

# Intertemporal Discounting

## Evolutionary methods and perspectives



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November 4, 2020



## What is intertemporal discounting?

- Motivation

- The discounting problem

- Theory and empirics



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## Discounting in an evolutionary context

- Philosophy

- Framework

- Example



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# A dilemma



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Chocolate cake or fruit salad?

# A dilemma



Chocolate cake or fruit salad? A choice between:

- ▶ immediate gratification;



# A dilemma



Chocolate cake or fruit salad? A choice between:

- ▶ immediate gratification; and
- ▶ the “better” choice, with a more delayed payoff.

Consider the following. . .



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Please, somebody, play along!



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- ▶ (Suppose) I offer \$10 immediately.

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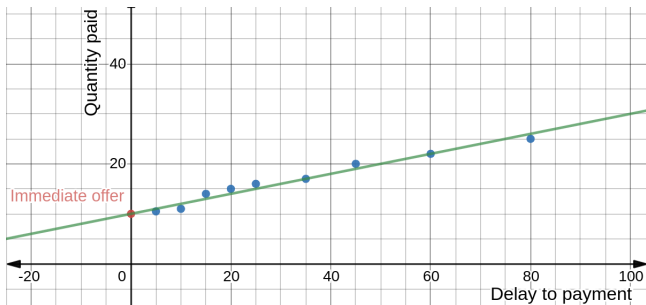
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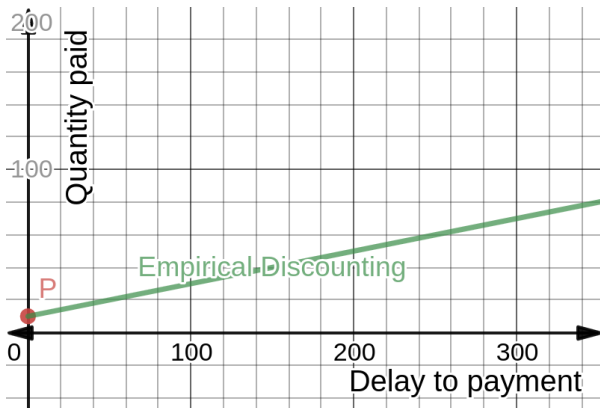


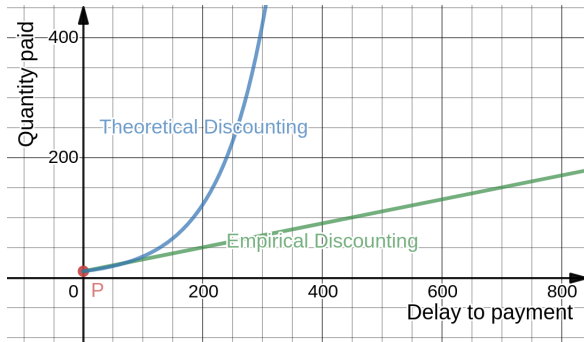
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# Paradigme Shift





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- ▶ Emphasis has been on **individual** optimizing own welfare
- ▶ Propose performing analysis at the level of the **population**
- ▶ Welfare at the level of the population is governed by fitness



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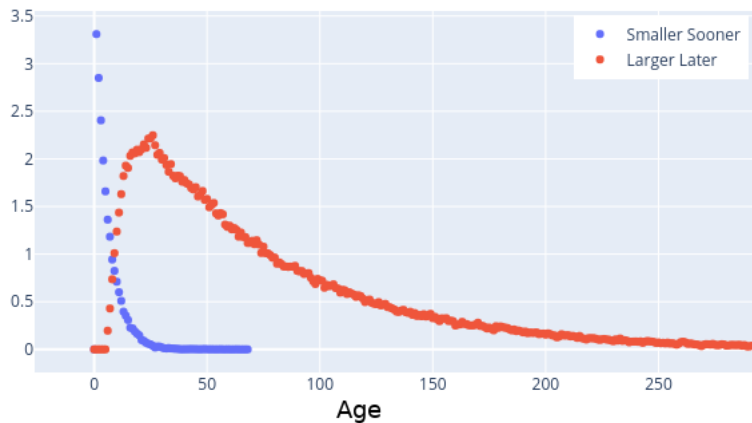
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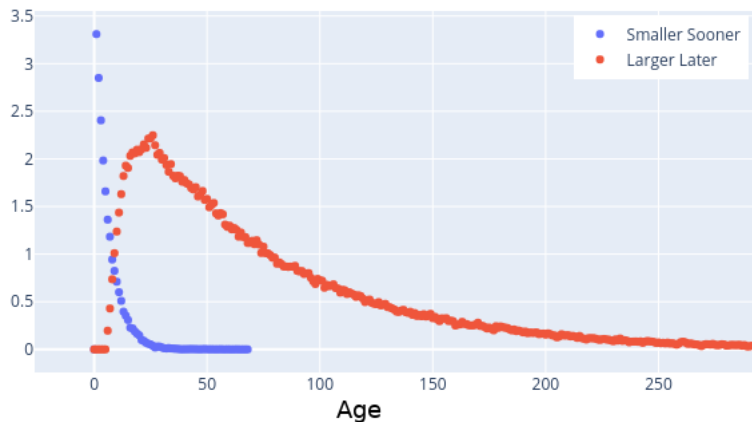
Given a Leslie setup, we have a life history:

- ▶ Probability  $s_1 s_2 \cdots s_{a-1}$  of reaching age  $a$ ;
- ▶ expected number of offspring produced at age  $a$  is  $s_1 s_2 \cdots s_{a-1} b_a$

# Life history – visual



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The height of each point is the **expected number of offspring** for each age.

# Goodbye



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Thank you to ...

# Goodbye



Thank you to ...

- ▶ Laura;



Thank you to ...

- ▶ Laura;
- ▶ Jaye and Christoph;



Thank you to ...

- ▶ Laura;
- ▶ Jaye and Christoph; and
- ▶ you.





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Questions? Comments? Concerns? Queries? Conondrums?  
Qualms? Quips? Complaints? Critiques? Compliments?