

The econometrics of inequality and poverty

Lecture 1 : Bibliography and main issues

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1 What and when

- First lecture : 4th of January
- Schedule : Tuesday 9h-11h and Wednesday 9h-11h
- Last lecture : 9th of February
- Exam : 16th of February 9h-11h
- Tuesday : 4/01, 11/01, 18/01, 25/01, 1/02, 8/02
- Wednesday : 5/01, 12/01, 19/01, 26/01, 2/02, 9/02

2 A provisional bibliography

This lecture grew out of a discussion paper (Introduction à l'économétrie des mesures de pauvreté, DP 2008-09, published in French in the book

Leroux A. and Livet P. (2009) *La Pauvreté dans les Pays Riches*. Economica, Paris.

2.1 Textbooks

First reference :

Deaton Angus (1997) *The Analysis of Household Surveys*. The John Hopkins University Press, Baltimore and London.

a general textbook which covers a lot of material which goes from economic theory to econometric methods. Available at the library. A companion book for the economic theory aspect could be

Lambert P.J. (2001) *The Distribution and Redistribution of Income*. Manchester University Press.

A simplified version of this book is

Essama-Nssah Boniface (2000) *Inégalité, pauvreté et bien-être social*, De Boeck Université, out of print.

while some complementary notions are in

Cowell Frank (1995) *Measuring Inequality*. London, Prentice Hall.

Duclos, Jean-Yves and Araar, Abdelkrim (2006) *Poverty and Equity: Measurement, Policy and Estimation with DAD*. Springer Verlag, New-York. <http://www.idrc.ca/openbooks/229-5/>

This book is built around explaining what does a software called DAD. DAD stands for "Distributive analysis/Analyse distributive"— It is designed to facilitate the analysis and the comparison of social welfare, inequality, poverty and equity using micro (or disaggregated) data. A web site exists around this software which contains, among other things, various data sets which are directly available. <http://132.203.59.36/DAD/index.html>.

2.2 Economic theory

The three fundamental papers defining the welfarist approach to the measurement of inequality and poverty are

Atkinson A.B. (1970) The measurement of inequality. *Journal of Economic theory*, 2, 244-263.

Sen A. (1976) Poverty: An ordinal approach to measurement. *Econometrica* 44(2) 219-231.

Atkinson A.B. (1987) On the measurement of poverty. *Econometrica* 55, 749-764.

A companion paper is

Foster James, Greer J. and Thorbecke Eric (1984) A class of decomposable poverty measures. *Econometrica* 52, 761-765.

2.3 Econometric issues

Testing for stochastic dominance is a complicated topic. Some elements are found in :

Davidson Russell and Duclos Jean-Yves (2000) Statistical inference for stochastic dominance and for the measurement of poverty and inequality. *Econometrica* 68, 1435-1464.

Testing for the equality of two indexes is a much simpler exercise :

Kakwani N. (1993) Statistical inference in the measurement of poverty. *Review of Economics and Statistics* 75, 632-639.

But the distribution of some indices is quite complicated:

Giles, D. E. A. (2004). "Calculating a standard error for the Gini coefficient: some further results", *Oxford Bulletin of Economics and Statistics*, Vol. 66, pp. 425-433.

Davidson Russell (2009) Reliable inference for the Gini index. *Journal of Econometrics* Volume 150, Issue 1, May 2009, Pages 30-40.

There is a great interest in estimating the income distribution using non-parametric methods :

Marron, J. S. and H. P. Schmitz (1992). "Simultaneous density estimation of several income distributions". *Econometric Theory*, 8, 476-448.

Estimating parametric distributions is an alternative, but flexible distributions are needed for that exercise:

Singh S.K. and G.S. Maddala (1976) A function for the size distribution of incomes. *Econometrica* 44, 963-970

An alternative to both the non-parametric approach and the parametric approach is given by using mixture of distributions:

Flachaire, E., and O. Nunez (2002): "Estimation of the income distribution and detection of sub-populations: An explanatory model," *Computational Statistics and Data Analysis*, 51(7), 3368-3380.

When we want to go beyond a simple description of the income distribution, for instance modeling its dynamics:

Jenkins, S.P. (2000): “Modelling Household Income Dynamics,” *Journal of Population Economics*, 13, 529–567.

or when we are interested in analysing the shape of a distribution using quantile regressions:

Koenker R. and G. Basset (1978) Regression quantiles. *Econometrica* 46(1), 33-50.

2.4 Empirical applications

A lot of applications are available, some of which are already contained in the book of Deaton, together with the `stata` code used for them. The book

Atkinson A.B. (1998) *Poverty in Europe*. Blackwell, Oxford.

is in fact the text of a Yrjo Jahnsson lecture given Tony Atkinson in 1990 at the University of Helsinki. It details all the pitfalls that an econometrician can meet when analysing and comparing European income data.

The following book has the great advantage of presented the last state of art in this domain. It is a book made of contributed articles:

Jenkins Stephen and John Micklewright (2007) *Inequality and Poverty Re-examined*. Oxford University Press, Oxford.

I will use some of these articles to illustrate various notions such as inequality in Europe, inequality and education, the relation between growth and inequality,... which are widely debated issues. Note also the two books by Tony Atkinson and by Thomas Piketty :

Piketty Thomas (2000) *Les hauts revenus en France au 20ème siècle Inégalités et redistributions, 1901-1998*. Grasset, Paris (en français).

This book presents an extensive analysis of what are called incomes in France over the last century. High incomes corresponds to the 10th percentile of the income distribution. The next book is a collection of articles that generalises the problematic of the former book to the rest of Europe and the USA. These books rely mainly on descriptive statistics.

Atkinson A.B. and Thomas Piketty (2007) *Top Incomes over the Twentieth Century: A Contrast Between Continental European and English-Speaking Countries*. Oxford University Press.

2.5 Happiness economics

We shall see that two types of data are available when discussing income inequality. Observed individual data coming from administrations like census or fiscal administrations corresponding

to objective and measurable quantities such as income earnings, family composition and subjective data resulting from answers to questionnaires made of questions such as *how happy are you*, *how difficult is it to make the ends meet at the end of the month* and the like.

This type of data are used for making inference on equivalences scales, but also to measure *utility*. The latter refers to happiness economics. The first paper is a general survey while the second paper examines the relation between happiness and economic growth.

Bruno S. Frey and Alois Stutzer (2002) What Can Economists Learn from Happiness Research? *Journal of Economic Literature*, Vol. 40, No. 2 (Jun., 2002), pp. 402-435.

Rafael Di Tella, Robert J. MacCulloch, Andrew J. Oswald (2003) The Macroeconomics of Happiness. *The Review of Economics and Statistics*, Vol. 85, No. 4 (Nov., 2003), pp. 809-827.

3 General items

The lectures will be organised around this bibliography. The first lectures are

1. Lecture 1: this introduction
2. Lecture 2: Why should we be concerned by inequality and poverty
3. Lecture 3: Welfare functions, inequality and poverty
4. Lecture 4: Lorenz curve, the Gini coefficient and parametric distributions
5. Lecture 5: Stochastic dominance
6. Lecture 6: Modeling the income distribution
7. Lecture 7: Equivalence scales
8. Lecture 8: The pitfalls of empirical works: Poverty in Europe
9. Lecture 9: Confidence intervals and testing
10. Lecture 10: Explaining poverty and inequality using econometric models

The following items are possible continuations

1. Taxation and redistribution
2. Measuring the aversion to inequality
3. Modeling wage inequalities and high incomes
4. Happiness economics