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Toll Road Forecasting Risk: Study Review & Update 2003

Robert Bain

Associate, Infrastructure Finance Ratings

Standard & Poor's, London

Global Development Learning Network on Road Financing
Session 2: Scope for Private Sector Finance
The World Bank, Washington DC

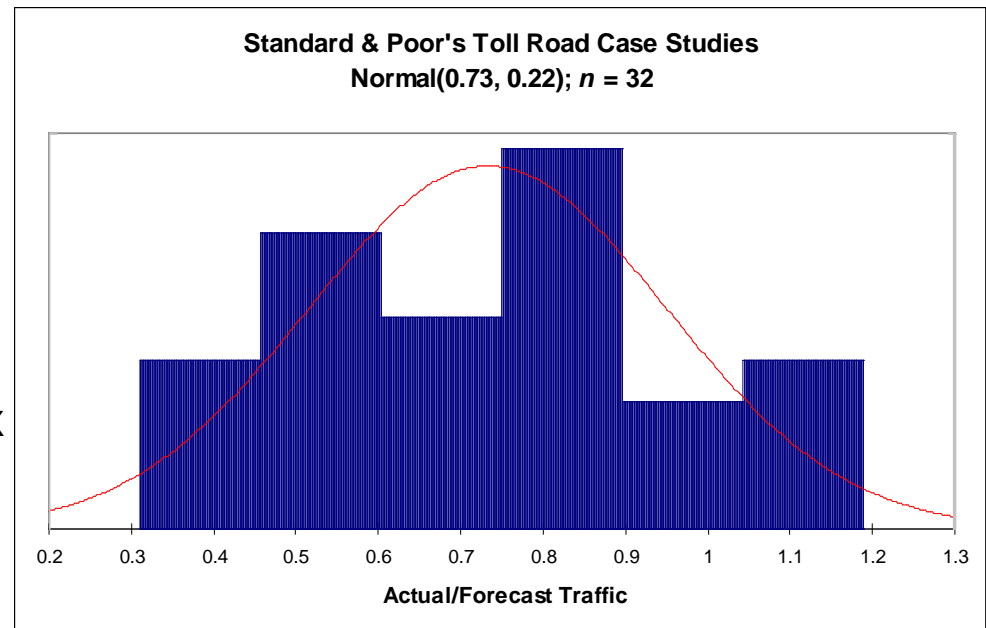


Toll Road Forecasting Risk

- Highlights from the 2002 research
- In the interim...
- 2003 Results
 - Data disaggregation
 - Error drivers (updated)
 - The key role of GDP assumptions
- Future forecasting challenges

2002 Research: Highlights

- 32 toll case studies (retrospective on forecast performance)
 - toll roads, bridges & tunnels
 - user-paid & shadow tolls
 - international review of forecast performance versus outturn results
- Key findings
 - Systematic errors (optimism bias)
 - Supported by other studies
 - Error-drivers
 - Development of Traffic Risk Index
 - Guidelines for stress testing





Traffic Risk Index (page 1 of 3)

Project Attributes	More Reliable	Less Reliable
Tolling Regime	Shadow tolls	User-paid tolls
Tolling Culture	Tolls well established	No toll roads in country
Infrastructure	Estuarial crossings	Dense urban networks
	Extension of existing road	Green field site
	Alignment: strong rationale (inc. tolling points & intersections)	Confused/unclear road objectives (not where people want to go!)
	Alignment: strong economics	Alignment: strong politics
	Highly congested corridor	Limited/no congestion
	Few competing roads	Many alternative routes
	Clear competitive advantage	Weak competitive advantage
	Only highway competition	Multi-modal competition
	Stand-alone facility	Reliant on other, proposed highway improvements
	Good, high-capacity connectors	Hurry-up-and-wait
	'Active' competition protection (eg. calming)	Autonomous authorities can do what they wish (and do)



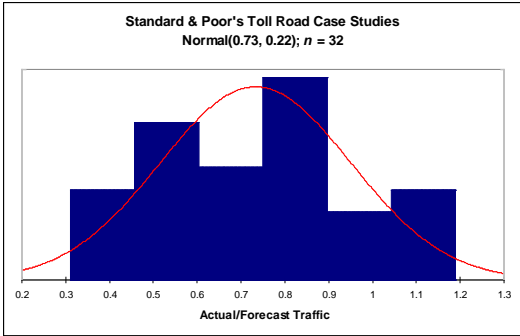
In The Interim...

- Traffic Risk Index being used for risk assessment/communication
- Continue to collate toll road traffic forecasting data
 - Industry participants offered additional data
 - All data employed = second-sourced
- Continue to compile/research reasons for forecast inaccuracy

- Now have 67 case studies (and growing)
- Analysis supports earlier conclusions
- Allows for disaggregated data analysis

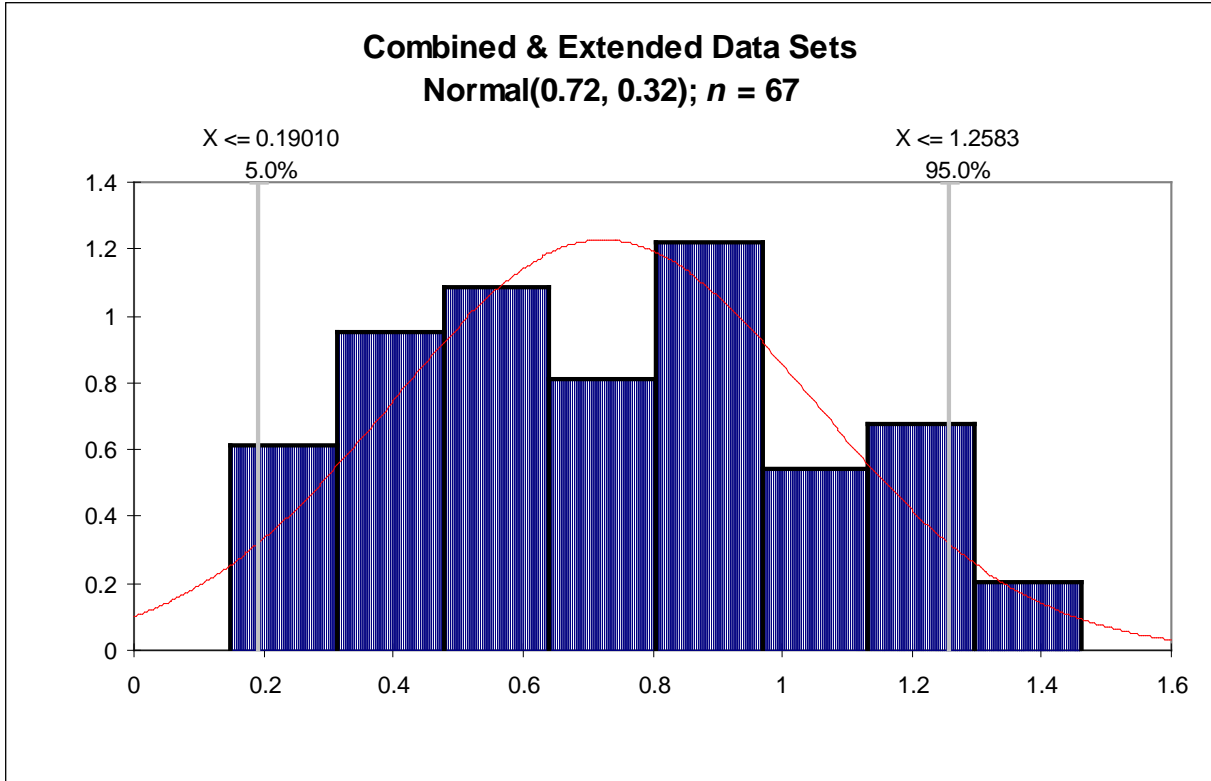
2003 Results

32 → 67 Case Studies



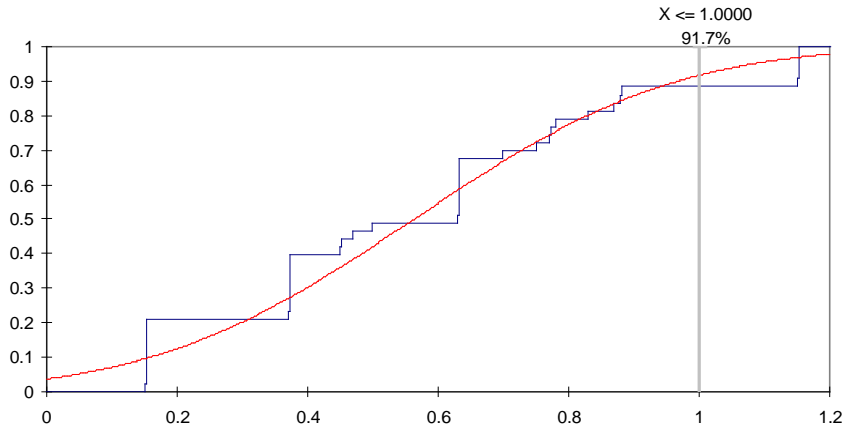
Mean
remains
unchanged
@ ~ 70%

Spread increased.
Range now:
18% - 146% !



Data Disaggregation: Tolling Experience

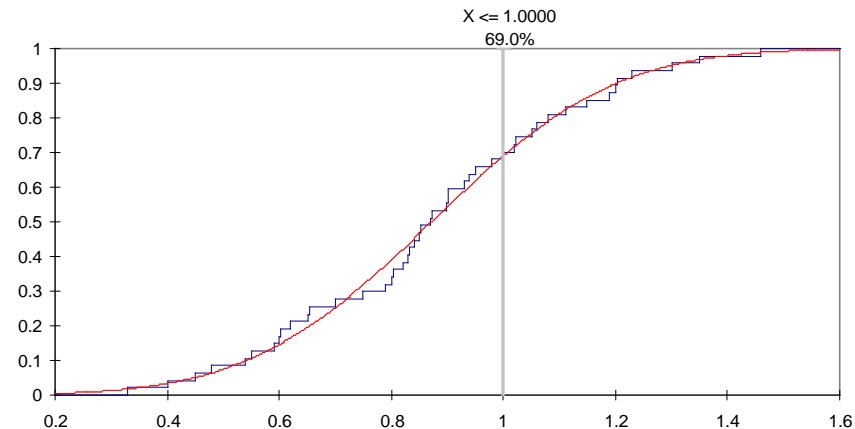
Host Country with No/Limited Tolling Experience
Normal (0.56, 0.31)



No tolling experience:
actual traffic = 56% of forecast

Tolling experience:
actual traffic = 87% of forecast
(with narrower 'spread')

Host Country with Tolling Experience
Normal (0.87, 0.26)

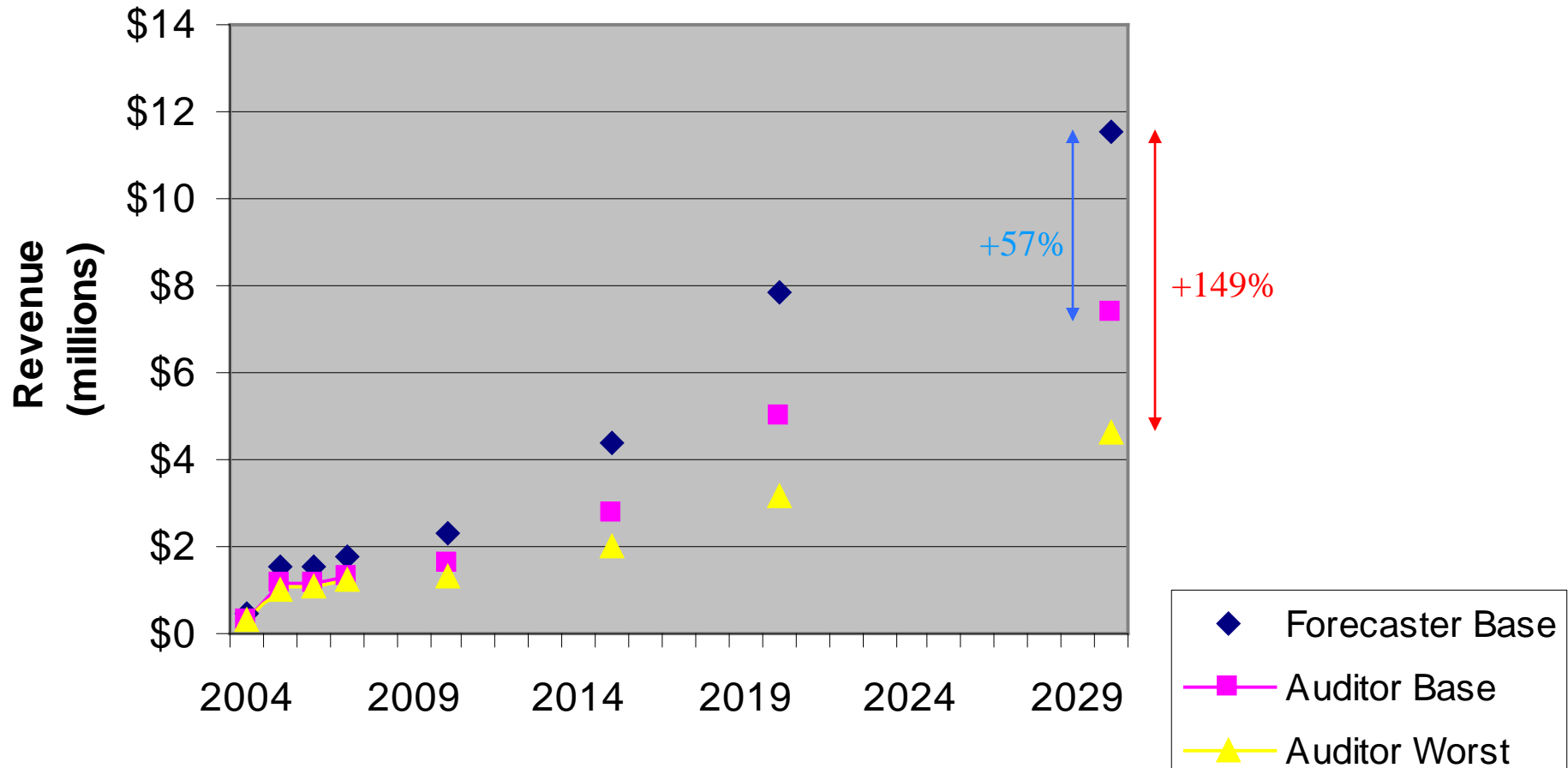




Error Drivers (2002 + 2003)

- High toll tariffs and a miscalculation regarding users' WTP:
 - especially frequent users (ie. commuters)
- Recession/economic downturn
- Future-year land use scenarios that never transpired
- Time savings less than expected
- Improvements to competitive (toll-free) routes
- Less usage by trucks
- Less off-peak and/or weekend traffic
- Sheer complexity of the deal (hence modelling process)
- Underestimate of ramp-up period (severity and duration)
- Underestimate of Value of Time (use of average figures)
- Longer-term traffic forecasts very sensitive to GDP assumptions

Compound Impact of Alternative GDP Assumptions





Future Forecasting Challenges

- Point-of-use charging in developing/transitioning economies
 - Ability to pay/willingness to pay
- Toll collection technologies
 - Reliability, take-up, back-office etc.
- Sophisticated pricing
 - Discounts (frequent user programmes, resident discount schemes), peak/off-peak pricing, day-of-week, season-of-year, etc.
 - Value/congestion pricing (by level-of-service) – dynamic?
- Urban congestion charging
 - All of the above...and more!!



Contact Details

Robert Bain

robert_bain@standardandpoors.com

+44 20 7826 3520