

# A Comparison of Value of Statistical Life Estimates Derived from Revealed and Stated Preferences



## Background

### Value of Statistical Life (VSL)

- Trade-offs to reduce the probability of death<sup>1</sup>
- VSL estimates from labor contexts used to evaluate the benefits of non-labor policies
  - May not be reasonable if people value risk differently by choice context

- VSL estimates vary widely by methodology

- From *hedonic wage models*:

$$\ln(wages_i^*) = \phi risk_i + X_{2i}\beta_2 + D_i\gamma + e_{21}$$

$$\approx \frac{\hat{\phi}(\overline{wage}/hr)(hrs/wk)(wks\ worked/yr)}{\text{unit of probability of death}}$$

- From *contingent valuation/discrete choice modeling*:

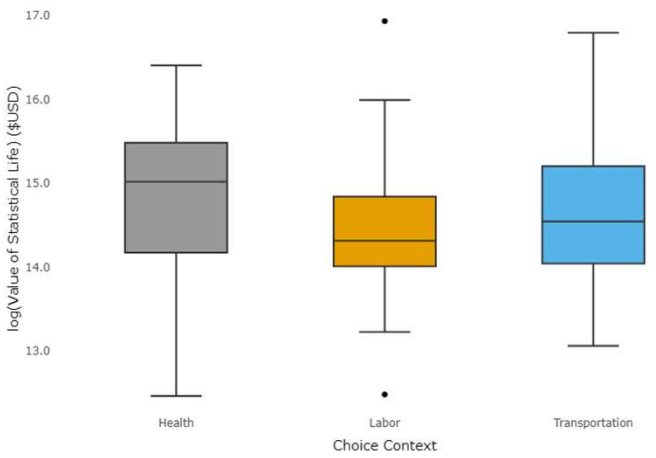
$$\approx \beta_{mort} / \beta_{wage}$$

## Research Questions

- To what extent are people's **risk preferences** affected by **choice context**?
- To what extent do people have consistent **revealed** and **stated risk preferences** in the **labor market**?

**Data Source:** Data collected between June-Nov 2021 of a random sample (n=71) of working people living in the United States, balanced on gender

Stated Preference VSL Estimates by Choice Context



Revealed vs. Stated Preference VSL Models

	Dependent variable:	
	Wages OLS	Job Choice multinomial logistic
	(1)	(2)
Ind Fatality Risk	-0.132 (0.969)	
Occ Fatality Risk	0.304 (0.694)	
Commute Time	0.211** (0.101)	
Union Member	23.169*** (6.232)	
Int: Choice 1		1.667*** (0.364)
Int: Choice 2		1.834*** (0.360)
Int: Choice 3		1.668*** (0.364)
Wage		0.043*** (0.004)
Mortality Risk		-973.010*** (110.828)
Commute Time		-0.035*** (0.005)
Constant	16.810*** (3.495)	
<b>VSL (\$USD)</b>	<b>60,885,181</b>	<b>22,384</b>
Observations	29	340
R <sup>2</sup>	0.417	0.397

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## Results

### RQ1

- Person-level VSL estimates for Stated Preferences derived from Mixed Effects Multinomial Logit Models
- Within-Subjects ANOVA of person-level VSLs (N = 71, 2130 trials) revealed a main effect of choice context (F(2,140) = 4.17, p < .001)
  - Confirmed with non-parametric analyses
- Pairwise tests revealed significant differences in VSL across health-labor comparisons and health-transportation comparisons

### RQ2

- Labor Revealed Preference VSL estimate (model 1) significantly larger (2700x) than Stated Preference VSL estimate (model 2)
- Caveat: RP estimation limited by small sub-sample

## Discussion

- Preliminary evidence suggests critical role of context in self-reported risk preferences
  - Cautions use of estimates derived in one context for guiding policy in another
- VSL estimates derived with distinct methodologies do not appear to converge in labor contexts
  - Suggests methods not substitutable but may warrant joint consideration in policymaking

## References

1. Schelling, 1968; 2. Bellante and Link, 1981; 3. Bonin et al., 2007; 4. Freeman et al., 2010; 5. Kim et al., 2015; 6. Viscusi, 1981; 7. Leigh and Folsum, 1984; 8. Cohen and Einav, 2007; 9. Blau and Kahn, 2016; 9. Hersch 1998; 10. Heckman, 1979;