**Supplementary Online Materials**

**Note: full materials and data for all experiments are available at** [**https://osf.io/wt4e5/**](https://osf.io/wt4e5/)**.**

1. **Theoretical Elaboration – The statistical relations between the irrelevant attribute (i.e., suppressor variable), the selection test score and the expected performance.**

Consider a simple classical suppressor situation involving 3 variables:

Y = Criterion, X = Predictor and S = Suppressor.

Without any loss of generality, assume all variables are standardized (means = 0 and SDs = 1). Assume rsy = 0.

Applying the usual formulas with this notation we get:

βx = rxy / D

βs = -rxy \*rxs / D

R2 = (rxy)2/D

Where D = (1 - rxs2).

A “naïve” expectation (ignoring suppression effect) would be that:

βx = rxy / D, and

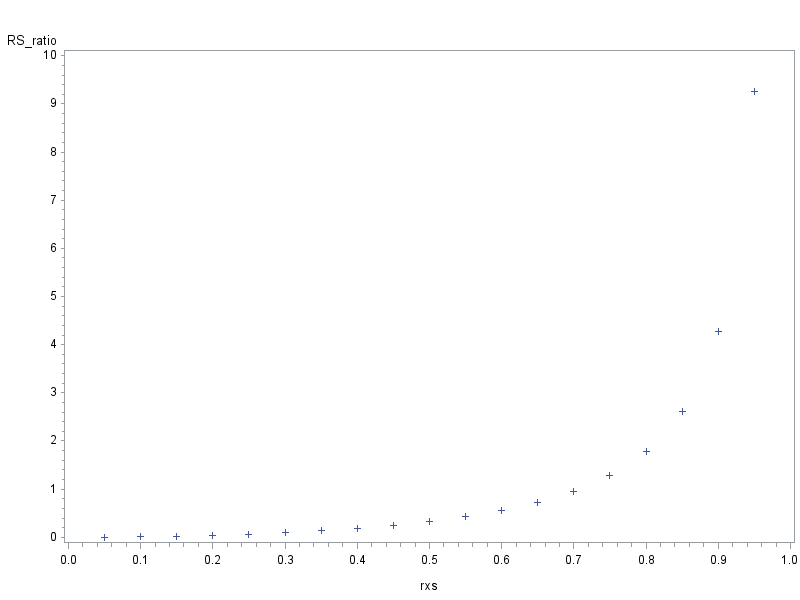
R2 = (rxy)2

To illustrate the effect of suppression we plot below:

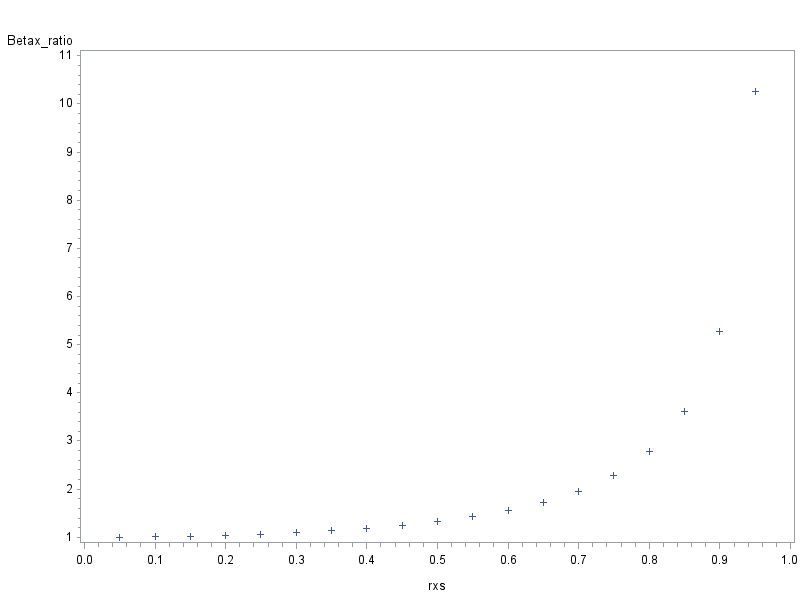
(1) RS ratio ((R2 - (rxy)2) / (rxy)2) – the relation between R2 and (rxy)2 as function of rxs.

(2) βx ratio (βx / rxy) – the relation between βx andrxy as function of rxs.

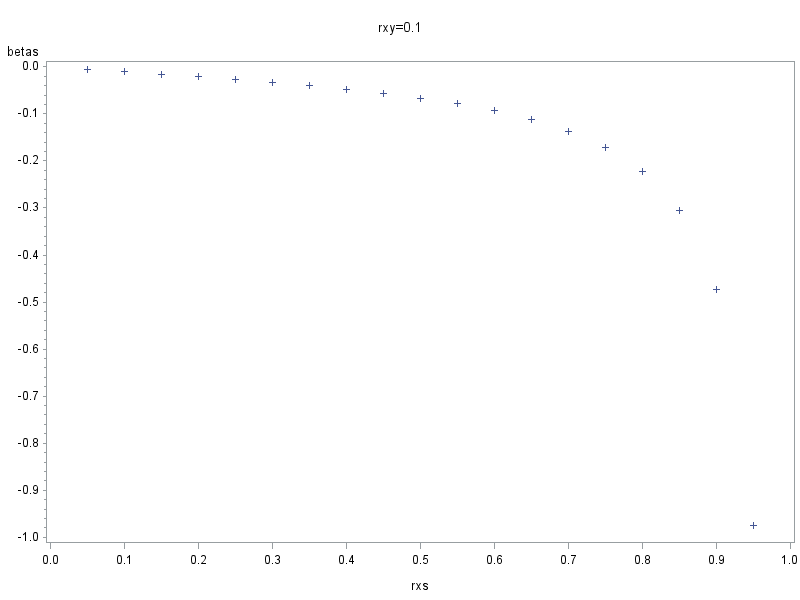
Under the naïve assumptions these should always be 1. However, taking the suppressor effect into account demonstrate its importance to the model – an increase in R2 and in βx.



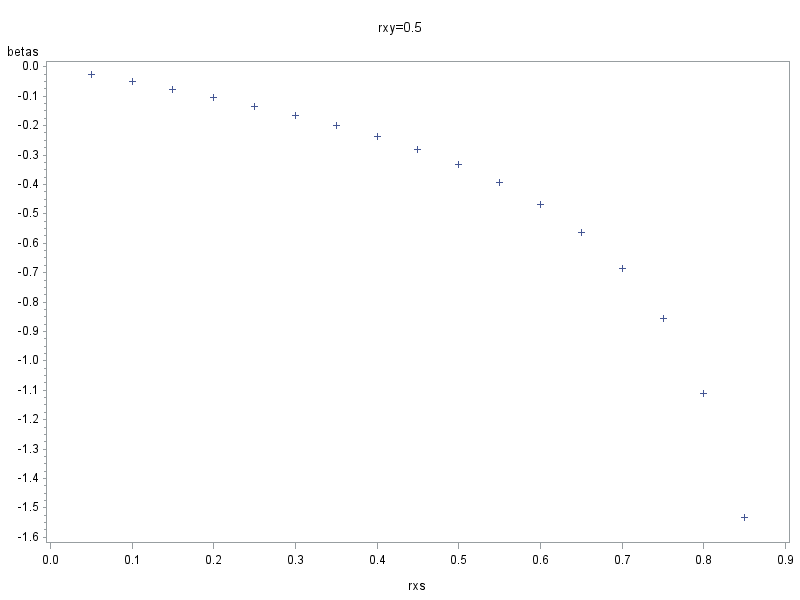
**Figure S1**: The relation between R2 and rxy2 as function of rxs.



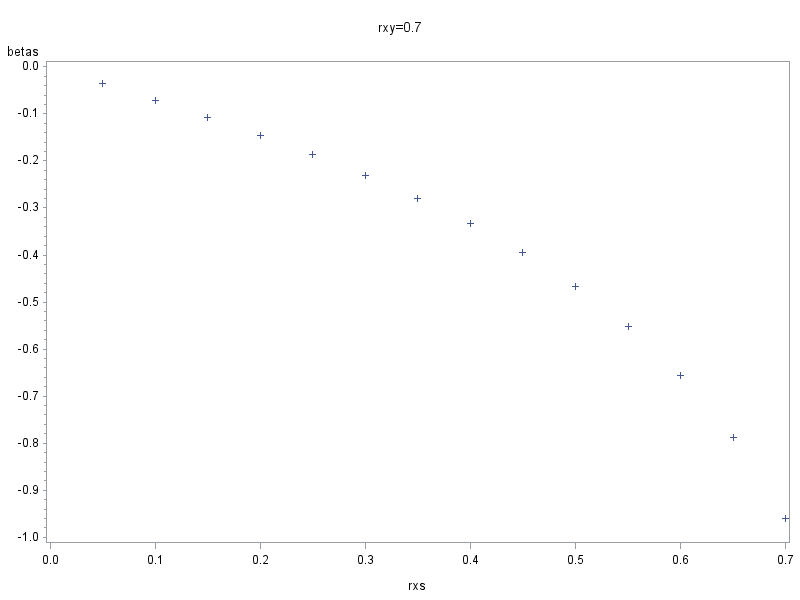
**Figure S2**: the relation between βx andrxy as function of rxs.

We also include plots of βs for a few values of rxy

**Figure S3**: βs as function of rxs,for rxy = .10..



**Figure S4**: βs as function of rxs,for rxy = .50..



**Figure S5**: βs as function of rxs,for rxy = .70..

1. **Supplemental Method Materials**

Full materials for all Experiments are available at <https://osf.io/wt4e5/>**.**

* 1. **Variables used in Experiment 1's scenarios**

|  |  |  |  |
| --- | --- | --- | --- |
| Scenario | Selection test | Irrelevant attribute | Criterion |
| Managerial position | Computer simulation | Previous experience w/computers | Managerial capabilities |
| Truck driver | Written test | Native language | Driving and road safety knowledge |
| Online desk operator | Frontal interview | Height of candidate | Support and communication skills |

**Table S1**: Variables used in each Scenario in Experiment 1.

* 1. **Example for a scenario used in Experiment 2, weak suppression**

*You are looking for candidates for a managerial position in your company. As part of the screening process you use a computer simulation to measure their managerial capabilities. The simulation slightly favors those candidates who have previous experience working with computers. You have to choose between two candidates with identical scores in the simulation: John, who has a lot of experience working with computers, and Mark who has almost no experience working with computers. Assuming the ability to work with computers plays no role in being a successful manager, who would you prefer?*

**Note**: In the 'strong suppression' condition the word *slightly* was replaced by the word *strongly*. In the 'no suppression' condition it was mention that: *Importantly, the simulation does not favor those who have experience with computers*.

* 1. **Example for a Scenario used in Experiment 3, weak suppression**

*You are looking for candidates for a managerial position in your company. As part of the screening process you use a computer simulation to measure their managerial capabilities. You have to choose between two candidates who achieved identical scores: John and Mark. During Mark's simulation there was a background noise from the next room, which slightly affects performance in this kind of simulation. Based on the description you have read, who would you prefer?*

**Note**: In the 'strong suppression' condition the word *slightly* was replaced by the word *strongly*. In the 'no suppression' condition it was mention that: *noise doesn't affect performance in this kind of simulation test*.

* 1. **Variables used in Experiment 3's other scenarios**

|  |  |  |  |
| --- | --- | --- | --- |
| Scenario | Selection test | Irrelevant attribute | Criterion |
| Managerial position | Computer simulation | Background noise | Managerial capabilities |
| Truck driver | Written test | Time limitation | Driving and road safety knowledge |
| Online desk operator | Frontal interview | Candidate LOS had fever | support and communication skills |

**Table S2**: Variables used in each Scenario in Experiment 3.

1. **Supplemental Results Materials**

Full data for all Experiments are available at <https://osf.io/wt4e5/>.

* 1. **Experiment 1 – candidate selection – detailed analysis**
     1. A generalized linear mixed model (GLLM) multinomial logistic regression was performed to compare the percentage of participants choosing C\_HOS and C\_LOS in each condition separately: *b* = -1.22, *SE* = .29 *p* < .001, 95% CI [-1.8, -.64]; *b* = -2.5, *SE* = .39 *p* < .001, 95% CI [-3.29, -1.7]; *b* = .97, *SE* = .24, *p* < .001, 95% CI [.49, 1.44]; *b* = -2.6, *SE* = .39, *p* < .001, 95% CI [-3.38, -1.8], for conditions A-D, respectively).
     2. **The normative model in Condition D:**

In Condition D we have:

*Y* = criterion, *X* = predictor and *S* = Suppressor.

Assume standardization Means = 0 and SD = 1, then:

S.

Consider two cases: A, with scores *X*,*S1* and B, with scores *X*,*S2*, and assume that *S1* > *S2* (as described under this Condition). The difference between the two predicted scores in independent of X (both scored the same on X):

Where:

So, the difference between the two predictions is positive (negative) if

is positive (negative). In other words, HOS would be predicted a higher score as long as *S* has a unique contribution to *Y*, over *X*.

* 1. **Additional Results of Experiment 2**
     1. **Candidate selection – detailed analysis**

A GLMM multinomial logistic regression was performed to compare the percentage of participants choosing C\_LOS over C\_HOS and C\_LOS over 'no preference' in each condition separately. Results are presented in Table S3.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | C\_LOS over C\_HOS | | | | C\_LOS over 'no preference' | | | |
|  | b | SE | p | 95% CI | b | SE | p | 95% CI |
| No suppression | -1.39 | .34 | < .001 | [-2.05, -.71] | -1.84 | .33 | < .001 | [-2.25, -1.19] |
| Weak suppression | -.74 | .25 | .004 | [-1.24, -.23] | -.84 | .25 | .001 | [-1.33, -.34] |
| Strong suppression | -.85 | .27 | .002 | [-1.38, -.33] | -1.05 | .26 | < .001 | [-1.56, .53] |

**Table S3**: Results of multinomial logistic regressions predicting choosing C\_LOS over C\_HOS and C\_LOS over 'no preference' in Experiment 2.

Furthermore, there was no difference in the preference for C\_HOS over C\_LOS as a function of condition, (ꭓ2(4, *N* = 124) = 6.8, *p* = .15), which suggests there was no 'Suppression Strength' X 'Candidate' interaction.

* + 1. **Individual differences analyses**
       1. **Descriptive statistics, Reliabilities and Correlations for REI and**

**Numeracy Scales**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Scale | No. of items | Mean | SD | Range | Cronbach's α | 2 | 3 |
| 1. FI | 5 | 3.27 | 1.03 | 1-5 | .93 | .05 | -.16 |
| 2. NFC | 5 | 2.54 | 1.09 | 1-5 | .88 |  | -.14 |
| 3. Numeracy | 8 | 3.64 | 1.42 | 0-8 | .61 |  |  |

**Table S4**: Means, Standard Deviations, Reliabilities and Correlations for REI and numeracy scales. REI scores (FI and NFC) were calculated as the mean of each participant answers; numeracy score was calculated as the sum of correct answers. All correlations presented are non-significant.

* + - 1. **Effect of FI, NFC and Numeracy**

Table S5 shows the results of a GLMM multinomial logistic regression predicting participants chances of choosing C\_LOS over C\_HOS, for the 'no suppression' and 'weak' and 'strong suppression':

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **No suppression** | | | | **Weak and Strong suppression** | | | |
|  | b | SE | p | 95% CI | b | SE | p | 95% CI |
| FI | .18 | .36 | .62 | [-.53, .88] | -.39 | .22 | .075 | [-.82, .04] |
| NFC | -.01 | .32 | .98 | [-.65, .66] | .16 | .20 | .44 | [-.24, .55] |
| Numeracy | -.11 | .23 | .62 | [-.57, .34] | .10 | .16 | .52 | [-.21, .42] |

**Table S5**: Results of multinomial logistic regressions predicting choosing C\_LOS over C\_HOS according to FI, NFC and numeracy scores. Reference category: C\_HOS.

* 1. **Additional results of Experiment 3**
     1. **Candidate selection – detailed analysis**

A GLMM multinomial logistic regression was performed to compare the percent of participants choosing C\_LOS over C\_HOS and C\_LOS over 'no preference', for each condition separately. Results are presented in Table S6:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | C\_LOS over C\_HOS | | | | C\_LOS over 'no preference' | | | |
|  | b | SE | p | 95% CI | b | SE | p | 95% CI |
| No suppression | .88 | .31 | .002 | [.27, 1.49] | -.53 | .21 | .014 | [-.94, -.11] |
| Weak suppression | .71 | .25 | .005 | [.22, 1.21] | .23 | .22 | .29 | [-.20, .65] |
| Strong suppression | .40 | .23 | .08 | [-.05, .84] | .49 | .23 | .04 | [.03, .95] |

**Table S6**: Results of multinomial logistic regressions predicting choosing C\_LOS over C\_HOS and C\_LOS over 'no preference' in Experiment 3.

* + 1. **Individual differences**
       1. **Descriptive statistics, Reliabilities and Correlations for REI and**

**Numeracy Scales**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Scale | No. of items | Mean | SD | Range | Cronbach's α | 2 | 3 |
| 1. FI | 5 | 3.52 | .72 | 1-5 | .79 | -.06 | -.08 |
| 2. NFC | 5 | 3.48 | .73 | 1-5 | .67 |  | .22\*\* |
| 3. Numeracy | 8 | 4.83 | 2.24 | 0-8 | .73 |  |  |

**Table S7**: Means, Standard Deviations, Reliabilities and Correlations for REI and numeracy scales. REI scores (FI and NFC) were calculated as the mean of each participant answers; numeracy score was calculated as the sum of correct answers. \*\*p < .01.

* + - 1. **Effects of REI and Numeracy scales on participants'**

**choices**

Table S8 shows the results of a GLMM multinomial logistic regression predicting participants chances of choosing C\_LOS over C\_HOS, for the 'no suppression' and 'weak' and 'strong suppression':

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **No suppression** | | | | **Weak and Strong suppression** | | | |
|  | b | SE | p | 95% CI | b | SE | p | 95% CI |
| FI | -.55 | .46 | .24 | [-1.47, .38] | -.38 | .29 | .18 | [-.95, .18] |
| NFC | .66 | .46 | .15 | [-.25, 1.57] | .88 | .30 | .003 | [.30, 1.47] |
| Numeracy | .14 | .15 | .34 | [-.15, .44] | .20 | .09 | .04 | [.01, .38] |

**Table S8**: Results of multinomial logistic regressions predictions choosing C\_LOS over C\_HOS according to FI, NFC and numeracy scores. Reference category: C\_HOS.