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Semana 3: Problem Set 2

Universidad de San Andrés
Economía Aplicada

2024

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```

gl main ""
gl input "$main/input"
gl output "$main/output"
use "$input/measurements.dta", clear
global covs_eva "male i.eva_fu"
global covs_ent "male i.ent_fu"
label var treat "Point Estimate"
label var b_tot_cog1_st "Bayley: Cognitive"
label var b_tot_lr1_st "Bayley: Receptive language"
label var b_tot_le1_st "Bayley: Expressive language"
label var b_tot_mf1_st "Bayley: Fine motor"
label var mac_words1_st "MacArthur: Words the child can say"
label var mac_phrases1_st "MacArthur: Complex phrases the child can say"
label var bates_difficult1_st "ICQ: Difficult (-)"
label var bates_unsociable1_st "ICQ: Unsociable (-)"
label var bates_unstoppable1_st "ICQ: Unstoppable (-)"
label var roth_inhibit1_st "ECBQ: Inhibitory control"
label var roth_attention1_st "ECBQ: Attentional focusing"
label var fci_play_mat_type1_st "FCI: Number of types of play materials"
label var Npaintbooks1_st "FCI: Number of coloring and drawing books"
label var Nthingsmove1_st "FCI: Number of toys to learn movement"
label var Ntoysshape1_st "FCI: Number of toys to learn shapes"
label var Ntoysbought1_st "FCI: Number of shop-bought toys"
label var fci_play_act1_st "FCI: Number of types of play activities in last 3 days"
label var home_stories1_st "FCI: Number of times told a story to child in last 3 days"
label var home_read1_st "FCI: Number of times read to child in last 3 days"
label var home_toys1_st "FCI: Number of times played with toys in last 3 days"
label var home_name1_st "FCI: Number of times named things to child in last 3 days"
*=====
scalar hipotesis=21
scalar signif = 0.05
scalar i = 1
mat p_values = J(21,1,.)
*=====
*****
* PANEL A (Child's cognitive skills at follow up)
*****
eststo clear
local bayley "b_tot_cog b_tot_lr b_tot_le b_tot_mf"
foreach y of local bayley{
    local append append
    if "`y'"=="b_tot_cog" local append replace
    cap drop V*
    reg `y'1_st treat `y'0_st $covs_eva , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    mat p_values[i,1]=r(p)
    scalar i = i + 1
}

```

```
local macarthur "mac_words mac_phrases"
foreach y of local macarthur{
    cap drop V*
    reg `y'1_st treat mac_words0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    mat p_values[i,1]=r(p)
    scalar i = i + 1
}
```

```
esttab using "$output/PanelA.rtf", replace label noobs ///
keep(treat, relax) ///
cells(b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel A. Child's cognitive skills at follow-up") ///
collabels("") nonumbers ///
eqlabels("Point Estimate" "SE") ///
stats(N p_value, ///
labels("Sample size" "p-value") )
```

* PANEL B (Child's socio-emotional skills at follow up)

```
eststo clear
```

```
local bates "bates_difficult bates_unsociable bates_unstoppable"
```

```
foreach y of local bates{
    cap drop V*
    reg `y'1_st treat `y'0_st $covs_ent, cl(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    mat p_values[i,1]=r(p)
    scalar i = i + 1
}
```

```
local roth "roth_inhibit roth_attention"
```

```
foreach y of local roth{
    cap drop V*
    reg `y'1_st treat bates_difficult0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    mat p_values[i,1]=r(p)
    scalar i = i + 1
}
```

```
esttab using "$output/PanelB.rtf", replace label noobs ///
keep(treat, relax) ///
cells(b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel B. Child's socio-emotional skills at follow-up") ///
collabels("") nonumbers ///
eqlabels("Point Estimate" "SE") ///
stats(N p_value, ///
labels("Sample size" "p-value") )
```

```
*****
* PANEL C (Material investments)
*****
eststo clear
local fciimat "fci_play_mat_type Npaintbooks Nthingsmove Ntoysshape Ntoysbought"
foreach y of local fciimat{
    cap drop V*
    reg `y'1_st treat fci_play_mat_type0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    mat p_values[i,1]=r(p)
scalar i = i + 1
}

esttab using "$output/PanelC.rtf", replace label noobs ///
keep(treat, relax) ///
cells(b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel C. Material investments at follow-up") ///
collabels("") nonumbers ///
eqlabels("Point Estimate" "SE") ///
stats(N p_value, ///
labels("Sample size" "p-value") )
```

```
*****
* PANEL D (Time investments)
*****
eststo clear
local fcitime "fci_play_act home_stories home_read home_toys home_name"
foreach y of local fcitime{
    cap drop V*
    reg `y'1_st treat fci_play_act0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    mat p_values[i,1]=r(p)
scalar i = i + 1
}
```

```
esttab using "$output/PanelD.rtf", replace label noobs ///
keep(treat, relax) nonumbers ///
cells( b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel D. Time investments at follow-up") ///
collabels("") ///
eqlabels("Point Estimate" "SE") ///
stats(N p_value, ///
labels("Sample size" "p-value") )
```

```
*****
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*****
```

```
*=====
*HOLM
*=====
```

```
clear
svmat p_values
gen _ = _n
sort p_values1
save "$output/pvals.dta", replace
gen alpha_corr = signif/(hipotesis+1-_n)
gen significant = (p_values1<alpha_corr)
replace significant = 0 if significant[_n-1]==0
sort _
mkmat alpha_corr, matrix(holm)

*=====
*BKY
*=====
use "$output/pvals.dta", clear
rename p_values1 pval
version 10
set more off
sum pval
local totalpvals = r(N)
gen original_sorting_order = _n
sort pval
gen rank = _n if pval~=.
local qval = 1
gen bky06_qval = 1 if pval~=.
while `qval' > 0 {
    local qval_adj = `qval'/(1+`qval')
    gen fdr_temp1 = `qval_adj'*rank/`totalpvals'
    gen reject_temp1 = (fdr_temp1>=pval) if pval~=.
    gen reject_rank1 = reject_temp1*rank
    egen total_rejected1 = max(reject_rank1)
    local qval_2st = `qval_adj'*(`totalpvals'/(`totalpvals'-total_rejected1[1]))
    gen fdr_temp2 = `qval_2st'*rank/`totalpvals'
    gen reject_temp2 = (fdr_temp2>=pval) if pval~=.
    gen reject_rank2 = reject_temp2*rank
    egen total_rejected2 = max(reject_rank2)
    replace bky06_qval = `qval' if rank <= total_rejected2 & rank~=.
    drop fdr_temp* reject_temp* reject_rank* total_rejected*
    local qval = `qval' - .001
}
sort _
pause off
keep pval bky06_qval
mkmat bky06_qval, matrix(bky)
save "$output/sharpenedqvals.dta", replace

*=====
clear
use "$input/measures.dta", clear
global covs_eva "male i.eva_fu"
global covs_ent "male i.ent_fu"
label var treat "Point Estimate"
label var b_tot_cog1_st "Bayley: Cognitive"
label var b_tot_lr1_st "Bayley: Receptive language"
label var b_tot_le1_st "Bayley: Expressive language"
label var b_tot_mf1_st "Bayley: Fine motor"
label var mac_words1_st "MacArthur: Words the child can say"
label var mac_phrases1_st "MacArthur: Complex phrases the child can say"
```

```

label var bates_difficult1_st "ICQ: Difficult (-)"
label var bates_unsociable1_st "ICQ: Unsociable (-)"
label var bates_unstoppable1_st "ICQ: Unstoppable (-)"
label var roth_inhibit1_st "ECBQ: Inhibitory control"
label var roth_attention1_st "ECBQ:: Attentional focusing"
label var fci_play_mat_type1_st "FCI: Number of types of play materials"
label var Npaintbooks1_st "FCI: Number of coloring and drawing books"
label var Nthingsmove1_st "FCI: Number of toys to learn movement"
label var Ntoysshape1_st "FCI: Number of toys to learn shapes"
label var Ntoysbought1_st "FCI: Number of shop-bought toys"
label var fci_play_act1_st "FCI: Number of types of play activities in last 3 days"
label var home_stories1_st "FCI: Number of times told a story to child in last 3 days"
label var home_read1_st "FCI: Number of times read to child in last 3 days"
label var home_toys1_st "FCI: Number of times played with toys in last 3 days"
label var home_name1_st "FCI: Number of times named things to child in last 3 days"

```

```

*****
scalar i = 1
*****
* PANEL A (Child's cognitive skills at follow up)
*****
eststo clear

```

```

local bayley "b_tot_cog b_tot_lr b_tot_le b_tot_mf"

```

```

foreach y of `local' bayley{
    local append append
    if "`y'"=="b_tot_cog" local append replace
    cap drop V*
    reg `y'1_st treat `y'0_st $covs_eva , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    estadd scalar holm_ = holm[i,1]
    estadd scalar bky_ = bky[i,1]
    scalar i = i + 1
}

```

```

local macarthur "mac_words mac_phrases"
foreach y of `local' macarthur{
    cap drop V*
    reg `y'1_st treat mac_words0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    estadd scalar holm_ = holm[i,1]
    estadd scalar bky_ = bky[i,1]
    scalar i = i + 1
}

```

```

esttab using "$output/PanelA_bonferroni_holm_bky.rtf", replace label noobs ///
keep(treat, relax) ///
cells(b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel A. Child's cognitive skills at follow-up") ///
collabels("") nonumbers ///
eqlabels("Point Estimate" "SE") ///

```

```

stats(N p_value corr_p_value holm_ bky_, ///
labels("Sample size" "p-value" "Bonferroni" "Holm" "BKY") )

*****
* PANEL B (Child's socio-emotional skills at follow up)
*****
eststo clear
local bates "bates_difficult bates_unsociable bates_unstoppable"
foreach y of local bates{
    cap drop V*
    reg `y'1_st treat `y'0_st $covs_ent, cl(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    estadd scalar holm_ = holm[i,1]
    estadd scalar bky_ = bky[i,1]
    scalar i = i + 1
}

local roth "roth_inhibit roth_attention"
foreach y of local roth{
    cap drop V*
    reg `y'1_st treat bates_difficult0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    estadd scalar holm_ = holm[i,1]
    estadd scalar bky_ = bky[i,1]
    scalar i = i + 1
}

esttab using "$output/PanelB_bonferroni_holm_bky.rtf", replace label noobs ///
keep(treat, relax) ///
cells(b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel B. Child's socio-emotional skills at follow-up") ///
collabels("") nonumbers ///
eqlabels("Point Estimate" "SE") ///
stats(N p_value corr_p_value holm_ bky_, ///
labels("Sample size" "p-value" "Bonferroni" "Holm" "BKY") )

*****
* PANEL C (Material investments)
*****
eststo clear
local fcimat "fci_play_mat_type Npaintbooks Nthingsmove Ntoysshape Ntoysbought"
foreach y of local fcimat{
    cap drop V*
    reg `y'1_st treat fci_play_mat_type0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    estadd scalar holm_ = holm[i,1]
    estadd scalar bky_ = bky[i,1]
    scalar i = i + 1
}

esttab using "$output/PanelC_bonferroni_holm_bky.rtf", replace label noobs ///

```

```
keep(treat, relax) ///
cells(b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel C. Material investments at follow-up") ///
collabels("") nonumbers ///
eqlabels("Point Estimate" "SE") ///
stats(N p_value corr_p_value holm_ bky_, ///
labels("Sample size" "p-value" "Bonferroni" "Holm" "BKY") )

*****
* PANEL D (Time investments)
*****
eststo clear
local fctime "fci_play_act home_stories home_read home_toys home_name"
foreach y of local fctime{
    cap drop V*
    reg `y'1_st treat fci_play_act0_st $covs_ent , cluster(cod_dane)
    eststo: test treat = 0
    estadd scalar p_value = r(p)
    estadd scalar corr_p_value = min(1,r(p)*hipotesis)
    estadd scalar holm_ = holm[i,1]
    estadd scalar bky_ = bky[i,1]
    scalar i = i + 1
}

esttab using "$output/PanelD_bonferroni_holm_bky.rtf", replace label noobs ///
keep(treat, relax) nonumbers ///
cells( b(fmt(3)) t(drop(treat)) se(par label(SE) fmt(3)) ) ///
title("Panel D. Time investments at follow-up") ///
collabels("") ///
eqlabels("Point Estimate" "SE") ///
stats(N p_value corr_p_value holm_ bky_, ///
labels("Sample size" "p-value" "Bonferroni" "Holm" "BKY") )
```