

POVERTY ANALYSIS SYLLABUS AND READING LIST

Course Objectives

The course is designed to bring you to the point where you can

- Measure and interpret poverty, using household survey data;
- Merge panel datasets and compute measures of poverty dynamics such as the extent of persistent poverty or the movement of households across quintiles;
- Critically assess the value of panel data;
- Distinguish poverty from vulnerability, and be able to measure and interpret the latter;
- Construct and interpret measures of inequality;
- Assess the links between economic growth (including recession) and poverty;
- Measure and interpret the progressivity of government taxes and spending;
- Formulate useful and interesting research questions related to poverty and inequality, and apply the relevant techniques in order to arrive at defensible answers;
- Write up and present research findings on poverty dynamics and inequality in a clear and coherent way.

The course provides the necessary methodological foundations, but emphasizes the practical application of the techniques to cases and exercises from around the world. The substantial exercises are essential to mastering the material; the multiple-choice questions are designed to make the reader pause and digest the material.

Anyone who is not already familiar with the Stata statistical software is encouraged work through Appendix 2 of Jonathan Haughton and Shahid Khandker, *Handbook on Poverty and Inequality* (World Bank 2009), which is available on line (via http://mail.beaconhill.org/~j_haughton). This appendix has a tutorial format and is designed to bring one up to speed with Stata quickly. The book itself is the fundamental text for the course.

Course Format and Expectations

Participants are expected to complete the exercises (30% of the grade), master the key readings, do a final exam (40% of the grade) and make a short presentation (30% of the grade), using PowerPoint, on a topic related to the course. The presentation can be done jointly with the course on Data Mining if it draws at least partly on techniques from that course.

The initial lecture material will be covered in five 3-hour sessions during the week of January 2nd, 2011; the first three exercises should be submitted by the end of this first week. Subsequent classes, including the presentations, will be on-line using Centra, and will be scheduled over the coming three months.

Topics and Reading List

Module 1: Measures of Welfare and Poverty

In this module we ask what poverty is, why we need to measure it, and where the primary data come from. We evaluate different measures of welfare, including income and expenditure. Other topics include the use of sampling weights; adjusting for clustering; and equivalence scales.

Learning objectives

- 1) Summarize the three steps required to measure poverty.
- 2) Recognize the strengths and limitations arising from the need to use survey data in poverty analysis, including the choice of sample frame, unit of observation, time period, and choice of welfare indicators.
- 3) Describe the main problems that arise with survey data, including
 - a) survey design (sampling frame/coverage, response bias),
 - b) stratification, and
 - c) multistage cluster sampling.
- 4) Explain why weighting is needed when surveys use stratified random sampling.
- 5) Describe and evaluate the use of equivalence scales (including the OECD scale).
- 6) Define consumption and income as measures of welfare, and evaluate the desirability of each in the LDC context.
- 7) Summarize the problems that arise in measuring income and consumption, and explain how to value durable goods, and housing services.
- 8) Identify measures of household welfare other than consumption and income, including Calorie consumption per capita, nutritional status, health status, and food consumption as a proportion of total expenditure.
- 9) Argue the case that there is no ideal measure of welfare.

Materials

Reading: Handbook on Poverty and Inequality, chapters 1 and 2.

Chapter 1 is a short and straightforward summary of the main concepts of poverty, and the reasons why we should devote some resources to measuring poverty.

Chapter 2 on *Measuring Poverty* first summarizes the sources of data on poverty; since most primary data come from household surveys that use stratified random sampling, the analysis of the resulting data needs to use weights to correct for the sampling procedures. The chapter then evaluates the most commonly-used measures of welfare, including income per capita and expenditure per capita. The poorest countries tend to measure poverty using expenditure per capita; Table 2.6 provides a useful summary of discussion about whether income or expenditure is a better measure to use.

Quiz: The short quiz tests one's comprehension of chapter 2. It does not take long to answer, but it is useful in reinforcing the ideas in the chapter.

Exercises: This exercise (which is a shorter version of Exercise 1 in Appendix 3 of the *Handbook*) should be completed and handed in or sent to me by e-mail. You are welcome to work on this exercise in groups (of no more than three), if you wish.

Note: If you are relatively new to Stata, this could take some time. Please do not hesitate to write to us if you have questions.

Module 2. Setting a Poverty Line

The poor are those whose welfare falls below some poverty line. The construction of a poverty line is both somewhat arbitrary and potentially controversial. In this module we examine how poverty lines are, and perhaps should be, established.

Learning objectives

1. Explain what a poverty line is, why it is needed, and how countries adjust their poverty lines over time.
2. Distinguish between absolute and relative poverty lines, and identify the conditions under which one might be preferred to the other.
3. Identify the steps required to construct a poverty line using the Cost of Basic Needs method, and justify the choices made at each step.
4. Show how to construct a poverty line using the Food Energy Intake method, and explain the serious weaknesses of this method.
5. Explain how subjective poverty lines are constructed and appraise their usefulness.
6. Construct a poverty line using real survey data, using
 - a. The Cost of Basic Needs method.
 - b. The Food Energy Intake method.

Materials

Reading: *Handbook on Poverty and Inequality*, chapter 3.

Chapter 3 on *Poverty Lines* covers a lot of ground. Key points to note are: the cost of basic needs approach is conceptually attractive, but not used as widely as one might expect; the food energy intake is easy to apply

but flawed; and subjective measures of poverty are inexpensive to collect but difficult to interpret. Note the variety of poverty lines in Africa, as shown in Table 3.7.

The article by Shaohua Chen and Martin Ravallion simulates the impact of the global financial crisis on the world's poorest, and is highly recommended.

Quiz: Set yourself a goal of getting at least 10 of the 13 questions right on the chapter 3 quiz!

Exercises: Exercise 2 (which is an abridged version of Exercise 2 in Appendix 3 of the *Handbook*) should be completed and sent to me for feedback and comments. Again, you are welcome to work on this exercise in groups (of no more than three), if you wish.

Module 3. Measures of Poverty

Given information on a welfare measure (such as expenditure per capita) and a poverty line, the third step is to summarize the information in the form of an index of poverty. In this module we review some of the more popular measures and ask how robust they are.

Learning Objectives

- 1) Describe and explain the headcount index, indicate why it is popular, and explain why it is an imperfect measure of poverty.
- 2) Describe and compute the poverty gap and poverty severity indexes, and evaluate their adequacy as measures of poverty.
- 3) Compute the Watts index.
- 4) Argue that there is no single best measure of poverty.
- 5) Explain what is meant by robustness and why poverty measures might not be robust.
- 6) Describe sampling error, and argue the case for presenting standard deviations and confidence intervals along with poverty rates.
- 7) Explain what bootstrapping is and how it may be used to generate confidence intervals and sample standard deviations.
- 8) Enumerate the sources of measurement error.
 - a) Define the elasticity of the headcount index with respect to errors in mean expenditure (or income) per capita, and explain how this translates an understatement of expenditure (or income) into an overstatement of poverty.
- 9) Define, and show how to graph, the poverty incidence curve and the poverty deficit curve.
- 10) Explain what is meant by first order stochastic dominance, and why it is useful when assessing how robust a poverty comparison is to the choice of poverty line or poverty measure.

Materials

Reading: *Handbook on Poverty and Inequality*, chapters 4, 5, and 16.

Chapter 4 on *Measures of Poverty* sets out the traditional summary statistics, including the headcount and poverty gap indexes.

Chapter 5 asks how robust the measures of poverty are, and introduces the concept of stochastic dominance. One needs to recognize the importance of sampling error, measurement error, and first-order stochastic dominance.

If you have spare time (!), feel free to explore other measures of poverty, including the Sen-Shorrocks-Thon index (section 4.4 of chapter 4); and learn about broader measures of robustness, including higher-order stochastic dominance (parts of section 5.5 of chapter 5). Chapter 16 (*Using Survey Data: Some Cautionary Tales*) is easy to read and provides several examples of practical problems that arise in measuring poverty and making poverty comparisons.

Quiz: The quiz covers materials from all the sections of chapters 4 and 5 recommended for this course. Make a habit of taking the quiz after completing the readings!

Exercises: Exercise 3 (which is similar to Exercises 3 and 4 in Appendix III of the *Handbook*) should be completed and sent to me. You will probably need the weekend to finish these exercises (and catch up on any delays!).

Module 4. Panel Data and Poverty Dynamics

It is frequently useful to measure the evolution of poverty over time. This can be done with repeated cross-sections or, usually more precisely, with panel data. Only panel data allow one to measure the extent to which households transition into and out of poverty. Although panel data are indispensable for measuring poverty transitions, and chronic poverty, there are significant costs to collecting and using panel data.

Learning Objectives

1. Explain the value of measuring the evolution of poverty over time ("poverty dynamics")
2. Describe the main sources of data on poverty dynamics, including panel data, repeated cross-sectional data, and data from rotating panels.
3. Distinguish between panel data based on repeated surveying of households, dwellings, and individuals.
4. Explain how to construct a transition matrix.
5. Distinguish between the chronically poor, the persistently poor, and the transient poor, and explain the practical importance of these distinctions. Itemize the advantages of panel surveys, and explain how panel data can give more precise estimates of changes in poverty over time (compared to data from cross-sections).
6. Summarize the drawbacks of panel surveys, including attrition bias, decreased representativeness, and high managerial demands.

Materials

Reading: *Handbook on Poverty and Inequality*, chapter 7 (pages 127-129), and chapter 11.

The short excerpt from chapter 7 puts the comparison of poverty over time in the context of constructing poverty profiles.

Chapter 11 covers the essentials of panel data and the measurement of chronic poverty. The only way to measure chronic poverty, or to quantify transitions into and out of poverty, is with panel data. But such data have weaknesses too, including attrition bias and nonrepresentativeness.

Quiz: The reading from the *Handbook* is not technically too difficult, but quiz should help reinforce the material.

Exercises: Exercise 4 (which is similar to Exercise 9 in the *Handbook*) asks you to combine data from two years of a panel data set from Bangladesh and generate summary statistics, including information on attrition bias, as well as construct a transition matrix. As usual, please submit your assignment so that we can provide feedback on your work. Exercise 5 (which corresponds to Exercises 10 and 11 in the *Handbook*) requires the measurement of chronic, persistent and transient poverty.

Module 5. Growth and Poverty

Here we ask whether economic growth tends to help or hurt the poor, and what is meant by “pro-poor” growth.

Learning Objectives

- 1) Explain the methodology used by Dollar and Kraay to reach the conclusion that growth is good for the poor.
- 2) Evaluate the role of other influences—including government spending, openness to trade, democracy, fiscal discipline, and the rule of law—on the growth of incomes, and of the incomes of the poor.
- 3) Describe what is meant by “pro-poor growth.”
- 4) For each of the three groups of antipoverty activities identified by the World Bank, that is,
 - promoting opportunity
 - facilitating empowerment, and
 - enhancing income security,justify the importance of each broad activity and identify specific policies within each of these activities that are likely to work to reduce poverty.
- 5) Explain how the 2008-09 worldwide recession affected poor countries and poor people, and how governments have responded, especially to cushion the effects on the poor.

Materials

Reading: *Handbook on Poverty and Inequality*, chapter 9.

This chapter discusses the controversial Dollar and Kraay study on the link between growth and poverty, and sketches the outlines of the World Bank approach to tackling poverty.

Quiz: A short multiple-choice quiz follows the reading.

Exercises: Exercise 5 explores the links between the recent world recession and third-world poverty.

Module 6. Analyzing Poverty

In this module we first review the essential features of regression analysis, and then apply these techniques to the analysis of the causes and effects of poverty. The module includes a discussion of impact evaluation, as well as most standard applications of econometric methods in the context of poverty.

Learning Objectives

- 1) Explain how to make relatively precise inferences about trends in poverty using panel data.
- 2) Evaluate the impact of a project or policy by computing double differences.
- 3) Estimate panel regressions, with and without instrumental variables, when undertaking impact evaluations.
- 4) Quantify the effects of its immediate determinants on the level of poverty, and the effect of poverty on outcomes such as health and education.

Materials

Reading: *Handbook on Poverty and Inequality*, chapters 14 and 13 (pages 256-270).

Chapter 14 sets out the essential of regression – an indispensable tool for poverty analysis – and summarizes the most frequently-encountered problems when estimating regressions, along with possible solutions.

Chapter 13 examines the methodological issues related to impact evaluation; this is an important subject, and an essential input into any cost-benefit analysis of schemes designed to reduce poverty.

Quiz: A ten-question multiple-choice quiz follows the reading.

Exercises: Exercise 6 (equivalent to Exercises 14 and 15 in the *Handbook*) sets up an impact evaluation and asks you to measure the effects using double differences, and with a panel regression. There is also a question that simply applies regression analysis to cross-country data.

Module 7. International Poverty Comparisons over Time

There is some controversy about the extent to which, or even whether, poverty has fallen worldwide over the past generation. In this model we review the World Bank approach to measuring the evolution of world poverty and evaluate the criticisms of this work. At a smaller scale, we examine the extent to which poverty rose in Indonesia after the Asian financial crisis of 1997, and find that estimates vary widely; the variation in the estimates is due largely to differences in the technical assumptions made by different teams of researchers.

Learning Objectives

- 1) Identify those parts of the world where poverty has fallen most quickly, and least quickly, since 1981, according to the World Bank.
- 2) Summarize the methodology used by the World Bank to compute world poverty rates, and explain:
 - the role played by the initial choice of poverty line
 - the need to use purchasing power parity (PPP) exchange rates
 - the use of domestic CPIs to adjust local-currency poverty lines to the survey year
 - how the poverty rate and level is measured using a Lorenz curve and poverty line.
- 3) Explain and evaluate the main elements of the criticisms of the World Bank approach to measuring world poverty.
- 4) Explain the methodology used by Dollar and Kraay to reach the conclusion that growth is good for the poor
- 5) Recognize that while economic growth drives poverty reduction in the long run, this need not be the case in the short run.
- 6) Assess the extent to which poverty in Indonesia rose after the Asian financial crisis in 1997-98, and evaluate the choices made by different research teams in making such measurements.

Materials

Reading: *Handbook on Poverty and Inequality*, chapter 10 (*International Poverty Comparisons*) and chapter 11 (218-227) on "Case Study: The Asian Financial Crisis and Poverty in Indonesia."

The World Bank's approach to measuring the evolution of poverty – applying the "\$1.25-a-day" standard using purchasing power parity – is easy to criticize, but alternatives (such as a universally-applied cost of basic goods measure) have drawbacks too. Bhalla argues that survey data understate expenditure and so overstate poverty, but the adjustments he proposes are probably excessive; this is a debate that needs to be understood.

Quiz: The quiz covers the material in chapter 10. If you get at least 8 questions right, bravo!

Exercises: Exercise 7 (which is Exercise 8 in the *Handbook*) asks you to use the World Bank's PovCalNet to trace poverty over time under alternative assumptions.

Module 8. Vulnerability to Poverty

Learning Objectives

- 1) Explain why measures of current poverty are inadequate as guides to anti-poverty policy.
- 2) Define *vulnerability to poverty*.
- 3) Explain how the measurement of vulnerability to poverty requires measures of
 - Shocks to welfare;
 - The socially-defined minimum level of wellbeing; and
 - The propensity to suffer a significant shock of being poor.
- 4) Describe how to measure vulnerability to poverty (v_{it}), given measures of expected consumption ($E(c_{t+2})$), its variance (σ^2), the poverty line (z) and a normality assumption.
- 5) Outline the steps required to measure vulnerability to poverty, given data from a cross-sectional household survey.
- 6) Summarize the methodological issues related to the practical measurement of vulnerability to poverty and how they might be resolved.
- 7) Itemize the main sources of risk faced by households and the options they face in dealing with risk.

Materials

Reading: *Handbook on Poverty and Inequality*, chapter 12 (*Vulnerability to Poverty*).

Poverty measures quantify those who are poor now; vulnerability measures try to determine who is likely to be poor next year, and in principle is the right measure to use in designing policy interventions. With strong assumptions vulnerability can be measured even using a single cross-section of data. The study of vulnerability to poverty leads to a richer menu of policy possibilities than does the traditional study of poverty, with greater emphasis on issues of insurance.

Oxfam International has made some controversial proposals for delivering more resources to developing countries, "for nothing". Read it, and formulate an opinion on the proposals!

Quiz: The quiz is relatively short; get them all right!

Exercises: Exercise 8 requires you to measure vulnerability using a cross section of data. Excellent practice!

Module 9. Inequality

Learning Objectives

- 1) Explain what inequality is and how it differs from poverty.
- 2) Compute and display information on expenditure (or income) quintiles.
- 3) Draw and interpret a Lorenz curve; and compute and explain the Gini coefficient of inequality.
- 4) Argue that the Gini coefficient satisfies mean independence, population size independence, symmetry, and Pigou-Dalton Transfer sensitivity, but is not easily decomposable.
- 5) Draw a Pen's Parade for expenditure per capita, and explain why it is useful.
- 6) Compute and interpret generalized entropy measures, including Theil's T and Theil's L.
- 7) Compute and interpret Atkinson's inequality measure for different values of the weighting parameter ϵ .
- 8) Decompose inequality using Theil's T to distinguish between-group from within-group components of inequality, for separate geographic areas and occupations.
- 9) Identify the main sources of changes in inequality using Theil's L.
- 10) Explain how microsimulation techniques can be used to quantify the effect on income distribution of changes in prices, endowments, occupational choice, and demographics.

Materials

Reading: *Handbook on Poverty and Inequality*, chapter 6.

Quiz: There are a number of interesting multiple choice questions for this module.

Exercises: Exercise 9 asks you to measure inequality, given some primary (e.g. household survey) data.

Module 10. The Incidence of Government Taxes and Spending

Learning Objectives

- 1) Explain the purpose of tax and expenditure incidence analysis.
- 2) Define what is meant by a *progressive* tax, a *proportional* tax, and a *regressive* tax.
- 3) Outline the steps required to measure the incidence of a tax.
- 4) Compute the Kakwani measure of tax progressivity and the Reynolds-Smolensky measure of redistributive capacity, given information on tax incidence.
- 5) Outline the steps required to measure the incidence of a government-provided good or service.
- 6) Assess the limits of tax and expenditure incidence analysis, with particular attention to the role of the following: average vs. marginal incidence; the use of income vs. expenditure to order households; the role of behavioral responses; the valuation of the benefits of government spending; the merits of partial vs. full incidence; and the proper role for further modeling.
- 7) Explain why public expenditure analysis is useful only if the policy setting is right.

Materials

Reading: *Handbook on Poverty and Inequality*, chapter 15.

Quiz: Just a few last questions, and then you should know it all!

Exercises: The exercise for this module asks you to measure and interpret the incidence of a set of tax and expenditure changes, using household survey data.

Final Project: This will generally be a 20-slide PowerPoint presentation, where each member of a team of three will talk about some aspect of the subject. You may choose any relevant topic; it should involve some data work, using techniques from this course and/or techniques from the Data Mining course.

The hardest part is identifying a topic; if it is something relevant that you are already working on, so much the better! Here are a few suggestions (but do not be constrained by these):

- The Effect of the Global Economic Crisis on Poverty in xxx (where xxx is a country of interest to you). You might identify the channels through which the effects of the crisis are being transmitted – e.g. remittances, aid, FDI, loans, migration, trade, commodity prices – and try to track the implications for poverty (and/or vulnerability).
- The Evolution of Poverty in xxx (where xxx is your chosen country). You could summarize what has happened to poverty in your country over the past decade, noting data sources, the definition of welfare that was used, how the poverty line was set, how robust the estimates are, and any other relevant issues.
- Chronic Poverty in xxx (where xxx is your chosen country). If you have panel data, it is possible to discuss chronic poverty – how it is defined and measured, how robust the measures are, how the information is influencing policy.
- Vulnerability to Poverty in xxx (where xxx is your chosen country). This would ideally include an estimate of vulnerability, which in turn will require access to the primary data. Vulnerability to Poverty is the topic of Module 8.
- Data Needs for Evaluating the Impact of a Project. This could refer to a specific project, or a category of projects. Among the issues to be addressed is whether panel data are needed; and if so, how large a sample.
- Use your imagination, experience, and talent!

Readings.

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