Crying Wolf in the Lab

Arya Gaduh, Peter McGee, Alexander Ugarov*

April 27, 2022

Abstract

Keywords:

1 Introduction

A Tables

Table 1: WTP for Information (Discrepancy)

	(1)	(2)	(3)	(4)
FP costs	.251*	.0991	.404**	.472***
	(0.1)	(0.2)	(0.2)	(0.2)
FN costs	.356***	.397***	.425***	-.609**
	(0.1)	(0.1)	(0.1)	(0.2)
Risk-averse		.0046		
		(0.3)		
Risk-averse × FP costs		.187		
		(0.2)		
Risk-averse × FN costs		-.066		
		(0.2)		
Accur. beliefs			.212	
			(0.3)	
Accur. beliefs × FP costs			-.361	
			(0.2)	
Accur. beliefs × FN costs			-.143	
			(0.1)	
p>0.2				-.84***
				(0.2)
p>0.2 × FP costs				-.447***
				(0.2)
p>0.2 × FN costs				1.09***
				(0.2)
Constant	-.233	-.237	-.331	.412*
	(0.2)	(0.3)	(0.2)	(0.2)
Observations	630	588	630	630
Adjusted R^2	0.05	0.04	0.05	0.10

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: WTP for Information (Discrepancy, by prior)

	(1)	(2)	(3)	(4)
	0.1	0.2	0.3	0.5
FP rate	2.12***	2.34***	.287	-.816
	(0.7)	(0.7)	(0.8)	(0.9)
FN rate	-1.22**	.768	1.56**	3.79***
	(0.5)	(0.5)	(0.6)	(0.7)
Constant	.412*	-.715***	-.968***	.671**
	(0.2)	(0.2)	(0.2)	(0.3)
Observations	162	153	162	153
Adjusted R^2	0.04	0.05	0.01	0.09

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Informed protection by prior

	(1)	(2)	(3)	(4)	(5)	(6)
Informed protection						
False pos. rate	2.05***	2.83***	3.25***	4.61***	1.74***	2.72***
	(0.4)	(0.6)	(0.7)	(1.0)	(0.5)	(0.7)
False neg. rate	2.15***	2.66***	1.4***	1.84***	3.66***	4.78***
	(0.3)	(0.4)	(0.5)	(0.6)	(0.4)	(0.6)
p>0.2			.335**	.632***		
			(0.2)	(0.2)		
p>0.2 × False pos. rate			-1.49**	-2.06**		
			(0.7)	(0.9)		
p>0.2 × False neg. rate			1.12**	1.28*		
			(0.6)	(0.7)		
Gremlin says Black=1					1.04**	1.62***
					(0.5)	(0.6)
Gremlin says Black=1 × False pos. rate					.376	-.144
					(1.3)	(1.8)
Gremlin says Black=1 × False neg. rate					-3.32***	-4.49***
					(0.7)	(0.8)
Constant	-1.29***	.529***	-1.56***	-.136	-1.48***	.368***
	(0.1)	(0.0)	(0.2)	(0.2)	(0.1)	(0.1)
Subject FE	No	Yes	No	Yes	No	Yes
Observations	1259	1235	1259	1235	1259	1235
Adjusted R^2						

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Model	**Prediction**
Strict risk-aversion EU	Higher sensitivity to FN rates
Strict risk-aversion EU+prudence	Ratio of FN to FP sensitivities ↑ with π
Loss aversion	FP sensit. ↓ with π FP sensit. is lower than for risk-neutral (RN)
Probability weighting	FP sensit.>RN for low π FP sensit.<RN for high π FN sensit. is higher than RN for $\pi P(W\|B) < P(S = B) < 1/2$
Probability estimation bias	FP sensitivity decreases with π rel. to RN FN sensitivity increases with π rel. to RN Diff. WTP for treatments with eq. FP and FN frequencies

Table 4: WTP: testing for interaction of priors and signal characteristics

	(1) WTP	(2) WTP(good quiz)	(3) WTP(stateduc)	(4) Value(RN)
model				
p>0.2	1.02***	.918***	.999***	1.45***
	(0.3)	(0.3)	(0.3)	(0.1)
FP rate	-2.83**	-3.23**	-2.07	-4.74***
	(1.1)	(1.4)	(1.3)	(0.3)
p>0.2 × FP rate	-.374	-.982	-.962	1.64***
	(1.3)	(1.6)	(1.6)	(0.4)
FN rate	-2.45**	-3.8***	-2.24*	-1.74***
	(1.1)	(1.3)	(1.3)	(0.3)
p>0.2 × FN rate	-.874	-.373	-.797	-3.12***
	(1.3)	(1.5)	(1.6)	(0.4)
Constant	1.72***	2.11***	1.56***	1.53***
	(0.2)	(0.3)	(0.3)	(0.1)
sigma				
Constant	1.9***	1.61***	1.82***	.495***
	(0.1)	(0.1)	(0.1)	(0.0)
Observations	630	342	378	630
Adjusted R^2				

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: WTP: extra effect of prior probability

	(1) WTP	(2) WTP	(3) WTP(stat)	(4) WTP(stat)	(5) Value(RN)	(6) Value(RN)
model						
Prior prob.	3.73***	5.31*	3.87***	5.28	1.85***	25.5***
	(0.8)	(3.0)	(1.0)	(3.6)	(0.3)	(0.1)
FP total prob.	1.81	5.68	1.86	2.3	-6.33***	-5.18***
	(3.8)	(6.6)	(4.9)	(8.1)	(1.5)	(0.2)
FN total prob.	-2.79	-13.8	-4.8	-8.62	-16.1***	-13.1***
	(3.8)	(10.1)	(4.9)	(12.4)	(1.5)	(0.5)
FP rate	-4.43	-5.88*	-4.14	-4.34	1.1	.0257
	(2.8)	(3.3)	(3.7)	(4.3)	(1.1)	(0.1)
FN rate	-2.35**	-1	-1.55	-1.11	.216	-.106**
	(1.2)	(1.6)	(1.5)	(2.0)	(0.4)	(0.1)
p squared		-2.28		-2.26		-38.5***
		(4.6)		(5.6)		(0.1)
FP total prob. sq.		-8.39		-.811		.739**
		(12.6)		(15.3)		(0.3)
FN total prob. sq.		57.7		20.9		-18***
		(49.2)		(62.0)		(3.5)
Constant	1.46***	1.25***	1.25***	1.09**	2.1***	-.646***
	(0.2)	(0.4)	(0.3)	(0.5)	(0.1)	(0.0)
sigma						
Constant	1.88***	1.88***	1.8***	1.8***	.708***	.0479***
	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)
Observations	630	630	378	378	630	630
Adjusted R^2						

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Belief updating: evidence of signal and base rate neglect

	(1) OLS	(2) FE	(3) OLS	(4) FE	(5) OLS	(6) FE
Prior	.246***	.202***	.175***	.191**	.14**	.0403
	(5.5)	(4.0)	(3.1)	(2.5)	(2.3)	(0.6)
Signal	.43***	.43***	.327***	.327***	.539***	.539***
	(6.3)	(6.3)	(3.2)	(3.2)	(5.3)	(5.3)
Good quiz × Prior			.143*	.0207		
			(1.7)	(0.2)		
Good quiz × Signal			.193	.193		
			(1.4)	(1.4)		
Stat. class × Prior					.162*	.264***
					(1.9)	(2.8)
Stat. class × Signal					-.166	-.166
					(-1.2)	(-1.2)
Observations	280	280	280	280	280	280
Adjusted R^2	0.31	0.31	0.33	0.32	0.32	0.32

Decomposition works only for imperfect signals

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

B Figures (Unsorted)

Figure 1: x

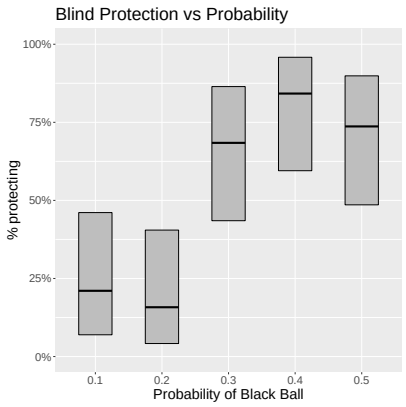


Figure 2: x

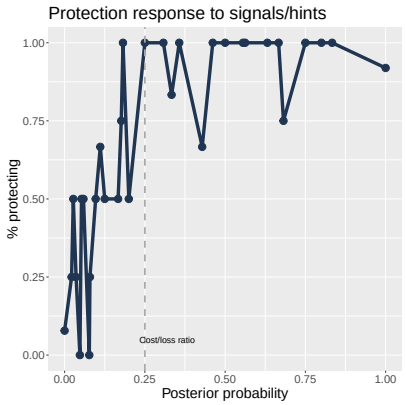
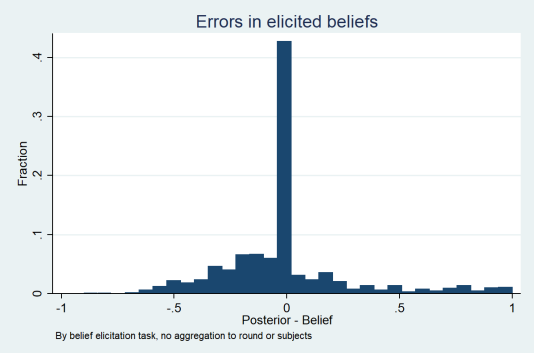
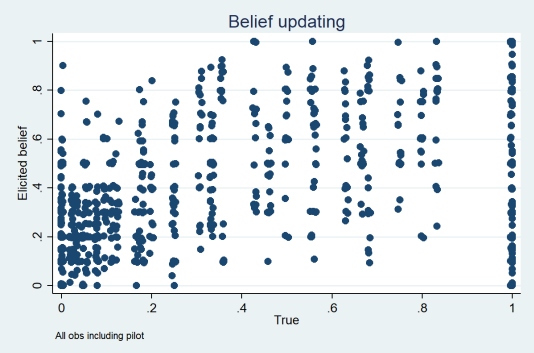


Figure 3: Belief Updating





C Appendix Tables

Table 7: Belief Elicitation: Discrepancy

	(1)	(2)	(3)	(4)	(5)	(6)
False neg. rate	-.0101	-.0101	.05	.05	.0886	.0876
	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)
False pos. rate	-.606***	-.606***	-.75***	-.749***	-.664***	-.66***
	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Good quiz			-.0299	-.0538		
			(0.0)	(0.0)		
Good quiz × False neg. rate			-.102	-.102		
			(0.1)	(0.1)		
Good quiz × False pos. rate			.269**	.266**		
			(0.1)	(0.1)		
Stat. class					.0203	.0391
					(0.0)	(0.0)
Stat. class × False neg. rate					-.172*	-.171*
					(0.1)	(0.1)
Stat. class × False pos. rate					.104	.0999
					(0.1)	(0.1)
Constant	.0616***	.0279	.0779***	.0566	.0499**	.00222
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Prior prob dummies	No	Yes	No	Yes	No	Yes
Observations	1260	1260	1260	1260	1260	1260
Adjusted R^2	0.09	0.09	0.09	0.10	0.09	0.09

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: WTP for Information (Discrepancy, demographic variables)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FP costs	.251*	.283	.352*	.117	.215	.263*	.307**	.479**	.515*
	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)	(0.1)	(0.2)	(0.2)
FN costs	.356***	.322***	.247***	.395***	.303***	.307***	.251***	.493***	.453*
	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Male		-.251	-.238						
		(0.3)	(0.4)						
Male × FP costs		-.122	-.159						
		(0.2)	(0.2)						
Male × FN costs		.0857	.117						
		(0.1)	(0.1)						
Stat. class				-.28	-.194				
				(0.3)	(0.4)				
Stat. class × FP costs				.218	.145				
				(0.3)	(0.3)				
Stat. class × FN costs				-.0785	-.0188				
				(0.1)	(0.1)				
>23 yrs						-.335	-.606		
						(0.4)	(0.4)		
>23 yrs × FP costs						-.0837	.00811		
						(0.3)	(0.3)		
>23 yrs × FN costs						.346	.275		
						(0.2)	(0.2)		
Good quiz								.493	.453
								(0.3)	(0.4)
Good quiz × FP costs								-.441*	-.41
								(0.3)	(0.3)
Good quiz × FN costs								-.253*	-.295
								(0.1)	(0.1)
Constant	-.233	-.126	.391	-.0579	.419	-.188	.356	-.5**	.045
	(0.2)	(0.2)	(0.3)	(0.3)	(0.4)	(0.2)	(0.2)	(0.3)	(0.3)
Prior dummies	No	No	Yes	No	Yes	No	Yes	No	Yes
Observations	630	630	630	630	630	630	630	630	630
Adjusted R^2	0.05	0.05	0.21	0.05	0.21	0.05	0.21	0.05	0.22

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

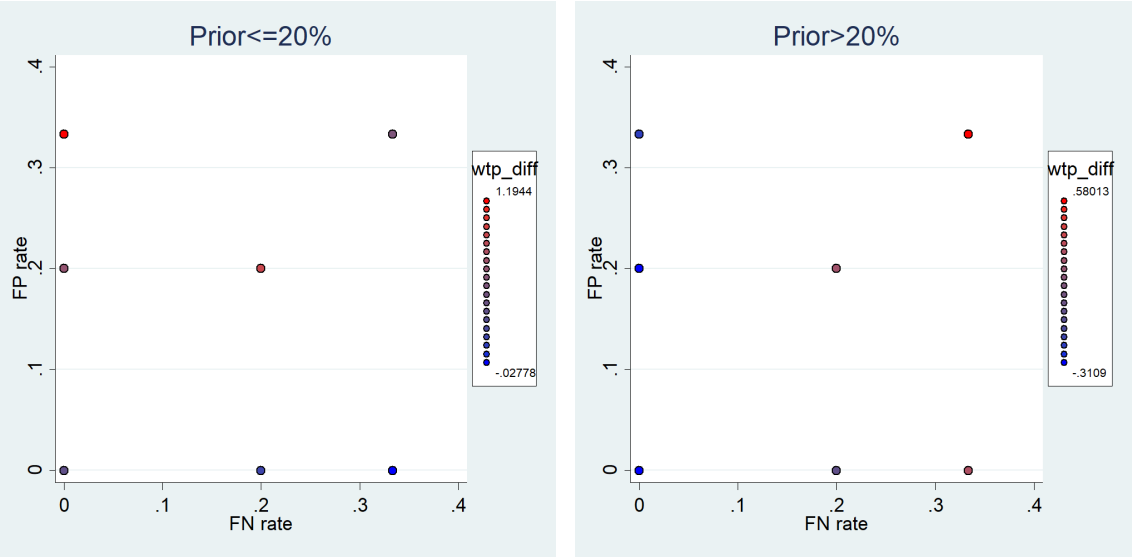


Figure 5: WTP discrepancy