**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 : Done in the 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; 0.144024
2. the absolute poverty line (z=20900) 0.120934
3. The relative poverty line: (z= half of average income). 0.077279

**A : Done in the do-file. Poverty gap is largest when subjective poverty approach is used and smallest when relative poverty approach is used. It seemed that the data illustrates a less developed country where population lives off income that are not too unequally distributed and absolute poverty is more relevant than relative poverty.**

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

**A : The use of the relative poverty approach is most appropriate method for measuring poverty in developed countries and also widely used in such countries. Because:**

* **A large proportion of their population is no longer limited to a number of goods to meet their basic needs (food, clean water, health, shelter, education and information) and ensure livelihoods. It is difficult to define a set of common set of goods and services to use for calculate an absolute poverty line that can be easily perceived by a broad range of the population in these countries.**
* **It is more important how they are compared to their surrounding society (the matter of inequality). In such countries, people are considered poor relative to the wealth of others and if they cannot meaningfully participate in that society because of lack of resources. Thus, relative poverty, defined in relation to the overall distribution of income in a country, is more appropriate in developed countries.**

# 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 : Done in the do-file. Based on the results above, one can say:**

**1- The proportion of population of male-headed households is 75.45%, while female-headed households is 24.54%.**

**2- The total headcount poverty is equal to 36.53%. Male-headed household group contributes by 25.36% and female-headed household group 11.17%.**

**The contribution (to total poverty) of poverty among female-headed households is greater than the contribution that comes from their representativeness in the total population (0.4549 VS 0.2454).**

**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 : Done in the do-file.**

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 : Done in the do-file.**

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

**A : Done in the do-file. The change in poverty gap is negative (-0.003912 ), saying that poverty gap actually decreases in period 2. However, the growth effect is positive, meaning that redistribution effect take up an important role in this reducing poverty gap and outweights the factor of economic growth (pro-poor growth).**

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

**A : Done in the do-file. It could be seen very clearly that the contribution of region 1 and 4 to the change in total poverty gap is unchanged due to unchanged population share and unchanged within-group poverty gap. The change in poverty gap results from the change in within-group poverty gap of group 2 and 3 (also no change in population share). The increase of the adult equivalent expenditures in region 3 is the driving factor of the decrease in overall poverty gap as it decreases within-group poverty gap while the decrease of the adult equivalent expenditures in region 2 actually enhances overall 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 : Done in the do-file.**

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

**A : Done in the do-file.**

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

**A : Done in the do-file.**

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

**A : Done in the do-file. The general trend of growth is a decrease in income, except for the poorest group of the population that sees an increase. Growth in income places more weight on the poorest of the poor.**

**As some of the poor still faces decrease in income, growth is not pro-poor in absolute term.**

**The curve is overall downward, meaning the poor population has smaller decrease in income and the rich population group has larger decrease in income, so the change is pro-poor in relative term.**

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 : Done in the do-file. The Chen and Ravallion (2003) pro-poor index is defined as the average of income growths of poor individuals. In our estimate, growth is negative reflecting that growth is not pro-poor in absolute term, which is also reflected in the Growth Incidence Curve.**

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

**A : Done in the do-file. The change in poverty gap is positive (0.144808), saying that poverty gap actually increases in period 2. However, the redistribution component of the change in the poverty gap is negative (-0.028851). This implies redistribution of income within the population though the redistribution component is very small.**