

**POVERTY, INEQUALITY AND
DEVELOPMENT**
Essays in Honor of Erik Thorbecke

ECONOMIC STUDIES IN INEQUALITY, SOCIAL EXCLUSION AND WELL-BEING

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Volume I

de Janvry, Alain and Kanbur, Ravi

Poverty, Inequality and Development: Essays in Honor of Erik Thorbecke

POVERTY, INEQUALITY AND
DEVELOPMENT
Essays in Honor of Erik Thorbecke

Edited by

Alain de Janvry¹ and Ravi Kanbur²

¹University of California, Berkeley and ²Cornell University



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Contributing Authors

Christopher B. Barrett, Cornell University
Kaushik Basu, Cornell University
Gary S. Fields, Cornell University
James E. Foster, Vanderbilt University
Alain de Janvry, University of California, Berkeley
Tjeerd Jellema, European Central Bank
Ravi Kanbur, Cornell University
Steven Keuning, European Central Bank
Jacob Kol, Erasmus University
Michael Lokshin, World Bank
Peter McAdam, European Central Bank
John G. McPeak, Syracuse University
Reimund Mink, European Central Bank
Christian Morrisson, Université de Paris I and Delta
Jeffrey B. Nugent, University of Southern California
Per Pinstrup-Andersen, Cornell University
Graham Pyatt, University of Warwick
Gustav Ranis, Yale University
Martin Ravallion, World Bank
Sherman Robinson, University of Sussex
David Roland-Holst, Mills College & University of California, Berkeley
Jeffery I. Round, University of Warwick
Elisabeth Sadoulet, University of California, Berkley
David E. Sahn, Cornell University
Shailender Swaminathan, University of Alabama, Birmingham

Finn Tarp, University of Copenhagen
Matti Tuomala, University of Tampere

Preface

This collection of essays honors a remarkable man and his work. Erik Thorbecke has made significant contributions to the microeconomic and the macroeconomic analysis of poverty, inequality and development, ranging from theory to empirics and policy. The essays in this volume display the same range. As a collection they make the fundamental point that deep understanding of these phenomena requires both the micro and the macro perspectives together, utilizing the strengths of each but also the special insights that come when the two are linked together. After an overview section which contains the introductory chapter and a chapter examining the historical roots of Erik Thorbecke's motivations, the essays in this volume are grouped into four parts, each part identifying a major strand of Erik's work—Measurement of Poverty and Inequality, Micro Behavior and Market Failure, SAMs and CGEs, and Institutions and Development. The range of topics covered in the essays, written by leading authorities in their own areas, highlight the extraordinary depth and breadth of Erik Thorbecke's influence in research and policy on poverty, inequality and development.

Acknowledgements

These papers were presented at a conference in honor of Erik Thorbecke held at Cornell University on October 10-11, 2003. The conference was supported by the funds of the H.E. Babcock Chair in Food, Nutrition and Public Policy, and the T.H. Lee Chair in World Affairs at Cornell University. We are grateful to these funds for their financial support, to Joyce Knuutila for managing the conference and to Susan Snyder for preparing the volume for publication.

Apart from the paper presenters, the conference benefited from the presence of a number of colleagues and friends of Erik Thorbecke who chaired sessions and acted as discussants and referees. We would like to acknowledge the contribution of the following to the conference and the volume: Irma Adelman, Iwan Azis, Alok Bhargava, Peter Cornelisse, Alfred Field, Augustin Fosu, Patrick Guillaumont, Jan Willem Gunning, Jere Haas, Walter Isard, Stefan Klonner, Arie Kuyvenhoven, Mukul Majumadar, Germano Mwabu, Uri Possen, Vernon Ruttan, Richard Schuler, Karl Shell, John Strauss, Jan Svejnar and Henry Wan.

Chapter 1

POVERTY, INEQUALITY AND DEVELOPMENT: MICRO-MACRO PERSPECTIVES AND LINKAGES

Alain de Janvry¹ and Ravi Kanbur²

¹*University of California, Berkeley, alain@are.berkeley.edu* and ²*Cornell University, sk145@cornell.edu*

The essays in this volume honor Erik Thorbecke, a remarkable man who has devoted his life's work to analyzing issues of poverty, inequality and development. The roots of his motivation are examined by Jacob Kol in Chapter 2 of this volume. The output of this motivation is all around us. The most commonly used family of poverty measures in applied work today carries his name—the T in the “FGT” family of poverty indices stands for Thorbecke. It was in 1984 that the famous paper proposing this index, by Erik and two of his then graduate students, was published. But in the twenty years before and since, Erik has produced a mountain of work that establishes his place in the literature on poverty, inequality and development. The papers in this volume pay tribute to Erik's accomplishments by themselves making significant contributions to that literature.

After the beginning overview section, comprising this introduction to the chapters by the editors and Jacob Kol's introduction to Erik Thorbecke, the volume is divided into four parts, each reflecting a dimension of Erik's contribution to the literature. We begin with the measurement of poverty and inequality in Part I. Part II moves to individual behavior and market failure. Part III makes the transition to economy wide issues and Part IV addresses the role of institutions.

The four papers in Part I take up the issues connected with the measurement of poverty and inequality, to which Erik has made fundamental contributions. The paper by Martin Ravallion and Michael Lokshin (Chapter 3) addresses a central building block of poverty measurement—the poverty line. The two most commonly used procedures for determining poverty lines, the “Food-Energy Intake” (FEI) method and the “Cost-of-

Basic Needs” (CBN) method, are assessed with respect to “utility consistency”. Both methods do badly in the assessment. The FEI method is shown to be theoretically problematic, and unlikely to be utility consistent. The utility consistency of the CBN method is an empirical matter, but it is shown to be violated in the application to Russian regional poverty lines. Interestingly, it is observed that this may be because of the decentralized administrative process followed in Russia in setting the poverty lines, leading to a tension between local autonomy and consistency across the nation.

Given the poverty line, how is the information in the distribution of wellbeing to be aggregated to produce a poverty index? This is where Erik Thorbecke has made perhaps his most famous contribution, and his co-author in that effort, James Foster, gives an overview of the axiomatic approach to poverty measurement in Chapter 4. He provides an illuminating categorization of axioms sets—Invariance axioms, Dominance axioms, Continuity axioms and Subgroup axioms. This categorization will prove useful to those taking up deeper investigation of different aspects of poverty measurement. For example, the subgroup axioms are closely related to the decomposability of poverty measures—a well known and most useful property of the FGT index. At the end of his paper, Foster takes up the intriguing question of the role of generalized means in poverty measurement, playing off their role in inequality measurement. He argues that just as many inequality measures are a function of a ratio of two generalized means, many poverty measures are functions of a ratio of a generalized mean to the poverty line. This observation must surely open up a rich seam of investigation in the theory of poverty measurement.

The contribution by Gary Fields, Chapter 5, addresses a long standing concern about what information is conveyed by poverty and inequality measures separately, and whether they can and should be combined. Fields asks two questions on this combining—can it be done and should it be done? His answers are—yes, and (by and large) no. Using simple stylized growth paths, all of which exhibit first order dominance, he argues that in most cases he would not want to combine poverty and inequality indices into a single “blend” index since it can give intuitively misleading results. Great caution is thus called for in taking standard measures of poverty and standard measures of inequality and constructing (for example) a weighted combination of the two as a welfare measure.

While the papers by Ravallion and Lokshin and by Foster are entirely about poverty, and the paper by Fields is about combining measures of poverty and inequality, the focus of the paper by David Sahn, Chapter 6, is on inequality. However, the domain of measurement is different from the standard one of income. The focus is on inequality in health, with an

application to data on Indian states. Health is measured by standardized height for children, and is used analogously to income in computation of inequality. This inequality is first of all compared across Indian states. Then intertemporal changes in “nutrition poverty” (or “health poverty”), defined as the percentage of children below two standard deviations of the standardized height distribution, are decomposed into components reflecting change in the mean and change in inequality. This procedure is familiar from income poverty analysis, where the FGT poverty measure has been decomposed in this manner, but its application to non-income dimensions of wellbeing is novel.

Part II of the volume turns to micro and market behavior in understanding poverty and inequality in developing countries. Chapter 7, by Jeffrey Nugent and Shailender Swaminathan, reflects not only Erik Thorbecke’s work on inequality and the microeconomics of poor households, but also his long standing interest in Indonesia. Using data from Indonesia, the authors address the important issue of how inequality within a community affects investments in education by households in that community. There are several channels, suggested by theory, through which a group characteristic like inequality could affect individual level decisions—and the effects do not necessarily all go in the same direction. The issue is thus primarily an empirical one. They show that greater inequality can indeed be associated with lower household level investments in education. Moreover, they identify some very interesting channels for this effect—for example, through the influence of community level inequality on the supply of educational infrastructure in that community. There is now a growing literature on inequality and the supply of local public goods, and this paper is an important empirical contribution to that literature.

Chapter 8, by Christopher Barrett and John McPeak, addresses a topic of growing importance in the literature on poverty, inequality and development—risk and vulnerability. Erik Thorbecke has himself contributed to the growth of this part of the literature. Barrett and McPeak explore three questions: “What is the etiology of chronic poverty and vulnerability? How does nutrition-related health risk affect patterns of chronic poverty and vulnerability? What are the implications for the design of development policy, especially safety net implications?” Based on their own work and on the growing literature, they begin to develop answers to these questions. As important as the specific answers, however, is their general conclusion that this is a hugely under researched area relative to its importance in the actual lives of poor people in poor countries. An important implication is that we will have to focus on risk and vulnerability relative to critical thresholds that emerge from the context in which

households live, and not (just) relative to standard poverty lines, as is the dominant practice in the literature to date. The design of safety nets relative to these thresholds is an important policy question waiting to be addressed.

A constant theme in Erik's work on development has been the importance of various types of market failure in explaining household behavior and household outcomes. The importance of this perspective is now well recognized. In Chapter 9, Alain de Janvry and Elisabeth Sadoulet present an overview of the literature on farm households that has developed in response to this challenge. In demonstrating that these households in poor countries are "systematically embedded in complex configurations characterized by incomplete and failing markets," they draw three important conclusions. The first is that a whole range of behaviors, such as the interrelationships between health and education decisions and production choices, can be understood only in the context of behavioral responses to market failures. The second conclusion, however, is that we do not know "how close to a first best situation do these countervailing strategies allow households to get." This is a call for detailed and targeted empirical research. But in order to get at these estimates we will need in the first place improved structural models. This is the third conclusion and it brings us back full circle to the authors' central point—to construct these models, we need a much better understanding than we currently have of household behavior in the presence of market failure.

Kaushik Basu continues the theme of the impact of markets on the well being of the poor in Chapter 10, which starts with the statement: "Markets often work in peculiar ways." His central thesis is that "India's myriad labor laws, meant to protect laborers, may actually hurt them." Thus market failures may call for intervention to help the poor, but if it is not the right intervention then the interaction between individual behavior and market response may end up actually making them worse off. This chapter highlights a method that involves an intricate interplay between deep institutional knowledge of a specific context, in this case Indian labor law, combined with parsimonious modeling of the key features of that situation to address the question at hand. The conclusions show that extreme positions are not supported in terms of policy implications. Basu argues not that there should be complete freedom of contracting between employers and workers, but somewhat more freedom than there is now in the Indian case. Similarly, he argues that minimum wages can benefit workers provided they are not too high. The issue is not therefore an ideological one of minimum wages or not, but a case and context specific one of the level at which it should be set.

Chapters 7-10, each in its own way, began the process of linking individual or household behaviors and outcomes to the broader context of communities, markets and the nation. The chapters in Parts III and IV of the

volume continue this process and take it to the economy wide and even global level in systematic fashion, addressing macroeconomic and institutional issues. The papers in Part III contribute to a literature with which Erik Thorbecke's name is linked very closely as founder. This is the literature on Social Accounting Matrices (SAMs) and Computable General Equilibrium Models (CGEs). Erik has been one of the pioneers not only in conceptualizing and modeling, but also in application of these models and frameworks to many countries and to a wide range of specific policy problems.

In the first paper in Part III of the volume, Chapter 11, Sherman Robinson takes an overview of a range of models in the SAM-CGE tradition. He places the models on a spectrum between SAM fix-price multiplier models on the one hand and a full blown Walrasian CGE model on the other. The tradition of structuralist macro economic models has much in common with the first, while the neoclassical general equilibrium tradition is clearly linked to the second. Models along the spectrum are identified by particular macro closure rules. Robinson explores the tension between the two ends of the spectrum, and asks if this can be reduced in some way. He argues that while the tension can never be eliminated, with judicious implementation, "many features of Keynesian demand-driven multiplier models can be accommodated within the flow-equilibrium structure of a CGE model..." But Robinson concludes with the view that it is considerations of dynamics, including forward looking expectations, that may well provide fertile ground for integration.

Chapter 12, by Graham Pyatt and Jeffery Round, stays within the fix-price SAM multiplier framework but explicitly links the macro economy to poverty impacts. Once again, Erik Thorbecke was one of the early contributors to this literature, as made clear by the authors. The paper first of all derives the multipliers—which measure the impact of injections into any one account on all of the other accounts. It then goes on to apply these to an analysis of the poverty impacts of such injections, and to present empirical results using a SAM for Indonesia originally compiled by Keuning (a co-author of Chapter 13 in this volume) and Thorbecke. The paper concludes by taking up an issue raised recently by Erik—the need to move away from fixed-price formulations to a general equilibrium setting where prices are determined endogenously. This of course relates back to the tensions emphasized by Robinson in Chapter 11. Pyatt and Thorbecke argue that to the extent that changing prices are important for capacity constraints, this can be incorporated in fixed-price models under various assumptions. However, so far as the implications of changing prices for simulation of changes in poverty are concerned, they argue that micro simulation techniques can improve poverty impact estimates.

All work on SAMs recognizes that SAM-based analysis, however sophisticated in theory, is only as good as the actual SAM to which it is applied. Indeed, Pyatt and Round end Chapter 12 with the observation that compared to issues of “model closure”, for example, “improving primary data and greater sophistication in the construction of social accounting matrices are probably more important avenues towards a better understanding of basic issues and mechanisms.” In their contribution to this volume in Chapter 13, Tjeerd Jellema, Steven Keuning, Peter McAdam and Reimund Mink take us through the development of an actual accounting matrix, this time for the Euro area. They show how existing data sets can be used in an overall framework of linking national accounting matrices together. The specific issue they consider is the European Central Bank’s monetary policy analysis, and the Euro Area Accounting Matrix (EAAM) is constructed with this emphasis. But what the paper illustrates is the careful work needed in providing a solid empirical basis for SAMs.

Chapter 14 of the volume uses a SAM for Vietnam to address a crucial issue for that country—the economy-wide impact of globalization and economic reform. David Roland-Holst and Finn Tarp use a new and detailed SAM for Vietnam constructed for the year 2000. The focus is on price transmission in a liberalizing economy as it goes from a closed administered price system to an open economy facing world prices. In many ways price transmission can be seen as the dual to the demand transmission examined by Pyatt and Round in Chapter 12. Alternative decompositions are presented and then quantified for Vietnam. A basic conclusion is that simply looking at direct effects of, say, equating domestic and world prices in a particular sector, is likely to be a very misleading guide to the true impacts once the economy wide repercussions are taken into account—“relying on intuition or rules of thumb alone in this context is very unlikely to achieve something approaching optimality.” Moreover, decomposition based on path analysis, developed in the paper, highlights the sectors that are most crucial in terms of the economy wide price response.

Part IV of this volume addresses a broad range of issues in the institutional dimension of an economy wide perspective—all issues to which Erik Thorbecke has made significant contributions. A wide range of topics is considered, including agricultural policy, development assistance and debates on dualism. In Chapter 15 Christian Morrisson starts with the work of Engerman and Sokoloff on inequality, institutions and growth. The arguments in these papers, and in the subsequent literature, are examined with respect to the experiences of Ghana, Kenya and Senegal. Specifically, the paper assesses whether in the African context (i) inequality is related to factor endowments, (ii) institutional development depends on inequality and factor endowments and (iii) institutions in turn influence income

distribution. These hypotheses are subjected to detailed country specific assessment and complex patterns are found which support some of these relations but not others, and at different time periods. The overall conclusion stresses the importance of context specificity in making claims about the causes or the consequences of institutional development and its links to inequality.

It is sometimes not fully appreciated that Erik Thorbecke has made major contributions to the debate on development assistance, including a comprehensive recent review of the relationship between how the evolution of views on development has interacted with the evolution of views on aid effectiveness and the institutions of aid delivery. In Chapter 16, Ravi Kanbur and Matti Tuomala pay tribute to this aspect of Erik's work by exploring optimal aid allocation when conditionality does not work, as indeed shown by the evidence. In other words, they assume that aid is simply a net addition to the recipient government's resources, the use of which cannot be influenced by the donor. Suppose the donor wanted to allocate aid between two recipients so as to maximize a welfare function that was sensitive to the wellbeing of the poorest. What should determine this aid allocation? Kanbur and Tuomala answer this question by modeling each recipient government's behavior as choosing an optimal non-linear income tax given the resources it gets from the outside. Apart from the volume of these resources, a number of other factors influence the progressivity of the recipient government's policies—including its inequality aversion and the structural inequality in that society. The calculations in the chapter show that poorer countries and those with greater inequality aversion should get a larger share of aid. By contrast, countries with greater structural inequality should get a smaller share of aid.

Chapter 17 continues the discussion of policy and institutions, but focuses on the agricultural sector. The author of this chapter, Per Pinstrup-Andersen, is Erik Thorbecke's successor in the H.E. Babcock Chair at Cornell University. His focus in this chapter is on nutrition goals, and the use of agricultural research and policy to achieve them. Needless to say, Erik has contributed much to the analysis of both nutrition and agricultural policy. The chapter addresses five questions: "1. How could agricultural research and policy improve nutrition? 2. Should nutrition goals guide agricultural research and policy? 3. What policy measures are likely to be effective? 4. Are nutrition goals best achieved through pre- or post-harvest changes? 5. Would consumer behavior enhance or reduce the intended effect?" Each of these questions is investigated and specific proposals are made to enhance the impact of agricultural research and policy on nutritional goals, but the general conclusion is that nutritional goals should be incorporated directly into the decision making processes in these policies.

At the same time, however, the impact of agricultural policies alone will be limited if determined in isolation from other interventions that affect determinants of nutritional outcomes such as contaminated water and sanitation.

The final chapter in this volume, Chapter 18, is perhaps the one with the broadest perspective. In it, Gus Ranis revisits one of the grand organizing themes of the development literature in the last fifty years—dualism. His question, “Is Dualism Worth Revisiting?”, is given an affirmative answer. He sees dualism as a metaphor, encompassing the sociological dualism of Boeke as well as the conventional economic sense of the coexistence of sectors that are asymmetric in some aspect of organization. This latter sense, he argues, goes back to the physiocrats and their *tableau économique*, but its modern life obviously dates to Arthur Lewis’s classic 1954 exposition on dualistic development. This framework has been developed and refined over the last fifty years, but, according to Ranis, “has been subjected to too much criticism over the past several decades,” especially from the perspective of neoclassical economics. Ranis in turn subjects these critiques to a critique, and argues that while some of them are valid, there is still much to be said for the general metaphor of sectors that are asymmetric in crucial ways, as well as the specific insights generated by dual economy models.

This brings us to the end of our overview of this volume of essays in honor of Erik Thorbecke. The essays all address topics to which Erik has made, and continues to make, significant contributions in his own research and policy work. In their range and breadth, therefore, they show the extraordinary influence that Erik has had on the analysis of poverty, inequality and development. We look forward to his future contributions.

Chapter 2

ERIK THORBECKE: GROWTH AND ROOTS

Jacob Kol

Eramus University, kuijpers@few.eur.nl

1. GROWTH

‘That’s where they allowed him to grow’; this, in retrospect, was observed by Mrs. Charla Thorbecke about Iowa State University, where her husband began his career: assistant professor (1957-1960), associate professor (1960-1963), and professor (1963-1973), interrupted by two years at the Agency for International Development (1966-1968).

In 1957 Erik Thorbecke, then 28, received his Ph.D. with the thesis ‘The Tendency Towards Regionalization in International Trade’, published in 1960 by Martinus Nijhoff in The Hague, The Netherlands.

From the regionalization in world trade his interest in research went to the related but new and topical phenomenon of economic integration in Europe, the continent of his ancestry; it was studied from the perspective of the US and of the pattern of world trade (Thorbecke, 1961, 1963). Somewhat later Bela Balassa invited him to evaluate the Common Agricultural Policy (CAP) of the EEC (then, EU now). In cooperation with Emilio Pagoulatos a model was built to analyze the CAP’s effects on trade and welfare. It was concluded that the CAP had increased protection of EEC agriculture, raised its degree of self-sufficiency, had led to a concomitant relative decline in extra-EEC imports and to considerable trade diversion; as a consequence the CAP had hindered the migration of labour out of agriculture into more profitable sectors and thus had reduced aggregate growth (Thorbecke, 1975).

2. A QUANTITATIVE APPROACH

Erik Thorbecke studied at the Netherlands School of Economics (now Erasmus University) from 1948 to 1951, where Professor Jan Tinbergen taught quantitative methods for economic research.

These lessons were applied when Erik Thorbecke was invited to contribute to a volume in honour of Jan Tinbergen, which was published in 1974. Together with A. Field a model of world trade was developed comprising 10 trading regions, with the Sino-Soviet bloc taken as exogenous; this was unique because till that time the most disaggregate model of world trade had distinguished only 3 regions. The model was demand oriented, of a short-term nature. The 10 regions were linked by import functions, specified differently for developed and developing regions. The model, containing 78 equations, was estimated and was shown to perform relatively accurately in explaining the changes in the endogenous variables over the sample period, 1953-1967.

Tinbergen's approach inspired many other quantitative publications in a number of areas; among others:

- The Theory of Quantitative Economic Policy with Application to Economic Growth Stabilization and Planning (1973)
- Planning Techniques for a Better Future (1976)
- A Multisectoral Framework for the Analysis of Labor Mobility and Development in LDCs (1988)
- A Multiplier Decomposition Method to Analyze Poverty Alleviation (1996)
- A Stochastic Social Accounting Matrix for Modeling (2003).

Erik Thorbecke did not confine himself to his study and lecture room. He went out to give advice to governments of many countries, among which Brazil, Indonesia, Kenya, Peru, the Philippines, and his own country, the US; he advised President L.B. Johnson on the world food problem (1967) and President W.J. Clinton on the GATT-round of negotiations (1994).

3. WILLEM JOHAN RUDOLF THORBECKE

When his father, Willem Johan Rudolf Thorbecke (1892-1989), died, Erik wrote 'Some Memories and Vignettes':

"My father was extremely quick witted and possessed a sharp sense of humour. He was a master of the repartee.

He was always very well dressed, well mannered and courteous. He was happiest when he could make you laugh, with him, or even at him.

He was an eternal optimist. To friends he could offer sound advice, with a light touch and good humour, emphasizing the positive elements of any situation, however bleak.

He had a keen intellectual curiosity, originality and independence of spirit. When in diplomatic service in China in the 1930's, he met with Teilhard de Chardin, and was much taken by the themes which would eventually culminate in 'The Phenomenon of Man' (1955).

My father was attracted by the search for a global, scientific and evolutionary humanism. He looked for universal, integrative forces and solutions. In particular, later as a political scientist and university professor, the themes of his books dealt with global integration, and also with improving East-West relations at a time, in the 1940's and 1950's, when this was not a particularly popular or even acceptable view.

Later, in the Hague, he met with Professor Jan Tinbergen and was much impressed by his attempt at global economic analysis and vision."

4. JOHAN RUDOLF THORBECKE

In the history of the Netherlands, Johan Rudolf Thorbecke (1798-1872) is a prominent prime-minister, if not the most important one. He designed a new constitution (1848), implemented in advance of his first term of office (1849-1853). His constitution has been described as an 'act of liberation' (Romein, 1979). It shifted power from the king and nobility to parliament. But it did more than that; Thorbecke insisted that the constitution should not be just a formal piece of paper, but a 'national force' for emancipation. And indeed, his constitution created the conditions for emancipation to continue and eventually to encompass all classes of society; this included the franchise, which was limited to wealthy men only in 1849, but evolved to include all adult citizens by 1919. He insisted that government should be truly public and open.

Earlier, in the 1820's and 30's, as a professor of diplomatic history, in Ghent and later in Leiden, he analyzed the changes that took place in the community of States in Europe, which provided a foundation for his thinking on a new constitution.

Thorbecke was three times prime-minister (1849-1853, 1862-1866, and 1871-1872). His legislation, other than the constitution, reflected the areas of additional interests:

- International trade; his legislation brought about the transition of the Netherlands to free trade and the abolition of slavery.
- Economic development; he foresaw an increasing role of the government, and promoted education and large scale infrastructure.

- Poverty alleviation; he was concerned that economic development through industrialization would be accompanied by poverty among the workers: ‘It is not only the increase of national product that counts but equally its distribution’.

5. MEANDERING AND EQUILIBRIUM

The areas of Erik Thorbecke’s interest and work are reflected in the themes of the conference in his honour ‘Poverty, Inequality and Development’, held at Cornell University, October 10-11, 2003; consequently, these themes are also represented in this volume.

In his closing address, Erik Thorbecke observed that he had ‘meandered between topics’ and – as this would imply a somewhat aimless movement – he added ‘with some logic, I hope’. He observed furthermore that such a variety is not an option open to young academics nowadays; they have to specialize in a narrow field and stick to that. And: ‘Interaction with colleagues is important; my research has evolved over time through interaction’.

In this perspective he then gave an overview of his work and career, which in 1952 started in the area of international economic relations, inspired by Professor J.B. Condliffe. In 1962, when advisor to the National Planning Institute of Peru, he was struck by the existing regional differences in income: ‘It opened my eyes; and – henceforth – I wanted to work on development’. This – among others – resulted in a conference in Iowa and the volume: ‘On the Theory and Design of Economic Development’, edited with Irma Adelman.

Work in the World Employment Programme of the ILO started in 1972 and resulted in the Basic Needs Strategy. Being invited to Kenya to apply this approach caused a shift in interest again: to poverty; together with James Foster and Joel Greer a class of decomposable poverty measures was developed, still the standard today.

Meeting at the ILO with Richard Stone inspired research on the Social Accounting Matrix as a basis for development planning, leading – among others – to a World Bank publication in 1985.

In the 1980’s interest rose in the role of institutions in economic development; a special issue of World Development explored this topic, edited by Erik Thorbecke together with, again, Irma Adelman.

The meandering between topics did not imply that interest in previous topics was lost; research in these areas continued as well.

Erik Thorbecke's list of publications counts 174 items now (reviews not included), with new studies still being added. The latest paper is with Henry Wan on East Asia's Development Model (May, 2004).

In his closing address Erik Thorbecke did not explicitly go into the internal logic of his meandering; but it can be found in his focus on economic development: in international economic relations, in economic integration, and above all for alleviating poverty; and on constructive policy making towards that end.

He did mention however another constant factor in his life, when he looked at Charla, his wife for nearly 49 years then, more than 50 years now, and said: 'a long-run equilibrium is a stable equilibrium'.

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Chapter 3

ON THE CONSISTENCY OF POVERTY LINES

Martin Ravallion and Michael Lokshinⁱ

Development Research Group, World Bank, mravallion@worldbank.org and mlokshin@worldbank.org

1. INTRODUCTION

Poverty profiles — showing how a measure of poverty varies across sub-groups of a population — are widely used to inform policies for fighting poverty. A key ingredient is a set of poverty lines, to be used as deflators applied to sub-group specific distributions of income. Various methods are found in practice for setting poverty lines and the methodological choices made can matter greatly to the policy implications drawn. For example, a case study for Indonesia found virtually zero rank correlation between the regional poverty measures implied by two common methods of setting poverty lines (Ravallion and Bidani, 1994). This suggests that it is important to probe critically into the methods used to set poverty lines in practice.

Poverty lines are usually anchored to nutritional requirements for good health and normal activities. But there are many ways this can be done. There are two common methods of setting poverty lines in practice: the “Food-Energy Intake” (FEI) method and the “Cost-of-Basic Needs” (CBN) method.ⁱⁱ The FEI method finds the income or expenditure level at which pre-determined food-energy requirements are met in expectation within each sub-group. There is no explicit bundle of goods in the FEI method. The CBN method, by contrast, sets specific poverty bundles and costs them in each sub-group. The food bundles are typically anchored to nutritional requirements given prevailing diets, but allowances for non-food goods and services are also included.

The reviews alternative consistency criteria for poverty lines and tries to assess how well these two methods perform against those criteria. Section 2 discusses alternative theoretical foundations for defining the consistency of poverty lines. Section 3 then focuses on FEI poverty lines and argues that they are unlikely to be internally consistent for a reasonably broad concept of welfare. Section 4 turns to CBN poverty lines, and argues that these are potentially utility-consistent but whether they are in practice is an empirical question. Revealed-preference tests can be used to test consistency in terms of utility for given preferences. We then illustrate these tests using Russia's official poverty lines in Section 5. Conclusions can be found in Section 6.

2. CONSISTENCY OF POVERTY LINES IN THEORY

A poverty line can be defined as the money needed to achieve the minimum level of “well-being” that is required to not be deemed “poor.” Thus everyone at the poverty line (no matter what sub-group they happen to belong) is deemed to be equally badly off, and all those below the line are worse off than all those above it. This much can be easily agreed. The more difficult question is what concept of well-being should serve as the anchor for poverty lines? For economists the obvious answer is “utility.” A justification for utility consistent poverty lines can be found by applying standard welfare-economic principles to poverty measurement. These principles are that assessments of social welfare (including poverty measures) should depend solely on utilities, people with the same initial utility should be treated the same way, and social welfare should not be decreasing in any utility.

To formalize this approach to setting poverty lines, consider household i in sub-group j with characteristics x_{ij} (a vector).ⁱⁱⁱ The household's preferences are represented by an interpersonally comparable utility function $u_j(q_{ij}, x_{ij})$. The household chooses its consumption vector q_{ij} to maximize utility. Notice that we allow the possibility that the same commodity bundle can yield different utility levels in different subgroups for households with the same characteristics. For example, a given bundle may yield a higher utility in a warm climate than a cold one, where more will be needed for clothing and energy.

The utility-consistent poverty line is the point on the consumer's expenditure function corresponding to a common reference utility level and prevailing prices. The consumer's expenditure function is $e_j(p_{ij}, x_{ij}, u)$, giving the minimum cost of utility u in sub-group j when facing the price vector p_{ij} . Let u_z denote the minimum utility level deemed to be needed to

escape poverty. Consistency requires that this is a constant across all (i, j) . The money metric of u_z defines a set of utility-consistent poverty lines:

$$z_{ij}^u = e_j(p_{ij}, x_{ij}, u_z) \text{ for all } (i, j) \quad (1)$$

When expenditure is deflated by such a poverty line one obtains a welfare metric with a number of desirable theoretical properties for policy analysis (Blackorby and Donaldson, 1987).^{iv}

For economists, utility is the obvious anchor for setting poverty lines. However, it is not the only possible approach, and nor is it the approach that has had most influence on practices in applied work on poverty (as we will show in the following sections). Functioning-based concepts of well-being offer an alternative theoretical foundation for poverty measurement. Indeed, this can be viewed as an encompassing framework, for which utility consistency is a special case.

While versions of this approach go back a long way in philosophy and the social sciences, it can be characterized today in the terms of Amartya Sen's argument that "well-being" should be thought of in terms of a person's capabilities, i.e., the functionings ("beings and doings") that a person is able to achieve (Sen, 1985). By this view, poverty means not having an income sufficient to support specific normative functionings. Utility — as the attainment of personal satisfaction — can be viewed as one such functioning relevant to well-being (Sen, 1992, Chapter 3). But it is only one of the functionings that matter. Independently of utility, one might say that a person is better off if she is able to participate fully in social and economic activity, for example.

To formalize this approach, let a household's functionings be determined by the goods it consumes and its characteristics. The vector of actual functionings for household i in group j is:

$$f_{ij} = f_j(q_{ij}, x_{ij}) \quad (2)$$

where f_j is a vector-valued function. The quantities consumed are assumed to be utility maximizing, giving demand functions $q_{ij} = q_j(p_{ij}, y_{ij}, x_{ij})$ at total expenditure y_{ij} . One can also postulate that the household has preferences over functionings, for which $u_j(q_{ij}, x_{ij})$ is then a derived utility function, obtained by substituting (2) into the (primal) utility function defined over functionings (Ravallion, 1998).

Functioning-consistency requires that certain normative functionings are reached at the poverty line in each sub-group. Let f_z denote the vector of critical functionings deemed to be needed to be not poor. (These are

normative judgments, just as u_z is a normative judgment.) A commodity bundle, q_{ij}^c , is identified such that no functioning is below its critical value:

$$f_z \leq f_j(q_{ij}^c, x_{ij}) \quad (3)$$

There could well be more than one solution for q_{ij}^c satisfying (3). Each solution yields a set of functioning-consistent poverty lines $z_{ij}^c = p_{ij}q_{ij}^c$ when q_{ij}^c is valued at local prices. Two ways can be suggested for choosing a single functioning-consistent poverty line for each sub-group. The first possible way to resolve the indeterminacy of multiple solutions is to define z_{ij}^c as the minimum y such that:

$$f_z \leq f_j[q_j(p_{ij}, y, x_{ij}), x_{ij}] \quad (4)$$

Notice that one or more specific functionings will be decisive in determining z_{ij}^c , namely the functioning that is the last to reach its critical value as income rises. In this sense, the lowest priority functioning for the household will be decisive.

A second possible approach is to treat attainments as a random variable (i.e., with a probability distribution) and take a mean conditional on income and other identified covariates, including group membership. Then poverty lines are deemed to be functioning consistent if f_z is reached in expectation. This second approach is closer to current practices for an important class of methods for setting poverty lines, which we turn to in the next section.

3. THE FOOD-ENERGY-INTAKE METHOD

The FEI method can be interpreted as a special case of the functioning-based approach described above. The specialization is to focus on just one functioning, namely food-energy intake. The method finds the consumption expenditure or income level at which food energy intake is just sufficient to meet pre-determined food energy requirements for good health and normal activity levels. (Such caloric requirements are given in WHO, 1985, for example.) To deal with the fact that food energy intakes naturally vary at a given income level, the FEI method typically calculates an expected value of intake at given income. Figure 3-1 illustrates the method. The vertical axis is food-energy intake, plotted against income (or expenditure) on the horizontal axis. A line of "best fit" is indicated; this is the expected value of caloric intake at given income (i.e., the nonlinear regression function). By simply inverting this line, one finds the income z at which a person typically

attains the stipulated food-energy requirement.^v This method, or something similar, has been used often, including by Dandekar and Rath (1971), Osmani (1982), Greer and Thorbecke (1986), Paul (1989), Palmer-Jones and Sen (2001), and by numerous governmental statistics offices. It is probably the most common method found in practice in developing countries.

To explain the method more formally, let k denote food-energy intake, which is derived as the inner-product of the household's chosen consumption vector and a vector of calorific unit values. We take k to be a random variable. The stipulated requirement level is k^r which is taken to be fixed for given characteristics, such as age. As long as the expected value of food-energy intake conditional on total consumption expenditure, $E(k|y)$, is strictly increasing in y over an interval that includes k^r there will exist a FEI poverty line, z^{FEI} , defined implicitly by:

$$E(k|z^{FEI}) = k^r \quad (5)$$

Three points are notable. Firstly, the method is aiming to measure income poverty, rather than undernutrition. If one wanted to measure undernutrition, one would simply look at how many people had nutritional intakes $k \leq k^r$, ignoring incomes or consumption expenditures.

Secondly, the method is computationally simple. A common practice is to calculate the mean income or expenditure of a sub-sample of households whose estimated caloric intakes are approximately equal to the stipulated requirements. More sophisticated versions use regressions of the empirical relationship between food energy intakes and consumption expenditure. These can be readily used (numerically or explicitly) to calculate the FEI poverty line. The method avoids the need for price data; in fact, no explicit valuations are required.

Thirdly, the method automatically includes non-food consumption as long as one locates the total consumption expenditure at which a person typically attains the caloric requirement.

Can the FEI method assure that the resulting poverty lines will be consistent in terms of utility or capabilities more generally? To assess their utility consistency, consider first how FEI poverty lines respond to differences in relative prices, which can of course differ across the sub-groups (such as regions) being compared in the poverty profile and over time. For example, the prices of many non-food goods are likely to be lower relative to foods in urban than in rural areas. This will probably mean that the demand for food and (hence) food energy intake will be lower in urban than in rural areas, at any given real income. But this does not, of course, mean that urban households are poorer at a given expenditure level.