

Agenda

Advancing economics in business

Sold to the slyest bidder: optimism bias, strategy and overbidding

Overbidding has received increasing media attention over the past few months. In the UK, controversy surrounds the Department for Transport's decision to award the InterCity West Coast rail franchise to FirstGroup ahead of the incumbent. Further afield, the new Brisbane Airport Link has been unable to meet its forecast traffic numbers. What can drive overbidding? What are its implications for bidders, procurers and end-users, and how can it be overcome?

Overbidding refers to the practice of bidding beyond the actual value of an asset (such as a franchise agreement) in an auction or contest. Although overbidding has, arguably, been a feature of more straightforward resource auctions (eg, radio spectrum auctions), this article focuses on instances where

governments have tendered the operation of infrastructure (eg, toll road concessions or passenger rail franchising) to the private sector. In this context, overbidding has taken the form of premium-payment bids that are too high (or subsidy requirements that

Over-optimistic demand forecasts in practice

Toll road concessions

Evidence from studies on toll road public-private partnerships worldwide suggests that overestimated demand forecasts are prevalent in the sector. Bain (2009), for example, concluded that there has been a systematic tendency to overestimate traffic forecasts, with actual traffic volumes being, on average, 23% below the forecast levels for a dataset of more than 100 road, bridge and tunnel concessions.¹ Recently, the newly opened Brisbane Airport Link recorded an average of 81,470 vehicles per day in August, well short of the forecast of 135,000 vehicles per day, despite being toll-free for the first month of operations.²

Rail franchising in Great Britain³

The InterCity East Coast franchise has been the subject of two defaults over the past decade, as first Great North Eastern Railway (GNER) and then National Express East Coast failed to realise their demand and revenue forecasts. GNER defaulted on the franchise in late 2006 following poor growth in passenger revenues relative to that predicted in its business plan—although passenger revenue grew by 3.3% between May 2005 and June 2006, GNER had predicted growth of 9.9% over the period. National Express East Coast was awarded the franchise

in 2007 after offering to pay £1.4 billion in return for operating the service for a period of seven-and-a-half years. The payment profile reflected its forecast of annual passenger revenue growth of 5–12%. National Express failed to meet its targets from very early on owing to the economic downturn. Consequently, the East Coast franchise was transferred to Directly Operated Railways, a publicly owned company, and is due to be put up for competition again in late 2013. The direct costs for the UK Department for Transport (DfT) of terminating the contract were around £250m, while the failure of the franchise also meant that the DfT had to forgo £330m–£380m of expected revenue (from premium payments).

Rail infrastructure in England⁴

A recent House of Commons report into the completion and sale of High Speed 1 (HS1) concluded that 'over-optimistic and unrealised forecasts for passenger demand on High Speed 1 left the taxpayer saddled with £4.8 billion of debt.' Actual passenger numbers since the line opened in 2007 have been 30% below those predicted by the DfT in 1998, when it guaranteed the project's debt. The report called on the DfT to avoid making similar errors when estimating passenger numbers for HS2.

Note: ¹ Bain, R. (2009), 'Error and Optimism Bias in Toll Road Traffic Forecasts', *Transportation*, 36:5, pp. 469–82. ² Brisconnections (2012), 'AirportlinkM7 Traffic', ASX release, September 3rd. ³ House of Commons Committee of Public Accounts (2011), 'Department for Transport: The InterCity East Coast Passenger Rail Franchise', 39th report of session 2010–12, June 22nd. ⁴ House of Commons Committee of Public Accounts (2012), 'The Completion and Sale of High Speed 1', Fourth Report of Session 2012–13, June 27th. Source: Oxera and RBconsult (2012), op. cit.

This article is based on Oxera and RBconsult (2012), 'Disincentivising Overbidding for Toll Road Concessions', prepared for the Australian Department of Infrastructure and Transport, September, available at www.oxera.com.

are too low) based on unrealistic demand and revenue forecasts (see the box below).

The overbidding problem

On paper, overbidding might not appear to be too great a concern to procuring agencies; after all, bidders in concessions are responsible for their own investment decisions, and therefore arguably should be left to face the consequences of their decisions. Indeed, one might even expect overbidding to benefit taxpayers (at least in the short term), as the government is able to raise greater premium payments (or is required to grant a smaller subsidy) than anticipated.

The costs of overbidding can, however, be large if it results in underinvestment, financial distress (or potentially even default), and reduced enthusiasm for subsequent involvement in the industry. Defaulting operators can impose high costs on the government in terms of:

- the direct costs of terminating the contract;
- the costs of re-tendering the project and assessing bid submissions;
- the costs of stepping in as the ‘operator of last resort’;
- forgone revenues from the defaulting party.

Overbidding can also have less obvious costs. One of the intentions of competitive tendering is that it should ensure that each contract is awarded to the private sector party that can carry out the contracted functions most efficiently. However, overbidding could discourage well-qualified (and perhaps better-qualified) parties from entering the bidding process—because they understand that they will win the contract only if they pay over the odds—and could thus be particularly damaging from an efficiency perspective.

Potential causes of overbidding

Recent work by Oxera and RBconsult has highlighted numerous factors that can drive overbidding in procurement processes. A distinction can be made between:

- overbidding that is the natural result of forecasting uncertainty (and which would be expected to be offset by underbidding for other contracts); and
- overbidding that stems from structural and behavioural incentives in the tendering process.

This article is concerned primarily with the latter, since these are aspects that can be controlled for, and improved on, by the procuring party.

Common-value auctions and the winner’s curse

A popular view of overbidding for concessions contracts is that it is the result of the winner’s curse phenomenon.¹ The winner’s curse is a feature of common-value auctions. In this form of auction, the ‘true’ value of the item is the same to all bidders, but no party knows upfront the actual value of the item. As such, each bidder makes an estimate of what it considers the item to be worth, based on the information available to it prior to bidding.

It is likely that some bidders will overstate the value of the item, while others will understate it. Since the winning bidder will be the party with the highest estimate of those competing for the item, it will typically be one of the parties that overestimated the item’s value. The winning bidder may thus either lose money or obtain less profit than it anticipated (and hence is said to be cursed).

A strong criticism of the winner’s curse theory is that, in order for rational bidders to maximise their expected utility, they would lower their bids to allow for the bidding of competitors.² Moreover, the common-value assumption is likely to be too restrictive in the case of most concessions, for two reasons.

- First, bidders may face considerable political or economic pressures to overbid in order to win the franchise, which can create strong incentives to bid strategically. Only if all bidders faced the same pressures would the common-value assumption be appropriate, which is unlikely to be the case in almost all instances.
- Second, the value of a capital good, such as a concession, to each bidder is likely to be determined by a mixture of common-value and private-value elements (eg, individual characteristics and capabilities). The private-value elements will mean that the value of the concession is not the same to all bidders.

Optimism bias

According to the notion of bounded rationality,³ decision-makers are constrained by cognitive, temporal and informational limitations, and arrive at solutions by picking from a restricted set of choices. As an example of this in practice, it has been suggested that decision-makers tend to be optimistically biased in their assessment of the probability of future outcomes.⁴ This is exhibited in the tendency to overestimate the likelihood that a favourable outcome will occur, while

underestimating, or even ignoring, the likelihood of unfavourable outcomes. This is the result of overconfidence and the use of singular information (ie, one’s own capabilities), while failing to apply distributional information (ie, external data on historical precedents). As the author Douglas Adams wrote:

Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.⁵

In the context of concession-contracting, optimism bias may lead bid teams to overestimate opening demand and the potential to increase volumes over time, while placing insufficient weight on the probability of a negative volume shock (such as slower-than-expected GDP growth).

Strategic behaviour

Another alternative theory of why forecasts may be inaccurate is that there are economic or political incentives for the bidders to adjust their estimates strategically in order to win projects, and for politicians to do the same in order to get the go-ahead for projects.⁶ The following factors are likely to have an impact on the incentives to make strategic adjustments to demand forecasts.

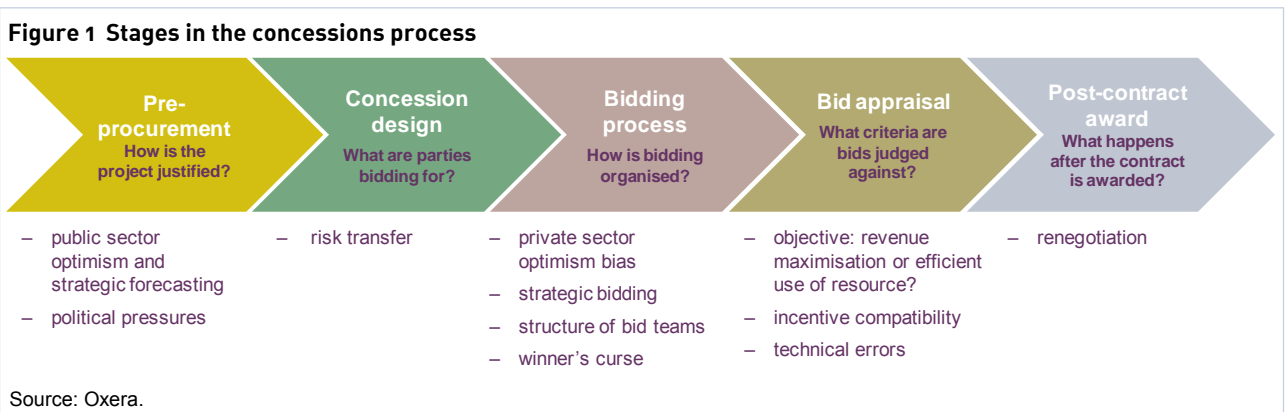
- **Political drivers**—parties may be incentivised to make bids other than for financial reasons—for example, out of a desire to beat rival organisations or in pursuit of prestige. The public sector, meanwhile, may be biased towards the short term, if it faces incentives to drive up demand or revenue forecasts in order to get the go-ahead for a project.
- **Economic incentives**—equally, bidders may believe that they have no option but to win contracts, since otherwise they will remain inactive in their core market. The pressure to win tenders is likely to increase if the company has lost in the past (as companies look to get a foothold in the industry),

and the greater the deal scarcity (ie, as tendering is less frequent, the opportunity cost of inactivity rises).

- **Bid assessment criteria**—the set of criteria against which bids are assessed determines the scope for ‘gaming’ the system by submitting upward-biased demand forecasts. There may be an incentive for the public sector to look to secure the highest amount of money upfront, but evaluating bids solely with respect to the level of (upfront) premium payments could provide strong incentives for gaming.
- **Non-credible punishment for default**—the greater the punishment for defaulting, the greater the incentive to avoid overbidding. Concessions typically involve the creation of a special-purpose vehicle (SPV). If the SPV defaults but the company goes unpunished at the parent level, there is less incentive to avoid overbidding.
- **Opportunistic behaviour and renegotiation**—although renegotiation can enhance welfare where it helps to address incomplete contracts, it may allow companies to act opportunistically by pushing their bids up, on the basis that they can be revised down in subsequent renegotiations. A study in 2004 found that the initial contract was renegotiated in 55% of the transportation concessions examined.⁷ The majority of these renegotiations involved an increase in tariffs (62% of cases) and delays in investment obligations (69% of cases).

Potential solutions

Although inherent uncertainty and forecasting limitations are likely to prevent forecasts from ever being considered to be 100% ‘accurate’, solutions to the problem of overbidding can aim to ensure that the incentives within the tendering process are aligned with the provision of well-justified, unbiased demand and revenue forecasts. The solutions to the overbidding problem encompass five stages of the concessions process, as shown in the figure below.



For concessions that incorporate construction as well as operation (ie, greenfield projects), one area that can affect the incentives to overbid is the process by which the decision to undertake the project is originally reached. If projects get the go-ahead on the basis of overoptimistic public sector forecasts, these inflated figures could pass through into bids that overestimate the likely traffic volumes. This would be most likely to occur if bidders believe that they are unlikely to win the contest if the demand forecasts feeding into their premium payments are below the public sector comparator. Consequently, it would be important for government departments to look to ensure that their own demand assumptions are realistic and that political pressure does not feed into an unrealistic public sector comparator in the **pre-procurement** phase.

In the **concession design** stage, there should be a balance of upside and downside risk to allow for normal risk/reward returns. This should be reflected in premiums—the public sector should not expect to be able to transfer a large degree of risk and also receive large premium payments.

Mechanisms could be introduced to increase the downside risk of overbidding as part of the **bidding process**. This can be done by requiring the bidding parties to make deposits that increase as a function of the value or risk of their bids. This acts to exacerbate the losses that the party would make should it default, and should be priced into bids. An example is the requirement for bidders to lodge subordinated loans and performance bonds in passenger rail franchising tenders, which increase in line with the level of risk associated with the bid.

Alternatively, the tendering process could include an evaluation of bids that gave credit for the amount of equity, parent guarantees, or similar support proffered by the bidder. This would reward bidders that accept greater risk at the parent level and are thus less likely to overstate their expected revenues. This might have helped in the case of the default of National Express East Coast, for example, where the holding group was heavily indebted and thus unable to raise finance to aid its subsidiary.⁸

In terms of **bid appraisal**, the public sector faces two potentially conflicting policy goals when procuring.

First, the government wishes to maximise the payment made by the private sector for the contract rights, since this is in the best interests of taxpayers in the short run. Second, the government is typically concerned with ensuring that the contract is granted to the party that values it most and will maximise its full economic value. While focusing on the efficiency aspect might reduce the size of premium payments, this is a trade-off that the government might need to accept in order to avoid incurring greater costs in the long run. More generally, procurers can look to reduce the incentives to overbid by properly scrutinising the deliverability of bidding parties' business plans and the robustness of the assumptions behind their financial models, rather than solely targeting the highest premiums.

Lastly, once the contract has been awarded to a single party, it will be important to avoid forced renegotiations, as this does not give bidders the appropriate incentives to price normal business risk into their bids in a way that facilitates financial resilience.

Where next?

The design of the tendering regime is crucial to ensuring that 'correct' or suitable bids are offered in concessions and franchising contracts. Poorly designed tenders and appraisal processes can lead to financial distress and default for the operator, costs for the public sector procurer (including changes to its strategies), and potential disruption for end-users. In particular, overbidding reduces the likelihood that competitive tendering will ensure that the most efficient bidder is awarded the contract. As such, procuring agencies should do as much as possible to design the tendering regime so as to minimise the structural and behavioural incentives on firms to overbid.

A critical feature of this is the trade-off between network optimisation and efficiency, versus securing value for money and the highest upfront premiums for taxpayers. Governments may need to be willing to accept lower premium payments where there are doubts about the deliverability of the highest bidder's business plans. This would suggest that, going forward, there should be a greater emphasis on deliverability rather than short-term revenue maximisation, as the latter can lead to the taxpayer and end-users facing higher costs in the longer term.

¹ Capen, E.C., Clapp, R.V. and Campbell, W.M. (1971), 'Competitive Bidding in High-Risk Situations', *Journal of Petroleum Technology*, **23**, pp. 618–34.

² Cox, J.C. and Isaac, R.M. (1984), 'In Search of the Winner's Curse', *Economic Inquiry*, **22**:4, pp. 579–92.

³ Simon, H. (1957), 'A Behavioural Model of Rational Choice', in *Models of Man, Social and Rational: Mathematical Essays on Rational Human Behaviour in a Social Setting*, New York: Wiley.

⁴ See, for example, Irwin, F.W. (1953), 'Stated Expectations as a Function of Probability and Desirability of Outcomes', *Journal of Personality*, **21**, pp. 329–35; Weinstein, N. (1980), 'Unrealistic optimism about future life events', *Journal of Personality and Social Psychology*, **39**, pp. 806–20.

⁵ Adams, D. and Carwardine, M. (1991), *Last Chance to See*, UK: Pan Books.

⁶ See, for example, Wachs, M. (1986), 'Technique vs Advocacy in Forecasting: A Study of Rail Rapid Transit', *Urban Resources*, **4**:1, pp. 23–30; Wachs, M. (1990), 'Ethics and Advocacy in Forecasting for Public Policy', *Business and Professional Ethics Journal*, **9**:1–2, pp. 141–57.

⁷ Guasch, J.L. (2004), 'Granting and Renegotiating Infrastructure Concessions—Doing it Right', *World Bank Institute Development Studies*, 28816.

⁸ National Express had accumulated more than £1 billion in debt to expand its business and needed to refinance this debt in uncertain market conditions. House of Commons Committee of Public Accounts (2011), op. cit.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Leonardo Mautino: tel +44 (0) 1865 253 000 or email l_mautino@oxera.com

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