

Social Discount Rates for Regional Pest Management Plan Cost Benefit Analysis

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Benefit Cost Analysis

Discounting future benefits

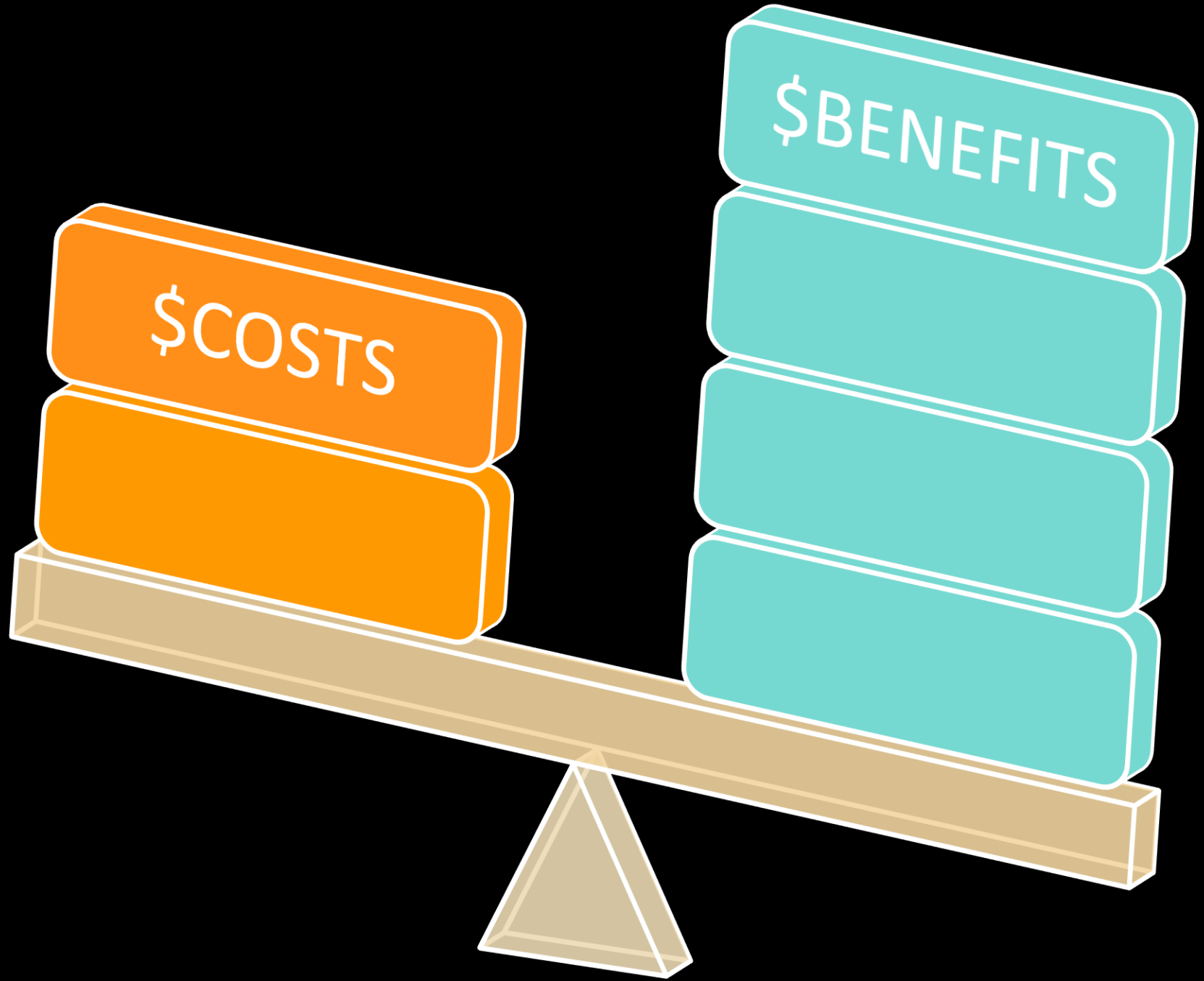
Benefit Cost Analysis

Based in Welfare Economics

Provides framework for comparing benefits and costs

Wilding Pines
Kiwifruit Vine Health

Standard method for assessing the relative desirability of competing alternatives



Ratio

$$\frac{\$BENEFIT}{\$COST} > 1$$

Net Benefit

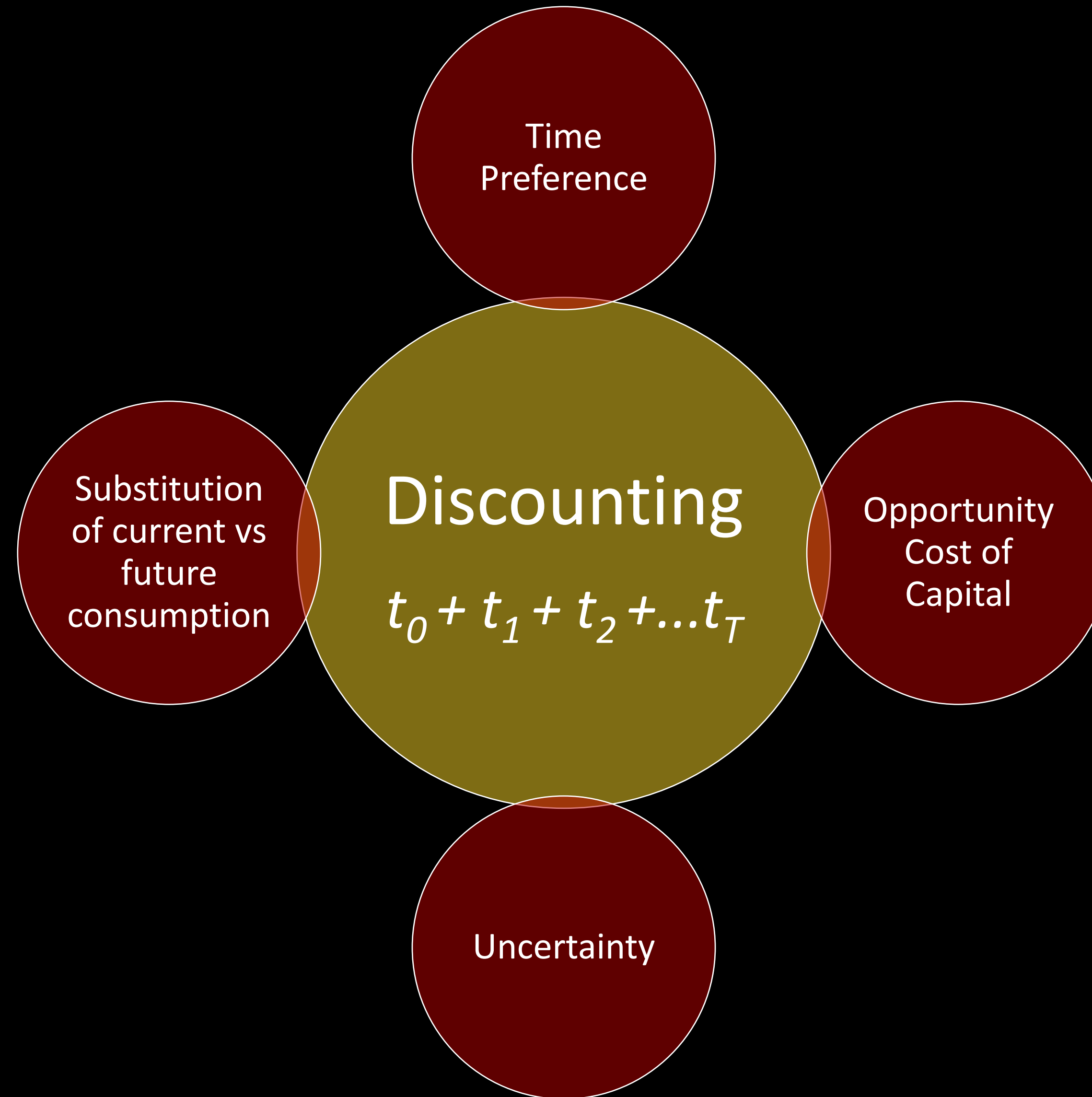
$$\$BENEFIT - \$COST > 0$$

Benefits over
time

$$t_0 + t_1 + t_2 + \dots + t_T$$

Present Value

$$\frac{\$t}{(1+r)^t}$$



New Zealand

5%

Australia

7%

Canada

8%

USA

7%

UK

3.5%

Default rates typically reflect the **Opportunity Cost of Capital** proxied by market rates of return

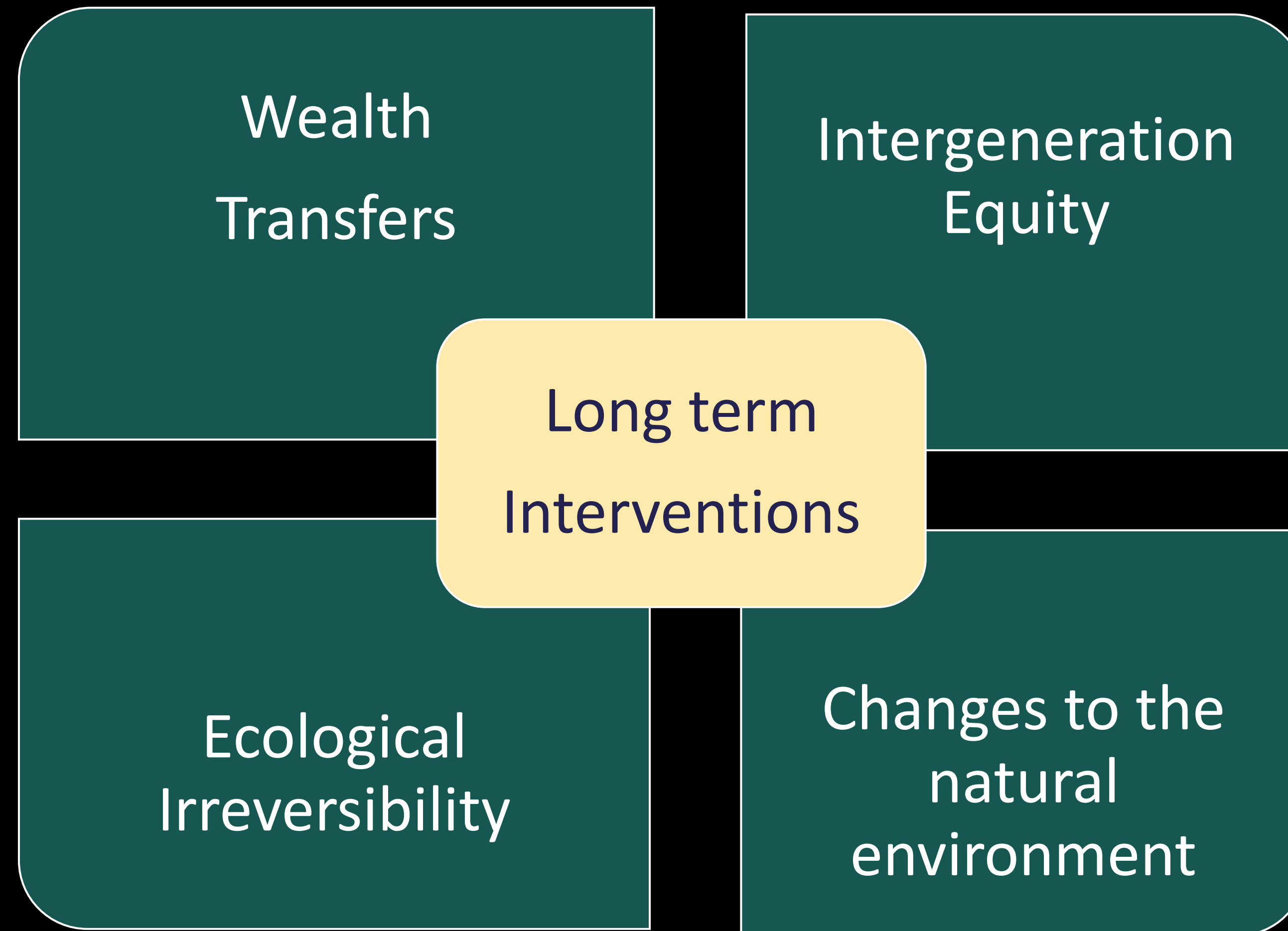
New Zealand	5%
Australia	7%
Canada	8%
USA	7%
UK	3.5%

3%

3%

3%

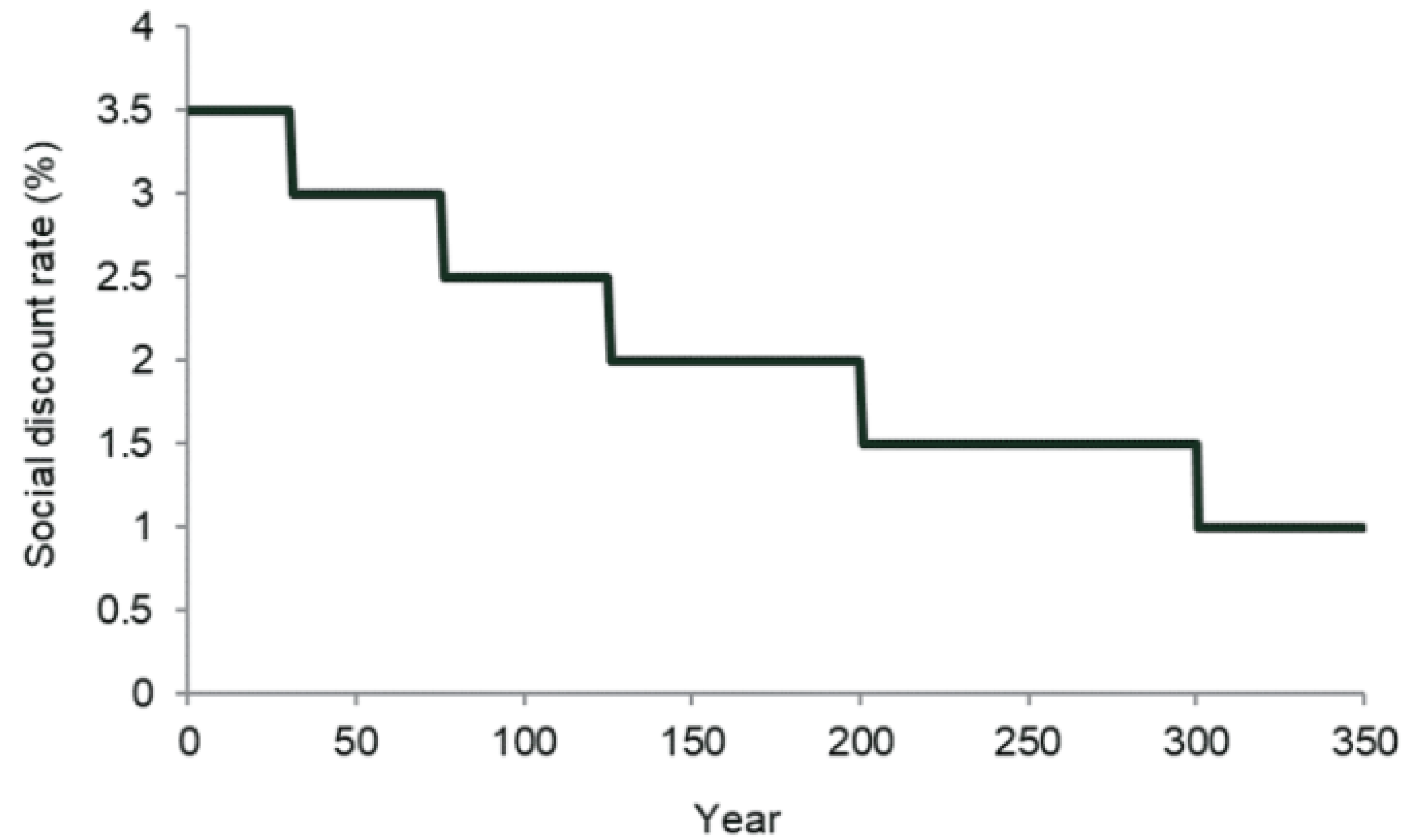
**Lower opportunity cost
of investment in
environmental assets reflect
Social Rate of Time Preference**



New Zealand	5%			
Australia	7%			
Canada	8%	3%		
USA	7%	3%		
UK	3.5%	3%	2.5%	2.14%

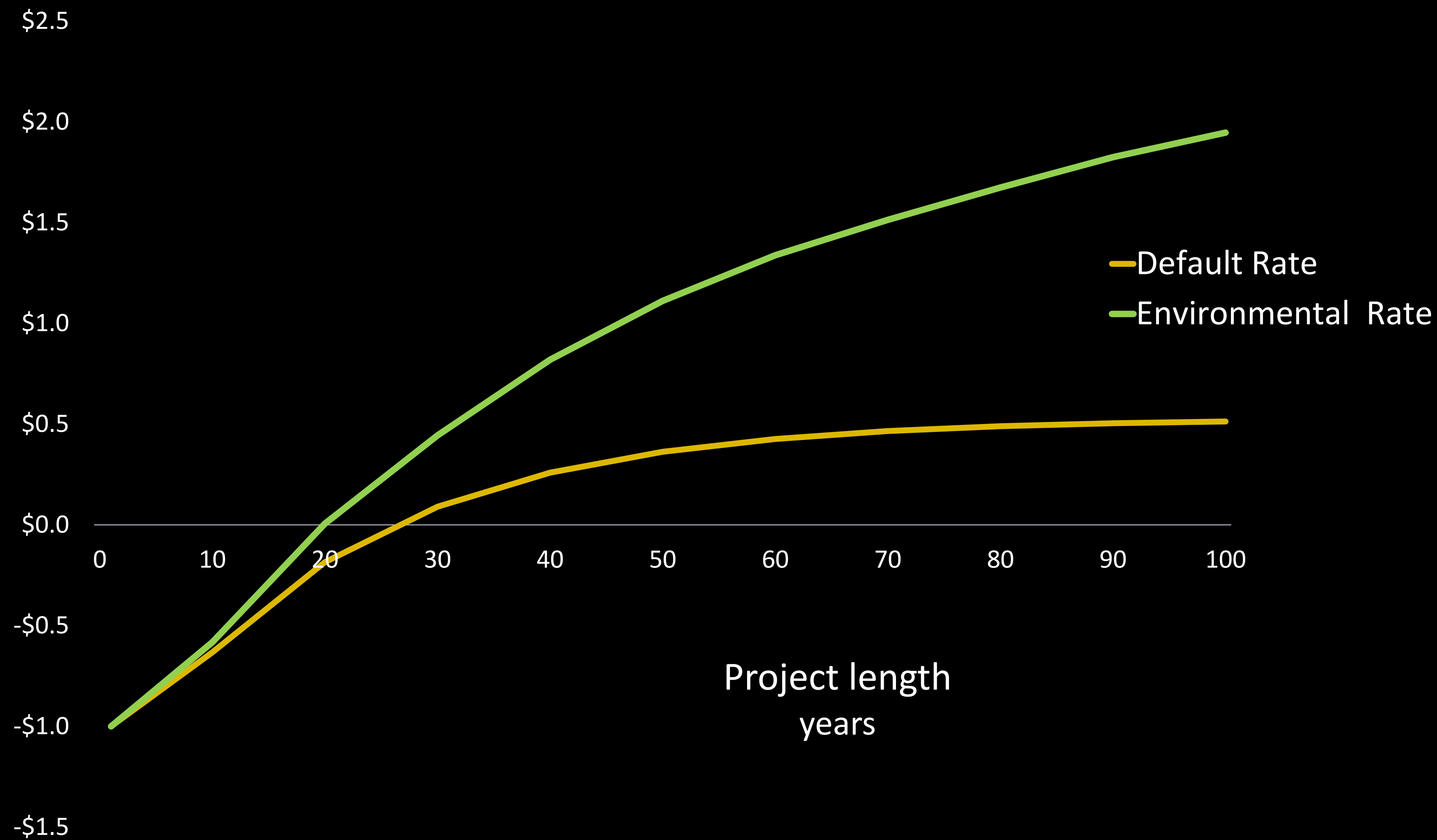
Declining discount rate over time

Term Structure of Discount Rates in the UK

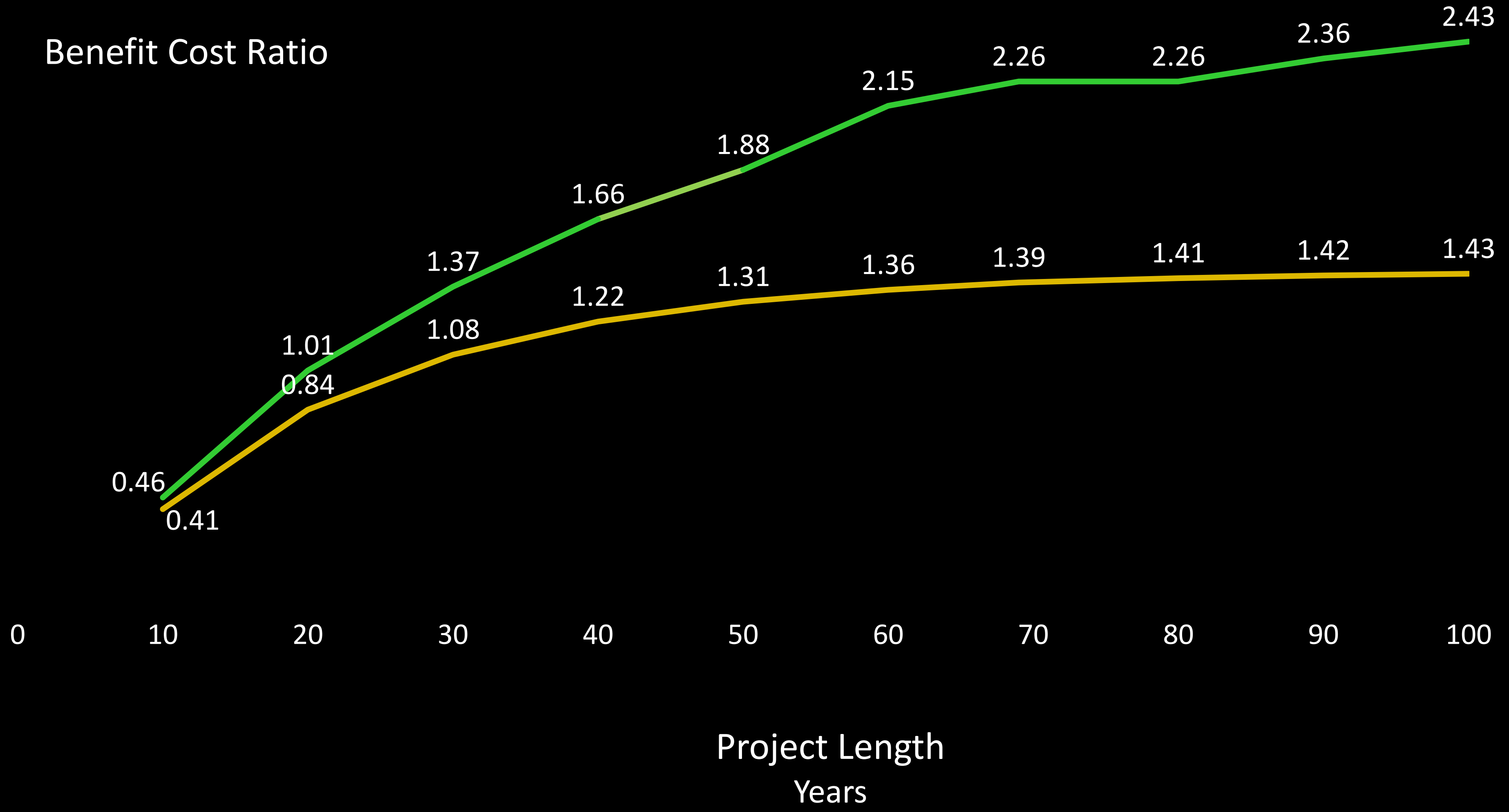


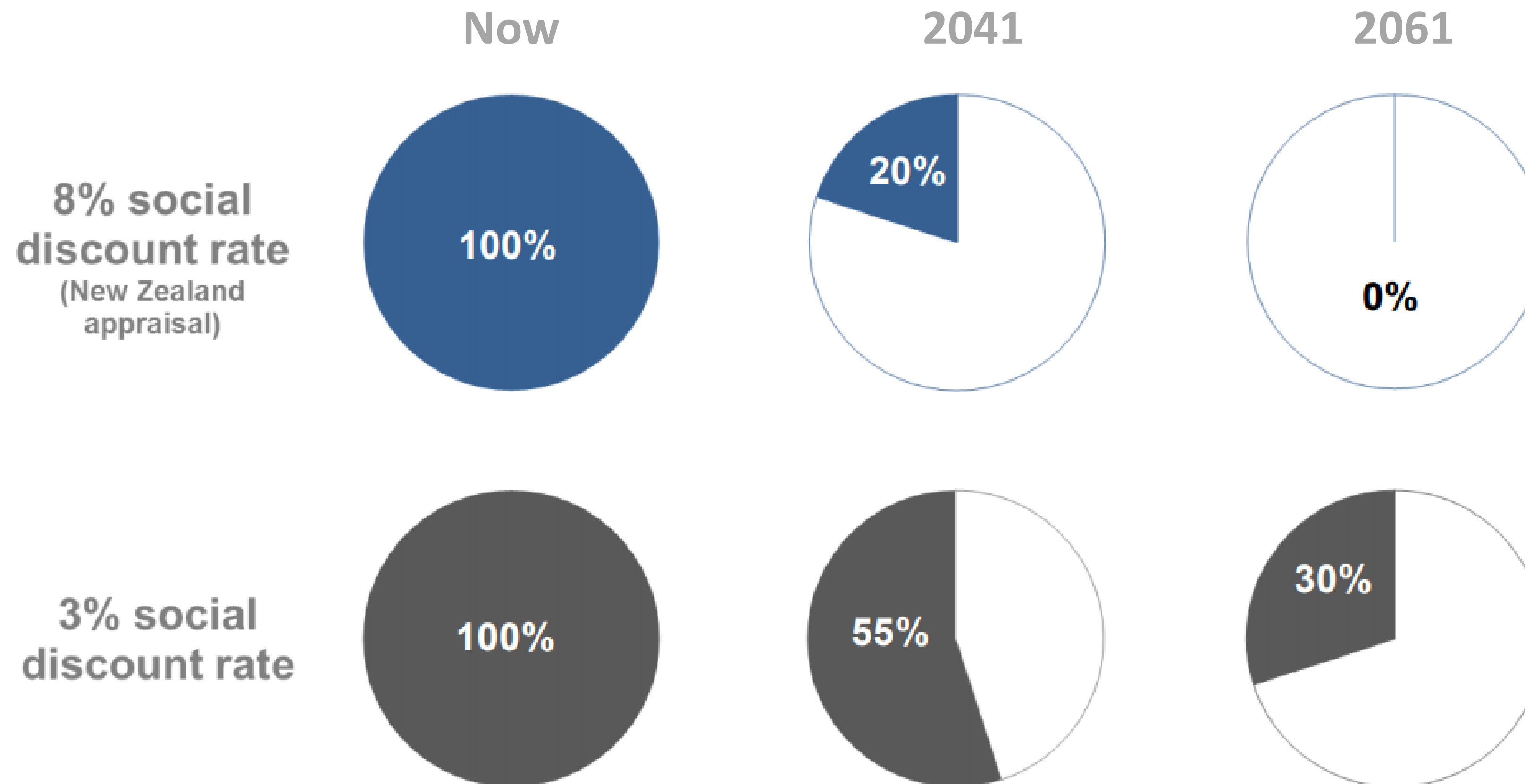
Year	Costs	Benefits
0	\$1 million	None
1	\$10,000	None
2	\$10,000	None
3	\$10,000	None
4	\$10,000	None
5	\$10,000	\$100,000
6	\$10,000	\$100,000
7	\$10,000	\$100,000
8	\$10,000	\$100,000
9

Net Present Value
\$million



Benefit Cost Ratio





Discount Rate Research

- Why are we using the discount rates that we are?
- What rates are appropriate to the types of biosecurity response investments being made?
- Can we apply the Social Time Preference approach in New Zealand?



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