

International Guidelines on Social Discount Rates

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LSE

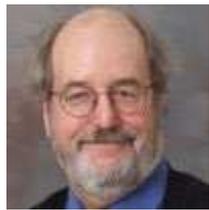


**The discount rate in the selection of public
investment projects**

France Stratégie

March 29th 2017

Time Line for Social Discounting



'Policy Impact' Era

▶ **Pearce and Ulph (1995)**
CSERGE Working Paper

▶ **Pearce invites Gollier to UCL**
▶ **Pearce organises OXERA report to HM Treasury**

▶ **RFF-USEPA-OMB workshop on Discounting**

'Gamma Discounting' Era

'Stern' Era

'Dismal' Era

▶ **Weitzman (2001)**
AER: "Gamma..."
▶ **RFF (1999)**
▶ **Weitzman (1998)**
JEEM

▶ **Gollier (2002a,b)**
JET, JPubE
▶ **Newell and Pizer (2001)**
RFF, JEEM

▶ **Lebegue (2005)**
▶ **Stern Rev.**
Cites:
P&U (1995)
Pearce (2005)

▶ **Weitzman (2009)**
REStat
▶ **Stern et al (2008)**
REEP
▶ **Gollier (various)**
e.g. JRU, book

▶ **Arrow et al (2013)**
Science

▶ **Cropper, Hammitt (2017)**
NAS on SCC

▶ **Norway meeting (2012)**

▶ **Social Discounting in the UK (2013)**

▶ **OECD ITF**

▶ **Cropper et al (2014)**
AER P&P

▶ **Netherlands MoF**

1995 | 1998-2001 | 2002 | 2003 | 2005 | 2006 | 2008 | 2010-2011 | 2012 | 2013 | 2014 | 2015-17

- UK Green Book: 6% → 3.5%
- UK Green Book: DDRs to 1%

● France uses DDRs
Cites: P&U (1995)
Green Book (2003)

● USEPA. OMB Guidelines
Cites: Pearce et al (2005),
Green Book: 2.5% for
intergenerational projects

- Norwegian Government
DDR influenced by UK.
- Danish government too

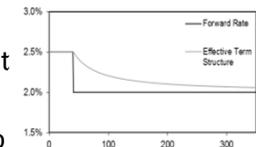
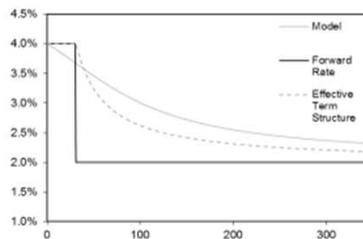
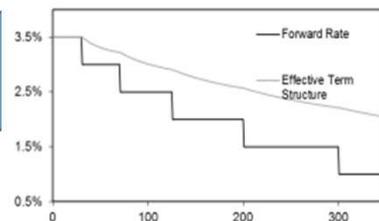
- UK Treasury retain DDRs
- US rejects DDRs, retains 2.5%

- Netherlands
- US???

Academic

Policy

Policy Impact



UK

Discounting Theory

- Social Time Preference Rate (STP), Ramsey

$$STP = \delta + \eta g$$

- No risk premium
- Declining Discount Rates (Weitz, Gollier, Pizer)
- Limited horizon now: 125yrs

Discounting Practice

- $\delta = \rho + L$
- ρ : time preference (0.5%)
- L : “catastrophic risk”, “loss of bens.”, “obsolescence” (1%)
- $\eta = 1, g = 2\%$
- Risk: scenarios, sensitivity, “certainty equivalents”, but really expected values
- Systematic risk for government is small

US

Discounting Theory

- Opp. cost of capital
- 7%: equity returns, risk
- 3%: conump. rate of interest
- Declining Discount rates?
2.5% intergenerational
(Weitzman, Newell and Pizer)
- DDRs: Arrow et a;, Cropper et al, Gollier (2013-14)

Discounting Practice

- OMB circular A-4 (2003) : 3-7%, or lower for longer horiz.
- 7%: private sourced funds
- 3%: conump. rate of interest
- USEPA (2010), 2.5%: inter-generational
- IAWG on SCC, Appendix 15 – 16a
- NAS (2017) Social Cost of Carbon report: Ramsey, DDRs

Norway

Discounting Theory

- Opp. Cost of capital/
CAPM
- DDRs: risk free rate
(Gollier, Weitzman, N&P)
- Risk: Positive Risk Prem.
- RP Term Structure:
Declining (Weitzman
2011)

Discounting Practice

- Risk Free: 2.5% declining to
2% after 40 years
- Risk Premium: 1% declining
to zero after 40 years
- Political decisions follow
CBA

Netherlands

Discounting Theory

- Opp. Cost of Capital/CAPM
- DDRs? In principle (Arrow et al., 2013, Cropper et al 2014, etc...)
- Risk Prem? Yes, in principle (Gollier 2012 etc.)
- Dual Discounting: Sterner and Persson (2008)
 - Environment, Health, Education, etc.
 - Relative prices

Discounting Practice

- Risk Free Rate: 0%
- Risk Premium: 3%
- Term Structure: Risk Free: OK but not < 0
- Term Structure: RP: Not enough evidence (betas)
- Much more “descriptive” approach

Policy Implementation

Discounting Theory

- Weitzman (1998, 2001)
- Gollier (2002a,b, 2012,etc)
- Empirics:
- Newell and Pizer (2003)
- Groom and Maddison (2013)

Discounting Practice

- Very ad hoc
- UK: pioneers on DDRs but very poor empirics, problems on risk.
- US: single lower rate (2.5%)
→ inconsistent
- Norway: Wrong theory on term structure
- Netherlands: risk free projects discounted with a risk premium
- Interaction with Academics differs across countries

The logo for the London School of Economics (LSE), consisting of the letters 'LSE' in a bold, red, sans-serif font.

Thanks

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