# Cost-benefit analysis III

MPA 612: Public Management Economics

April 2, 2018

Fill out your reading report on Learning Suite!

# Plan for today

Real life CBAs

Is any of this ever consistent?

Final CBA tips and tricks

Full example on your own

# Current events

# Real life CBAs

## Washington State Institute for Public Policy

http://www.wsipp.wa.gov/BenefitCost

## Society for Benefit-Cost Analysis

http://benefitcostanalysis.org/benefit-cost-analysis-databases

# Is any of this ever consistent?

# Why were all these estimates different?

| | Study 1 | Study 2 | Study 3 |
|---|---|---|---|
| Benefits | $394.6 | $639.4 | $1,307.8 |
| Costs | $354.4 | $767.6 | $913.5 |
| **Net benefits** | **$40.2** | **–$128.2** | **$394.3** |

# Sources of discrepancies

Omissions

Forecasting

Valuation

Estimation and measurement

# Is this okay? What does this say about the reliability of CBA?

| | Study 1 | Study 2 | Study 3 |
|---|---|---|---|
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# What do we do about this?

# Sensitivity analyze the heck out of it

…and include lots of caveats

CBA is a decision-making tool, not a budget

# Final CBA
# tips and tricks

Working with ∞ and working with projects of different lengths

**Project gives $100 in benefits for 10 years**

**Discount rate: 3%**

$$PV = \frac{X}{(1+r)^1} + \frac{X}{(1+r)^2} + \ldots + \frac{X}{(1+r)^n}$$

$$PV = \sum_{t=1}^{n} \frac{X_t}{(1+r)^t}$$

**Project gives $100 in benefits for 250 years** (or ∞ years)

**Discount rate: 3%**

$$PV = \frac{X}{(1+r)^1} + \frac{X}{(1+r)^2} + \cdots + \frac{X}{(1+r)^\infty}$$

$$PV = \sum_{t=1}^{\infty} \frac{X_t}{(1+r)^t}$$

**Perpetuity** (aka annuity)

Constant stream of money that lasts forever and ever

$$PV_{\text{Perpetuity}} = \frac{X}{r}$$

**Project 1**
NPV: $31,519
Duration: 15 years
Discount rate: 5%

**Project 2**
NPV: $28,779
Duration: 8 years
Discount rate: 5%

# Which one is better?

# Equivalent annual net benefit (EANB)

The annual benefit scaled to the amount needed to reach the NPV

Higher = better

# Full example on your own