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The Future for Interurban Passenger Transport  
Bringing Citizens Closer Together

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**Economic assessment of major infrastructure projects**

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# Outline

- Modal split in interurban passenger transport and generalized prices
- Public investment in HSR infrastructure
- Funding and pricing of transport infrastructure with two levels of government
- Conclusions

# Intermodal competition and government intervention

- The distribution of traffic between the alternative modes of transport depends on the generalized prices
- Generalized prices fundamentally consist of costs, time and government's investment and pricing decisions
- The economic question is simple: **Is investment in HSR socially profitable?**

# Long-term planning for intercity passenger transport

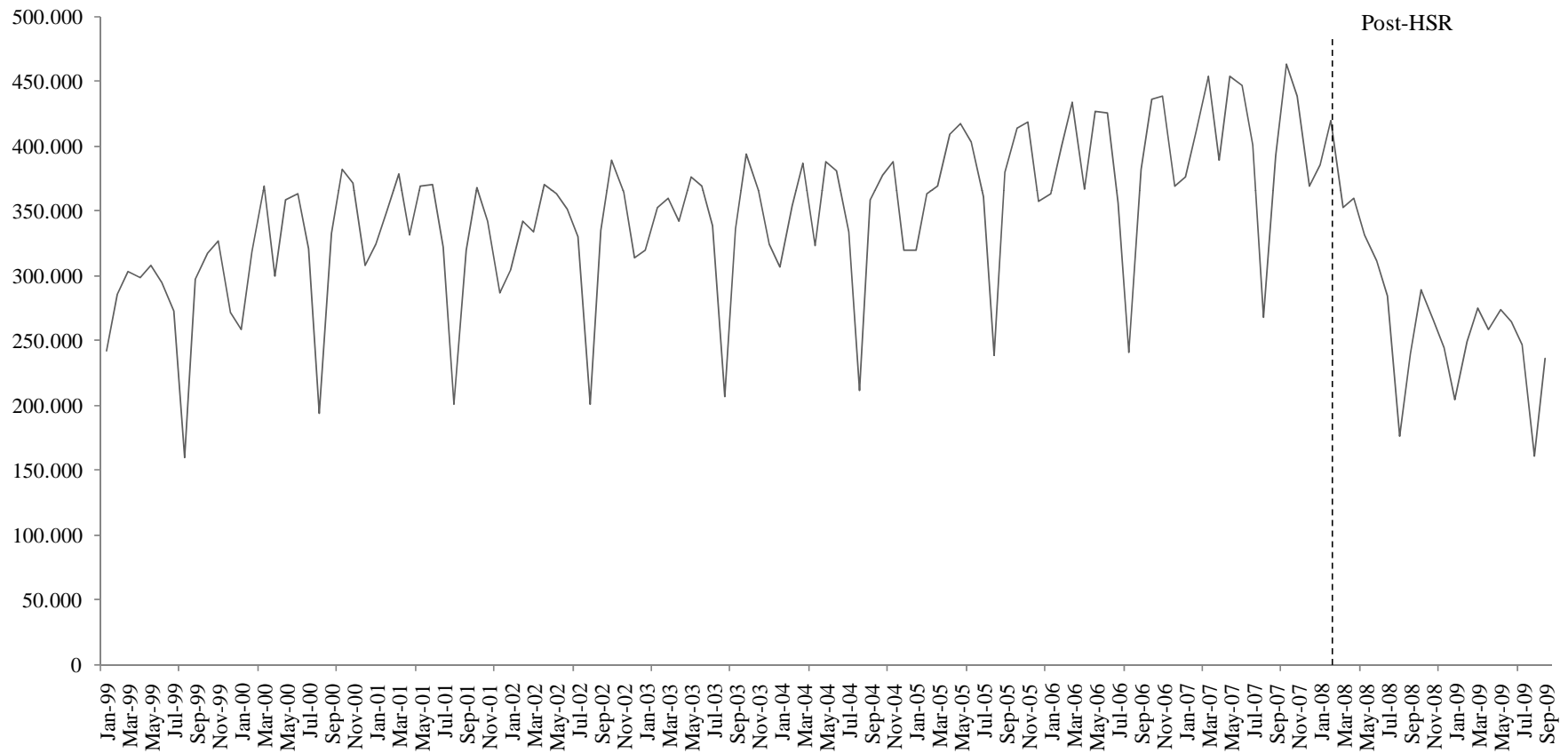
## Integrated and sustainable transport systems

- Tighter budget constraints
- The user-pays and the polluter-pays principles
- New infrastructure determined by the economic appraisal of projects
- Prices should reflect all costs providing signals to investors
- The efficient use of the network can be achieved through liberalization

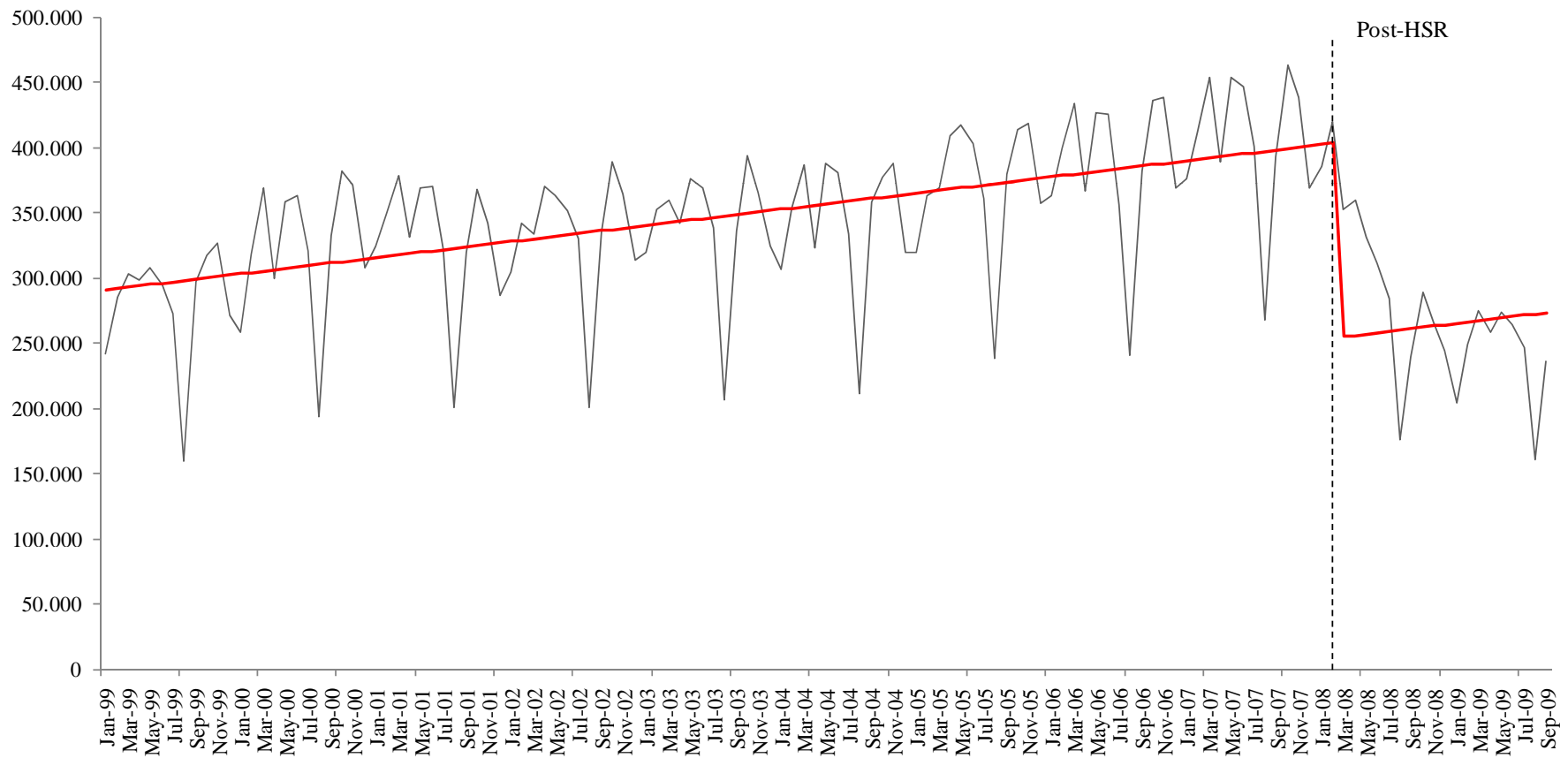
# HSR investment

- HSR investment changes modal split

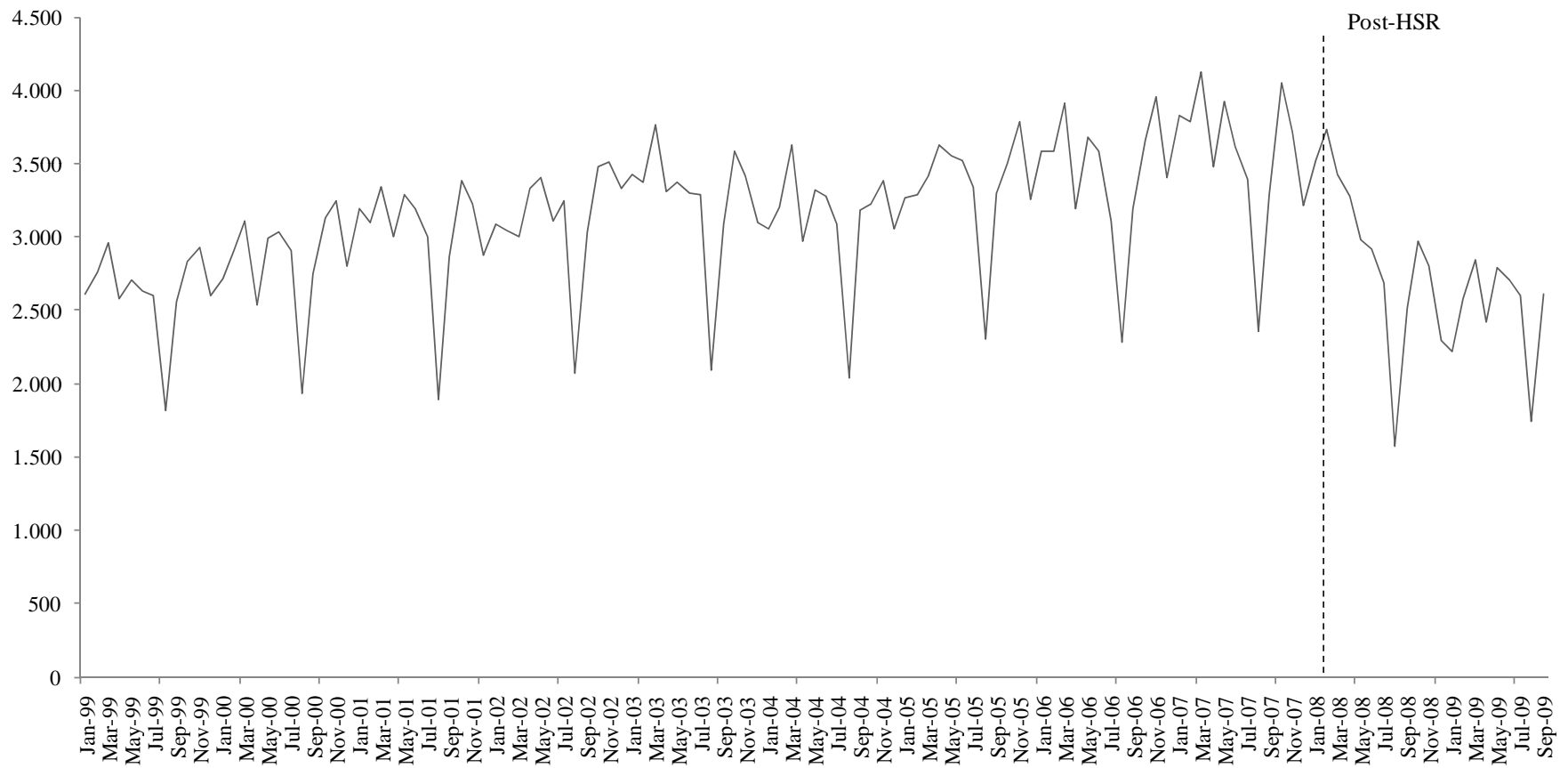
# Air transport (passengers) *without* and *with* HSR Madrid-Barcelona



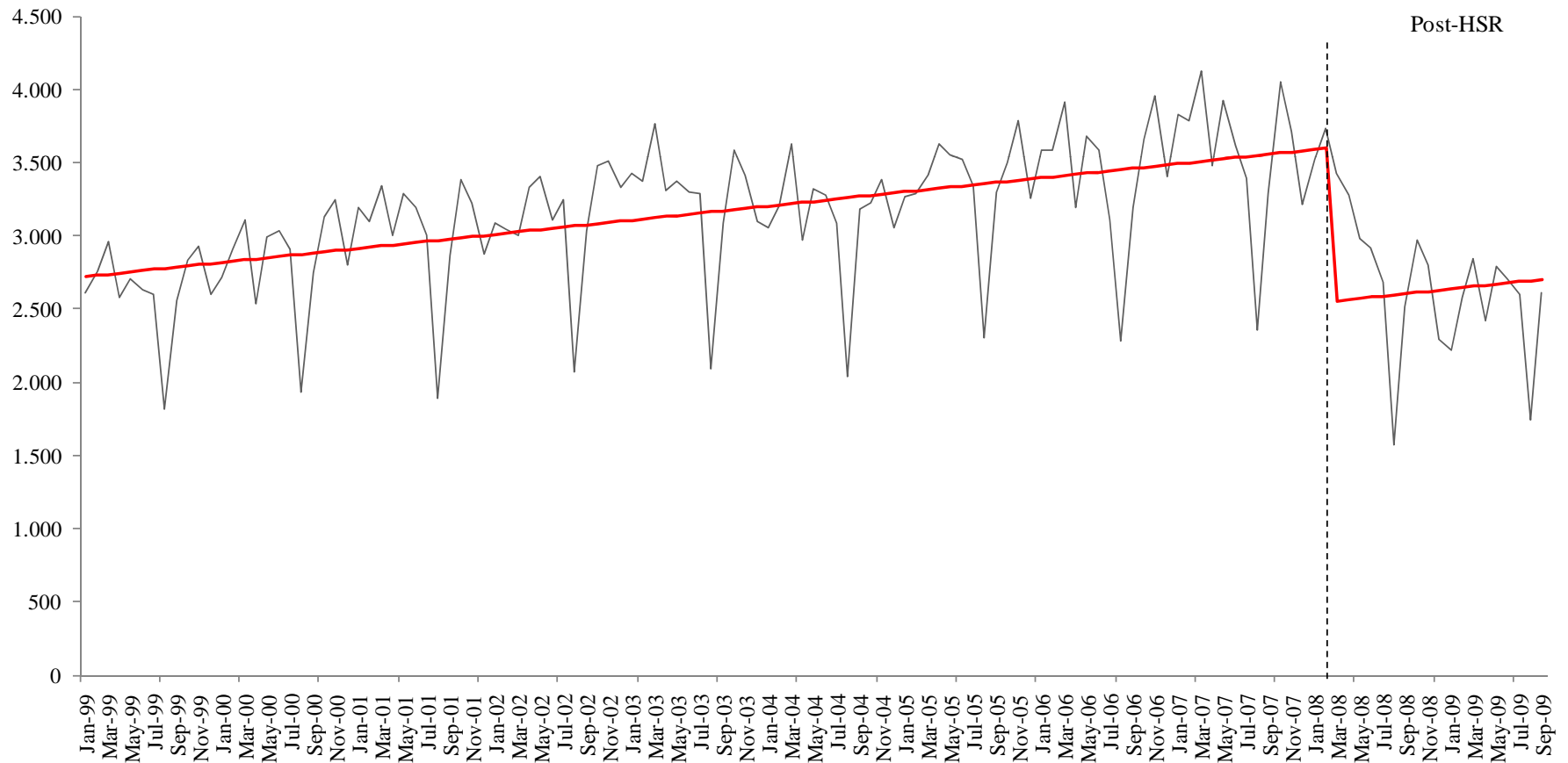
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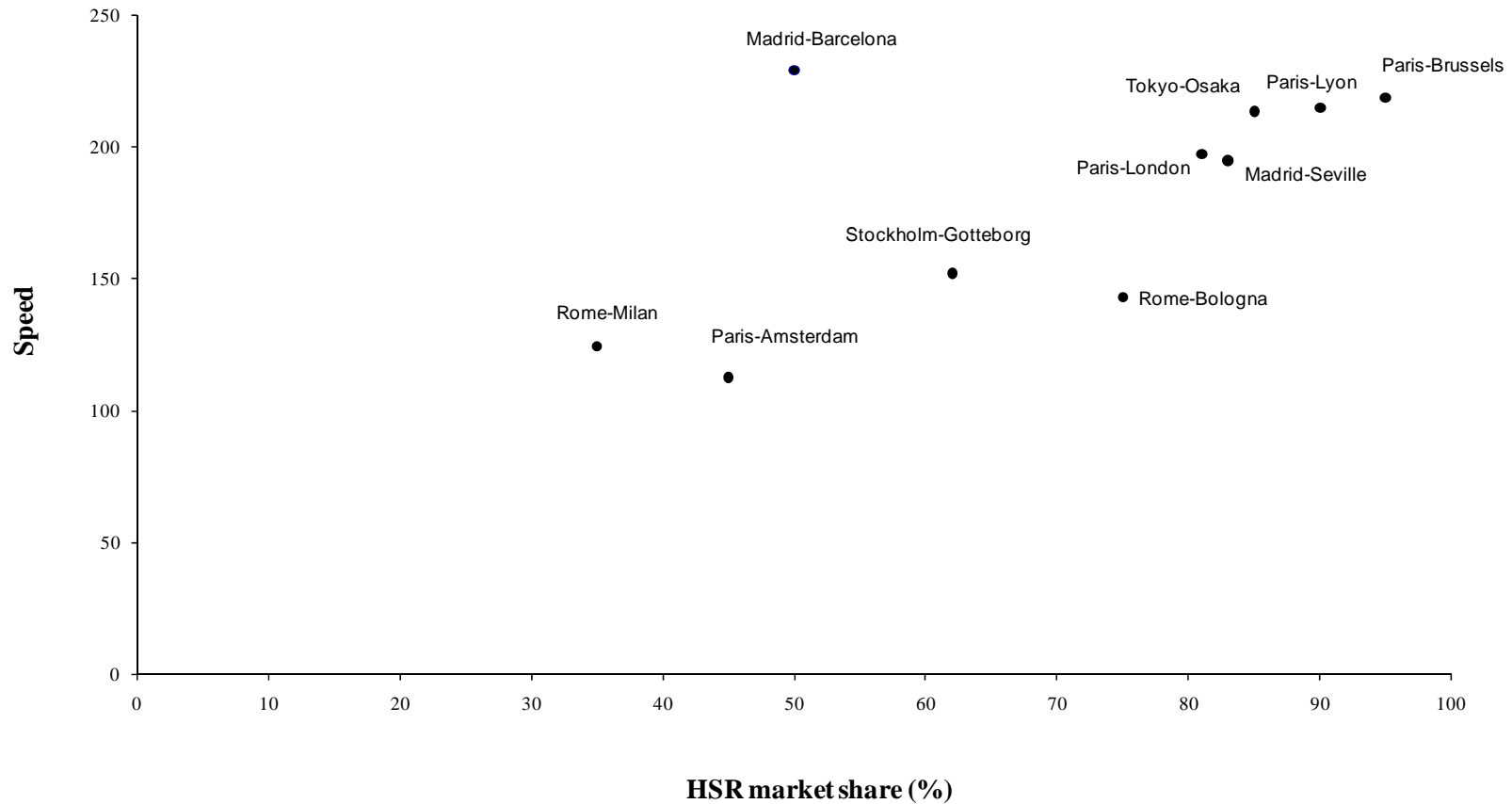
# Air transport (operations) *without* and *with* HSR Madrid-Barcelona



# Air transport (operations) *without* and *with* HSR Madrid-Barcelona



# HSR-Air modal split and railway speed



Do the benefits compensate the costs?

$$\Delta W = -\sum_{t=0}^{\hat{T}} \sum_{i=1}^n \delta^t \bar{C}_{it} + \sum_{t=\hat{T}+1}^T \sum_{i=1}^n \delta^t B_{it} + \sum_{t=0}^T \sum_{j=1}^m \delta^t (p_{jt} - c_{jt})(q_{jt}^1 - q_{jt}^0)$$

$$\frac{B_1}{I} > i$$

## Public funding of transport infrastructure and incentives

- Transport infrastructure projects are usually financed by national governments. Sometimes they are also financed by a supranational organization
- The European Commission is a clear example
- The total funds - distributed through the European Regional Development Fund (ERDF), the European Social Fund (ESF), and the Cohesion Fund- raise €340 billion for the period 2007-2013 (European Commission, 2005)

## Benchmark : The social optimum

- It is socially optimal to construct the infrastructure at the minimum investment cost and set the price for its use equal to the marginal operating and maintenance cost

## The European Commission and the funding-gap method

- The so-called `funding-gap´ method is the basic mechanism to co-finance infrastructure investments in the European Union
- The European Commission finances a percentage of the difference between investment costs and revenues (net of maintenance and operating costs)
- It is a kind of sunk cost-plus financing mechanism which penalizes revenue generating projects

## The European Commission and the funding-gap method

- With the present funding gap mechanism (as with any other cost-plus financing system), it is costly to be efficient
- Governments have no incentive to minimize investment costs or to introduce optimal pricing
- There is a bias in favor of expensive, latest technology mega-projects and pricing will depart from user-pays or polluter-pays principles, since the higher the price for the use of the new national infrastructure, the lower the consumer surplus of voters will be, and the lower the probability of re-election
- Consequently, the politician will choose maximum number of users and will not charge for the external costs
- With the funding-gap method, cost-benefit analysis is just a bureaucratic requirement for national governments to obtain supranational funds

## The European Commission and the funding-gap method

- The *fixed-price financing* mechanism may provide the necessary incentives to reduce costs and charge the socially optimal price
- Moreover, with the fixed-price financing mechanism, cost-benefit analysis is a useful tool for governments
- The problem of giving national governments an ex ante fixed amount of funds is that, although it is a very high-powered incentive scheme, the European Commission loses its influence on the selection of projects
- An intermediate solution: to substitute the funding-gap method by an ex ante fixed-quantity funding linked to generic objectives like investing, in “accessibility” , “environmental quality”, etc.

# Conclusions

- Public infrastructure construction can exert a remarkable influence on the future form of interurban transport corridors
- The high-speed rail investment (and pricing) decisions have a profound impact on the allocation of resources in the transport sector and the rest of the economy
- High-speed rail infrastructure is an appropriate option for some corridors but a very expensive one in low-traffic areas where the alternative modes of transport can satisfy demand at much lower cost
- Asymmetries of information create moral hazard and adverse selection problems which can be mitigated or compounded depending on the financing scheme chosen by the supranational agency