**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).

**A : /\* Let us use the nonparametric regression technique to predict the perceived minimum well-being \*/**

**cnpe ae\_exp min\_ae\_exp, xvar(ae\_exp) hsize(hsize) min(0) max(760500) ///**

**legend(order( 1 "Perceived minimum well-being " 2 "Observed well-being")) ///**

**subtitle("") title(The subjective poverty line) ///**

**xtitle(Observed well-being) ///**

**ytitle(Predicted level of the perceived minimum well-being ) ///**

**vgen(yes)**

**/\* Estimating the level of ae\_exp when the difference between the predicted minimum well-being and the observed well-being is nil. \*/**

**cap drop dif**

**gen dif = \_npe\_min\_ae\_exp- ae\_exp**

**cnpe ae\_exp, xvar(dif) xval(0) hsize(hsize) vgen(yes)**

**/\***

**Showing the subjective poverty line : Here we draw the similar two first curves,**

**but in addition, we add the show the subjective poverty line with the option xline(22922.419922)**

**\*/**

**cnpe ae\_exp min\_ae\_exp, xvar(ae\_exp) hsize(hsize) min(0) max(60000) ///**

**legend(order( 1 "Perceived minimum well-being " 2 "Observed well-being")) ///**

**subtitle("") title(The subjective poverty line) ///**

**xline(22922.419922) xtitle(Observed well-being) ///**

**ytitle(Predicted level of the perceived minimum well-being )**

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 :**

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

**A : /\***

**The relative poverty line is the most appropriate method for measuring poverty in developed countries because between region inequality is most relevant than within region inequality in such 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\_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 : dfgtg ae\_exp, hgroup(sex) hsize(hsize) alpha(0) pline(21000)**

**/\*Based on the results above, one can say:**

**1- The proportion of population of male-headed households is 77.47%, while female-headed households is 22.53 %.**

**2- The total headcount poverty is equal to 35%. Male group contributes by 25.95 and the female group by 9.05 (25.95 + 9.05 = 35%).**

**Likewise, in relative term, 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 (0.741 VS 0.259).\*/**

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(21000)**

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**

**replace ae\_exp2=ae\_exp\*0.1 if region==3**

**replace ae\_exp2=ae\_exp\*0.06 if region==2**

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

**A : dfgtgr ae\_exp ae\_exp2, alpha(1) pline(21000)**

**/\* Poverty gap increases between the two periods as a consequence of the increase in both growth and inequality\*/**

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

**A :**

# 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 : clear**

**input identifier weight inc\_t1 inc\_t2**

**0 0.0 0 0**

**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**

**end**

**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 : qui sum inc\_t1 [aw=weight]**

**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 : line g\_inc g\_mean perc, title(Growth Incidence Curve) yline(`g\_mean') ///**

**legend(order( 1 "GIC curve" 2 "Growth in average income")) ///**

**xtitle(Percentiles (p)) ytitle(Growth in incomes) ///**

**plotregion(margin(zero))**

**/\* The growth between the two periods is relatively pro-poor for about the 75% poorest \*/**

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

**A : drop in 1**

**cap drop temp**

**gen temp = g\_inc**

**sum temp [aw=weight] if (inc\_t1<10.2)**

**dis = r(mean)**

**ipropoor inc\_t1 inc\_t2, pline(10.2)**

**/\* The Chen and Ravallion pro-poor index is -0.08 which is greater than the the growth rate in the average income. Thus, we are in the scheme of a relative pro-poor growth\*/**

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

**A : dfgtgr inc\_t1 inc\_t2, alpha(1) pline(10.2)**

**/\* Despite a reduction in inequality, the poverty gap increase between the two periods as a consequence of economic growth\*/**