Mortality Beliefs and Saving Decisions: The Role of Personal Experiences*

This paper in a Nutshell:

- I utilize the **death of a close friend as exogenous shock** to an individual's mortality beliefs to establish a **causal** relationship between **mortality beliefs** and **saving decisions**.
- Saving response to the shock strongly depends on an individuals' **age**, **emotional involvement**, **risk aversion**, and **decays over time**.
- The e**xperience-based learning** model explains **how** the personal experience translates into mortality beliefs.

Research question:

1. Do individuals' mortality beliefs *causally* affect their financial decision making?
2. How are personal experiences incorporated into the mortality belief formation process?

Data:

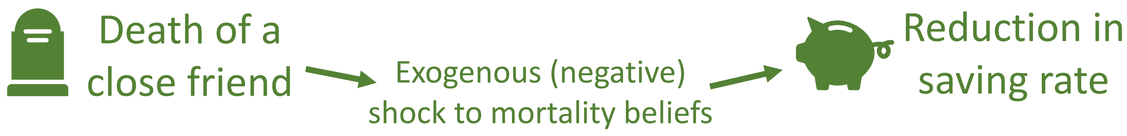
- Representative Panel of the Australian Population.
- 17,000 Individuals interviewed yearly from 2001 to 2019.
- **Dependent Variable:**

$$Saving\ Rate = 1 - \frac{Total\ Expenditure}{Total\ Income}$$

- **Independent Variable:** Dummy equal to 1 if a close friend died in the previous year.

Identification:

Death of a close friend serves as an exogenous shock to mortality beliefs (personal experience):



Difference-in-differences setting:

$$Saving\ Rate_{it} = \beta * FriendDeath_{it} + HouseholdFE_i + AgeFE_t + \epsilon_{it}$$

Advantages of my setting:

- No material impact on a treated individual's wealth.
- No belief updating about hereditary diseases.

Theoretical Framework:

1. Classic life-cycle model:

$$\max\ \mathbb{E}[\sum_{t=1}^{T} \beta^{t-1} (\prod_{j=0}^{t-2} s_j) u(c_t)]$$

Bellman equation:

$$\nu_t(m_t) = \max_{c_t}\ u(c_t) + \beta s_t \mathbb{E}[(p_{t+1}/p_t)^{1-\rho} \nu_{t+1}(m_{t+1})]$$

Optimal consumption:

$$c_t^* = (\beta s_t)^{-1/\rho} (\mathbb{E}[\cdot])^{-1/\rho}$$

➢ Decrease in perceived survival probability s_t decreases optimal consumption (saving rate↓).

2. Experienced-based learning model (Malmendier et al., 2020) :

$$w(k, \lambda, age) = \frac{(age + 1 - k)^{\lambda}}{\sum_{k\prime=0}^{age} (age + 1 - k')^{\lambda}}$$

➢ Survival probability s_t (partially) formed by weighting past experiences.

Key Predictions of the Theoretical Framework:

- Effect decays over time as the personal experience fades out of memory.
- Younger individuals are more strongly affected as new experience constitutes larger part of set of experiences.
- Emotional reaction to experience necessary for experience to become part of set of experiences.

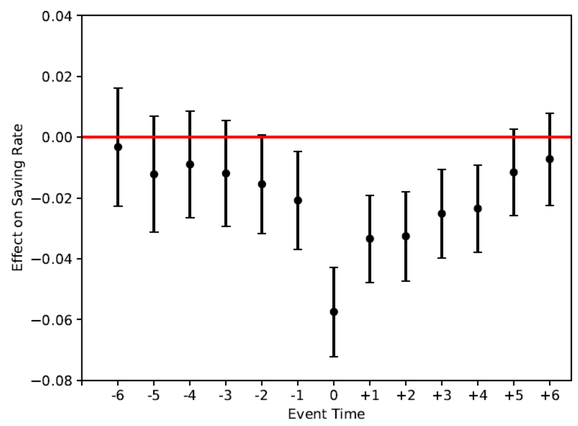
Main Result:

	Saving Rate		Expenditure		
	Short term	Long term	Leisure	Necessities	Healthcare
Death Friend	-0.011***	-0.017***	0.006***	0.008***	0.002***
	(-3.74)	(-4.63)	(6.39)	(3.77)	(3.02)
Household FE	YES	YES	YES	YES	YES
Age FE	YES	YES	YES	YES	YES
Observations	92,965	94,115	99,199	99,635	96,974
Adjusted R^2	0.454	0.466	0.500	0.476	0.549

- Death of a close friend reduces the saving rate by 1.1 pp. in the following year.
- Saving rate is reduced on average by 1.7 pp. over the following years.
- Effect is mostly driven by expenditure on leisure related items (cigarettes, alcohol, meals eaten out…) not healthcare.

➢ **Causal Impact of mortality beliefs on households' saving decisions!**

Further Results:



1. Effect of exogenous shock decays over time.
2. Younger individuals most strongly affected by the personal experience.
3. Magnitude of effect moderated by individual's risk aversion.
4. Emotional sensitivity crucial for saving rate reduction.

Structural estimations based on the experienced-based learning model and the above graph reveal: Decay parameter λ of around 1.8 (Malmendier & Nagel, 2011: λ = 1.3 to 1.9)

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