



Demand and Revenue Forecasting

Impact on PPP Project Bankability

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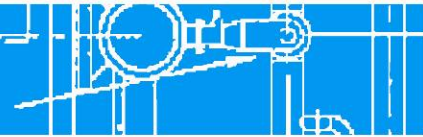




PPP Value for Money Drivers

- risk allocation
- whole of life costs
- innovation
- asset utilisation
- economies of scale
- increased competition



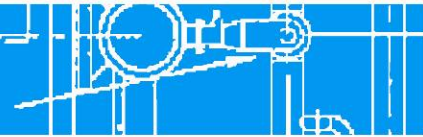


Economic vs Social Infrastructure

The provision of social infrastructure is usually based on availability payments from government thereby significantly reducing demand risk.

Economic infrastructure is more dependent on accurate demand estimation as cashflow is based on the number of units sold or toll collected per class of vehicle.





Economic Infrastructure - toll roads

Key Value for Money Driver in economic infrastructure is risk transfer. Who is in the best position to manage the risk?

Demand risk is the largest risk in most economic infrastructure opportunities. Who is in the best position to manage the risk?

Toll roads rely on revenue from users to pay capital, operating and maintenance expenses, and provide a return on equity.

It is fundamental that traffic predictions be accurate.

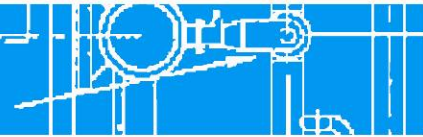


Traffic and Toll Revenue

Any toll road will have significant costs during the construction period, annual operating and maintenance costs and lumpy periodic refurbishment costs.

On the revenue side, tolls can only start to be collected when the road is completed and commissioned.

Traffic predictions are the foundation of the revenue cashflows.



Reality vs Prediction

If the demand is not estimated correctly, then the revenue will not match what was used in the base financial model used to gain financial backing.

Survey of 26 tollways built in the USA between 1986 and 2004 show a considerable variation in performance with a wide range from a low of 13% for the Osceola County Parkway in year 1 to 152.2% for the George Bush Expressway in the first year. After 5 years actual demand had increased to predicted levels in four cases only .



Reality vs Prediction

In an analysis of 183 road projects world wide (tolled and untolled), completed between 1969 and 1998 the forecasts “ appear to become more inaccurate toward the end of the 30 year period) Flyvberg et al

In a PPP toll road, the private sector takes demand risk, the risk associated with traffic volumes and willingness to pay. There must be a critical volume to warrant investigations as a PPP.





Estimating traffic volumes

In estimating the probability that traffic that will use a toll road, the vehicle toll choice model uses VOC savings:

$$p(\text{toll}) = 1/(1+\exp \{(U(\text{toll})-U(\text{free}))\})$$

$$U(\text{toll}) = a + b*\text{time} + c*\text{toll} + d*V(1) + \dots$$

$$U(\text{free}) = b*\text{time} + d*V(1) + \dots$$

Time is average travel time for a trip; U is utility

a - route constant (toll bonus); b,c,d etc reflect influence of other variables (V)

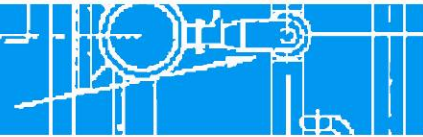


Impact of demand being less than predicted

Cashflow will be less than base model estimates affecting project bankability

Traffic usage has been less than predicted in Sydney's Cross City Tunnel and Lands Cove Tunnel and Melbourne's Connect East.

While Airport Link is under construction, it is understood (AFR 12 November 2008) the banking syndicate that provided BrisConnections with \$3.9 billion debt facility has commissioned its own independent traffic forecasts.



Bankability

Traffic figures provided by a proponent are often taken with a grain of salt by financiers (especially heavy vehicle estimates).

Financial institutions prefer to see a large volume of users paying a small toll and a small volume of users paying a higher toll.

A critical mass of users is needed to give comfort to any assessment – usually greater than 20 000 vehicles per day.

Variability in the cost of finance also needs to be considered along with changes in demand.



Overall Assessment

The financial model needs the flexibility to vary key inputs such as traffic volumes, toll cost, cost of debt, construction operation and maintenance costs.

Sufficient scenario and sensitivity analyses are needed to give comfort to the project financier.

Despite the difficulties in estimating demand, there is sufficient evidence worldwide to demonstrate that toll roads lend themselves to PPP delivery, but the current financial upheaval will place more emphasis on better demand and revenue estimation.