ミクロデータサイエンス
Problemset3

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1 Step 2 回帰分析

A write_regression_models の修正

```
write_regression_models <- function() {
  regression_models <- list(
    # correct model
    "(1)" = log10(income_child) ~ effort + log10(income_parent),

    # ommited variables models
    # model 2
    "(2)" = log10(income_child) ~ log10(income_parent),
    # model 3
    "(3)" = log10(income_child) ~ effort,

    # measurementerror models
    # model 4
    "(4)" = log10(income_child_noisy) ~ effort + log10(income_parent),
    # model 5
    "(5)" = log10(income_child) ~ effort_noisy + log10(income_parent),
    # model 6
    "(6)" = log10(income_child) ~ effort + log10(income_parent_noisy)
  )

  return(regression_models)
}
```

B　回帰分析表のアウトプット

Regression Table

	(1)	(2)	(3)	(4)	(5)	(6)
Own effort	1.09		1.27	1.05		1.12
	(0.17)		(0.16)	(0.17)		(0.16)
Log Parents Income	0.39	0.63		0.39	0.52	
	(0.15)	(0.14)		(0.15)	(0.15)	
Own effort with error					0.47	
					(0.12)	
Log Parents Income with error						0.35
						(0.13)
Constant	-0.68	0.27	0.92	-0.59	-0.08	-0.49
	(0.78)	(0.77)	(0.40)	(0.78)	(0.77)	(0.70)
Num.Obs.	1000	1000	1000	1000	1000	1000
Std.Errors	by: household_id	by: household_id	by: household_id	by: household_id	by: household_id	by: household_id

Heteroskedasticity robust standard errors clustered at household level

C　モデル 1 の推定値の 95%信頼区間

$$1.09 - 1.96 \times SE_{HAC}(\hat{\beta}_1) \leq \hat{\beta}_1 \leq 1.09 + 1.96 \times SE_{HAC}(\hat{\beta}_1) \tag{1}$$

$$1.09 - 1.96 \times 0.17 \leq \hat{\beta}_1 \leq 1.09 + 1.96 \times 0.17 \tag{2}$$

$$0.7568 \leq \hat{\beta}_1 \leq 1.4232 \tag{3}$$

$$0.39 - 1.96 \times SE_{HAC}(\hat{\beta}_2) \leq \hat{\beta}_2 \leq 0.39 + 1.96 \times SE_{HAC}(\hat{\beta}_2) \tag{4}$$

$$0.39 - 1.96 \times 0.15 \leq \hat{\beta}_2 \leq 1.09 + 1.96 \times 0.15 \tag{5}$$

$$0.096 \leq \hat{\beta}_2 \leq 0.684 \tag{6}$$