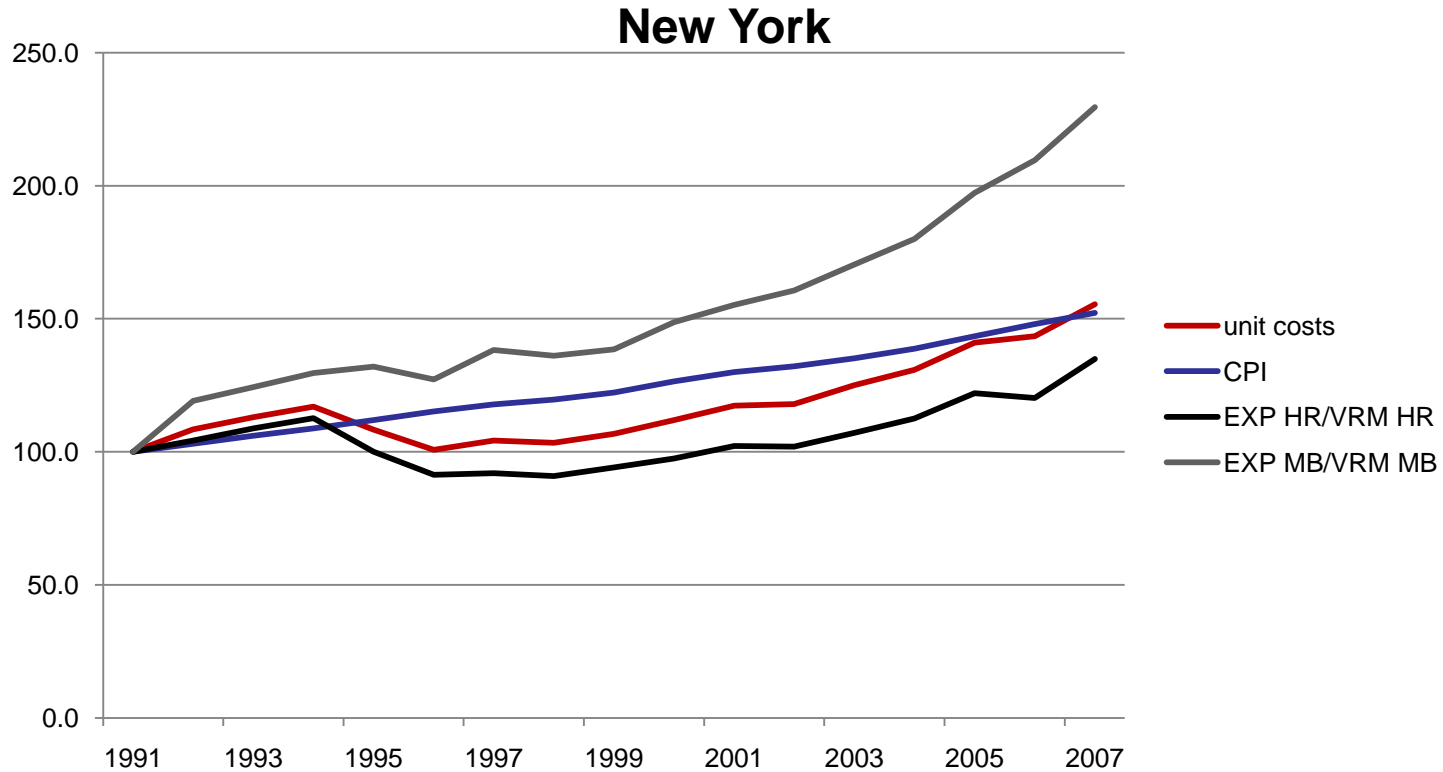


- Labor Productivity - Annual Growth Rate

1977-2007	average annual growth rate in %
local transport	-1.631
entire economy	1.394
government enterprises	-0.139
performing arts	-0.089
healthcare	-0.896
education	-0.838

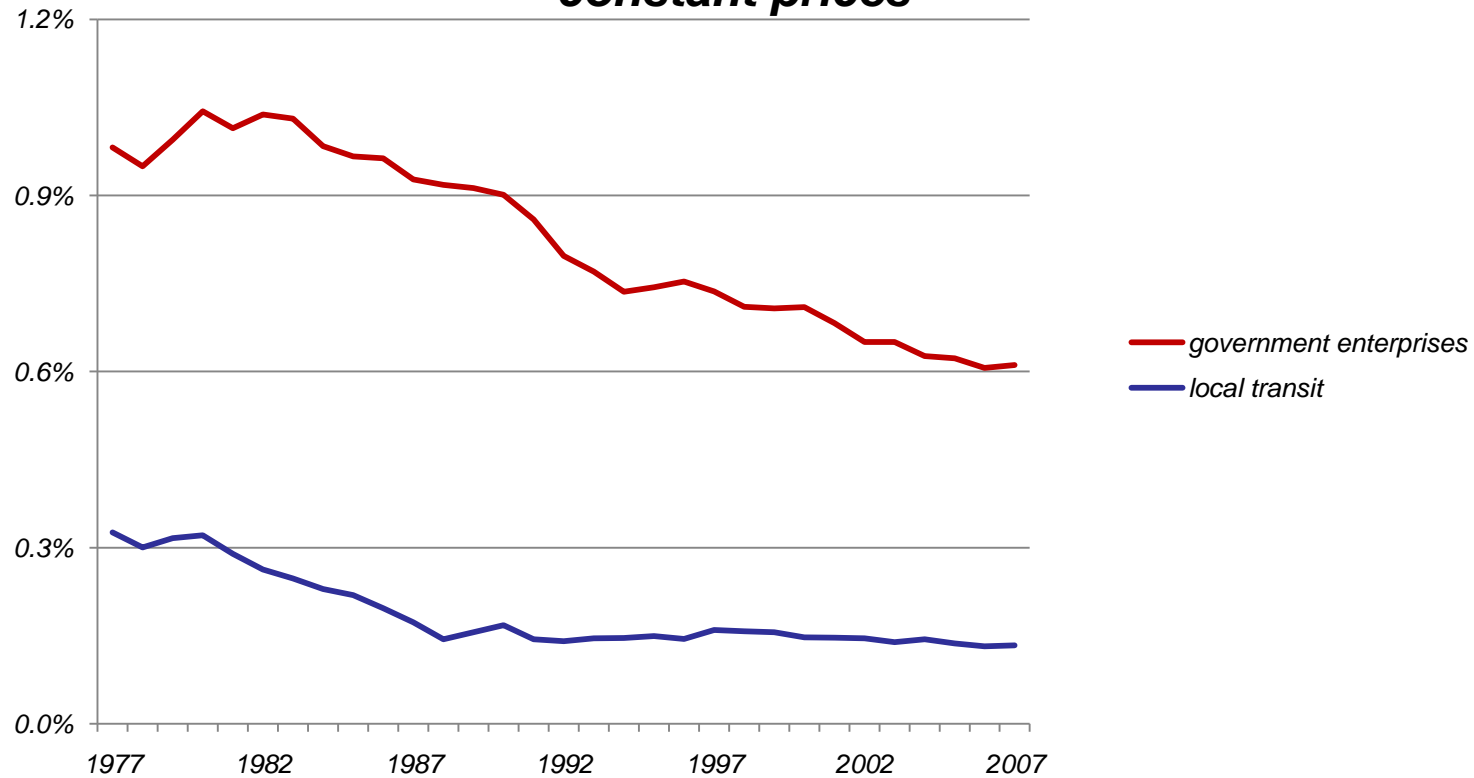
- Separation between Firms with “pure” Bus Operations and Firms with Mixed Operations
- Output: Vehicle Kilometres
- Inputs: Number of Employees, Number of Vehicles, Population Density
- Sample:
 - USA: 250 – 21
 - Germany: 75 – 49
- Period of Analysis:
 - 1998 – 2007 (USA)
 - 1994 – 2007 (Germany)

country	sample	average TFP in %
Germany	bus (75)	0.5
	mixed operations (49)	1.9
	lightrail and bus (31)	0.9
USA	bus (250)	0.5
	mixed operation (21)	0.9
	only rail operation (31)	1.6



1991-2007	average growth rate in %	
	Chicago	New York
unit costs	3.544	2.897
unit cost bus	4.333	5.447
unit cost rail	2.331	2.047
CPI	2.649	2.663

Ratio of value added in local transit to GDP at constant prices



For
$$\frac{Y_1}{N} = K \left(\frac{p_1}{p_2} \right)^\eta \cdot \left(\frac{Y}{p_2} \right)^\delta$$

Where: η = the own price elasticity of demand for Y_1

δ = the income elasticity of demand for Y_1

it can be shown

$$\dot{t} = r(\eta + \delta)$$

Where: \dot{t} = the growth rate of Y_1 /GNP

r = growth rate in the progressive sector

Assuming: $\eta = -0,3 \dots -1,0$

$\delta = -0,9$ (s. Litman, 2004, 2011)

And: $r = 0,01394$ (s. BEA)

Imply: $\dot{t} = -0,00167$

Even if $\eta = -0,29$
 $\delta = 0.59$ (s. Litman, 2004, 2011)

Imply: $\dot{t} = 0.004182$

In both cases: Affordability is given

- Existence of the Cost Disease for Local Transit Services
- But Long-Run Affordability
- However:
 - Cost Disease of other Stagnant Sectors (non-fundable)
 - Priorisation of tax financed Sectors still a feasible Possibility
 - Decreasing Subsidies: How about Public Transport?



THANK YOU FOR YOUR ATTENTION!

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