

The Public Spending Code:

E. Technical References

Test Discount Rate for Economic Appraisal – 5%

E-02

Summary:

This document sets out the current test discount rate which should be used in relation to economic appraisals. It also provides a brief description of the methodology used to arrive at the discount rate and how the discount rate is typically applied. The areas of hyperbolic discounting and other discount rates applied in the public sector are also explored.

Overview

Costs and benefits of a project may occur over different time horizons. For example, in a construction project costs generally arise and peak in the short term and benefits generally emerge in the medium to long term. For this reason, an economic test discount rate should be used to convert future costs, benefits and income streams into their value today (present value) to allow them to be meaningfully measured and compared for appraisal purposes.

The standard test discount rate for application in economic appraisal of current and capital expenditure proposals carried out in accordance with the requirements of the Public Spending Code is now set at 5%. This represents an increase of 1 percentage point from the previous rate, which was set in 2007. This rate should be applied to a project's future costs and benefits expressed in constant prices i.e. the value of costs and benefits should not be adjusted to take account of general inflation.¹

¹ Adjustments to prices over time may be made if there will be changes to the price of a good or service relative to all other goods and services. (See D03 of the Public Spending Code)

Methodology

Consistent with the approach outlined in previous guidelines regarding the discount rate, the social rate of time preference was the method used to derive the discount rate. This was based on analysis carried out by the ESRI². Practice from other jurisdictions, EU Commission guidance and the economic literature was also taken into account.

In general, the effect of the increased discount rate in some cases will be to reduce the NPV of projects with upfront costs and longer term benefits. While this will increase the threshold for projects to pass a CBA test, it will also help ensure that projects with a positive net present value or benefit cost ratio are robust projects for investment.

It is important that a centrally set test discount rate is applied across economic appraisals and other forms of NPV analysis to ensure uniformity of approach and consistency in calculating present values across the public sector. This also facilitates the comparison of projects within and across sectors.

The following formula should be used when applying the discount rate for NPV purposes. The discount rate should not be used as a method to account for risk. This should be addressed separately in a sensitivity and scenario analyses.

Applying the discount rate

Formula

$$\text{Discounted value} = (\text{Future value or cashflow}) * \text{relevant discount factor}$$
$$\text{Discount factor} = \frac{1}{(1 + \text{discount rate})^n}$$

Where n = time period

Application - Example

Determine the discount factor for a cashflow of €5m in year 5 of a project. Solution:

$$\text{Discount factor} = \frac{1}{(1+0.05)^5} = 0.783526$$

² Morgenroth, E (2011)., *How can we improve evaluation methods for public infrastructure - ESRI Economic Renewal Series No. 2*, Dublin.

Discount rates are usually available from discount factor tables and can also be applied using formulae in Excel. User friendly templates will be published shortly on the Public Spending Code website to provide illustrations regarding how the discount rate should be applied in practice.

Hyperbolic Discounting

For projects with time horizons beyond 30 years, the level of uncertainty regarding future costs and benefits is such that a lower discount rate may apply. This is known as hyperbolic discounting (i.e. declining rates) and there is an extensive literature dealing with this topic. However, this is likely to only apply to a very small minority of projects.

Departments and Agencies are required to consult with the Department of Public Expenditure and Reform in circumstances where a sponsoring body wishes to use an extended appraisal period and apply hyperbolic discounting. Approval will be granted on a case by case basis and will take into account the appropriate schedule of rates and appraisal period.

Other Discount Rates

There are other discount rates which are applied in specific circumstances. These include:

- Commercial Projects undertaken by Commercial Semi State Bodies: These bodies generally apply discount cash flows for commercial projects using the relevant cost of capital or a project specific rate.
- PPP Projects: The discount rates for PPP projects are set by the National Development Finance Agency (NDFA) – (<http://www.per.gov.ie/en/project-discount-inflation-rates/>)