

# The Role of Cognitive Ability, Personality Traits and Gender in Gift Exchange Outcomes\*

by

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## Appendix

### Using The Theil-Griliches Specification Error Result for Interpreting the Effect of Omitting SAT on the Estimated Wage Offer Index Function

Here we consider a useful specification error result that may not be familiar to some readers. Specifically, to gain some intuition on the effect of omitting the SAT score from the offered wage index function, we treat (1) as if it were the basis for a linear regression, since this allows us to use the Theil-Griliches (TG) OLS specification error result for the effect of omitting an explanatory variable in a linear regression. Because we actually use a two limit, random effects Tobit model to estimate (1), the expressions below should be treated as suggestive. Suppose the true wage offer equations is

$$w_{ip} = \beta_0 + \beta_1 X_{1ip} + \beta_2 SAT_i + e_{ip}. \quad (A1)$$

However, we omit  $SAT_i$  from (A1) and estimate instead:

$$w_{ip} = \mu_0 + \mu_1 X_{1ip} + u_{ip}. \quad (A2)$$

We define the projection (linear regression):

$$SAT_i = \pi_0 + \pi_1 X_{1ip} + v_{ip}. \quad (A3)$$

For independent variable  $x_{kip}$  in  $X_{1ip}$ , the TG result implies that its estimated coefficient in (A2) is inconsistent since

$$\hat{\mu}_{1k} = \hat{\beta}_k + \hat{\beta}_2 \hat{\pi}_{1k}. \quad (A4)$$

In our work  $\hat{\beta}_2 > 0$  (see column (1) of Table 2), then omitting  $SAT_i$  and running (A2) will lead to, e.g., agreeableness having a coefficient that is too small because its coefficient in a multiple regression of  $SAT_i$  on  $X_{ip}$  is negative. Further, the estimate of the intercept will also be inconsistent because

$$\hat{\mu}_0 = \hat{\beta}_0 + \hat{\beta}_2 \hat{\pi}_0. \quad (A5)$$