

## Assignment weeks 1 and 2

To answer all the questions below, you must use Stata (and, specifically, DASP, if requested). Be concise and clear in your answers.

The assignment is divided into three exercises (the points assigned to each exercise are indicated next to each exercise). Please answer (A) directly in this file after each question (Q) and please attach the \*.do file (do-file) that you generated. Rename both files as: "Assignment weeks 1-2 - Name, Surname". Please submit this completed file and the \*.do through the virtual drop box (boîte de dépôt) in the course portal, no later than Tuesday, February 2 11:59 p.m. ([Québec time](#)).

### Exercise 1 (4%)

Assume that the population is composed 12 households that live in regions A, B and C.

<i>identifier</i>	<i>region</i>	<i>income</i>	<i>hhsz</i>
1	A	210	4
2	A	450	6
3	A	300	5
4	A	210	3
5	B	560	2
6	B	400	4
7	C	140	4
8	C	250	2
9	C	340	2
10	C	220	2
11	C	360	3
12	C	338	3

**Q 1.1:** Using Stata, generate per capita income (*pcinc*).

**A:**

**Q 1.2:** Using Stata, estimate the average per capita income and the total incomes of our population.

**A:**

**Q 1.3:** Assume that, the poverty line is equal to 100, generate the variable "per capita poverty gap (*pgap*)", and then estimate its average (the per capita poverty gap should be normalized by the poverty line).

**A:**

**Q 1.4:** Redo question Q 1.3 using DASP.

**A:**

**Q 1.5:** Assume that the purchasing power in region B is higher than that of region A by 10% and that of region C is higher than that of region A by 30%. In the case where the region A is the region of reference, generate the variable (deflator) as a price deflator index, and then generate the variable real per capita income (*rpcinc*).

**A:**

**Q 1.6:** Redo the question 1.3 and 1.4 using the real per capita income when the poverty line is 120.

**A:**

## Exercise 2 (3%)

- 1.1 Using the file `data_1`, estimate the average per adult equivalent expenditures without using the sampling weight and by using the DASP command ***imean***. What does this statistic refer to?

A:

- 1.2 Assume different cases for initialising the sampling design
- CASE1: Only by using the variable *strata* to initialise the stratification variable of the sampled population.
  - CASE2: Only by using the variable *psu* to initialise the primary sampling unit variable.
  - CASE3: By using the variable *strata* and *psu*.
  - CASE4: By using the variable *strata*, *psu* and the sampling weight variable.

For each of these four cases, estimate the average per adult equivalent expenditures and give some explanation on the level of the standard errors compared to that of the question 1.1 and to those of the other cases.

A:

- 1.3 Test whether the average per adult equivalent expenditures in region 1 is higher than the double of that of region 3. Briefly discuss the result.

A:

- 1.4 Using the DASP command ***dimean*** test whether the average per adult equivalent expenditures for male household heads is higher than that of female households headed. Briefly discuss the result.

A:

### Exercise 3 (5.5%)

**Q 3.1** Use the data\_1.dta data file, and then compute the population size of the sampled households.

**A:**

**Q 3.2** Rank the per capita expenditures in ascending order and then generate the variable population share (*ps*) that includes the proportion of the sampled population with corresponding per capita expenditures. Based on this, generate the variable percentiles (*p*) and quantiles (*q*).

**A:**

**Q 3.3** Draw the cumulative distribution curve (X-Axis: the corresponding per capita expenditures and Y-Axis: the percentiles) (range of percentiles: min=0 and max=0.95).

**A:**

**Q 3.4** Plot the quantile curve (X-axis: percentiles and Y-axis: quantiles) (range of percentiles: min=0 and max=0.95), and briefly discuss the results.

**A:**

**Q 3.5** Using DASP, draw the quantile curve for each of the rural and urban regions (range of percentiles: min=0 and max=0.95), and briefly discuss the results.

**A:**

**Q 3.6** Using DASP, draw the density curves of the per capita expenditures by the sex of the household head (range of per capita expenditures: min=0 and max=1000000) and briefly discuss the results

**A:**