

Section Week 3

The CPS data sample contains three variables incwage, region, and sex. Incwage is the average yearly income of an individual. Sex is equal to 1 for male and 2 for female. Region is equal to 1 for Northeast, 2 for Midwest, 3 for South, and 4 for West.

1. Compute the average wage in the sample.

```
'Question 1 compute the average wage in the sample
smpl @all
' Create variable called mean_wage to store the average of incwage
scalar mean_wage = @mean(incwage)
```

2. Derive a 95% and 90% confidence intervals for the wage in the entire US population.

```
'Question 2 derive a 95% and 90% CI for the wage
' in the entire US population
' Create four variables one for the lowerbound and one for the upperbound
scalar lowerbound_ci_95
scalar upperbound_ci_95
scalar lowerbound_ci_90
scalar upperbound_ci_90

' Calculate lower and upperbound and store to the variables we created
lowerbound_ci_95 = mean_wage - 1.96 * @sqrt(@var(incwage)/@obs(incwage))
upperbound_ci_95 = mean_wage + 1.96 * @sqrt(@var(incwage)/@obs(incwage))

lowerbound_ci_90 = mean_wage - 1.64 * @sqrt(@var(incwage)/@obs(incwage))
upperbound_ci_90 = mean_wage + 1.64 * @sqrt(@var(incwage)/@obs(incwage))
```

3. Compute the average wage for females and the average wage for males.

```
'Question 3 compute the average wage among females and males
' Subsample to only males (sex = 1)
smpl if sex = 1
scalar mean_wage_male = @mean(incwage)
' Subsample to only females (sex = 2)
smpl if sex = 2
scalar mean_wage_female = @mean(incwage)
```

4. Use a loop to compute the average wage and confidence interval for wage in each of the four regions.

```
'Question 4 Use a loop to compute average wage and CI by region
' Return to full sample
smpl @all
' Create a vector of length 4 to store the values created in the loop
vector(4) wage_region
vector(4) upperbound_ci
```

```

vector(4) lowerbound_ci
' Loop from index 1 to 4
for !j=1 to 4
  smpl if region = !j
  wage_region(!j) = @mean(incwage)
  lowerbound_ci(!j) = wage_region(!j) - 1.96 * _
    @sqrt(@var(incwage)/@obs(incwage))
  upperbound_ci(!j) = wage_region(!j) + 1.96 * _
    @sqrt(@var(incwage)/@obs(incwage))
next

```