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Title:

Choosing the discount rate in an economic analysis

Letter to the Editor

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Dear Editor,

In reference to the recent work on understanding economic evaluation alongside emergency medicine research by Singh et al[1], we would like to draw attention to the selection of the discount rate when performing an economic analysis. This choice has implications in that a figure in the lower ranges may overestimate the value of an outcome or the cost of an intervention or project. A higher rate may result in less promising results and may even be enough to send a potential capital investment's Net Present Value into the negative.

There are three different options to selecting an appropriate discount rate, depending on what the aim of the calculations are.

National guidelines

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When performing a healthcare economics study within Australia, one method for choosing the rate would be to follow existing guidelines, namely that of the Pharmaceutical Benefits Advisory Committee (PBAC) and Medicare Services Advisory Committee[2]. The PBAC requires that costs and benefits incurred or received in the future are discounted to the present value at a uniform, annual rate of 5%[2]. This approach is simple, allowing for standardised comparison between multiple propositions.

Weighted Average Cost of Capital (WACC)

When preparing to submit a healthcare business case for a project or major capital expenditure for an organisation, the WACC can be used. Using results from a health economics study will not necessarily be translatable directly to an organisation as each hospital may face a cost of equity higher than 5%, reducing the estimated value added that a healthcare economics study may suggest. The WACC is the after-tax weighted average required return for all types of securities issued by a company[3]. This can be calculated as follows:

$$WACC = \left(\frac{D}{D+E}\right)(1-T)r_d + \left(\frac{E}{D+E}\right)r_e$$

Where D = debt, E = equity, T = marginal tax rate, r_d = rate of return on debt, and r_e = rate of return on equity[3]. For example, if the hospital capital structure is $100M equity at a 15% required return and $100M debt at a 5% interest rate, and the marginal tax rate is 30%, the WACC for that particular hospital would be as follows:

$$WACC = \left(\frac{100}{100+100}\right)(1-0.3) \times 0.05 + \left(\frac{100}{100+100}\right) \times 0.15 = 0.075 = 7.5\%$$

This approach is especially relevant to services in the private sector, where shareholder return needs to be taken into account.

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Pre-determined company discount rate

Fortunately, the hospital finance department may choose a pre-determined company-wide WACC for budget submissions to avoid needing to calculate this each time. For instance, at one of the author's institutions, the company-wide discount rate is 6.25% for all projects. This allows hospital administration to have control over the threshold for project acceptance by setting the desired rate with the option of building in a margin of error.

Taking into account the time value of money is important in any economic analysis, whether it be the economic impact of a medical intervention or when valuing the profitability of a capital investment. The selection of an appropriate discounting rate has a marked effect on the final result of an analysis, so it is important to ensure a reasonable choice depending on the type of analysis.

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