

log using "D:\Jason\workshop\Categorical data analysis\2019\categorical.log", replace

```
*****  
* Chi-Square tests  
*****
```

```
webuse lbw, clear  
des  
sum
```

```
*****  
* Creating a 2- to 4-way table  
*****
```

```
* a 2-way table
```

```
table low ui, contents(freq)  
tab low ui
```

```
* a 3-way table.
```

```
table low ui ht, contents(freq)
```

```
* alternative commands for a 3-way table
```

```
sort ht  
by ht: tab low ui
```

```
* a 4-way table.
```

```
table low ui ht, by(race) contents(freq)
```

```
* alternative commands for a 4-way table
```

```
sort race ht  
by race ht: tab low ui
```

```
*****  
* Test the Chi-Square association for a two-way table  
*****
```

```
tab2 low ui, mis chi lrchi2 exac
```

```
*****  
* Test the Chi-Square association for a three-way table  
*****
```

```
* testing the main effect of three variables only  
ipf, fit(low+ui+ht)
```

```
*testing the main effects of three variables  
* and one interaction term between low and ui  
ipf, fit (low+ui+ht+ low*ui)
```

```
*****  
* Logistic Regression  
*****
```

```
webuse lbw, clear  
des  
list in 1/20
```

```
* look at the regression coefficients  
logit low age lwt i.race smoke ptl ht ui
```

```
* Look at the odds ratio  
logit low age lwt i.race smoke ptl ht ui,or
```

```
* look at the predicted probability
```

```
margins i.race, atmeans
```

```
*****  
* Ordered Logistic Regression  
*****
```

```
use "http://fmwww.bc.edu/repec/bocode/g/gss.dta", clear  
recode degree 4=3  
label define degree 0 "lt high school" 1 "high school" ///
```

```

2 "junior college" 3 "college", modify
label value degree degree
save d:\temp\order.dta, replace

use d:\temp\order.dta, clear
des
list in 1/20

* look at the regression coefficients
ologit degree south c.coh##c.coh i.black paeduc

* Look at the odds ratio
ologit degree south c.coh##c.coh i.black paeduc, or

* look at the predicted probability
margins i.black, atmeans

*****
* Sequential logistic Regression
*****

use d:\temp\order.dta, clear
des
list in 1/20
seqlogit degree south c.coh##c.coh if black == 0 , ///
tree(0 : 1 2 3 , 1 : 2 3 , 2 : 3 ) ///
ofinterest(paeduc) over(c.coh##c.coh) ///
levels(0=9, 1=12, 2=14, 3=16)

seqlogitdecomp, overat(coh 1.5, ///
                      coh 2.5, ///
                      coh 3.5, ///
                      coh 4.5, ///
                      coh 5.5, ///
                      coh 6.5) ///
at(south 0 paeduc 12) ///
yline(0) xline(0) ///
subtitle("1915" "1925" "1935" ///
        "1945" "1955" "1965") ///
eqlabel(`""less than high school" "versus" "high school or more""' ///
        `""high school" "versus" "any college""' ///
        `""junior college" "versus" "college""' )

*****
* Multi-nomial Logistic Regression
*****

use http://www.stata-press.com/data/r13/choice, clear
keep if choice == 1
des
list in 1/30

* obtain regression coefficients
mlogit car i.sex income

* obtain relative-risk ratios,
mlogit car i.sex income, rrr

* obtain predicted probability
margins sex, atmeans
margins, over(sex) dydx(income)

*****
* Conditional Logistic Regression
*****

use http://www.stata-press.com/data/r13/union, clear
des
sort idcode
list in 1/20, sepby(idcode)

clogit union age grade not_smsa south black, group(idcode)

*****

```

```
* Nested Logistic Regression
*****
```

```
webuse restaurant
```

```
des
```

```
tab1 restaurant, mis
```

```
sort family_id restaurant
```

```
list in 1/30, sepby(family_id)
```

```
nlogitgen type = restaurant(fast: Freebirds | MamasPizza, family: CafeEccell | LosNortenos | WingsNmore, fancy: Christo
```

```
nlogittree restaurant type, choice(chosen) case(family_id)
```

```
nlogit chosen cost distance rating || type: income kids, base(family) || restaurant:, noconst case(family_id)
```

```
*****
```

```
* Alternative-Specific Conditional Logit
```

```
*****
```

```
use http://www.stata-press.com/data/r13/choice, clear
```

```
sort id car
```

```
list in 1/30, sepby(id)
```

```
asclogit choice dealer, case(id) alternatives(car) casevars(sex income)
```

```
log close
```