

Marginal Utility

Marginal Cost

by Col Lange & David Williams

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An ironclad approach to Value for Money

Introduction

At Lange Consulting & Software, we are often asked about the best way to determine value of money when evaluating proposals.

After 40+ years in the business of evaluating tenders, we consider the Marginal Utility / Marginal Cost (MU:MC) Model to be the most reliable and defensible approach to determining value for money (VFM) of proposals. MU:MC demonstrates why weighting price alongside qualitative criteria is not appropriate for contemporary tender evaluation.

Obtaining value for money is generally accepted as the underpinning principle of procurement. The obligation to achieve value for money is specifically required at the Federal level.

NSW government agencies are required to ensure they obtain value for money for procurement of goods and services - s176(2) Public Works and Procurement Act 1912 (the Act)

The NSW Local Government Regulation 178 on acceptance of tenders states that "After considering the tenders submitted for a proposed contract, the council must either:

- (a) accept the tender that, having regard to all the circumstances, **appears to it to be the most**

While "appears to it to be the most advantageous" is somewhat vague, it fits clearly within the construct of marginal utility.

Marginal Utility is an economic concept to describe the utility of a good or service that is gained from an increase, or lost from a decrease, in the consumption of that good or service.

The marginal decision rule states that a good or service should be consumed at a quantity at which the marginal utility is equal to the marginal cost for it to be of equitable value. The rule can be used as a basis for comparing proposals of different utility that have different cost.

By definition, VFM and marginal utility are 'quotient' mathematical relationships rather than a 'sum' relationship (as we get in weighting price) otherwise the principle would be '*Value and Money*'.

MU:MC was the method used by Purchasing Australia to assist in determining value for money. The method is founded upon economic principles developed in the 1950s.

Our contention is that selection of the successful tenderer should be based on the MU:MC relationship unless during the evaluation process this criteria becomes unsuitable. If only one tenderer meets the mandatory conditions, you should evaluate that response to determine if it is acceptable and undertake alternative market research to determine if the offer is value for money. (one of the many services we provide)

Utility describes the non-price criteria against which tenders are assessed. The cost of each tender will be determined by assessing the whole-of-life costs where possible, not just the price tendered. (Queensland Government Value for Money Better Purchasing Guide 2014)

Table 1 shows an example array of tenders:

Vendor	Utility	Cost
V1 Market Leader	64	\$150,000
V2 Gold Plater	74	\$200,000
V3 Average Joe	54	\$140,000
V4 Cheap 'n Nasty	40	\$100,000
V5 Uncompetitive	40	\$150,000

Table 1

To determine the utility of each tenderer's proposal, scores for the non-price evaluation need to be 'normalised', that is that the highest score is taken as unity, or 1, and the lesser scores calculated as a factor of the highest, thus remaining utility scores are represented by values of less than 1. In a similar manner the highest cost is taken as unity and the lesser costs calculated as a factor of the highest, thus remaining costs are represented by values of less than 1.

Vendor	MU	MC	MU:MC
V1 Market Leader	0.86	0.75	1.15
V2 Gold Plater	1.00	1.00	1.00
V3 Average Joe	0.73	0.70	1.04
V4 Cheap 'n Nasty	0.54	0.50	1.08
V5 Uncompetitive	0.54	0.75	0.72

Table 2

The principal of the marginal cost/utility model states that the critical point is that at which an increment of cost is matched by an equal increment of Utility. This condition is met when a

line is drawn on the Marginal cost/utility graph through the zero point at an angle of 45° with each axis. The last plot cut by the line as it is moved at 45° towards maximum utility and minimum cost is the plot which represents optimum utility for minimum cost. This plot is considered to represent best value for money.

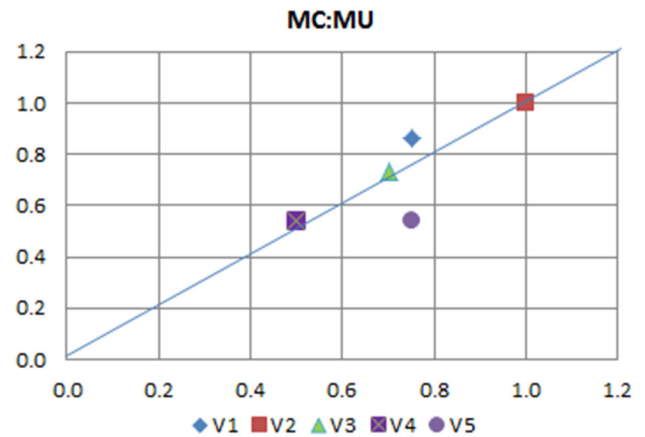


Figure 1

This value can also be calculated by determining the quotient of MU:MC as shown in table 1, where the Market Leader wins.

These MU:MC values can be plotted on a graph where the X axis represents Utility and the Y axis represents Cost as shown at Figure 1.

The preferred tenderer and any other possible winners from the process are then subjected to an evaluation of their ability (what they know) and capacity (what they have) to provide the goods/services. The results of financial assessment are separate, and may override decisions based on, marginal cost/utility.

To ensure the process is fair and defensible, you should state in your approach to the market that you are using a value for money approach to the evaluation and ensure the process is documented in your evaluation plans and recorded in the Evaluation Report.

There certainly are cases for weighting price in an evaluation where there are specific requirements to either open the market for a range of service levels or where quality is assured through specification of standards. Where price is a paramount concern, we suggest you should state your budget in the approach to market. The

assessment then becomes focused on the value or utility that you are obtaining and the associated risks for that price.

Advantages:

- MU:MC is an accurate reflection of the relationship between the Utility and Cost of each proposal.
- It is a reliable and defensible process for determining VFM.
- MU:MC exposes outliers in the market more clearly.

Disadvantages:

- Normalised scales tend to lose the context of the evaluation results **but this disadvantage is easily resolved by using % amounts for the X (utility) axis and \$ amounts for the Y axis.**

About us

David and Col are from Lange Consulting & Software), a Canberra-based, independent consulting company with considerable experience since 1997 providing procurement consulting and training services. We also design and support and use our own software applications to manage procurement and contracts.

We provide services in all facets of complex procurement including business case development, request for tender preparation, project planning, evaluation strategies and systems, training, tender evaluations and contract negotiation. We specialise in facilitating tender evaluations to achieve successful outcomes.

Read more of our whitepapers at: www.langeconsulting.com.au

Contact David at: Phone: +61 (0) 412 237 695
dwilliams@langeconsulting.com.au

Contact Col at: Phone: +61 (0) 418 481 494
clange@langeconsulting.com.au

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