**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 : Refer to Do File**

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) 0.152405**

**b) 0.127644**

**c) 0.071298**

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

**A :** In a developed country the relative poverty line is the most ideal measure as compared to absolute poverty line This is because whilst **Absolute poverty** is when household income is below a certain level, which makes it impossible for the person or family to meet basic needs of life including food, shelter, safe drinking water, education, healthcare, etc. This is not the case in developed country. In developed country however the issue is with households failing to enjoy same standards of living with everyone else in the country which is measured by **Relative poverty line.**

# 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 proportion of population of male-headed households is 78.5%, while female headed households is 21.5 %. The total headcount poverty is equal to 39%. Male group contributes by 28.3% and 10.7% (28.3% + 10.7% = 39%).

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 (0.49 VS 0.215). 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 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 :**

|  |  |
| --- | --- |
| **Region** | **Estimate** |
| **Central** | **0.241312** |
| **Eastern** | **0.328582** |
| **Northern** | **0.744245** |
| **Western** | **0.290703** |
| **Total** | **0.389564** |

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 : Refer to Do File**

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

**A :** The results show that the changes in FGT between Distribution\_1 ( 0.120934) and Distribution\_2 (0.116279) which is (-0.004656) is as a result of growth in income (0.000730) and a negative redistribution effect of (-0.005386) which dominates the contribution.

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

**A :** There has been an increase in the population FGT index between ae\_exp2 and ae\_exp. Which can be attributed to changes in FGT of two regions Eastern and northern. Eastern region changed from 0.82587 in the initial period to 0.99862 in the second period while Northern region changed from 0.334366 in the initial period to 0.293248 in the second period. The aggregate effect was however an increase

# 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**

**1. 0**

**2. .1**

**3. .2**

**4. .3**

**5. .4**

**6. .5**

**7. .6**

**8. .7**

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 : **

**The curve shows that there is a decrease in growth in income as one moves along the percentiles which may entail that it is not pro poor growth**

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 :** With the Chen and Ravallion (2003) pro-poor index, the greater the growth among the poor is indicated by a higher Index. In this case the index is negative which may mean not much growth among the poor.

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

**A :** The results show that the changes in FGT between Distribution\_1 (0.376603) and Distribution\_2 (0.453526) which is 0.076923 is as a result of growth in income (0.077724) and a negative redistribution effect of (-0.000801). The income growth contributes more to the changes compared to the redistribution as seen in the positive change between the two distributions.