**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\_2.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 :** **The subjective poverty line is 25305.52 which is the income level of individuals that equalizes to the perceived minimal income required to meet basic needs**

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=20600)
3. The relative poverty line: (z= half of average income).

**A : the average poverty gaps in all of the above cases are 0.145936 percent , 0.091326 percent and 0.058674 percent of the subjective, absolute and relative poverty lines respectively.**

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

**A :the relative poverty line increases with the rise in average income. Compared to absolute poverty line, the relative measure takes care of the needs that evolve with societal development and that are considered as standard in these economies.**

# 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\_2.dta and decompose poverty (headcount index) by the gender of the household head (***sex***) (the poverty line is 20600). What can we conclude?

**A : Female headed households contribute less to total poverty compared to their male counterparts. Both the absolute and relative contributions are less for female headed households.**

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

**A : Compared with other regions, the north contributes more to overall poverty followed by eastern region.**

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 12% 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**

**replace ae\_exp2=1.12\*ae\_exp if region==3**

**replace ae\_exp2=1.06\*ae\_exp if region==2**

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

**A : the change in poverty gap is as a result of both the growth and redistribution effects. The growth effect contributes more to the reduction in poverty gap.**

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

**A : Poverty gap in region one has increased as the poverty gap due to growth and redistribution increased (both components contribute positively to the gap). In region 2 poverty gap decreased mainly due to growth despite positive contribution of the redistribution towards higher poverty gap. The same occur in region 3.In Region 4 poverty gap increased and both the growth and redistribution components contributed positively towards the higher regional poverty gap.**

# 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 : perc variable is generated**

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

**A : g\_mean initialized**

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

**A : g\_inc generated**

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

**A : The poorest income has increased more than the rich i.e. the growth of income provided huge gains to the poorest between the two periods.**



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 : the index shows the average rate of growth for the poor regardless of the growth among the non poor. The IP value is negative and we can say that growth is not pro poor in absolute terms.**

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

**A:poverty has increased between the two periods. The growth effect between the two periods has contributed to the major increase in poverty gap despite a minimal poverty reducing inequlaity effect .**