

The Social Discount Rate

Ryan Doody

March 8, 2022

Ramsey's Equation

How should we compare benefits and costs that occur at different times? In evaluating policies, future benefits and costs are discounted. The standard economic approach to discounting uses the Ramsey equation:

$$r = \eta g + \delta \tag{1}$$

The value ηg accounts for the diminishing marginal value of consumption goods; as future people get richer, they benefit less from money. In addition to pure time preference, δ reflects the *catastrophe rate*: the chance the benefit or cost won't be realized.

The size of r has profound effects on the evaluation of costs and benefits—especially concerning those in the very far future.

Question: What value should we set for δ ? Should *pure time preference* be included in the social discount rate?

Arguments For Discounting ($\delta > 0$)

1. *The Argument from Probability.* We should discount more remote effects because they are less likely to occur.
2. *The Argument that Our Successors Will Be Better Off.* It's likely that future people will be better off than we are. And an equally great benefit given to those who are already better-off is morally less important.
3. *The Argument from Special Relations.* We ought to give priority to those people who we stand in special relationships with (e.g., parents, children, close friends). Our relationships with future people are less strong (and decay with time) than our relationships with people who currently exist.
4. *The Argument from Excessive Sacrifice.* If we don't apply some (suitably large) discount rate, any small increase in benefits that extend into the far future might demand any amount of sacrifice in the present. And that would clearly be too demanding!
5. *The Argument from Opportunity Costs.* It's better to receive a benefit sooner because then this benefit can be used to produce further

Example: Is losing \$100 today better | worse | equally as good as losing \$100 thirty years from now?

r is the discount rate.

η is the elasticity of the marginal utility of consumption.

g is the growth rate of consumption.

δ is the rate of pure time preference.

DISCOUNT RATES, COMPARED				
r	30 yrs	50 yrs	100 yrs	500 yrs
1%	1.3	1.6	2.7	144.7
3%	2.4	4.3	19.2	2,621,877.2
5%	4.3	11.4	131.5	39,323,261,827
10%	17.4	117.3	13,780.6	4.96×10^{20}

Estimated number of future benefits equal to one present benefit (Cowen & Parfit 1992).

Consider the difference between Utilitarianism and Prioritarianism.

We will take a much closer look at this argument next time when we read Mogenssen's "The Only Ethical Argument for Positive Delta."

benefits (by, e.g., reinvesting it), resulting in a greater total sum of benefits.

6. *The Argument from Transformation.* Consider one unit of good, which we can consume now or reinvest. (1): 1.05 units in period two are better than 1 unit in period two; (2): 1 unit in period one can be transformed into 1.05 units in period two. Therefore, (3) 1 unit in period one is better than 1 unit in period two.
7. *The Argument from Democracy.* Most people are *future-biased*: they prefer smaller benefits now to larger benefits in the future. In evaluating policies of social importance, we should respect the preferences of the citizenry. It would be undemocratic not to. So, we should employ a discount rate that reflects the attitudes of actual people.

Cowen's Argument Against Discounting ($\delta = 0$)

Tyler Cowen offers an interesting argument against discounting.

- (1) *Pareto Indifference.* If X and Y are equally good for everyone, then X and Y are equally good.
- (2) *Transitivity of Indifference.* If X is equally as good as Y, and Y is equally as good as Z, then X is equally as good as Z.
- (3) *Person Neutrality (Within Generations).* If person i and person j exist in the same generation, then it's just as good to give a particular benefit to person i as it is to give it to person j .
- (4) *Well-Defined Preferences Across Different Eras.* For each person, and each era, there is a well-defined benefit such that that person would be indifferent between living as they are now and instead living in that era with that added benefit.

The Argument: We consider an arbitrary person living in Era 1 (Situation A). Imagine transplanting them into Era 2, compensating them the amount required to be indifferent between the two scenarios (Situation B).

We transfer a unit of their well-being to some other person living during that era (Situation C).

Then, imagine transplanting our original person back to Era 1, again compensating them the required amount (Situation D). Because of the compensation, everyone is indifferent between these scenarios. So, C is as good as D.

A is as good as B, which is as good as C, which is as good as D. So, A is as good as D.

But the only difference between A and D is that we've transferred one unit of well-being from Era 1 to Era 2. So, a unit of well-being is equally as good now as it is in the future.

The argument uses the method of social choice theory. It presents four simple axioms and then argues that, if they are all correct, there can be no social discounting.

From (1), because everyone is indifferent, A and B are equally good.

From (3), B and C are equally good.

From (1).

From (2).