# Crying Wolf in the Lab

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#### Abstract

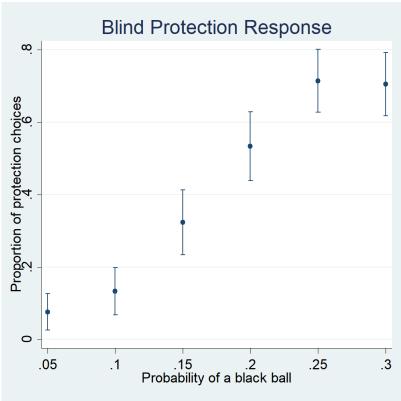
Keywords:

## 1 Introduction

### A Results

### A.1 IP and Beliefs

Figure 1: Average Blind Protection Response



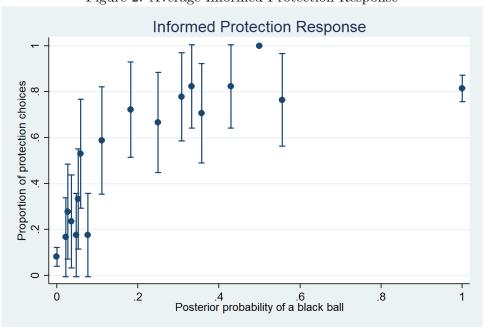


Figure 2: Average Informed Protection Response

Table 1: Average Protection by Signal Type

| False-pos. | False-neg. | Signal | % protect | P(prot>0,<1) | Posterior | Optimal | P(=optimal) |
|------------|------------|--------|-----------|--------------|-----------|---------|-------------|
| No         | No         | White  | 0.038     | 0.022        | 0.000     | 0.000   | 0.045       |
| No         | Yes        | White  | 0.188     | 0.000        | 0.045     | 0.000   | 0.000       |
| Yes        | No         | White  | 0.145     | 0.001        | 0.000     | 0.000   | 0.001       |
| Yes        | Yes        | White  | 0.429     | 0.000        | 0.062     | 0.000   | 0.000       |
| No         | No         | Black  | 0.837     | 0.000        | 1.000     | 1.000   | 0.000       |
| No         | Yes        | Black  | 0.783     | 0.000        | 1.000     | 1.000   | 0.000       |
| Yes        | No         | Black  | 0.739     | 0.000        | 0.396     | 0.739   | 1.000       |
| Yes        | Yes        | Black  | 0.829     | 0.000        | 0.328     | 0.743   | 0.182       |

Table 2: Average Belief Error by Signal Type

| False-pos. | False-neg. | Signal | Belief error | P(=0) |
|------------|------------|--------|--------------|-------|
| No         | No         | White  | 0.039        | 0.001 |
| No         | Yes        | White  | 0.140        | 0.000 |
| Yes        | No         | White  | 0.116        | 0.000 |
| Yes        | Yes        | White  | 0.245        | 0.000 |
| No         | No         | Black  | -0.187       | 0.000 |
| No         | Yes        | Black  | -0.332       | 0.000 |
| Yes        | No         | Black  | 0.177        | 0.000 |
| Yes        | Yes        | Black  | 0.192        | 0.000 |

ALEX: Double check: Are these everyone or p  $\leq$  0.2? YES

Table 3: Informed Protection Response: flexible control for posteriors and beliefs

|                           | (1)            | (2)            | (3)    | (4)      |
|---------------------------|----------------|----------------|--------|----------|
|                           | Posterior only | Posterior only | Both   | Both     |
| FP rate                   | .523***        | .488**         | .369*  | .282     |
|                           | (4.0)          | (2.0)          | (1.9)  | (1.1)    |
| FN rate                   | .724***        | 1.36***        | .512   | .833**   |
|                           | (4.6)          | (3.4)          | (1.3)  | (2.0)    |
| S=Black                   | .321**         | $2.4^{***}$    | .731   | 1.8**    |
|                           | (2.5)          | (3.4)          | (1.3)  | (2.6)    |
| FP rate x (S=Black)       | 119            | -3.42***       | -1.08  | -2.5**   |
|                           | (-0.4)         | (-2.9)         | (-1.1) | (-2.2)   |
| FN rate x (S=Black)       | 721***         | -1.64***       | 557    | -1.14*** |
|                           | (-3.6)         | (-4.0)         | (-1.4) | (-2.7)   |
| p≥0.2                     | .119***        | .351***        | .35*** | .299***  |
|                           | (4.3)          | (7.1)          | (6.8)  | (5.1)    |
| FP rate x (p $\geq 0.2$ ) |                | $.573^{*}$     |        | .409     |
|                           |                | (1.7)          |        | (1.2)    |
| FN rate x (p $\geq 0.2$ ) |                | .556**         |        | .589**   |
|                           |                | (2.3)          |        | (2.1)    |
| Observations              | 1224           | 582            | 582    | 582      |
| Adjusted $R^2$            |                |                |        |          |

t statistics in parentheses

With flexible controls of posterior probability and beliefs

Subject FE, errors are clustered by subject, average marginal treatment effects

#### ALEX:

#### • IP Table:

- We have Table 23 (new version) that controls for beliefs - $\dot{\iota}$  finds that beliefs explain biases except for s=white, FP.
- We want to tell the story of what happens (or the biases that remain) once we account for belief errors.

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 4: Belief Elicitation: When Mistakes Happen

|                             | (1)     | (2)     | (3)          |
|-----------------------------|---------|---------|--------------|
|                             | All     | S=White | S=Black      |
| Simpletons                  | .28***  | 105***  | .665***      |
|                             | (0.0)   | (0.0)   | (0.0)        |
| FN rate                     | .0528   | .409*** | 304**        |
|                             | (0.1)   | (0.1)   | (0.1)        |
| Simpletons $\times$ FN rate | 177     | 0993    | 255          |
|                             | (0.2)   | (0.2)   | (0.3)        |
| FP rate                     | .888*** | .253*** | $1.52^{***}$ |
|                             | (0.1)   | (0.1)   | (0.1)        |
| Simpletons $\times$ FP rate | .277    | .316    | .238         |
|                             | (0.2)   | (0.3)   | (0.4)        |
| Constant                    | 251***  | .14***  | 641***       |
|                             | (0.0)   | (0.0)   | (0.0)        |
| Subject FE                  | Yes     | Yes     | Yes          |
| Observations                | 624     | 312     | 312          |
| Adjusted $R^2$              | 0.22    | 0.38    | 0.66         |
|                             |         |         |              |

Dep. variable: reported belief - posterior probability

#### ALEX:

- BE Table:
  - Keep Cols 1-3 (Panel A)
  - \*Drop for now

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

#### B WTP

Table 5: WTP for Information (tobit)

| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Table 6. WII for information (tobic) |         |         |             |              |         |         |
|---|--------------------------------------|---------|---------|-------------|--------------|---------|---------|
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  |                                      | (1)     | (2)     | (3)         | (4)          | (5)     | (6)     |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   |                                      | All     | p = 0.1 | p = 0.2     | All          | All     | All     |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | model                                |         |         |             |              |         |         |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | FN costs                             | 577**   | -1.24** | 682***      | 791***       | 691***  | 69***   |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   |                                      | (0.2)   | (0.5)   | (0.3)       | (0.2)        | (0.2)   | (0.3)   |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | FP costs                             | 644***  | 647***  | 519**       | 595***       | 508***  | 494**   |
| Belief change $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  |                                      | (0.2)   | (0.2)   | (0.3)       | (0.2)        | (0.2)   | (0.2)   |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   | BP costs                             |         |         |             | .373***      | .363*** | .37***  |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   |                                      |         |         |             | (0.1)        | (0.1)   | (0.1)   |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Belief change                        |         |         |             | ` ,          | .332    | , ,     |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$   |                                      |         |         |             |              | (0.3)   |         |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Certainty                            |         |         |             |              | , ,     | .688    |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  |                                      |         |         |             |              |         | (0.8)   |
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$  | Constant                             | 1.98*** | 1.79*** | 2.33***     | .923***      | .701*   | .293    |
| Constant $1.8^{***}$ $1.83^{***}$ $1.7^{***}$ $1.77^{***}$ $1.76^{***}$ $1.76^{***}$ (0.1)     (0.1)     (0.1)     (0.1)     (0.1)     (0.1)       Observations     312     159     153     312     312     312 |                                      | (0.2)   | (0.2)   | (0.2)       | (0.3)        | (0.4)   | (0.8)   |
|   | sigma                                |         |         |             |              |         |         |
| Observations 312 159 153 312 312 312  | Constant                             | 1.8***  | 1.83*** | $1.7^{***}$ | $1.77^{***}$ | 1.76*** | 1.76*** |
|   |                                      | (0.1)   | (0.1)   | (0.1)       | (0.1)        | (0.1)   | (0.1)   |
| Adjusted $R^2$  | Observations                         | 312     | 159     | 153         | 312          | 312     | 312     |
|   | Adjusted $\mathbb{R}^2$              |         |         |             |              |         |         |

Standard errors in parentheses

#### ALEX:

- Blind Protection costs: what you lose if you don't use signal.
- Belief change: Respondents' belief change due to the signal from white to black (how info structure changes the relative value of hint).
- Certainty: How close is your belief to 1 or 0. (Willingness to pay for certainty):
- Certainty=  $P(S = W)(1 \mu(B|S = W)) + P(S = B)\mu(B|S = B)$ ,  $\mu(B|S = Y)$  is the reported belief that the ball is black when the signal is Y, P(S = Y) is the actual prob of the ball being Y. This is an ad-hoc measure, I probably need to check literature to see if there is something more standard.
- Describe why better than OLS: because we truncate.

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 6: Average WTP discrepancy (WTP-Value) by Signal Type

| False-positive | False-negative | Mean WTP discrepancy | P(=0) |
|----------------|----------------|----------------------|-------|
| No             | No             | -0.135               | 0.465 |
| No             | Yes            | -0.209               | 0.152 |
| Yes            | No             | 0.465                | 0.005 |
| Yes            | Yes            | 0.437                | 0.001 |

Table 7: WTP minus Value of Information (OLS)

| Table 1. WII IIIII                    | (1)     | (2)     | (3)      | (4)     | (5)                 |
|---------------------------------------|---------|---------|----------|---------|---------------------|
| DD /                                  | PPOVV   | 450444  | 400      | F00***  | 40.7***             |
| FP costs                              | .558*** | .472*** | .403     | .506*** | .437***             |
| TON                                   | (0.1)   | (0.1)   | (0.3)    | (0.2)   | (0.1)               |
| FN costs                              | 229*    | .0337   | 495      | .085    | 645***              |
| Dialalasia a                          | (0.1)   | (0.1)   | (0.5)    | (0.1)   | (0.2)               |
| Risk-loving                           |         |         | 0        |         |                     |
| Risk-averse                           |         |         | (.)<br>0 |         |                     |
| Tusk-averse                           |         |         | (.)      |         |                     |
| No risk av. measure                   |         |         | 0        |         |                     |
| TO TISK av. Incasure                  |         |         | (.)      |         |                     |
| Risk-loving $\times$ FP costs         |         |         | .12      |         |                     |
| Tubil loving // II costs              |         |         | (0.4)    |         |                     |
| Risk-averse $\times$ FP costs         |         |         | .102     |         |                     |
|                                       |         |         | (0.3)    |         |                     |
| No risk av. measure $\times$ FP costs |         |         | 142      |         |                     |
|                                       |         |         | (0.4)    |         |                     |
| Risk-loving $\times$ FN costs         |         |         | .744     |         |                     |
|                                       |         |         | (0.5)    |         |                     |
| Risk-averse $\times$ FN costs         |         |         | .549     |         |                     |
|                                       |         |         | (0.5)    |         |                     |
| No risk av. measure $\times$ FN costs |         |         | .492     |         |                     |
|                                       |         |         | (0.5)    |         |                     |
| Inaccurate beliefs                    |         |         |          | .0776   |                     |
|                                       |         |         |          | (0.2)   |                     |
| Inaccurate beliefs $\times$ FP costs  |         |         |          | .631    |                     |
| T                                     |         |         |          | (0.8)   |                     |
| Inaccurate beliefs $\times$ FN costs  |         |         |          | 00734   |                     |
| 1 1 200                               |         |         |          | (0.3)   | 0                   |
| plevel=200                            |         |         |          |         | 0                   |
| 11 200 v EDt-                         |         |         |          |         | (.)                 |
| plevel= $200 \times FP \text{ costs}$ |         |         |          |         | .14                 |
| plevel= $200 \times FN \text{ costs}$ |         |         |          |         | $(0.2)$ $.84^{***}$ |
| picvet—200 × 111 C08t8                |         |         |          |         | (0.2)               |
| Constant                              | 0921    | 141*    | 137      | 208     | 111                 |
|                                       | (0.2)   | (0.1)   | (0.1)    | (0.2)   | (0.1)               |
| Observations                          | 312     | 312     | 312      | 312     | 312                 |
| Adjusted $R^2$                        | 0.05    | 0.59    | 0.58     | 0.58    | 0.60                |
| U                                     |         |         |          |         |                     |

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

# C Summary

Table 8: Comparing Findings across the Tasks

| Design           | Beliefs | IP | WTP  |
|------------------|---------|----|------|
| White, FN only   | >       | <> | <> * |
| Black, FN only   | <       | <> | <>   |
| White, FP only   | >       | >  | >    |
| Black, FP only   | >       | <> | >    |
| White, FN and FP | >>      | >  | >    |
| Black, FN and FP | >       | <> | >    |

<sup>\*-</sup>WTP estimates do not depend on signals.

### D Classification: Honest vs. Bayesian

Table 9: Latent Class Multinomial Choice Model Estimates (FP and FN rates by hint)

|    | lc_results |       |          |          |          |          |          |           |             |
|----|------------|-------|----------|----------|----------|----------|----------|-----------|-------------|
|    | Model      | Class | Alt      | Hint     | FN0      | FN1      | FP0      | FP1       | Class share |
| r1 | 1          | 1     | -2.86694 | 4.392251 | 4.834518 | 1919326  | 4.35168  | 8676941   | 1           |
| r2 | 2          | 1     | -2.91958 | 1.881626 | 7.980388 | 3599557  | 1.725487 | 6.632253  | .2198715    |
| r3 | 2          | 2     | -2.91958 | 6.699559 | 3.838407 | .4707898 | 5.285504 | -8.229022 | .7801285    |

Table 10: IP response by class

|                         | (1)             | (2)                |  |  |  |  |
|-------------------------|-----------------|--------------------|--|--|--|--|
|                         | Honesty Seekers | Cautious Bayesians |  |  |  |  |
| S=Black                 | .337***         | .0245              |  |  |  |  |
|                         | (3.4)           | (0.4)              |  |  |  |  |
| Prop. of lying gremlins | .664***         | .277***            |  |  |  |  |
|                         | (4.6)           | (4.3)              |  |  |  |  |
| Posterior prob.         | 198*            | .788***            |  |  |  |  |
|                         | (-1.7)          | (4.9)              |  |  |  |  |
| N                       | 138             | 486                |  |  |  |  |
| Pseudo R-squared        | .183            | .541               |  |  |  |  |
| Log-likelihood          | -67.2           | -154               |  |  |  |  |

t statistics in parentheses

#### ALEX:

- Do this distinction between number of false gremlin vs. black/white gremlin for belief calculation (other columns)
- Alex: Let me know if you need it to join into one table, but it need manual work so we can reserve it for later.

#### ALEX:

- BE Table:
  - Keep Cols 4-6
  - We won't need this if we have the above version for belief.

## END TABLE

Errors are clustered by subject, average marginal treatment effects

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 11: Belief Elicitation by Class

|                         | (1)        | (2)                |
|-------------------------|------------|--------------------|
|                         | Simpletons | Cautious Bayesians |
| Posterior prob.         | .357***    | .479***            |
|                         | (0.1)      | (0.1)              |
| S=Black                 | .123       | .224***            |
|                         | (0.1)      | (0.0)              |
| Prop. of lying gremlins | .171       | .184***            |
|                         | (0.1)      | (0.0)              |
| Constant                | .112***    | .0898***           |
|                         | (0.0)      | (0.0)              |
| Observations            | 138        | 486                |
| Adjusted $R^2$          | 0.31       | 0.60               |

Dep. variable: beliefs, errors clustered by subject

Table 12: Expected IP losses by strategy

| -               |           | p=0.1,0.2    |            | p>0.2     |              |            |  |
|-----------------|-----------|--------------|------------|-----------|--------------|------------|--|
|                 | Mean loss | % of optimal | Loss prob. | Mean loss | % of optimal | Loss prob. |  |
| Baseline (all)  | 1.166304  | 156.7689     | .0190281   | 2.11717   | 140.6088     | .0508233   |  |
| Honesty seekers | 1.526998  | 205.2517     | .0435806   | 3.095308  | 205.5705     | .1163925   |  |
| Bayesians       | 1.050706  | 141.2308     | .0112388   | 1.806053  | 119.9464     | .0300237   |  |
| Optimal         | .7439637  | 1            | .0136432   | 1.505716  | 1            | .0190598   |  |

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 13: Belief Elicitation: When Mistakes Happen

|                             |         |         | * *          |
|-----------------------------|---------|---------|--------------|
|                             | (1)     | (2)     | (3)          |
|                             | All     | S=White | S=Black      |
| Simpletons                  | .28***  | 105***  | .665***      |
|                             | (0.0)   | (0.0)   | (0.0)        |
| FN rate                     | .0528   | .409*** | 304**        |
|                             | (0.1)   | (0.1)   | (0.1)        |
| Simpletons $\times$ FN rate | 177     | 0993    | 255          |
|                             | (0.2)   | (0.2)   | (0.3)        |
| FP rate                     | .888*** | .253*** | $1.52^{***}$ |
|                             | (0.1)   | (0.1)   | (0.1)        |
| Simpletons $\times$ FP rate | .277    | .316    | .238         |
|                             | (0.2)   | (0.3)   | (0.4)        |
| Constant                    | 251***  | .14***  | 641***       |
|                             | (0.0)   | (0.0)   | (0.0)        |
| Subject FE                  | Yes     | Yes     | Yes          |
| Observations                | 624     | 312     | 312          |
| Adjusted $R^2$              | 0.22    | 0.38    | 0.66         |
|                             |         |         |              |

Dep. variable: reported belief - posterior probability

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

## E Tables

Table 14: List of Treatments

| Gremlins composition       |        |            |            |         |         |  |  |  |  |  |
|----------------------------|--------|------------|------------|---------|---------|--|--|--|--|--|
| Prop. of black balls $(p)$ | Honest | Black-eyed | White-eyed | FP rate | FN rate |  |  |  |  |  |
| 0.1,0.2,0.3,0.5            | 2      | 0          | 0          | 0       | 0       |  |  |  |  |  |
| 0.1, 0.2, 0.3, 0.5         | 3      | 1          | 0          | 0.333   | 0       |  |  |  |  |  |
| 0.1, 0.2, 0.3, 0.5         | 3      | 0          | 1          | 0       | 0.333   |  |  |  |  |  |
| 0.1, 0.2, 0.3, 0.5         | 3      | 1          | 1          | 0.333   | 0.333   |  |  |  |  |  |
| 0.1, 0.2, 0.3, 0.5         | 5      | 1          | 0          | 0.2     | 0       |  |  |  |  |  |
| 0.1, 0.2, 0.3, 0.5         | 5      | 0          | 1          | 0       | 0.2     |  |  |  |  |  |
| 0.1, 0.2, 0.3, 0.5         | 5      | 1          | 1          | 0.2     | 0.2     |  |  |  |  |  |

Table 15: Demographic Characteristics of Subjects

|                        | All |     | $p \in \{0.1, 0.3\}$ |     | $p \in \mathcal{A}$ | $\{0.2, 0.5\}$ |
|------------------------|-----|-----|----------------------|-----|---------------------|----------------|
|                        | N   | %   | N                    | %   | N                   | %              |
| Male                   | 43  | 41  | 22                   | 41  | 21                  | 41             |
| Age>23yrs old          | 14  | 13  | 6                    | 11  | 8                   | 16             |
| Students               | 88  | 84  | 46                   | 85  | 42                  | 82             |
| Had statistics classes | 63  | 60  | 37                   | 69  | 26                  | 51             |
| Total                  | 105 | 100 | 54                   | 100 | 51                  | 100            |

Table 16: Risk Aversion Measurement

| Switching Probability $(\pi^*)$ | $\theta$ | N  |
|---------------------------------|----------|----|
| Always protect                  | >2       | 1  |
| 0.1                             | 2        | 10 |
| 0.15                            | 1.216    | 13 |
| 0.2                             | 0.573    | 29 |
| 0.25                            | 0        | 16 |
| 0.3                             | -0.539   | 15 |
| Never protect                   | <-0.539  | 14 |

Table 17: Informed protection response: logistical regression

|                           | (1)     | (2)     | (3)     | (4)     | (5)     | (6)     | (7)     |   |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---|
|                           | All     | S=White | S=Black | All     | S=White | W=Black | S=White | W |
| FP rate                   | .251**  | .556*** | 136     | .2*     | 1.19*** | 38      | 2.3**   | _ |
|                           | (2.2)   | (4.8)   | (-0.8)  | (1.8)   | (3.7)   | (-0.8)  | (2.2)   | ( |
| FN rate                   | .342*** | .615*** | 0304    | .352*** | 1.26*** | 116     | 2.69*** | - |
|                           | (3.2)   | (4.6)   | (-0.2)  | (3.1)   | (12.8)  | (-0.3)  | (4.1)   | ( |
| S=Black                   | .454*** |         |         | .473*** |         |         |         |   |
|                           | (83.6)  |         |         | (91.4)  |         |         |         |   |
| plevel=200                | .106*** | .0914*  | .12**   | 0       | 0       | 0       | 0       |   |
|                           | (2.8)   | (1.9)   | (2.2)   | (.)     | (.)     | (.)     | (.)     |   |
| FP rate x FN rate         |         |         |         |         |         |         | -6.33** |   |
|                           |         |         |         |         |         |         | (-2.4)  | ( |
| Subject FE                | No      | No      | No      | Yes     | Yes     | Yes     | Yes     |   |
| $P(FP rate \neq FN rate)$ | .542    | .766    | .669    | .309    | .855    | .705    | .411    |   |
| N                         | 624     | 312     | 312     | 582     | 117     | 105     | 117     |   |
| Pseudo R-squared          | .33     | .159    | .026    | .519    | .479    | .0844   | .56     |   |
| Log-likelihood            | -290    | -125    | -152    | -194    | -41.2   | -66.1   | -34.8   | _ |
|                           |         |         |         |         |         |         |         |   |

t statistics in parentheses

Errors are clustered by subject, average marginal treatment effects

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 18: Correlates of Strategies Used

|                | (1)     | (2)     | (3)     |
|----------------|---------|---------|---------|
|                |         |         |         |
| Seek honest    | .462*** |         |         |
|                | (0.1)   |         |         |
| Other          | .356*** |         |         |
|                | (0.1)   |         |         |
| Female         |         | .0782   |         |
|                |         | (0.1)   |         |
| Age            |         | 00845   |         |
|                |         | (0.0)   |         |
| Stat. classes  |         | 0674    |         |
|                |         | (0.1)   |         |
| Accur. beliefs |         |         | .135*   |
|                |         |         | (0.1)   |
| RA measure0    |         |         | 00705   |
|                |         |         | (0.0)   |
| IP quiz        |         |         | 0635    |
|                |         |         | (0.0)   |
| Constant       | .433*** | .975*** | 1.03*** |
|                | (0.1)   | (0.1)   | (0.2)   |
| Observations   | 104     | 104     | 104     |
| Adjusted $R^2$ | 0.15    | 0.02    | 0.01    |

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 19: Latent Class Multinomial Choice Model Estimates

|                 | $lc\_results$ |       |                      |                       |               |           |             |          |
|-----------------|---------------|-------|----------------------|-----------------------|---------------|-----------|-------------|----------|
|                 | Model         | Class | $\operatorname{Alt}$ | $\operatorname{Hint}$ | $False\_prob$ | Posterior | Class share | BIC      |
| $\overline{r1}$ | 1             | 1     | -2.558866            | 5.518452              | -2.179902     | -5.647592 | 1           | 599.1649 |
| r1              | 2             | 1     | -2.535444            | 1.90032               | 3.500951      | 1.732533  | .2750615    | 581.0222 |
| r1              | 2             | 2     | -2.535444            | .1317798              | 2.727107      | 8.918563  | .7249385    | 581.0222 |
| r1              | 3             | 1     | -2.738694            | 1.552418              | 4.89195       | 1.063685  | .2025011    | 587.5337 |
| r1              | 3             | 2     | -2.738694            | 3.413443              | 8342289       | 6.007274  | .4550624    | 587.5337 |
| r1              | 3             | 3     | -2.738694            | -3.203437             | 5.474852      | 16.56628  | .3424365    | 587.5337 |

Table 20: WTP for Information: heterogeneity by IP class

|                              | (1)     | (2)     | (3)      | (4)      |
|------------------------------|---------|---------|----------|----------|
|                              | p < 0.3 | p < 0.3 | All      | All      |
| model                        |         |         |          |          |
| FN costs                     | 577**   | 699***  | 261***   | 386***   |
|                              | (0.2)   | (0.3)   | (0.1)    | (0.1)    |
| FP costs                     | 644***  | 73***   | -1.04*** | -1.15*** |
|                              | (0.2)   | (0.2)   | (0.2)    | (0.2)    |
| Simpletons                   |         | 804**   |          | 87***    |
|                              |         | (0.4)   |          | (0.3)    |
| Simpletons $\times$ FN costs |         | .618    |          | .63***   |
|                              |         | (0.6)   |          | (0.2)    |
| Simpletons $\times$ FP costs |         | .393    |          | .573     |
|                              |         | (0.5)   |          | (0.4)    |
| Constant                     | 1.98*** | 2.17*** | 2.39***  | 2.57***  |
|                              | (0.2)   | (0.2)   | (0.1)    | (0.1)    |
| sigma                        |         |         |          |          |
| Constant                     | 1.8***  | 1.79*** | 1.94***  | 1.92***  |
|                              | (0.1)   | (0.1)   | (0.1)    | (0.1)    |
| Observations                 | 312     | 312     | 624      | 624      |
| Adjusted $R^2$               |         |         |          |          |

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 21: WTP minus Value of Information, connection to self-reported protection strategy  $\,$ 

| J                             |         |         |          |        |         |          |
|-------------------------------|---------|---------|----------|--------|---------|----------|
|                               | (1)     | (2)     | (3)      | (4)    | (5)     | (6)      |
|                               | All     | p = 0.1 | p = 0.2  | All    | All     | All      |
| Seek honest                   | .923*** | 1.17*** |          | 1.18** |         | 1.4**    |
|                               | (0.3)   | (0.4)   |          | (0.5)  |         | (0.6)    |
| Other                         | .317    | .395    |          | .324   |         | .594     |
|                               | (0.2)   | (0.4)   |          | (0.5)  |         | (0.5)    |
| FN costs                      | 236     | 0324    | -1.11*** | 563    | 558***  | .602     |
|                               | (0.2)   | (0.5)   | (0.4)    | (1.0)  | (0.2)   | (0.6)    |
| FP costs                      | .551*** | .667*   | 424**    | .578   | 415**   | .631     |
|                               | (0.1)   | (0.4)   | (0.2)    | (0.4)  | (0.2)   | (0.6)    |
| Seek honest $\times$ FN costs |         | 432     |          | 389    |         | 616      |
|                               |         | (0.6)   |          | (1.1)  |         | (0.7)    |
| Other $\times$ FN costs       |         | 0759    |          | .216   |         | 355      |
|                               |         | (0.6)   |          | (1.1)  |         | (0.7)    |
| Seek honest $\times$ FP costs |         | 179     |          | 222    |         | 155      |
|                               |         | (0.4)   |          | (0.5)  |         | (0.7)    |
| Other $\times$ FP costs       |         | 103     |          | 144    |         | .0513    |
|                               |         | (0.4)   |          | (0.5)  |         | (0.7)    |
| Constant                      | 587**   | 717**   | 1.88***  | 123    | 2.28*** | -1.56*** |
|                               | (0.2)   | (0.3)   | (0.2)    | (0.4)  | (0.2)   | (0.5)    |
| Observations                  | 312     | 312     | 159      | 159    | 153     | 153      |
| Adjusted $\mathbb{R}^2$       | 0.09    | 0.09    | 0.08     | 0.08   | 0.07    | 0.08     |

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

# F Figures

Protection Response

Protection Response

Protection Response

Protection Response

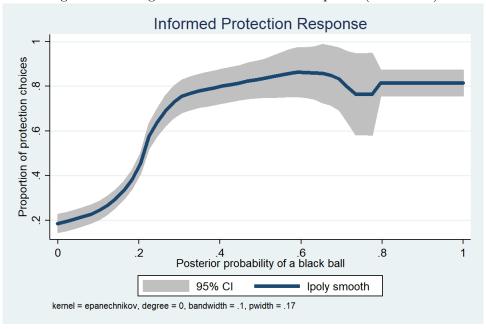
Protection Response

Protection Response

Blind Informed

Figure 3: Average Informed Protection Response





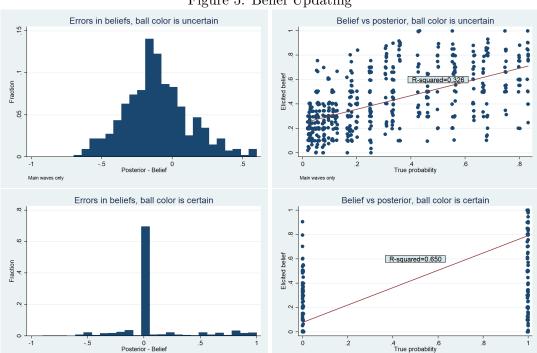


Figure 5: Belief Updating

Theoretical vs actual WTP

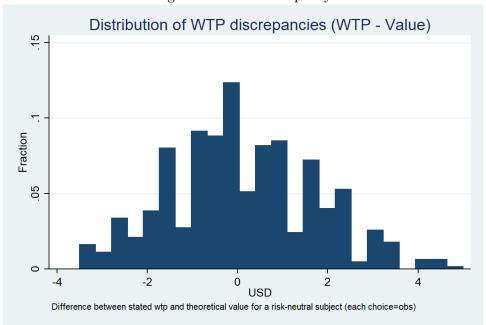
Theoretical vs actual WTP

percent
38.077

Figure 6: Theoretical vs actual WTP



Theoretical WTP



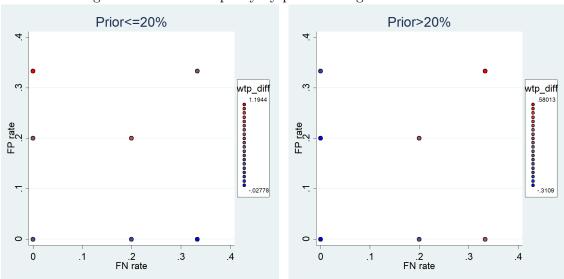


Figure 8: WTP discrepancy by prior and signal characteristics  $\,$ 

# G Appendix Tables

Table 22: Informed protection response: linear regression

|                | (1)     | (2)       | (3)     | (4)       | (5)       | (6)      |
|----------------|---------|-----------|---------|-----------|-----------|----------|
|                | All     | S=White   | S=Black | All       | S=White   | W=Black  |
| FP rate        | .251**  | .641***   | 139     | .203*     | .555***   | 149      |
|                | (2.2)   | (4.5)     | (-0.8)  | (1.7)     | (3.6)     | (-0.7)   |
| FN rate        | .341*** | .714***   | 0312    | .332***   | .713***   | 0486     |
|                | (3.2)   | (4.4)     | (-0.2)  | (2.9)     | (3.7)     | (-0.3)   |
| plevel=200     | .106*** | $.0911^*$ | .12**   | .333***   | .667***   | 1.27e-14 |
|                | (2.8)   | (1.9)     | (2.2)   | (1.4e+13) | (1.3e+14) | (1.1)    |
| Constant       | .37***  | 023       | .762*** | .442***   | 132***    | 1.02***  |
|                | (11.5)  | (-0.7)    | (14.4)  | (23.9)    | (-4.8)    | (38.4)   |
| Subject FE     | No      | No        | No      | Yes       | Yes       | Yes      |
| Observations   | 624     | 312       | 312     | 624       | 312       | 312      |
| Adjusted $R^2$ | 0.02    | 0.14      | 0.02    | 0.01      | 0.33      | 0.29     |

t statistics in parentheses

Errors are clustered by subject

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 23: Informed Protection Response: flexible control for posteriors and beliefs

|                           | (1)    | (2)                 | (3)         | (4)    | (5)     | (6)     |
|---------------------------|--------|---------------------|-------------|--------|---------|---------|
|                           | . ,    | $ m \dot{F}\dot{E}$ | . ,         | . ,    | S=White | S=Black |
| FP rate                   | .325** | .291                | .312        | .369*  | .34***  | 0715    |
|                           | (2.3)  | (1.5)               | (1.4)       | (1.9)  | (2.7)   | (-0.1)  |
| FN rate                   | .00994 | 000178              |             | .512   |         | .0767   |
|                           | (0.1)  | (-0.0)              | (-0.5)      | (1.3)  | (-0.3)  | (0.4)   |
| p≥0.2                     |        |                     | .279***     |        |         |         |
|                           |        |                     | (4.6)       |        |         |         |
| FP rate x (p $\geq 0.2$ ) |        |                     | 0236        |        |         |         |
| ,                         |        |                     | (-0.1)      |        |         |         |
| FN rate x (p $\geq 0.2$ ) |        |                     | .186        |        |         |         |
| a 51 1                    |        |                     | (0.9)       | -04    |         |         |
| S=Black                   |        |                     |             | .731   |         |         |
| FD (0 DI 1)               |        |                     |             | (1.3)  |         |         |
| FP rate x (S=Black)       |        |                     |             | -1.08  |         |         |
| DM (0 DL 1)               |        |                     |             | (-1.1) |         |         |
| FN rate x (S=Black)       |        |                     |             | 557    |         |         |
| 01                        | 00.4   | <b>F</b> 00         | <b>F</b> 00 | (-1.4) | 910     | 010     |
| Observations              | 624    | 582                 | 582         | 582    | 310     | 312     |
| Adjusted $R^2$            |        |                     |             |        |         |         |

t statistics in parentheses

With flexible controls of posterior probability and beliefs

Errors are clustered by subject, average marginal treatment effects

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 24: Informed protection response: semiparametric control for posteriors

|                               | (1)     | (0)    | (0)     | (4)        |
|-------------------------------|---------|--------|---------|------------|
|                               | (1)     | (2)    | (3)     | (4)        |
|                               |         |        |         |            |
| FP rate                       | .546*** | .442** | .527*** | $.357^{*}$ |
|                               | (3.5)   | (2.2)  | (3.3)   | (1.8)      |
| FN rate                       | 189     | 203    | 631     | 000611     |
|                               | (-1.0)  | (-0.9) | (-1.6)  | (-0.0)     |
| p≥0.2                         | , ,     | .0385  | ` ,     | , ,        |
| 1 —                           |         | (0.8)  |         |            |
| FP rate x (p $\geq 0.2$ )     |         | .218   |         |            |
| 11 1886 II (P = 0. <b>2</b> ) |         | (0.9)  |         |            |
| FN rate x (p $\geq 0.2$ )     |         | .0514  |         |            |
| The rate $x$ (p $\geq 0.2$ )  |         |        |         |            |
| C DI I                        |         | (0.2)  | F 01    |            |
| S=Black                       |         |        | -5.81   |            |
| (0.51.1)                      |         |        | (-0.5)  |            |
| FP rate x (S=Black)           |         |        | .0175   |            |
|                               |         |        | (0.0)   |            |
| FN rate x (S=Black)           |         |        | .498    |            |
|                               |         |        | (1.2)   |            |
| Stat. class                   |         |        |         | 0205       |
|                               |         |        |         | (-0.4)     |
| FP rate x Stat. class         |         |        |         | .333       |
|                               |         |        |         | (1.5)      |
| FN rate x Stat. class         |         |        |         | 303        |
| 11 ( 1auc X 5 tau). Class     |         |        |         | (-1.4)     |
| Observations                  | 624     | 624    | 624     | 624        |
|                               |         |        |         |            |
| Adjusted $R^2$                | 0.02    | 0.02   | 0.02    | 0.02       |

t statistics in parentheses

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 25: WTP - Value of Information, by prior with order effects

| 1401C 20. W 11 - Va.                |              | , , ,        | (2)          |            |         | (e)     |
|-------------------------------------|--------------|--------------|--------------|------------|---------|---------|
|                                     | (1)          | (2)          | (3)          | (4)        | (5)     | (6)     |
|                                     | p=0.1,0.2    | p=0.3,0.5    | p=0.1,0.2    |            |         |         |
| FP rate                             | $2.23^{***}$ | 249          | $2.12^{***}$ | $1.21^{*}$ | 249     | 325     |
|                                     | (0.5)        | (0.7)        | (0.7)        | (0.7)      | (0.7)   | (0.8)   |
| FN rate                             | 254          | $2.64^{***}$ | -1.22**      | .169       | 2.64*** | 1.33*** |
|                                     | (0.4)        | (0.5)        | (0.5)        | (0.5)      | (0.5)   | (0.5)   |
| Starts with p=0.2                   |              |              | -1.13***     | .256       |         |         |
|                                     |              |              | (0.3)        | (0.3)      |         |         |
| Starts with p= $0.2 \times FP$ rate |              |              | .215         | 444        |         | .157    |
| •                                   |              |              | (1.0)        | (1.0)      |         | (0.7)   |
| Starts with p= $0.2 \times FN$ rate |              |              | 1.99***      | 2.11***    |         | 2.71*** |
| •                                   |              |              | (0.7)        | (0.8)      |         | (0.6)   |
| First prior                         |              |              | ( )          | \ /        | .0367   | .0367   |
| 1                                   |              |              |              |            | (0.2)   | (0.2)   |
| First prior $\times$ FP rate        |              |              |              |            | 2.48*** | 2.48*** |
| The prof × TT rate                  |              |              |              |            | (0.7)   | (0.7)   |
| First prior $\times$ FN rate        |              |              |              |            | -2.9*** | -2.9*** |
| riist prior × riv rate              |              |              |              |            | (0.3)   | (0.3)   |
| Constant                            | 195          | 179          | 419*         | 279        | ` /     | ` /     |
| Constant                            | 135          | 172          | .412*        | 278        | 172     | 172     |
|                                     | (0.2)        | (0.2)        | (0.2)        | (0.2)      | (0.2)   | (0.2)   |
| Observations                        | 315          | 315          | 315          | 630        | 630     | 630     |
| Adjusted $R^2$                      | 0.04         | 0.04         | 0.12         | 0.04       | 0.04    | 0.06    |

Table 26: WTP - Value of Information, by prior

|                         | (1)         | (2)      | (3)    | (4)          | (5)     |  |
|-------------------------|-------------|----------|--------|--------------|---------|--|
|                         | All         | 0.1      | 0.2    | 0.3          | 0.5     |  |
| FP rate                 | .822*       | 1.96***  | 2.3*** | 121          | 865     |  |
|                         | (0.5)       | (0.7)    | (0.7)  | (0.9)        | (0.9)   |  |
| FN rate                 | $1.2^{***}$ | -1.24*** | .783   | $1.57^{***}$ | 3.79*** |  |
|                         | (0.4)       | (0.4)    | (0.5)  | (0.6)        | (0.7)   |  |
| Constant                | 134         | .435***  | 713*** | 921***       | .677*** |  |
|                         | (0.1)       | (0.1)    | (0.1)  | (0.1)        | (0.2)   |  |
| Observations            | 630         | 162      | 153    | 162          | 153     |  |
| Adjusted $\mathbb{R}^2$ | 0.36        | 0.64     | 0.49   | 0.42         | 0.48    |  |

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 27: Belief Elicitation: Discrepancy

|                              | (1)     | (2)     | (3)     | (4)     | (5)     | (6)     |
|------------------------------|---------|---------|---------|---------|---------|---------|
| FN rate                      | .021    | .021    | 014     | 014     | 0562    | 0554    |
|                              | (0.1)   | (0.1)   | (0.1)   | (0.1)   | (0.1)   | (0.1)   |
| FP rate                      | .917*** | .917*** | 1.07*** | 1.07*** | 1.05*** | 1.05*** |
|                              | (0.1)   | (0.1)   | (0.1)   | (0.1)   | (0.1)   | (0.1)   |
| Good quiz                    |         |         | .0467   | .0688   |         |         |
|                              |         |         | (0.0)   | (0.0)   |         |         |
| Good quiz $\times$ FN rate   |         |         | .0571   | .0571   |         |         |
|                              |         |         | (0.1)   | (0.1)   |         |         |
| Good quiz $\times$ FP rate   |         |         | 289*    | 288*    |         |         |
|                              |         |         | (0.2)   | (0.2)   |         |         |
| Stat. class                  |         |         |         |         | 00248   | 0127    |
|                              |         |         |         |         | (0.0)   | (0.0)   |
| Stat. class $\times$ FN rate |         |         |         |         | .138    | .137    |
|                              |         |         |         |         | (0.1)   | (0.1)   |
| Stat. class $\times$ FP rate |         |         |         |         | 232     | 229     |
|                              |         |         |         |         | (0.2)   | (0.2)   |
| Constant                     | 0762*** | 0654*** | 101***  | 102***  | 0751*** | 0563    |
|                              | (0.0)   | (0.0)   | (0.0)   | (0.0)   | (0.0)   | (0.0)   |
| Prior prob dummies           | No      | Yes     | No      | Yes     | No      | Yes     |
| Observations                 | 624     | 624     | 624     | 624     | 624     | 624     |
| Adjusted $R^2$               | 0.17    | 0.17    | 0.17    | 0.17    | 0.17    | 0.17    |

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 28: WTP minus Value of Information: demographic determinants

| Table 28: WIP I                          | Table 28: WTP minus value of information: demographic determinants |         |                   |            |        |            |             |             |              |
|--|--|---------|-------------------|------------|--------|------------|-------------|-------------|--------------|
|  | (1)  | (2)     | (3)               | (4)        | (5)    | (6)        | (7)         | (8)         | (9)          |
|  | es es a distrib  |         | to a distribution | a manadada | malada | es adadada | a mandadada | a a distrib | ar a saladah |
| FP costs                                 | .558***  | .602*** | .548***           | .475**     | .416** | .54***     | .485***     | .66***      | .591***      |
|  | (0.1)  | (0.2)   | (0.2)             | (0.2)      | (0.2)  | (0.1)      | (0.1)       | (0.2)       | (0.2)        |
| FN costs                                 | 229*   | 317*    | 0684              | 242        | 0701   | 295*       | 0336        | 037         | .223         |
|  | (0.1)  | (0.2)   | (0.2)             | (0.2)      | (0.2)  | (0.2)      | (0.1)       | (0.2)       | (0.2)        |
| Male                                     |  | 195     | 197               |            |        |            |             |             |              |
|  |  | (0.4)   | (0.4)             |            |        |            |             |             |              |
| $Male \times FP costs$                   |  | 138     | 155               |            |        |            |             |             |              |
|  |  | (0.2)   | (0.2)             |            |        |            |             |             |              |
| $Male \times FN costs$                   |  | .225    | .249              |            |        |            |             |             |              |
|  |  | (0.3)   | (0.2)             |            |        |            |             |             |              |
| Stat. class                              |  |         |                   | 161        | 179    |            |             |             |              |
|  |  |         |                   | (0.4)      | (0.4)  |            |             |             |              |
| Stat. class $\times$ FP costs            |  |         |                   | .138       | .125   |            |             |             |              |
|  |  |         |                   | (0.2)      | (0.2)  |            |             |             |              |
| Stat. class $\times$ FN costs            |  |         |                   | .0192      | .199   |            |             |             |              |
|  |  |         |                   | (0.3)      | (0.2)  |            |             |             |              |
| >23 yrs                                  |  |         |                   |            |        | 827**      | 785**       |             |              |
|  |  |         |                   |            |        | (0.4)      | (0.3)       |             |              |
| $>23 \text{ yrs} \times \text{FP costs}$ |  |         |                   |            |        | .193       | .159        |             |              |
| -  |  |         |                   |            |        | (0.3)      | (0.3)       |             |              |
| $>23 \text{ yrs} \times \text{FN costs}$ |  |         |                   |            |        | .465**     | .389        |             |              |
| v  |  |         |                   |            |        | (0.2)      | (0.3)       |             |              |
| Good quiz                                |  |         |                   |            |        | ( )        | ( )         | .347        | .413         |
| 1  |  |         |                   |            |        |            |             | (0.4)       | (0.4)        |
| Good quiz $\times$ FP costs              |  |         |                   |            |        |            |             | 194         | 178          |
| 1000                                     |  |         |                   |            |        |            |             | (0.2)       | (0.2)        |
| Good quiz $\times$ FN costs              |  |         |                   |            |        |            |             | 355         | 354          |
| Good quiz // 11/ costs                   |  |         |                   |            |        |            |             | (0.3)       | (0.2)        |
| Constant                                 | 0921   | 0115    | .356              | .00585     | .387   | .0142      | .363        | 279         | .0568        |
| Constant                                 | (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                             | 312  | 312     | 312               | 312        | 312    | 312        | 312         | 312         | 312          |
| Adjusted $R^2$                           | 0.05   | 0.04    | 0.12              | 0.04       | 0.12   | 0.06       | 0.13        | 0.04        | 0.12         |
| riajastea re                             | 0.00   | 0.01    | 0.12              | 0.04       | 0.12   | 0.00       | 0.10        | 0.01        | 0.12         |

Standard errors in parentheses \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01