



# Discounting for Uncertainty

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# Overview

- Comparisons of types of discounting
- Case for uncertainty-discounting future health losses

# Reasons for discounting

- Pure time preference
- Opportunity costs (economic growth)
- Uncertainty about the future

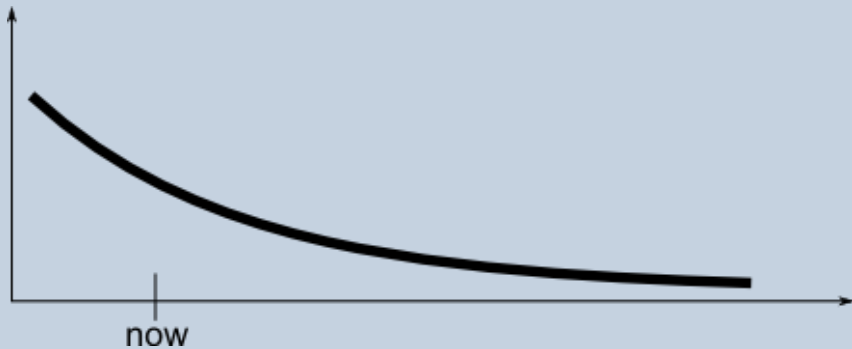
# Reasons for discounting

- Pure time preference
- Opportunity costs (economic growth)
- **Uncertainty about the future**
  - **Whether benefits or costs will be realised**
  - **e.g. catastrophe risk**

# Differences

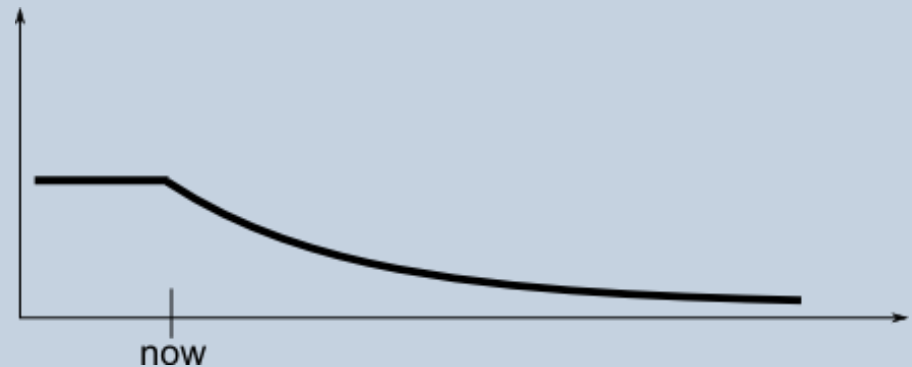
## Discounting for time preference

- Earlier resources are more valuable



## Discounting for uncertainty

- More certain resources are more valuable



# Uncertainty and health

- Relevant when evaluating projections of future health losses

# Uncertainty and health

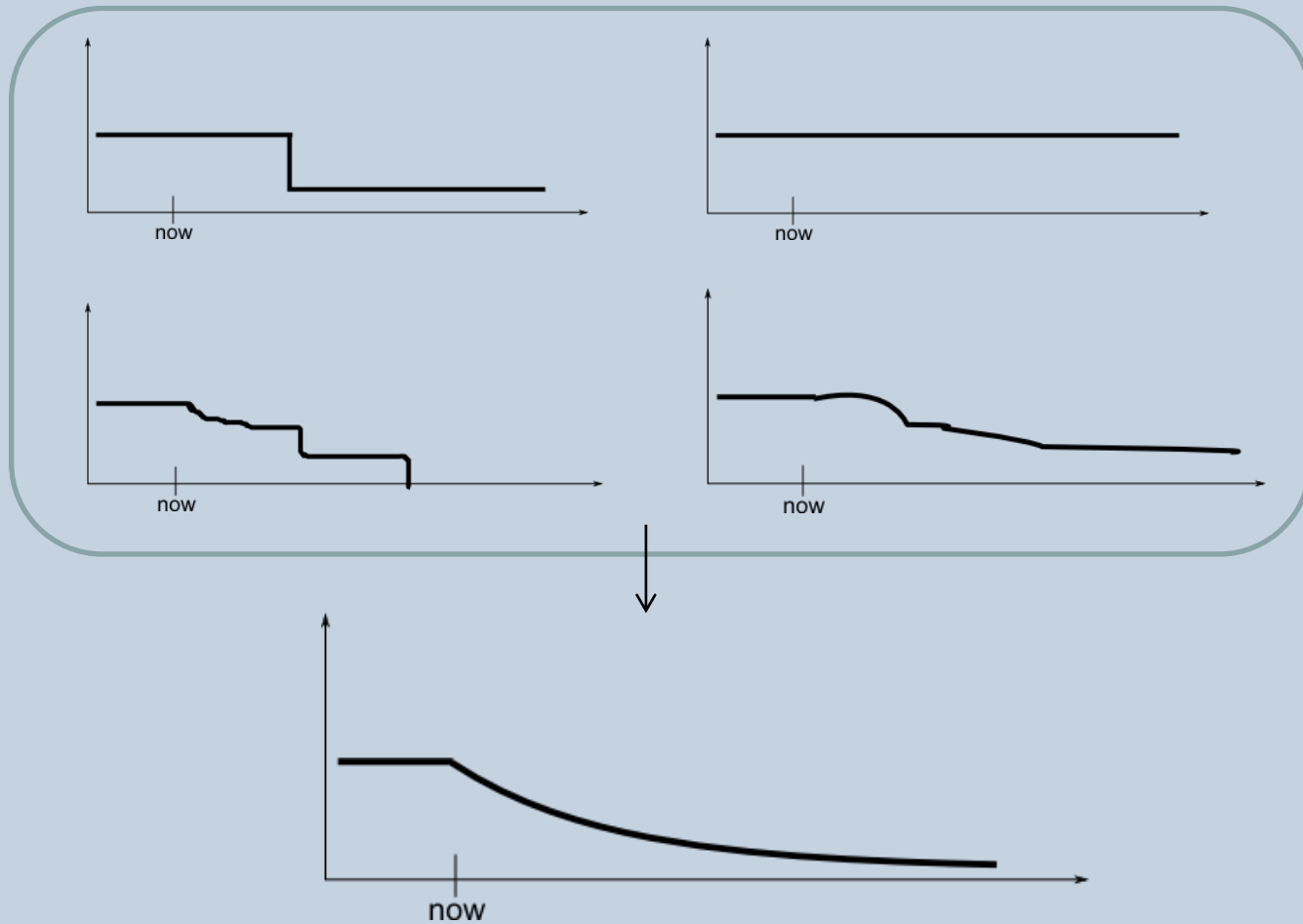
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# Uncertainty and health

- Relevant when evaluating projections of future health losses
- Historical trend has been treatments for more conditions
- We should expect this trend to continue



# *ex post* and *ex ante*



# Model component or discount rate?

- Reasons to account for uncertainty in models
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  - Context dependent

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- Reasons to account for uncertainty in models
  - Concerns facts about the world, not trade-offs
  - Context dependent
- Reasons to account for uncertainty via discounting
  - Can be relatively context-insensitive
  - Complex; too high a burden to impose on individual modellers

# Example: the research paradox

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- Uncertainty discounting gets you to approximately the right answer.

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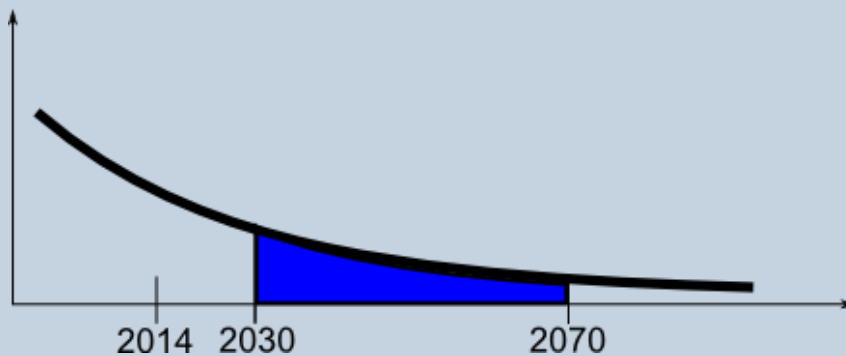
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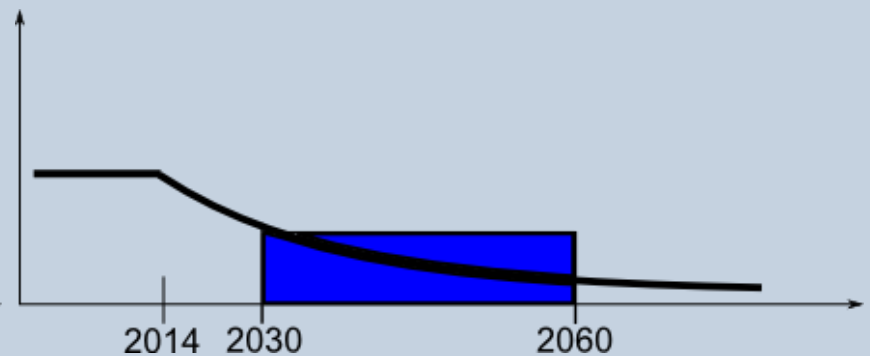
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  - What discount rate? Can use data to estimate.
- We should discount future YLDs to the year they are projected to occur in.
- We should discount future YLLs to the projected year of death.

# Effects on loss from mortality

## Traditional discounting



## Uncertainty discounting



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- Can also estimate how bad it will be to have a given disease.
  - Trend towards technology providing better options and substitutes.
- So should have extra uncertainty discounting for YLDs.