**Assignment weeks 6, 7 and 8**

*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 6-7-8 - 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, March 23  11:59 p.m. (*[***Québec time***](https://www.timeanddate.com/worldclock/converter.html?iso=20190327T035900&p1=189)*).*

# Exercise 1 (3.5%):

1. Using the data file data\_b3\_1.dta, estimate the subjective poverty line by considering the following information:

* The observed equivalent-adult wellbeing is the variable: *ae\_exp*
* The perceived minimum equivalent-adult wellbeing to escape poverty is *min\_ae\_exp.*
* The individual is the unit of analysis (use the household size variable).

gen fweight = sweight\*hsize

ae\_exp = 22922.419922

**A : **

1.2 Estimate the poverty gap (using the variables: *ae\_exp* and *hsize*) for each of the three cases, and discuss your results:

1. the subjective poverty line;
2. the absolute poverty line (z=21000)
3. The relative poverty line: (z= half of average income).

**A :** (a) ae\_exp = 0.133145



(b) ae\_exp = 0.107530



(c) ae\_exp = 0.051763



1.3 In your opinion, which is the most appropriate method for measuring poverty in developed countries and why?

**A :** Relative poverty is recommended in developed countries, stemming from the realization

that the perception and experience of poverty have a social dimension. This relative measure brings the important dimension of inequality into the definition. In addition, it is able to capture living standards levels of the population. (absolute poverty disappears as countries become richer)

# Exercise 2 (4.5%):

Additive poverty indices, like the FGT index, allow performing an exact analytical decomposition of these indices by population subgroups. This is useful to show the contribution of each group to total poverty.

2.1 Use the file data\_b3\_1.dta and decompose poverty (headcount index) by the gender of the household head (***sex***) (the poverty line is 21000). What can we conclude?



**A :** 1- The proportion of population of male-headed households is 81.11%, while female-

headed households is 18.89 %.

2- The total headcount poverty is equal to 37.27%. Male group contributes by 28.78 and females 8.50 (28.78 + 8.50 = 37.27%).

The contribution (to total poverty) of poverty among households headed by women is greater than the contribution that comes from their representativeness in the total population (0.450176 vs 0.188847). As known, the absolute contribution to total poverty is given by the product of these two components: poverty in the group x population share of the group. However, the relative and absolute contributions of female-headed households are smaller than those of male-headed households

2.2 Estimate the total poverty (headcount) according to the region of the household head (***region***).

**A : **

2.3 The distribution of the adult equivalent expenditures is similar to that of the initial period (*ae\_exp*), with the following slight differences

* the adult equivalent expenditures have increased by 10% in region 3;
* the adult equivalent expenditures have decrease by 6% in region 2;

Generate the variable *ae\_exp2,* based on the information above.

**A :** gen ae\_exp2= ae\_exp\*0.94 if region==2

(2,209 missing values generated)

replace ae\_exp2= ae\_exp\*1.1 if region==3

(525 real changes made)

replace ae\_exp2= ae\_exp if ae\_exp2==.

(1,684 real changes made)

2.4 By using the Shapley approach, decompose the poverty gap change into growth and redistribution. Then discuss the results.



2.5 Perform a sectoral decomposition (based on region groups) of the change in total poverty gap. Discuss the results.

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# Exercise 3 (4.5%):

Assume that the population is composed of ten individuals. The following table shows the distribution of incomes of two successive periods.

|  |  |  |  |
| --- | --- | --- | --- |
| *Identifier* | *weight* | *inc\_t1* | *Inc\_t2* |
| 0 | 0 | 0.00 | 0.00 |
| 1 | 0.1 | 1.50 | 1.54 |
| 2 | 0.1 | 4.50 | 3.85 |
| 3 | 0.1 | 7.50 | 6.60 |
| 4 | 0.1 | 3.00 | 2.75 |
| 5 | 0.1 | 4.50 | 4.40 |
| 6 | 0.1 | 9.00 | 7.70 |
| 7 | 0.1 | 10.50 | 8.80 |
| 8 | 0.1 | 15.00 | 7.70 |
| 9 | 0.1 | 12.00 | 6.60 |
| 10 | 0.1 | 13.50 | 6.60 |

3.1 Insert the data and then generate the percentiles (*based on the rank of incomes of the initial period (variable perc)), and the first percentile must be equal to zero*).

**A : Refer to do file**

3.2 Initialize the scalar *g\_mean*, which is equal to the growth rate in the average income.

**A : Refer to do file**

3.3 Generate the variable *g\_inc*, as the growth in individual incomes.

**A : Refer to do file**

3.4 Draw the *Growth Incidence Curve* using the variables *g\_inc* and *perc*. Discuss the results.

**A : **

3.5 Assume that the poverty line is equal to 10.2. Estimate the Chen and Ravallion (2003) pro-poor index (). Discuss the results.



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3.6 Using the Shapley approach, decompose the change in the poverty gap into growth and redistribution components. Discuss the results.

