Minimizing optimism in financial planning: What to predict and when to predict

Johanna Peetz  
Carleton University

Roger Buehler  
Wilfrid Laurier University
How well do people predict their spending?

Reasons to expect bias

- Predictions are often optimistically biased
  e.g., Armor & Taylor, 1998; Dunning, 2007; Weinstein, 1980
- Time spent on projects is underestimated ("planning fallacy")
  e.g., Buehler et al., 1994; Kahneman & Tversky, 1979; Peetz, Buehler, & Wilson, 2010; see Buehler, Griffin, & Peetz, 2010 for review

Reason to expect accuracy

- Money is easier to account for than time
  e.g., Soman, 2001; Zauberman & Lynch, 2005
Optimistic bias in spending predictions

Study 1, Peetz & Buehler, 2009
Minimizing optimistic bias

**Fix the prediction**
- Motivational factors
- Cognitive factors
  - Prediction target
  - Prediction process

**Fix the actual spending**

- **Increase self-regulation, prevent impulse buying** (Faber & Vohs, 2004; Vohs & Faber, 2003)
- **Form concrete shopping goals** (Lee & Ariely, 2006)
- **Receive weekly saving reminders** (Koehler, White, & John, 2011)
- **Avoid Social Rejection** (Baumeister, DeWall, Mead, & Vohs, 2008; Mead, Baumeister, Stillman, Rawn & Vohs, 2011)
Fix the prediction

- Motivational factors
- Cognitive factors
  - Prediction target
  - Prediction process

- Motivated Reasoning
e.g., Krizan & Windschitl, 2007; Kunda, 1990

- Goals and intentions affect predictions more than behavior
e.g., Buehler et al., 1997; Epley & Dunning, 2000, Koehler & Poon, 2006

**Savings goal**

*Preference to minimize expenses and keep expenditures under control*

- Reduces predicted spending
- Does not reduce actual spending
Motivational Factors
Savings goals - Correlational

N = 88 students

Rated saving goals and money attitudes

Immediate Condition: same session

Delayed Condition: an average 48 days earlier

Predicted spending in the next week

“Saving money is important to me”
1 = Disagree completely
7 = Agree completely

“How much money will you spend next week?”

Study 3, Peetz & Buehler, 2009
Motivational Factors
Savings goals - Correlational

Study 3, Peetz & Buehler, 2009
Motivational Factors
Savings goals - Experimental

N = 56 students

**Session 1**

<table>
<thead>
<tr>
<th>Strong Saving Goal</th>
<th>Vs.</th>
<th>Weak Saving Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>“People who save money are generally more successful in life.</td>
<td></td>
<td>“People who spend money are generally more successful in life.</td>
</tr>
<tr>
<td>e.g., Saving money is just one indicator of a future oriented approach to life,</td>
<td></td>
<td>e.g., Spending money is just one indicator of a spontaneous approach to life,</td>
</tr>
<tr>
<td>which is linked to career success.”</td>
<td></td>
<td>which is linked to career success.”</td>
</tr>
</tbody>
</table>

Predicted spending in the next week

**Session 2**
Reported actual spending

Study 4, Peetz & Buehler, 2009
Motivational Factors
Savings goals - Experimental

Study 4, Peetz & Buehler, 2009
Minimizing optimistic bias

Fix the prediction

- Motivational factors
- **Cognitive factors**
  - Prediction target
  - Prediction process

Stronger saving goals ↑ optimistic bias
Prediction target
Events vs. Time periods

Event and week predictions might differ on important dimensions:

- Levels of complexity (e.g., Kruger & Evans, 2004; Wood, Mento & Locke, 1987)
- Level of construal (e.g., Liberman & Trope, 1998; Trope & Liberman, 2003)

<table>
<thead>
<tr>
<th>Time periods (e.g., a week, a month)</th>
<th>versus</th>
<th>Concrete events (e.g., birthday of a friend)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex: more subcomponents</td>
<td></td>
<td>Simple: fewer subcomponents</td>
</tr>
<tr>
<td>Abstract: desirability focus</td>
<td></td>
<td>Concrete: feasibility focus</td>
</tr>
<tr>
<td>→ savings goals are salient</td>
<td></td>
<td>→ multiple needs are salient</td>
</tr>
</tbody>
</table>
Prediction target Events

Mall Spending

- Predicted: 71
- Actual: 62

Christmas Spending

- Predicted: 250
- Actual: 262
Prediction target
Self-nominated Events vs. A Week

N = 63 adults from the community

Session 1
Predict weekly spending Vs. Predict event spending
“How much money do you think you will spend next week (i.e., the next 7 days?”
Nominate and describe event in the next 7 days
“How much money will you spend for this event? Include all expenses associated with this event, those that you need to buy before the event starts, and those you need to buy during the event”

Session 2
Reported actual spending

Study 4, Peetz & Buehler, 2009
Prediction target
Self-nominated Events vs. A Week

<table>
<thead>
<tr>
<th>Week</th>
<th>Predicted</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-nominated Event</td>
<td>119</td>
<td>113</td>
</tr>
</tbody>
</table>

Study 2, Peetz & Buehler, in press
Prediction target
Birthday vs. A Week

Study 1, Peetz & Buehler, in press
Prediction target
Birthday vs. A Week

Focus on savings goals

- Birthday: 2.54
- Week: 4.08

Predicted Spending in $ (controlling actual spending)

- Week
- Event

Study 2, Peetz & Buehler, in press
Why does the target matter? Competing goals

N = 114 undergraduate students

<table>
<thead>
<tr>
<th>Control condition</th>
<th>10 Competing goals condition</th>
<th>10 Non-competing goals condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>See a specific movie</td>
<td>Spend more time with family</td>
<td></td>
</tr>
<tr>
<td>Go out more (bars, clubs)</td>
<td>Eat at home more</td>
<td></td>
</tr>
<tr>
<td>Donate to charities</td>
<td>Help others more (volunteer)</td>
<td></td>
</tr>
<tr>
<td>Dress more fashionable</td>
<td>Be more punctual</td>
<td></td>
</tr>
<tr>
<td>Treat myself to a luxury</td>
<td>Reduce stress</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

Predicted spending in the next week
“How much money will you spend next week?”

Study 3, Peetz & Buehler, in press
Why does the target matter? Competing goals

Study 3, Peetz & Buehler, in press
Minimizing optimistic bias

Fix the prediction

- Motivational factors
- Cognitive factors
  - Prediction target
  - Prediction process

Stronger saving goals $\uparrow$ optimistic bias

Predicting concrete events $\downarrow$ optimistic bias
[less reliance on savings goals]
Support theory (Tversky & Koehler, 1994) consider probabilities of event subcategories before estimating overall probability of an event. Increases accuracy

Achieved by unpacking the components before final estimate

Decomposition (e.g., Armstrong et al., 1975; Connolly & Dean, 1997) make many small, simple judgments which are mathematically integrated to arrive at a larger complex judgment. Mixed results for accuracy

Achieved by making individual estimates for each component
N = 115 students

Rated saving goals an average 20 days before Session 1

**Session 1**

<table>
<thead>
<tr>
<th>Event Prediction (self-nominated event)</th>
<th>Weekly Prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpacking Condition</td>
<td>Unpacking Condition</td>
</tr>
<tr>
<td>Control Condition</td>
<td>Control Condition</td>
</tr>
</tbody>
</table>

Predicted spending

**Session 2**

Reported actual spending after event

**Diary**

Completed diary over 7 days
Prediction Process
Unpacking vs. Decomposition

Spending in $

<table>
<thead>
<tr>
<th></th>
<th>Predicted</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week Control</td>
<td>112</td>
<td>150</td>
</tr>
<tr>
<td>Event Control</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>Week Unpacking</td>
<td>165</td>
<td>160</td>
</tr>
<tr>
<td>Event Unpacking</td>
<td>61</td>
<td>55</td>
</tr>
</tbody>
</table>
Week Condition only: Why did unpacking reduce bias?
A note of caution: Decomposition vs. Unpacking
N = 79 German undergraduate students (25 yrs old)
Mean vacation length = 9 days
Minimizing optimistic bias

Fix the prediction

- Motivational factors
- Cognitive factors
  - Prediction target
  - Prediction process

Stronger saving goals ↑ optimistic bias

Predicting concrete events ↓ optimistic bias
  [less reliance on savings goals]

Unpacking spending targets ↓ optimistic bias
  [less reliance on savings goals]
Two cognitive approaches to prediction
(Kahneman & Tversky, 1979; Kahneman & Lovallo, 1993)

**Inside view**
- develop a detailed plan or scenario
  how the target event is likely to unfold

**Outside view**
- focus on past experiences,
  treat the target event as one instance from a set of relevant previous experiences

optimistic bias ↑

optimistic bias ↓
Predictive process
Construal level linked to outside/inside view

Construal level affects prediction process?
(Liberman & Trope, 1998; Trope, 2003)

Low-level construal
- Focus on concrete, contextualized information, including incidental or peripheral features
- Draws attention to unique features

⇒ Inside view (view prediction as a singular, isolated experience)
⇒ Optimistic bias ↑

High-level construal
- Focus on abstract, central defining features (Nussbaum et al., 2006)
- Emphasize the central or invariant features of the target event

⇒ Outside view (locate prediction within a broader class of experiences)
⇒ Optimistic bias ↓
Prediction process
Construal level mindset

Session 1
Low-level Construal
(Exercise…“How?”“How?”“How?”)

Vs.
High-level Construal
(Exercise…”Why?”“Why?”“Why?”)

Predicted spending for the next week
Recalled past spending

Session 2
Reported actual spending

Construal manipulation by Freitas et al. (2004)
Prediction process
Construal level mindset

2 (construal) x 3 (spending)
ANOVA: F = 5.27, p = .02

Study 1, Peetz & Buehler, 2011
Prediction process
Construal level mindset

Interaction
past spending x construal
beta = .88, p = .001
N = 61 Canadian students (M age: 19 years)

Session 1

<table>
<thead>
<tr>
<th>Low-level construal (“Next Week”)</th>
<th>Vs.</th>
<th>High-level construal (“A Week in a Year”)</th>
</tr>
</thead>
</table>

Predicted spending

Rated Thought Focus (1-7)
- Focus on outside information (past spending, usual spending, one as many)
- Focus on inside information (concrete activities, individual days, desired expenses)

Recalled Past Spending
Prediction process
Construal: Temporal Distance

2 (construal) x 2 (spending)
ANOVA: F= 4.67, p= .04

Spending in CAN$
Low-level (0) vs. High-level (1)

Outside Focus

.29*

-.25*

Inside Focus

.10 (.27*)

Predicted Spending

.36*

-.12

Bootstrapped CI (95%)
2.71 - 51.69, p<.05
Minimizing optimistic bias

Fix the prediction

- Motivational factors
- Cognitive factors
  - Prediction target
  - Prediction process
    - “unpacking”
    - “construal”

Stronger saving goals $\uparrow$ optimistic bias

Predicting concrete events $\downarrow$ optimistic bias
[less reliance on savings goals]

Unpacking spending targets $\downarrow$ optimistic bias
[less reliance on savings goals]

Psychological Distance $\downarrow$ optimistic bias
[outside view, more reliance on past experiences]
How to minimize optimism in financial planning

- Ignore savings goals
- Think of events
- Break expenses down
- Why Why Why?
Open questions: Identifying competing construal routes to Prediction bias

Concreteness

↓ Optimism

…. because less focus on savings goals, more focus on competing goals

…. may also increase inside view, and increase optimism

Abstraction

↓ Optimism

…. because more focus on past experiences

…. may also increase focus on central (savings) goals, and increase optimism
Current Directions

- Cognitive underpinnings of optimistic bias
  - Peanuts effect

- Self-regulatory ability – affects prediction AND behavior?

- Prediction-Behavior link (e.g., Buehler, Peetz, & Griffin, 2010)

- Prevalence of spontaneous spending predictions
Thanks to

Roger Buehler
Derek Koehler
Ester Moher
Julie Dempsey
Miranda Giacomini