

Deep Future Forecasting

Dan Gomez-Duran

Freeway and Tolling Operations in the Americas

Houston, TX

May 22nd 2007

Steer Davies Gleave
1000 355 Burrard Street
Vancouver, BC V6C 2G8
+1 (604) 608 6198

www.steerdaviesgleave.com

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- “Prediction is very difficult, especially about the future” Niels Bohr



Steer Davies Gleave Role

- Provide traffic and revenue analysis of major infrastructure projects throughout the world - roads/transit/rail/air and ports
- Background and research in academia - but our role is to be strictly pragmatic
- Does it matter if have understood/developed good models?
- Are our forecasts ROBUST?

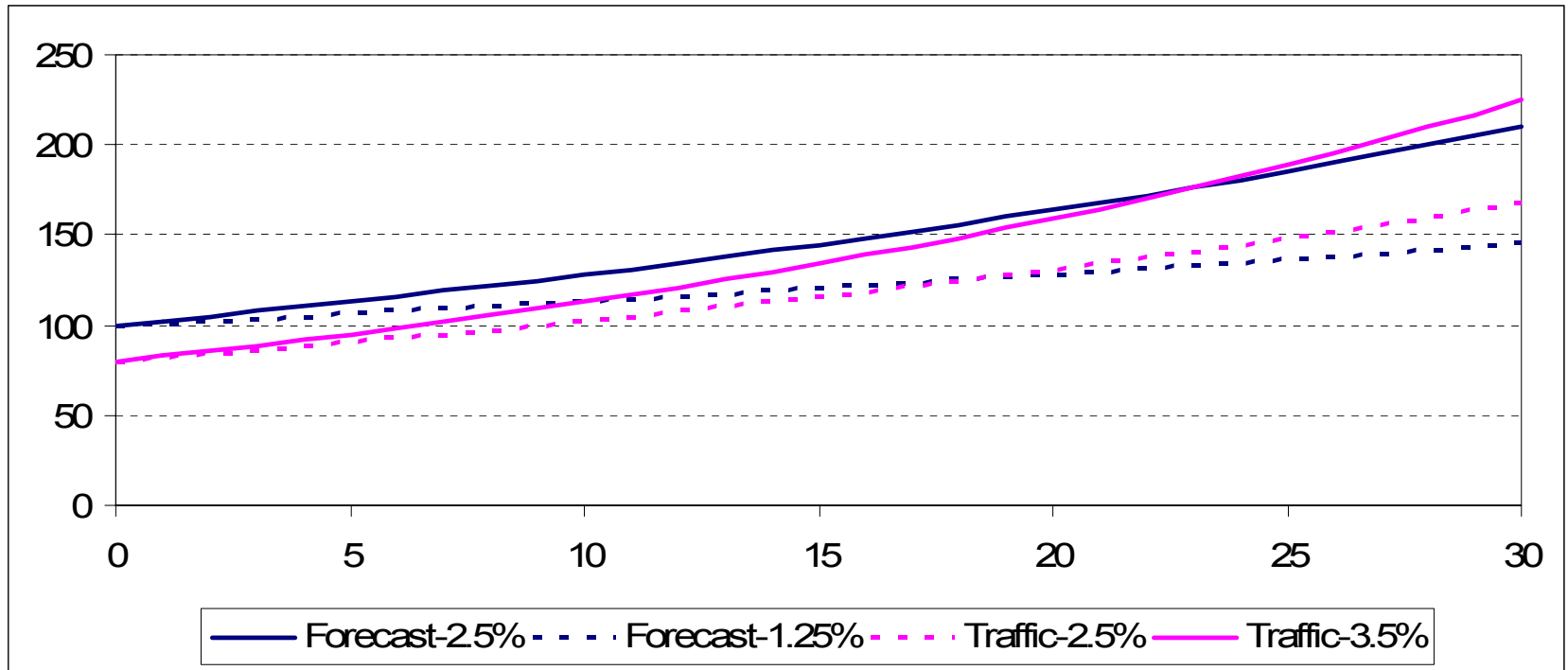


How Important is it to Forecast

- New infrastructure (greenfield)
- How much base year traffic will this road capture?
- Then, how fast will traffic grow:
 - Induced traffic
 - New Development (timescales?)
 - Long term growth

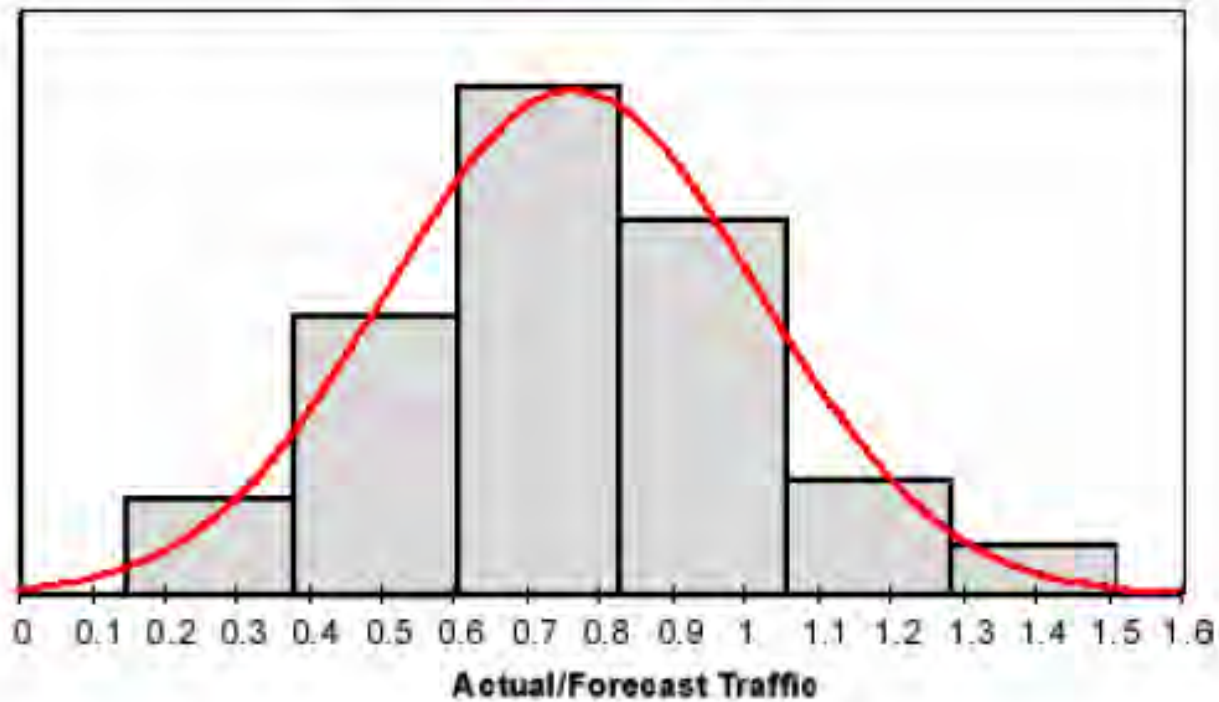


Playing Catch Up



The Evidence

Standard & Poor's Expanded Sample (2004)
Normal (0.76, 0.26) $n = 87$



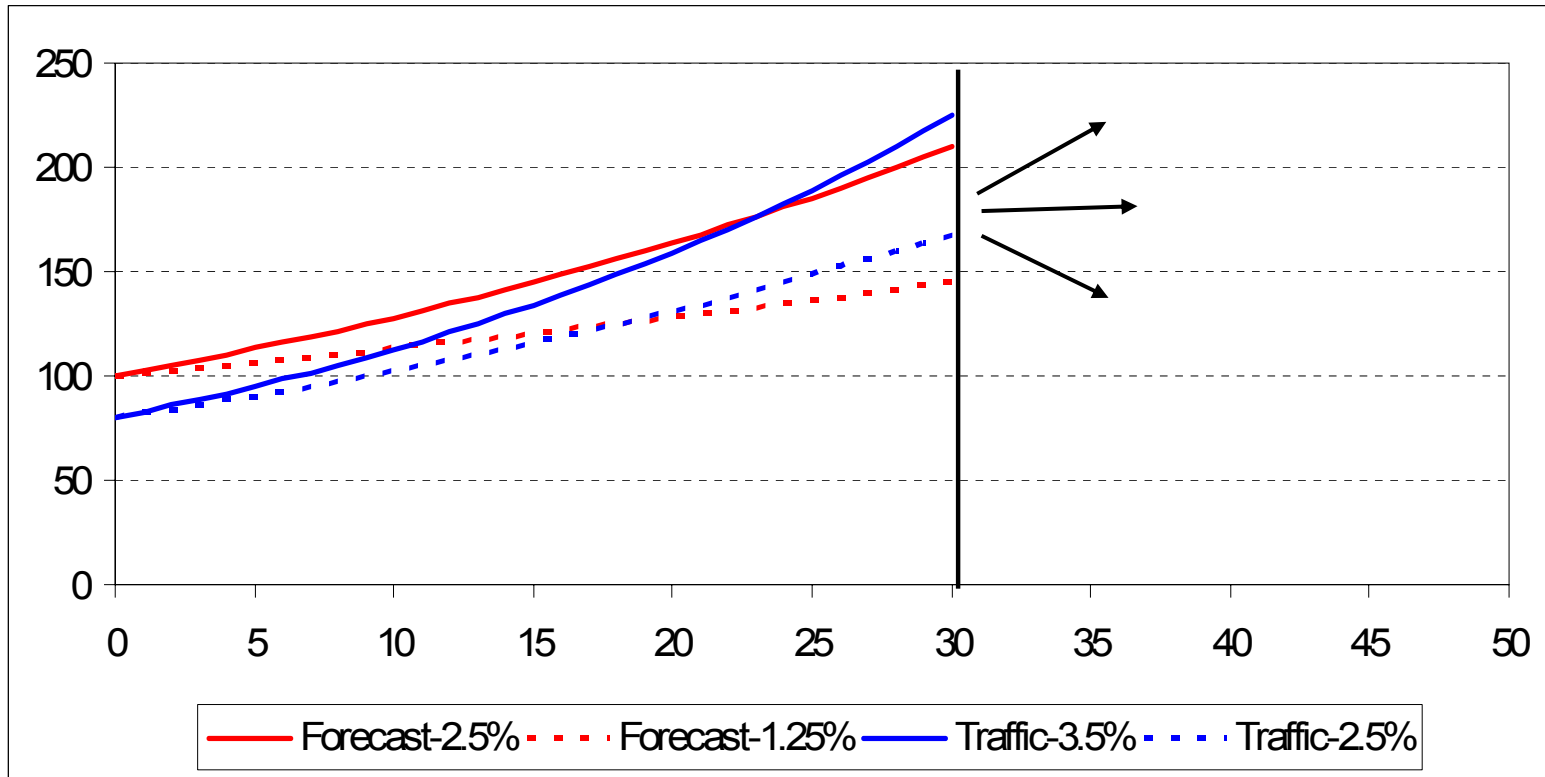
How Important is it to Forecast

- Sale/privatisation of existing facilities (brownfield)

Base Traffic	✓
Induced Traffic	✓
Demand Elasticity	?
Background Growth	?
Network	?

- And finally, these concessions are for 99 years!

Deep Deep Future...



How do we do these forecasts

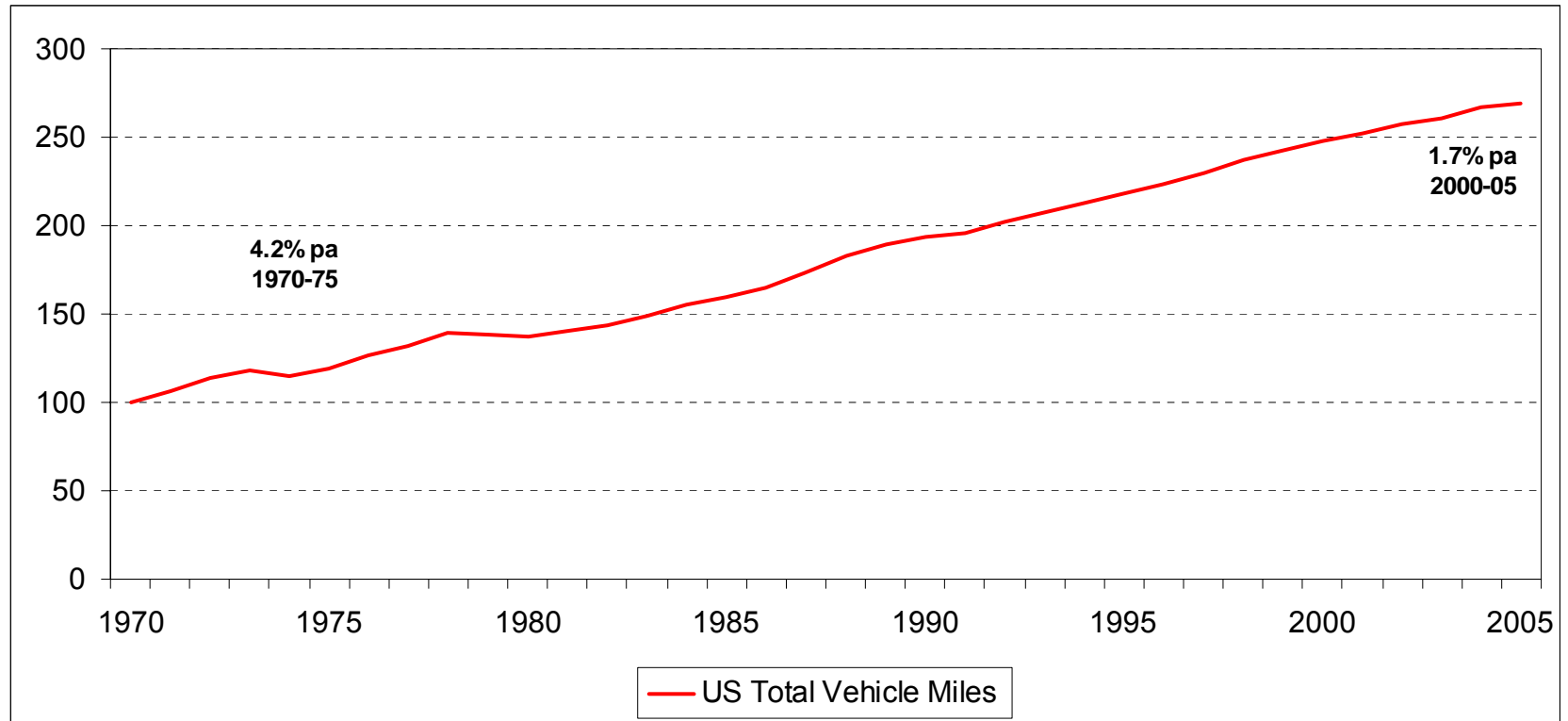
- 4 stage model - relating trips to development of trip ends
 - Land use
 - Socioeconomic
 - Demographic
 - Will past relationships change? Trip lengths, trip frequency
- Econometric models - relating aggregate growth to macro-economic factors
- Non-Model issues
 - Technology improvements
 - Social change
 - Legislative factors
 - Global warming

Econometric Models

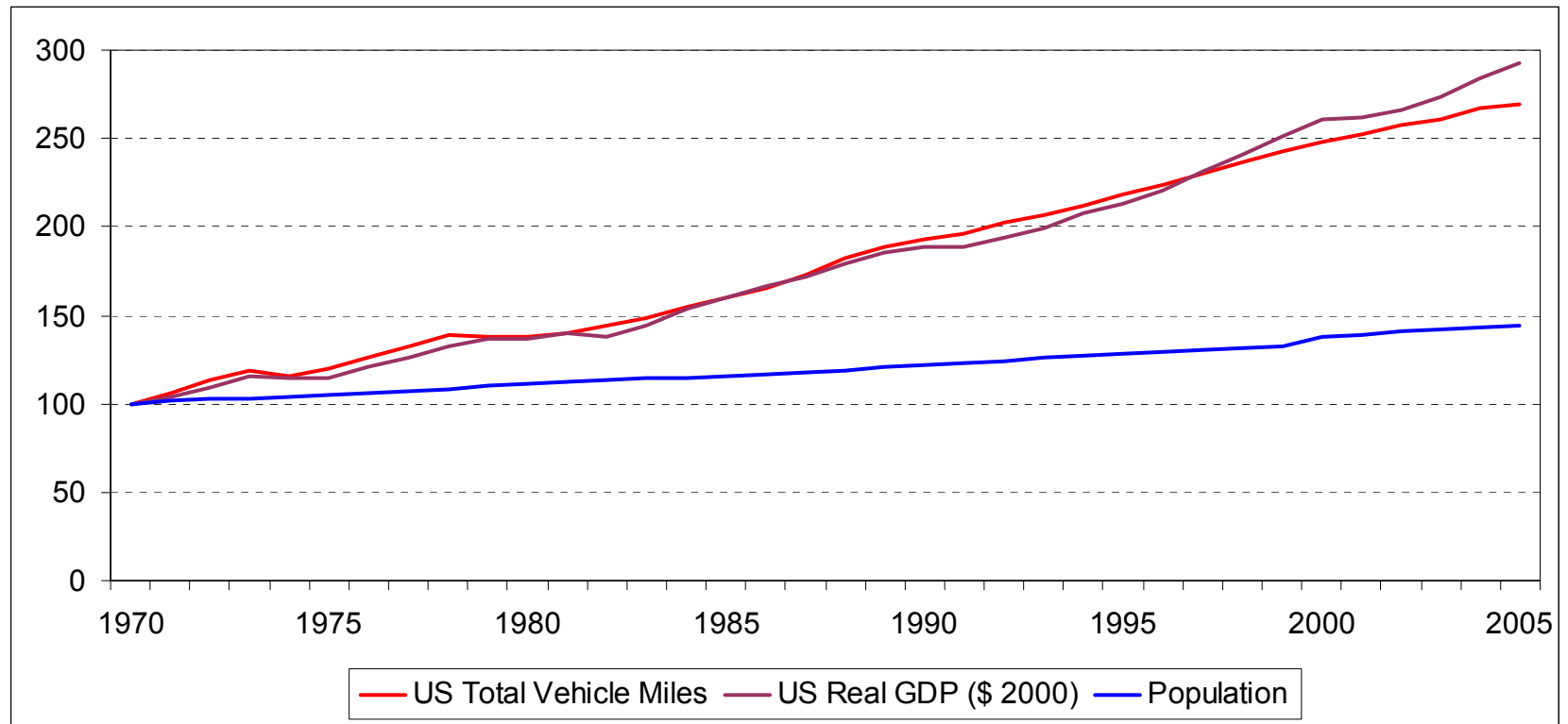
- Elasticity of traffic with respect to GDP as proxy for traffic growth

- Three different stages?
 - US
 - France
 - UK

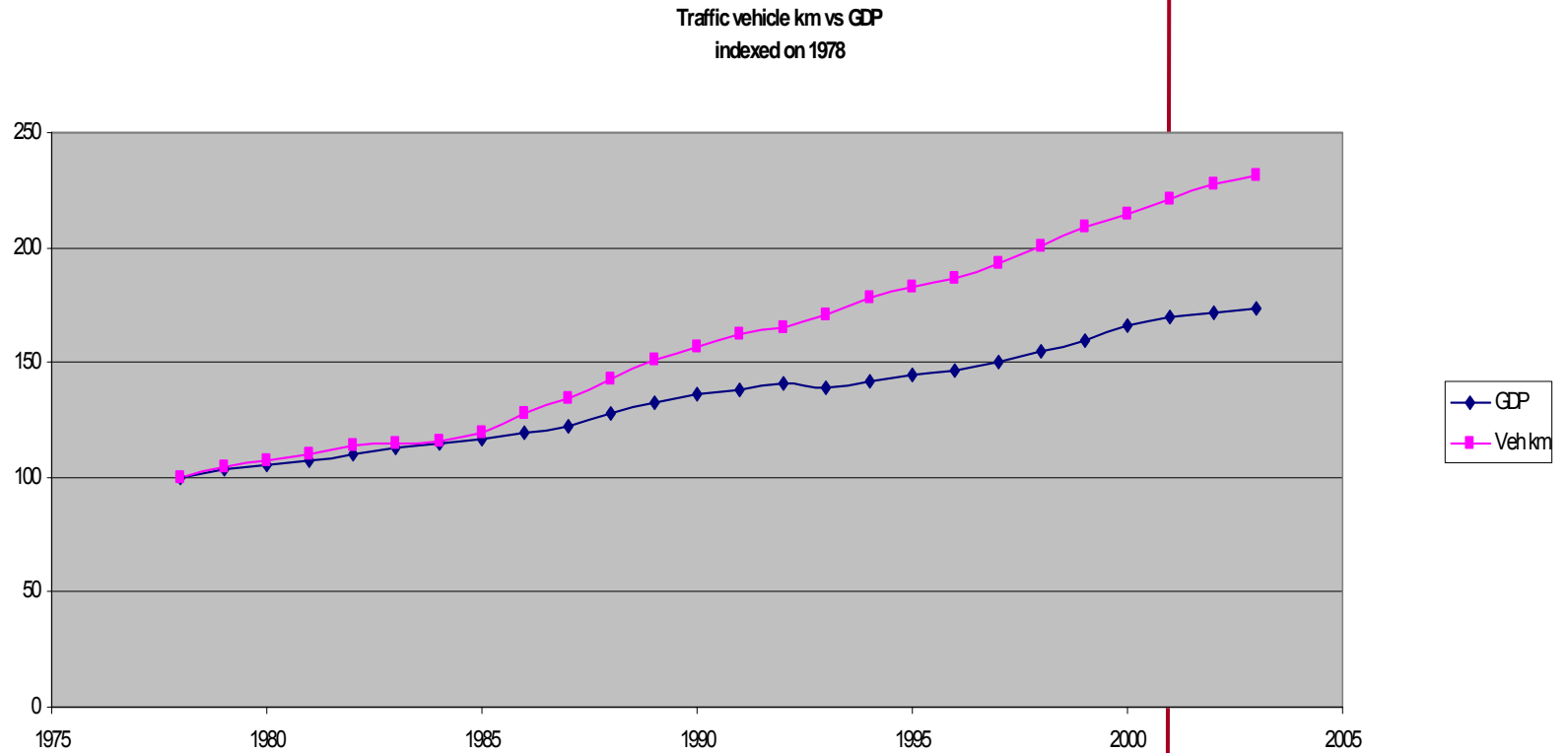
US Traffic Growth (Source: FHWA)



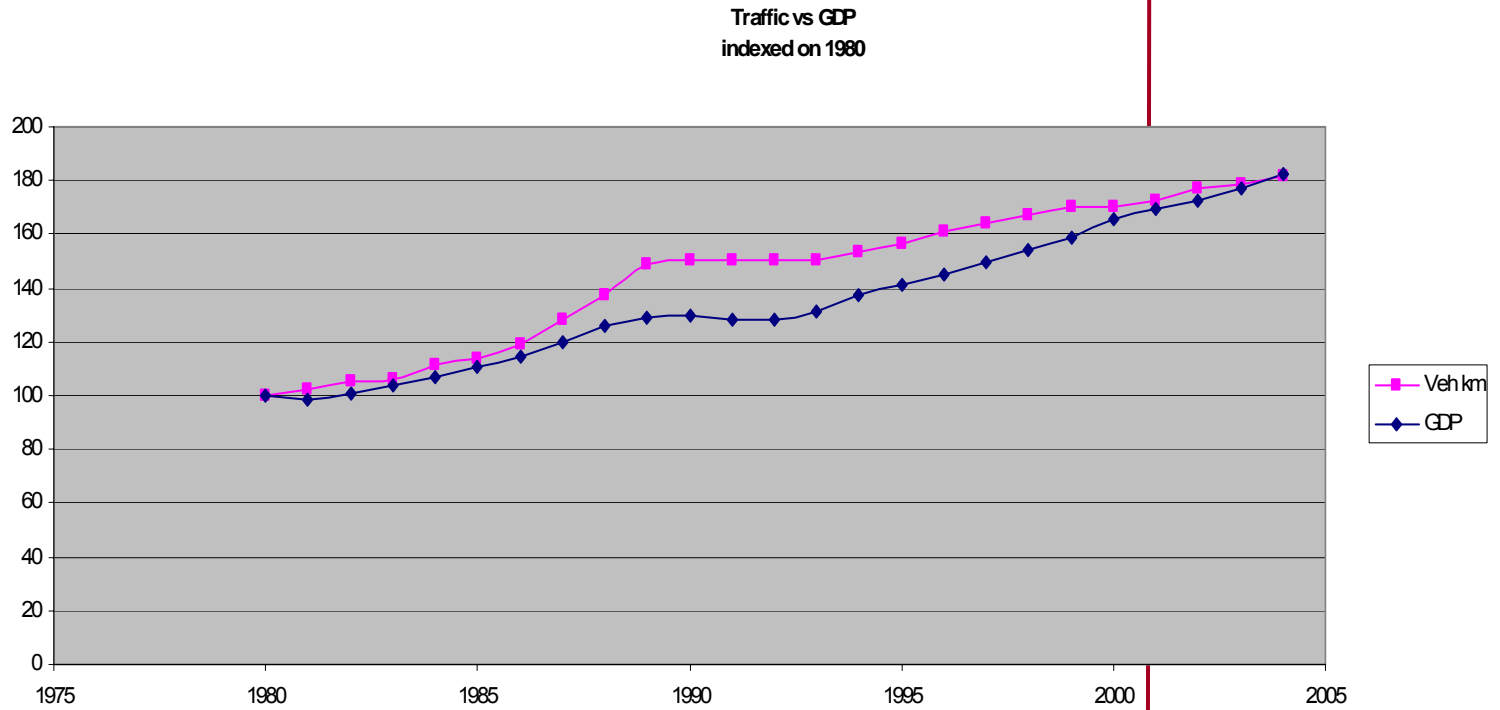
US Traffic Growth Drivers (Source: FHWA)



France Traffic Growth Drivers (Source: SES)



UK Traffic Growth Drivers (Source: UK DfT)



Decoupling

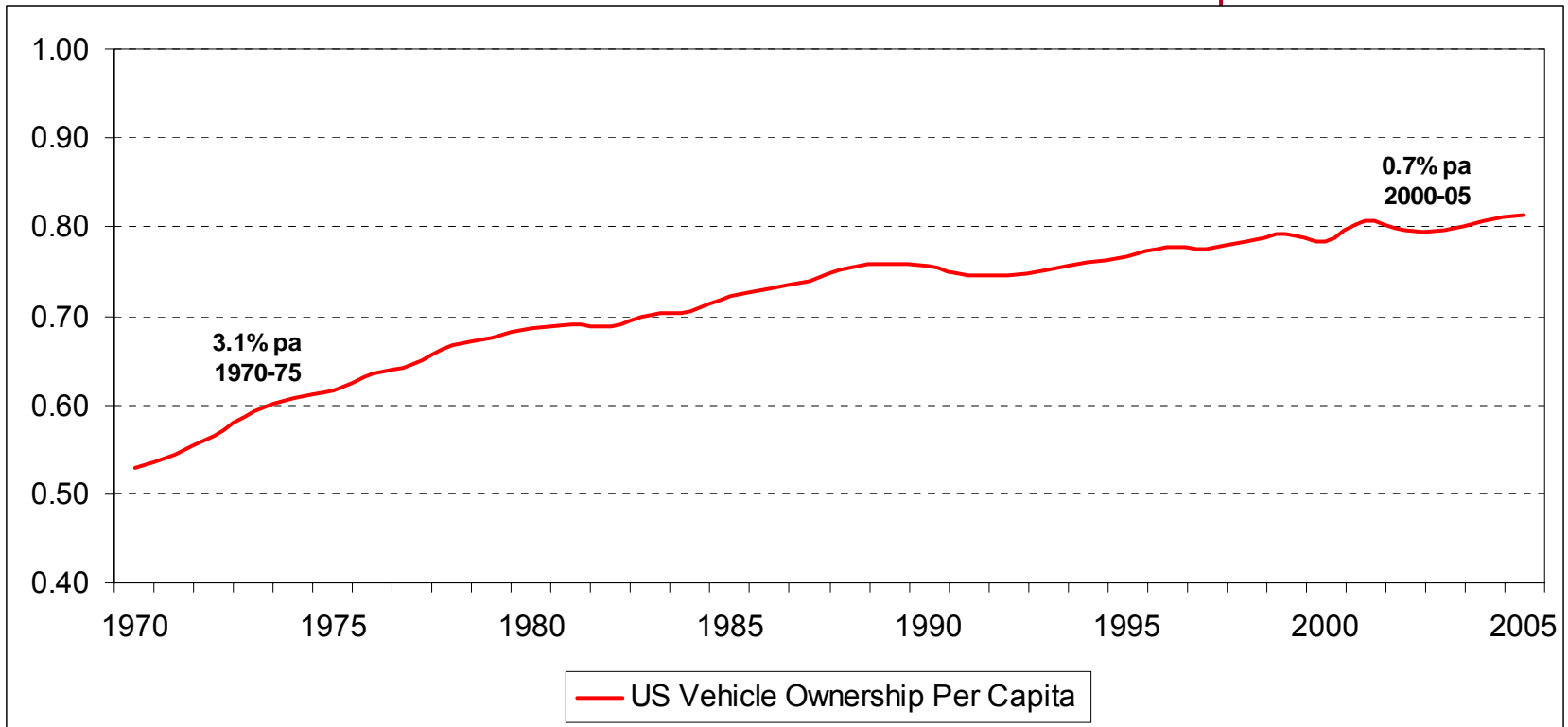
- Concept that economic development and traffic growth need not be directly related
- Little evidence (is UK a cycle rather than a trend?)
- Issue in Europe (environmental and land availability issues)
- Freight forecasting issues:
 - Logistics pattern increasing freight transport demand
 - Effect of the major changes in international trade patterns in US (west coast versus east coast ports)

Other Forecasting Issues

- Car ownership saturation
- Cost of motoring
- Travel 'time budgets'
- Congestion effects
- Freight

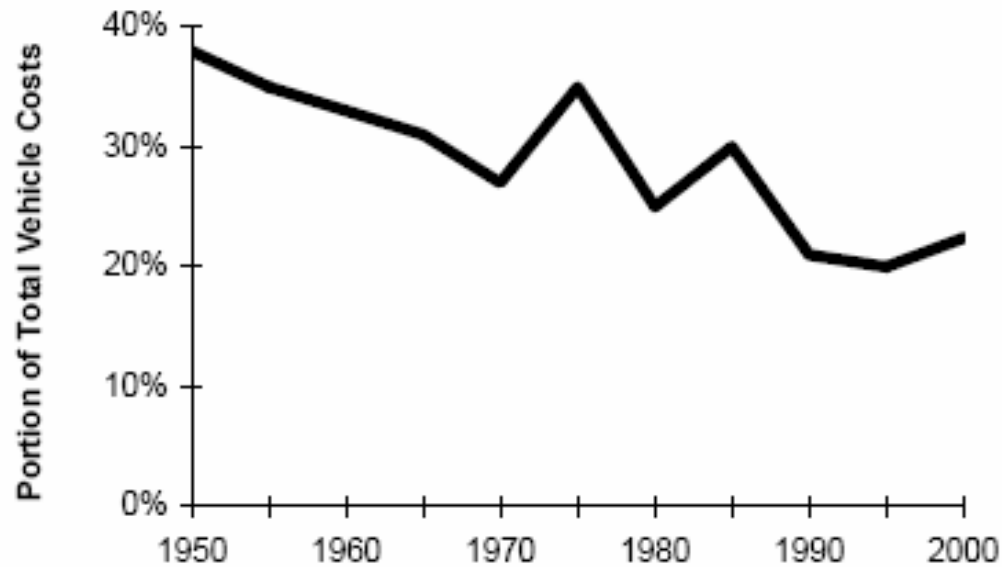
US Car Ownership (Source: FWHA)

- Does second/third car result in as many trips as first?

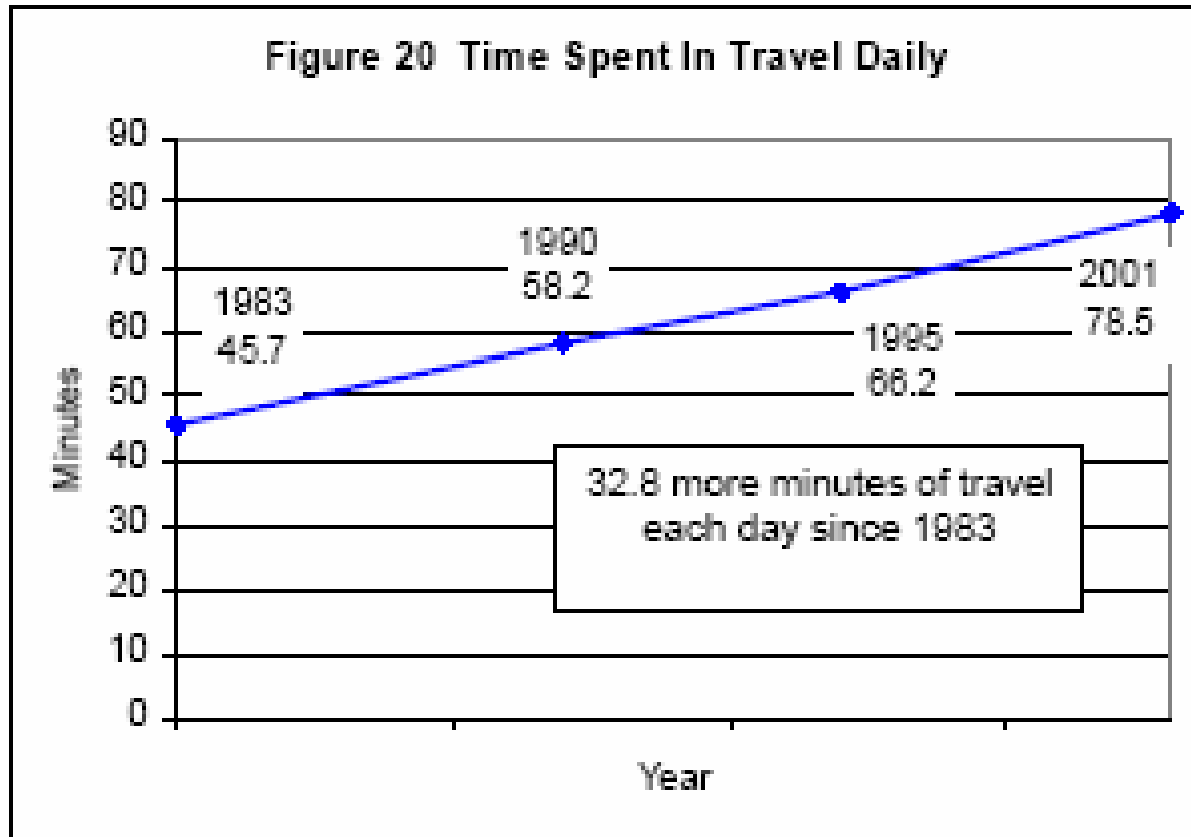


Cost of Motoring

Vehicle Cost Trends ("Cost of Driving," VTPI, 2005)



Travel Time Increases (Source: CUTR on NHTS/NPTS data)



Travel Time Increases

- Person travel time is not fixed - but is there a maximum?
- Commute times also increasing
- Possible factors:
 - 'Multitasking' (cell phones)
 - Household size and family care time
 - Housing affordability

Way Forward

- Importance of sensitivities, alternative scenarios
 - BUT uncertainty with exogenous factors
 - AND uncertainty about the relationships between these factors and traffic growth
- Opening year still critical
 - Existing assets and toll elasticity
 - Potential for toll increases - French experience
- Context of the road still essential
- Match the macro analysis to the more internal 4 stage
- 'Educating' the client

“Errors using inadequate data are much less than those using no data at all” (Charles Babbage)

“The only function of (economic) forecasting is to make astrology look respectable” (JK Galbraith)

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