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PEP-LAVAL INTENSIVE GRADUATE SCHOOL IN DEVELOPMENT ECONOMICS

Microeconomic Analysis of Welfare and Policy

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Pre-attendance Exercises

by

Abdelkrim Araar

Jean-Yves Duclos

Luca Tiberti

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I. Exploring the data

Exercise 1: *Exploring the data, producing descriptive statistics and using weights*

1.1 Show the number of observations in the datafile *Nigeria_04I.dta*.

1.2 Show the number of surveyed households by ***strata***.

1.3 Estimate the population number of households by ***strata***.

1.4 Estimate the population number of individuals by ***strata***.

1.5 Estimate the proportion of the total population by ***strata*** and by ***zone***. For this, use the command `svy: tab`.

1.6 Estimate the mean of ***pcexp*** using the command summary. Comment on your results.

1.7 Estimate the mean of ***pcexp*** using the command summary and the appropriate weights.

1.8 Further estimate the mean of ***pcexp*** using the command mean and the appropriate weights.

1.9 Redo (8.) with the command `svy: ratio`.

1.10 Show the descriptive statistics of ***pcexp*** by sex of the household head.

1.11 Show only the averages of ***pcexp*** by ***zone***.

1.12 Show averages by urban and rural areas (***sector***).

II. Monetary poverty

Exercise 1: (Sampling weight and estimated statistics)

1.1 Using the file Uganda_1999, initialise the sampling design with the following information.

- Use the variable ***strata*** to initialise the stratification variable of the sampled population.
- Use the variable ***psu*** to initialise the primary sampling unit variable.

1.2 Using the file Uganda_1999, compute the average per capita income using the variables:

- ***welfare*** : adjusted per capita income
- ***hsize*** : household size.

1.3 Redo question (1.2) after initialising the sampling weight (***sweight***). Discuss the difference between the estimates.

1.4 Estimate the average household size in Uganda in 1999.

1.5 Draw a non-parametric regression of ***sweight*** on ***welfare*** for an interval of ***welfare*** of 0 to UGX 60000.

1.6 Comment the results.

Exercise 2: *(Unit of analysis and poverty)*

Using household income surveys, one usually performs distributive analysis using either the individual or the household as the unit of analysis. To test the impact of the choice of unit of analysis on poverty indices, use the file Uganda_1999I and perform the following estimates.

2.1 Estimate the headcount and poverty gap using the individual as the unit of analysis. For this use the variable ***welfare,*** as the indicator of wellbeing and the variable household size (***hsize***).

2.2 Now, re-estimate the same poverty indices when the household is the unit of analysis. For this, follow the following steps.

- Generate the variable ***hhwelfare = hsize*welfare*** **;**
- Use a poverty line that equals the average household size multiplied by the individual poverty line (UGS 21136).

2.3 Do the estimated poverty indices differ? If yes, explain the sources of this difference and the approach that you judge more appropriate to quantify poverty.

Exercise 3: *(Absolute and relative poverty lines and poverty indices)*

Studies on poverty have distinguished two approaches to determine the poverty line. These two approaches are:

The absolute approach:
A measure of absolute poverty quantifies the number of people below a poverty threshold, and this poverty threshold is independent of time and place. For the measure to be absolute, the line must be the same in different countries, cultures, and technological levels. Such an absolute measure should only look at the individual's power to consume and should be independent of any changes in income distribution.

The relative approach:
A measure of relative poverty defines poverty as being below some relative poverty threshold. An example is when poverty is defined as households who earn less than 50% of the median income. Notice that if everyone's real income in an economy increases, but the income distribution stays the same, relative poverty will also stay the same.

3.1 Estimate the headcount index using an absolute poverty line: (poverty line = UGS 21136).

3.2 Estimate the headcount index using a relative poverty line of half of average income.

3.3 Estimate the headcount index using a relative poverty line of half the median).

3.4 What do you think is the more appropriate method for measuring poverty in developing countries and why?

3.5 To estimate relative poverty for a given population group, is it more appropriate to estimate the relative poverty line at a group or at a population level?

Exercise 4: *(Decomposing poverty and targeting)*

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.

4.1 Use the file Uganda_1999I and decompose poverty (headcount index) by the gender of the household head (***sex***). What can we conclude?

4.2 Decompose total poverty according to the region of the household head (***region***).

4.3 In light of this, what do you think are the main groups that should be targeted to reduce total poverty as measured by the headcount?

4.4 Now, perform a decomposition of total poverty, as measured by the average poverty gap, by main household head activity (***activity***).

4.5 What should be the groups to be targeted to reduce the average poverty gap?

4.6 Do the groups to be targeted change with the chosen poverty index?

4.7 Decompose the poverty change between 1992 and 1999 into a growth effect and a redistribution effect.

DATABASES DESCRIPTION

Nigeria_2004I.dta

The survey data used was collected by Nigeria's National Bureau of Statistics (NBS) formerly known as the Federal Office of Statistics (FOS). They were based on National Living Standard Survey (NLSS) of households that was carried out between September 2003 and August 2004.

The sample design is a two-stage stratified sampling. At the first stage, clusters of 120 housing units called Enumeration Area (EA) were randomly selected from each State and the Federal Capital Territory (FCT, Abuja). The second stage involved random selection of 5 housing units from the selected EAs. A total of 600 households were randomly chosen in each of the States and the FCT, summing up to 22,200 households in all (FOS, 2003). However, some households did not fully complete the questionnaires. Out of the 22,200 households that were targeted, 19,158 completed the survey.

It is to be noted that there is no official absolute poverty line in Nigeria. Usually, the relative approach is used to estimate the poverty line in Nigerian studies (poverty line equals to two third of average standard of living). We can additionally use the World Bank poverty line, that is, US$1 per day by adult equivalent.

case_id	Household identifier
state	Stratum
psu	Primary sampling units
sector	Rural/Urban areas
pid	Person id
hhsize	household size
zone	Zone
pcexpdr	Per capita expenditure in regionally deflated current prices
sweight	Sampling weights
sex	Sex
age	Age years
occupation	Occupation group
ed_level	Educational groups for highest level attained
agr_occ	Agricultural Occupation

Uganda_1999I.dta

The Uganda National Household Surveys (UNHS) of 1999 is a nationally representative survey, with sample selection using two-stage stratified random sampling. Uganda_1999I.dta contains the following variables:

hh Household identifier

hsize household size

district District

psu Primary sampling unit(enumeration area)

sweight Sampling weight

urban Urban dummy
- 0 rural
- 1 urban

region region
- 1 central
- 2 eastern
- 3 northern
- 4 western

Strata Stratum: region/place of residence
- 10 central rural
- 11 central urban
- 20 eastern rural
- 21 eastern urban
- 30 northern rural
- 31 northern urban
- 40 western rural
- 41 western urban

equiv household size adjusted for adult equiv. scale

nwelfare consumption aggregate per adult equivalent in 1997/98 prices

spline absolute poverty line in 1997/98 prices

poor99 poor dummy
- 0 non-poor
- 1 poor

welfare Monetary welfare indicator

sex Sex of household head
- 1 Male
- 2 Female

age Age of household head

marital Marital status of household head
- 0 Undefined
- 1 Unmarried

2 Married
3 Cohabiting
4 Divorced/separated
5 Widowed

activity Main activity-status of household head

1 Too young or old
2 Disabled
3 Student
4 Employer
5 Own account worker
6 Unpaid family worker
7 Gov't employee
8 Private employee
9 Employed
10 Political, social, religious worker
11 Att. Domestic duties
19 Others

Uganda_1992I.dta

The Uganda National Household Surveys (UNHS) of 1999 is a nationally representative survey, with sample selection using two-stage stratified random sampling. Uganda_1999I.dta contains the following variables:

hh	Household identifier
hsize	household size
district	District
exdis	Districts not covered in 1999/00 dummy
psu	Primary sampling unit(enumeration area)
sweight	Sampling weight
urban	Urban dummy 0 rural 1 urban
region	region 1 central 2 eastern 3 northern 4 western
Strata	Stratum: region/place of residence 10 central rural 11 central urban 20 eastern rural 21 eastern urban 30 northern rural 31 northern urban 40 western rural 41 western urban
equiv	household size adjusted for adult equiv. scale
nwelfare	consumption aggregate per adult equivalent in 1997/98 prices
spline	absolute poverty line in 1997/98 prices
poor92	poor dummy 0 non-poor 1 poor
welfare	Monetary welfare indicator