**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\_3.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).

**A :**

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

1. the subjective poverty line;
2. the absolute poverty line (z=20900)
3. The relative poverty line: (z= half of average income).

**A : a) the subjective povety line = 0.142381**

**b) the absolute povety gap = 0.120934**

**c) the relative poverty line = 0.077279**

**The poverty gap estimate that uses the relative poverty line has the least estimate whilst the poverty gap that uses the subjective line had the highest estimate.**

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

**A :**The use of the absolute poverty line which is justified by one main reason,, it allows us to obtain “consistent” poverty profiles, i.e., any two individuals with the same real living standards should be considered identical in terms of poverty assessment.

# 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\_3.dta and decompose poverty (headcount index) by the gender of the household head (***sex***) (the poverty line is 20900). What can we conclude?

**A**: 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 (0.454 VS 0.336). 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. (Compare between the population share of the female group and the relative contribution of that group to the total poverty) However, of course, note that the relative and absolute contribution of female-headed households is smaller than that of male-headed households.

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

**A : dfgtg ae\_exp, hgroup(region) hsize(hsize) alpha(0) pline(20900)**

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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 11% in region 3;
* the adult equivalent expenditures have decreased 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**

**replace ae\_exp2= ae\_exp\*1.11 if region==3**

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

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

**A :**

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

**A : the highest contribution to total poverty is coming from the northern region even though it has the least population share. However both the absolute contribution and the relative contribution were both highest from the northern region**



# 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 : sort inc\_t1**

**gen perc= sum(weight)**

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

**A : scalar mean1=r(mean)**

**qui sum inc\_t2 [aw=weight]**

**scalar mean2=r(mean)**

**scalar g\_mean = (mean2-mean1)/mean1**

**gen g\_mean = (mean2-mean1)/mean1**

**dis "Mean 1 =" mean1**

**dis "Mean 2 = " mean2**

**dis "Growth in averages = " g\_mean**

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

**A : gen g\_inc =(inc\_t2-inc\_t1)/inc\_t1**

**replace g\_inc = 0 in 1**

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

**A : there is relative pro-poorness**

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3.5 Assume that the poverty line is equal to 10.4. Estimate the Chen and Ravallion (2003) pro-poor index (). Discuss the results.

**A :**

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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.

**A :**

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