Revised Book Proposal To Oxford University Press

October 2014

1. WORKING TITLE: *MEASURING* *POVERTY AND WELLBEING IN DEVELOPING COUNTRIES*

# EDITORS

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# SYNOPSIS

Detailed analyses of poverty and wellbeing in developing countries, based on large-scale, nationally representative household surveys, have been ongoing for more than three decades. The large majority of developing countries now conduct on a regular basis a variety of household surveys (income, consumption, health, demographics, labour force, household enterprise and others). And, the information base in developing countries with respect to poverty and wellbeing has improved dramatically. Nevertheless, appropriate measurement of poverty remains complex and controversial. This is particularly true in developing countries where:

(i) the stakes with respect to poverty reduction are high;

(ii) the determinants of living standards are often volatile; and

(iii) related information bases, while much improved, are often characterized by significant non-sample error.

It also remains, to a surprisingly high degree, an activity undertaken by technical assistance personnel and consultants based in developed countries. This book seeks to enhance the transparency, replicability and comparability of existing practice.[[1]](#footnote-1) In so doing, it also aims to significantly lower the barriers to entry to the conduct of rigorous poverty measurement and increase the participation of analysts from developing countries in their own poverty assessments. The book focuses on two domains: the measurement of absolute consumption poverty and a specific approach to multidimensional analysis of binary poverty indicators.

The editors have for the last 15 years gradually developed a unique toolkit (i.e. an analytical code stream referred to as Poverty Line Estimation Analytical Software–PLEASe) for consumption poverty analysis in developing countries based on our experience as advisors, researchers, teachers and practitioners in a wide variety of contexts.[[2]](#footnote-2) More recently we have developed analogous software for estimating multi-dimensional poverty measures based on First-Order Dominance (FOD). The associated code stream is labelled EFOD.[[3]](#footnote-3)

The existence of these software packages served as an important motivation for the Growth and African Poverty Project(GAPP) initiated in 2012 by the United Nations University World Institute for Development Economics Research (UNU-WIDER). GAPP sought to analyse trends in poverty and wellbeing in as many as possible of the 24 largest countries in sub-Saharan Africa (collectively, 91 per cent of the population). These studies were conducted by leading international researchers with expert knowledge of the countries in question, working alongside leading local researchers. The analytical teams returned to the primary datasets used for poverty analysis in each country, with an insistence on applying best techniques to at least two comparable surveys over the period studied. GAPP completed studies in 16 of the 24 most populous countries in Africa and nine of the top 10.

With respect to consumption poverty measurement, GAPP successfully applied the PLEASe common methodology to Mozambique, Tanzania, Ethiopia, Malawi, Madagascar and Uganda. More recently PLEASe has been successfully applied to Pakistan.[[4]](#footnote-4) With respect to multidimensional poverty measurement the FOD approach was applied in Mozambique, Tanzania, the Democratic Republic of the Congo (DRC), Zambia, and Nigeria (using EFOD). All in all, these nine countries provide a diverse set of examples of the challenges and issues involved in practical poverty assessment, including both differences in data availability and quality as well as variance in country circumstances.

As noted, a salient observation from GAPP and from other experiences is the extraordinarily high level of dependence of many developing countries on external assistance for the conduct of poverty analysis, particularly the analysis of consumption poverty. Nearly all of the countries included in the GAPP project have relied on substantial technical assistance for extended periods in order to produce official consumption poverty rates. Even in the cases where local analysts are strongly engaged, capacity building leaves much to be desired. Two critical factors are at work: (i) the occasional nature of detailed household consumption surveys, and (ii) the complexity of the analysis. This challenging combination generates a situation whereby, once data from a new survey is available for analysis, the personnel who had worked on the previous survey have often either moved on to new areas of activity or have substantial needs for retraining in order to effectively conduct the analysis.

This book steps into this breach for the analysis of consumption poverty. The book will lower barriers to entry by:

(i) providing a review of the major approaches employed for estimating poverty lines;

(ii) discussing on-going debates about appropriate methods within the broad context of poverty lines that satisfy basic needs (cost of basic needs approach–CBN); and

(iii) making available clearly documented, modularized, and transparent code streams.

These basics, presented in Part I of the volume, will be supplemented by a series of practical country applications in Part II where emphasis will be given to the particular challenges and specificities of each case. The country applications illustrate the imperative of adjusting the default code streams to reflect country-specific circumstances as appropriate for the analysis to be meaningful. In our experience, such a scaffolding of the issues and practicalities should enable significant numbers of analysts in developing countries to engage in this type of analysis and more rapidly assimilate the concepts and approaches involved.

We highlight that, in practical terms, there exist vast swathes of agreement across competing methodologies. Within PLEASe, it is straightforward to implement a large array of approaches including (but not limited to):

(i) a single national consumption basket with national average prices;

(ii) a single national basket priced at regional levels;

(iii) rural, urban, or more refined regional baskets with associated price differences;

(iv) different approaches to defining the consumption bundles such as the iterative procedure by Ravallion and Bidani (1994), or simpler alternatives;

(v) fixed or flexible bundles through time; and

(vi) in the case of multiple flexible bundles, imposition (or not) of the utility consistency requirement of Arndt and Simler (2010).

We will demonstrate how, properly organized, pointed debates in the literature can be boiled down to remarkably few lines of software code.[[5]](#footnote-5)

In providing and documenting standard sets of computer codes that can be used as an initial basis for poverty analysis, the editors of the proposed book take motivation from deep involvement in the design and dissemination of the standard computable general equilibrium model made available by the International Food Policy Research Institute (Löfgren et al. 2002); the standard global general equilibrium model developed by the Global Trade Analysis Project (GTAP) at Purdue University (Hertel 1997); as well as contributions to the analysis of stabilization and structural adjustment in Africa relying on a coded merger of widely-used models for macroeconomic analysis (Brixen and Tarp 1996a, 1996b).

These standard sets of computer codes are of fairly obvious value to students and analysts seeking to gain skills in economy-wide modelling. They have also proven to be a boon to expert modellers as the standard code sets permit initiation of activities from a known, flexible and advanced baseline. While any tool can be misused, there are large numbers of examples of imaginative analyses, adapted to specific country circumstances, which were greatly facilitated by the existence of a known and flexible base. The editors have contributed to this academic literature.

Demand for such products has been notably high. For example, the book volume on the GTAP model, which is the reference to the underlying code, records nearly 3,000 citations on Google Scholar. The corresponding publication for IFPRI, a technical paper, was the number one download, by a considerable margin, from the IFPRI website for years; and the Brixen and Tarp volumes have been standard references in both teaching and analysis in Africa and beyond. We expect that a similarly high level of demand exists among the community engaged in consumption poverty analysis.

As noted, we also present and employ a recent approach to capturing the multidimensionality of poverty and an associated analytical code stream, i.e. EFOD. Multidimensional, non-monetary indicators are now broadly recognized as important (e.g., Alkire and Foster 2011). Non-monetary measures also frequently have the advantage of directly relating to policy agendas and are readily available from censuses and household surveys (e.g., is a child attending school, or does a health post exist within 30 minutes travel time from the household?). While consensus has emerged on the need to consider the multidimensionality of poverty, methods for incorporating multiple indicators into welfare analysis remain contentious with debate centred on the implications of imposing strong assumptions in terms of weighting schemes, the actual extent of new information provided by generating combined indicators, and the nature of welfare functions.

This book furthers this discussion in its use of the FOD approach. This straightforward method allows multidimensional welfare comparisons across populations over time and space while requiring no more restrictive assumptions than a preference to be non-deprived as opposed to deprived in any dimension. Data requirements—which come in the form of binary indicators—are less demanding than detailed consumption surveys. Thus, even while addressing multidimensional poverty, the method is less data-intensive in implementation (as will be demonstrated in the country applications). We will present the methodology in the context of current debates and expound upon the mathematical theory and linear programming techniques underpinning it. The FOD approach will also be compared with other methods. To date, comparisons with the Alkire-Foster multidimensional index yield very similar welfare rankings.

With respect to the country applications, we will cover nine countries. An important editorial task will be to harmonize the individual country applications, highlight commonalities, and identify the steps taken to accommodate specific country characteristics. We begin with Mozambique and Tanzania, where both consumption and multidimensional poverty estimations are used, permitting direct comparisons of results. These two countries are large, low-income, and with relatively low population density. We proceed to Malawi, Ethiopia, and Uganda concentrating on consumption-based poverty. These three countries are also low-income, but with population density that is frequently high. Moreover, in Malawi spatial dimensions are less salient. Two countries marked by political conflict, Madagascar and DRC, come next. In Madagascar, conflict manifested itself in urban zones, whereas in DRC conflict has been widespread and rural areas are deeply affected. This is reflected in data availability such that consumption-based analysis is possible in Madagascar, but only multidimensional analysis was undertaken for DRC. Finally, we end with a diverse set of three middle-income countries: Zambia, Nigeria, and Pakistan.

A chapter will be allocated to each country application; and they will present the data issues encountered, the chosen solution to resolving those issues, the modifications to the code stream necessary to accommodate local conditions, and the implications of alternative decisions for the spatial and temporal distribution of measured welfare/poverty. The overall objective of the applications is to highlight the formidable advantages to beginning from a standardized and known code stream that has been well documented and modularized.

We stress that the intent of making code streams available and understood is not to channel poverty analysis into any one particular approach. Rather, the intent is to lower the barriers to entry to conducting detailed, thoughtful, and locally-appropriate poverty analyses by providing analysts with functional tools with a known and reliable starting point. Moreover, a website, located at UNU-WIDER, will allow analysts and students to reproduce the poverty rates and poverty comparisons obtained in the country cases and further test the implications of alternative assumptions and approaches. It is hoped that, armed with these practical tools, poverty analysis in developing countries, conducted by local analysts and institutions, will take firmer root.

The book is organized in three parts, including Parts I and II on principles and choices and country applications, which have already been outlined above. Part III will sum up and highlight lessons learned, including a synthesis of the country applications. Part III will also contain an additional chapter addressing estimation of inequality. Because poverty lines are employed to compute real consumption across the full income distribution, alternative poverty-line estimates imply differences in measured inequality. This chapter will explore these differences for Mozambique, Tanzania, Malawi, Ethiopia, Madagascar, and Pakistan. A final chapter will conclude and look forward.

Two appendices provide documentation of the PLEASe and EFOD code streams. These will also be living documents on the UNU-WIDER website alongside the associated code. As noted, the databases and codes for the specific applications will also be posted.

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PART I: PRINCIPLES AND CHOICES

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*Channing Arndt and Finn Tarp*

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1. Absolute Poverty Lines

*Channing Arndt and Finn Tarp*

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1. Multidimensional Poverty

*Lars Peter Østerdal and* *Channing Arndt*

See the synopsis.

1. Estimation in Practice: PLEASe and EFOD

*Channing Arndt and Finn Tarp*

See the synopsis

PART II: COUNTRY APPLICATIONS

1. Mozambique

*Channing Arndt, Sam Jones, Vincenzo Salvucci, and Finn Tarp*

Mozambique has registered significant progress across a range of monetary and non-monetary poverty indicators at both national and regional levels since 1996 when national-level data began to become available. While consumption poverty fell significantly from 1996/97 to 2002/03, more recent data from 2008/09 show that consumption poverty (as measured by the headcount rate) at the national level was essentially the same as in 2002/03, at about 55 per cent of the population. Similar to the consumption poverty results, nutrition indicators for children under five years old show little progress at the national level since 2002/03. In this chapter, we seek to provide greater insight into the evolution of consumption poverty by deriving regional utility consistent poverty lines based on data drawn from the 1996/97 (IAF96), 2002/3 (IAF02), and 2008/9 (IOF08) rounds of the national household surveys conducted by the National Statistics Institute. In addition, in the absence of more recent household consumption data, we present FOD studies of child and household welfare using the Demographic and Health (DHS) and Multiple Indicator Cluster Surveys (MICS) from 2003, 2008, and 2013. The former pair provides an opportunity to compare with consumption poverty estimates; and the final survey provides insights into more recent trends.

1. Tanzania

*Channing Arndt, Vincent Leyaro, Kristi Mahrt, and Finn Tarp*

A lively debate on trends in poverty rates in Tanzania has taken place. From about 2001, national accounts reported rapid economic growth rates including rapid growth in agriculture. Nevertheless, household survey analysis, based on household budget surveys in 2001 and 2007, showed very limited decline in consumption poverty. In addition, unit values derived from the household survey were strongly at odds with the CPI and the GDP deflator. Using PLEASe, the finding of stagnant poverty rates is confirmed. In addition, comparison of food price trends with market information systems data also confirms the price trends observed in the household survey. Further investigation using an economy-wide model of Tanzania is able to match the observed trends in poverty rates with macroeconomic trends under the assumption that growth rates in agricultural production (and hence overall growth rates but to a lesser degree) are overstated. The chapter illustrates the steps taken to confirm the official numbers and then triangulate these results with other sources of information and methods. We will also seek to analyse a recently-completed budget survey conditional on access to useable data. Finally, we apply the FOD approach to four rounds of the Tanzania DHS (collected between 1990 and 2010) to all regions of Tanzania, which confirm an improvement in wellbeing between 1990 and 2010; however these gains are more prominent in some regions or among some population groups than others.

1. Ethiopia

*David Stifel and Tassew Woldehanna*

Since the beginning of the twenty-first century, the Ethiopian economy has experienced strong economic growth and structural improvements including rapid infrastructure growth, increased agricultural production and commercialization, better functioning food markets, and a strong social safety net programme. It is in this context of steady structural changes, that we use PLEASe to apply a utility-consistent approach to measuring consumption poverty in Ethiopia in 2000, 2005, and 2011. Several data-related issues create challenges to estimating the spatial and temporal distribution of poverty in a manner that meets both consistency and specificity objectives. This chapter documents how the PLEASe code stream can be adapted to address changes in data collection periods and strata for the respective surveys over time. Changes in the duration and time of year for data collection can be especially problematic for consistency in the presence of annual inflation of over 30 per cent. In addition, the Ethiopia case provides an example of the challenge of conducting revealed preference tests to evaluate the utility consistency of regionally-estimated poverty lines (i.e., do the consumption patterns in other spatial domains cost no less than the own-domain consumption patterns when both are evaluated at own-domain prices) when spatial consumption patterns differ substantially.

1. Malawi

*Ulrik Beck, Richard Mussa, and Karl Pauw*

Applying the PLEASe approach to measuring utility-consistent consumption poverty, we reveal a startlingly different picture of the evolution of poverty in Malawi between 2004/05 and 2010/11 than that presented by Malawi’s National Statistical Office (NSO 2012). Both analyses use the second and third Integrated Household Surveys (IHS2 and IHS3) and a broadly comparable cost-of-basic-needs approach as the basis for the analysis of poverty trends. However, we estimate a more conservative two percentage point decline in urban poverty over the period compared to the eight percentage point decline of the NSO (2012). More importantly, considering that poverty is overwhelmingly a rural phenomenon in Malawi, we find that rural poverty had declined by six percentage points compared to the small 0.7 percentage point *increase* estimated by the NSO (2012). We attempt to decompose the difference between the ‘official’ and ‘revised’ poverty estimates with respect to four critical methodological differences between these studies: (i) our use of a revised set of unit conversion factors developed by Ecker et al. (2014); (ii) our specification and use of regional poverty lines as opposed to a single national poverty line; (iii) our use of implicit survey-based prices rather than external price data to estimate nominal poverty lines that are utility-consistent over time; and (iv) our approach permitting a change in the food/non-food composition of the consumption basket over time that reflects changing preferences and relative prices. In doing so we do not claim technical superiority of our methods; instead, the objective is to provide a step-by-step demonstration of the challenges faced when dealing with complex household survey data and the importance of critical assumptions and methodological decisions made along the way when estimating poverty in a given year or analysing poverty trends over time.

1. Uganda  
   *Bjorn Van Campenhout, Haruna Sekabira, and Fiona Nattembo*

Uganda has seen impressive poverty reductions over the past few decades. However, recent research relying on non-monetary wealth indicators show much more modest progress. We argue that an outdated poverty line that does not take into consideration the spatial variation of diets in Uganda can explain much of the paradox. We estimate new poverty lines using the Uganda National Household Survey of 2012/13. When we use a single national poverty line, we come close to the official poverty estimates. However, if we estimate utility consistent poverty lines using six spatial domains, poverty levels and geographical poverty patterns are much closer to those suggested by studies that use non-monetary wealth indicators.

1. Madagascar

*David Stifel, Tiaray Razafimanantena, and Faly Rakotomanana*

Welfare in Madagascar appears to be consistently worsening with measures of national poverty rising from 56.3 percent in 2001, to 59.6 percent in 2005, and to 61.4 percent in 2010. However, two political crises, the rice price crisis, and severe weather shocks occurred during this timeframe presenting the challenge of disentangling long-term poverty trends from short-term shocks that may affect poverty estimates in a particular year. Complementary data indicate that in the time periods between the shocks, the wellbeing of the poor improved. Recognizing that poverty estimates for Madagascar may be more of a reflection of short-term shocks than of long-term trends, we adapt the PLEASe utility-consistent approach to measuring consumption poverty in order to analyse poverty in Madagascar in 2001, 2005, and 2010. This chapter documents how the utility-consistent approach to inter-temporal and spatial deflation differs from the approach undertaken by the national statistical office to produce the official poverty estimates (i.e., using urban consumer price indices), and how the trends in these estimates differ substantially. Furthermore, we illustrate the importance of addressing extreme values for calculating unit prices, and how to handle redistricting when conducting revealed-preference tests of the utility-consistency of not only regionally-estimated poverty lines (i.e., do the consumption patterns in other spatial domains cost no less than the own-domain consumption patterns when both are evaluated at own-domain prices), but of these poverty lines over time.

1. Democratic Republic of Congo

*Malokele Nanivazo and Kristi Mahrt*

After a long period of unrest (1998 to 2003), the DRC is on the path to economic recovery with an annual growth rate in excess of 5 per cent in the last decade and signs of economic recovery throughout the economy. Information on poverty and wellbeing is scarce and scattered. This is particularly true for the determination of welfare trends through time. In order to unveil the condition of children at the provincial level, we apply the FOD methodology and ordinally rank provinces based on their welfare achievement using three sub-samples of children and seven binary indicators of childhood wellbeing derived from the Demographic and Health Survey. In this chapter, we discuss limitations encountered in choosing and defining welfare indicators including the FOD methodology’s restriction on missing values. If any individual or household has missing data in any indicator, that observation is excluded from the analysis, which ultimately impacts the selection of welfare indicators. We illustrate the impact of the missing values’ restriction with regard to anthropometric data. We also address the inability of some binary indicators to provide a clear picture of welfare; for example the line between what should be classified as deprived or not deprived is not always obvious, yet where the line is drawn may have a significant impact on FOD results.

1. Zambia

*Gibson Masumbu and Kristi Mahrt*

Though Zambia has maintained high growth rates throughout the 2000s, consistent, strong growth has not only failed to translate into significant poverty reduction—it appears that the poverty rate has stagnated since 2006. Sixty per cent of the population still live below the poverty line, with 42 per cent of the population facing acute poverty. Furthermore, the gap between rural and urban poverty has widened over time. The majority of people affected by poverty reside in rural areas where almost 90 per cent of people facing acute poverty are concentrated. Understanding how poverty is distributed among regions and districts therefore warrants careful scrutiny. In this chapter we analyse household data from Zambia’s 2010 Census of Population and Housing to make multidimensional welfare comparisons among Zambia’s 73 districts and ten provinces. The FOD methodology allows us to rank provinces and districts providing detailed insight into how these areas compare in terms of adequate access to water, sanitation, education, housing, and employment. The resulting district rankings are presented on a map, which clearly portrays the distribution of poverty within Zambia. In addition to the general methodology used in this study, we discuss issues in applying FOD with bootstrapping that are unique to census data.

1. Nigeria

*Olu Ajakaiye, Afeikhena T. Jerome, Olanrewaju Olaniyan, Olufunke A. Alaba, and Kristi Mahrt*

We seek to provide insight into the paradoxical trend in Nigeria of high economic growth accompanied by increased poverty. The FOD approach allows us to examine the distribution and evolution of household non-monetary wellbeing at the state and zonal levels over a ten-year period. We employ two data sources to define five indicators of wellbeing (education, water, sanitation, shelter, energy). The compatible 2003/4 Nigeria Living Standard Survey and 2009/10 Harmonized Nigeria Living Standard Survey (HNLSS) provide data for state-level analysis, while the 1999, 2003, and 2008 Nigeria DHS provide data for national, zonal, and urban/rural analysis. In this chapter we discuss our logic for and issues encountered in employing various data sources and the selection of variables. While the DHS provides data over a ten-year period, it does not have an adequate sample structure and design to include states in regional analysis. Consequently, we turn to the H/NLSS for state-level analysis but retain the longer time frame of the DHS for national, zonal, and urban/rural analysis. In the hope of achieving comparability between years and surveys, we define indicators as consistently as possible throughout the study, which forces some definitions to be broader than desired. We conduct sensitivity analysis to explore how these less strictly defined indicators affect results and provide insight into comparability among data sources.

1. Pakistan

*Sohail Malik, Hina Nazli, and Edward Whitney*.

The official poverty line in Pakistan was estimated by applying the Food Energy Intake (FEI) method to nationally representative household survey data collected in 1998-99 (PRSP 2004) and subsequently has been updated using the official CPI. However, this official poverty line 1) underestimates poverty overall poverty and 2) masks variation in poverty estimates across rural and urban areas within provinces. Furthermore, while the adjusted official poverty line shows a declining trend in poverty rates since 2001-02, trends in other non-monetary measures of poverty—including stagnant real household consumption expenditures and increases in food expenditure shares—are not consistent with this official trend. In this chapter we present utility-consistent poverty estimates for Pakistan using the PLEASe package, with modifications to suit Pakistan. The results provide much needed perspective on these crucial issues.

PART III: SUMMING-UP AND LESSONS LEARNT

1. Synthesising the Case Studies

*Channing Arndt and Finn Tarp*

See the synopsis.

1. Extending to Inequality

*Ulrik Richardt Beck*

See the synopsis.

1. Conclusions and Looking Forward

*Channing Arndt and Finn Tarp*

See the synopsis.

Appendix A: Manual for Poverty Line Estimation Analytical Software (PLEASe)

A complete draft version of the manual is available alongside an associated code stream, written in STATA.

Appendix B: Manual for Estimating First-Order Dominance (EFOD)

The EFOD manual is almost complete; including that the code stream is internally well documented.

In addition, UNU-WIDER will publish a webpage where data and computer codes for reproducing the analyses covered in the country case studies.

# INTENDED MARKET

This book (and the associated website with code) targets students, academics, and practitioners in poverty analysis across the world as well as decision makers, who want to come to grips with how poverty is estimated in practice. This market is large. Poverty analysis attracts massive attention. Government agencies, including statistical services and research institutes in more than 100 countries, have a direct interest in robust estimation of trends in poverty and wellbeing; and civil society in these same countries regularly manifests strong interest in understanding poverty estimates which are at the core of intense public debate. Despite this high level of interest, no clear guide to the practice of actually estimating poverty in a step-by-step fashion exists. We would also expect demand from students and academics, in both developed and developing countries, to be very high due to the combination of the prominence of the issue and the absence of a clear reference volume for use in standard courses and exercise work.

1. COMPETITION

There is no obvious competition in the public domain for the proposed volume. The recent World Bank publication by Foster et al. (2013)—*A Unified Approach to Measuring Poverty and Inequality: Theory and Practice*—assumes the existence of a properly estimated poverty line. As such, the World Bank book and the accompanying ADePT software is a complementary text that builds on an assumed foundation. Our book intends to provide this foundation and lower the barriers to entry for those who want to begin from the beginning. In addition, we provide a similar starting point and scaffolding for the conduct of one specific approach to multi-dimensional poverty analysis that we have found useful. We recognise that individual consultants, researchers and teachers have over the years developed practices and codes for these purposes. However, they are almost never shared, publically available and clearly documented. Moreover, they are virtually exclusively concentrated in the hands of developed world analysts. No standard, systematic reference is publically available. This absence of competition is at the core of the rationale for this proposal.

# ESTIMATED LENGTH OF BOOK

We propose an estimate of no more than 150,000 words.

# ARTWORK REQUIREMENTS

We envisage Excel figures, possibly some maps, but no especially challenging artwork requirements.

# REFERENCES

Alkire, S., and J. Foster (2011). ‘Counting and Multi-dimensional Poverty Measurement’. *Journal of Public Economics*, 99(7): 476-487.

Arndt, C., R. Distante, M.A. Hussain, L.P. Østerdal, Pham L. Huong, and M. Ibraimo (2012). ‘Ordinal Welfare Comparisons with Multiple Discrete Indicators: A First-Order Dominance Approach and Application to Child Poverty’. *World Development,* 40(11): 2290-2301.

Arndt, C., and K. Simler (2010). ‘Estimating Utility Consistent Poverty Lines’. *Economic Development and Cultural Change,* 58: 449-474.

Brixen, P., and F. Tarp (1996a). *The South African Economy: Macroeconomic Prospects for the Medium Term*. London and New York: Routledge.

Brixen, P., and F. Tarp (1996b). ‘South Africa: Macroeconomic Perspectives for the Medium-Term’. *World Development,* 24(6): 989-1001.

Ecker O., and M. Qaim (2011). ‘Analyzing Nutritional Impacts of Policies: An Empirical Study for Malawi’. *World Development,* 39(3): 412-428.

Foster J., S. Seth, M. Lokshin, and Z. Sajaia (2013). *A Unified Approach to Measuring Poverty and Inequality: Theory and Practice*. Washington DC: World Bank.

Hertel, T.W. (1997). *Global Trade Analysis.* Cambridge: Cambridge University Press.

Löfgren, H., R.L. Harris, and S. Robinson (2002). *A Standard Computable General Equilibrium (CGE) Model in GAMS*. Washington DC: International Food Policy Research Institute.

NSO (National Statistics Office) (2012). *Quarterly Statistical Bulletin*. National Statistics Office, Zomba, Malawi.

Ravallion, M., and B. Bidani (1994). ‘How Robust Is a Poverty Profile?’. *World Bank Economic Review,* 8:75–102.

Tarp, F., K. Simler, C. Matusse, R. Heltberg, and G. Dava (2002). ‘The Robustness of Poverty Profiles Reconsidered’. *Economic Development and Cultural Change,* 51(1): 77-108.

1. A companion OUP volume will comprehensively bring together evidence of changes in levels and trends in African poverty in the last 15-20 years. [↑](#footnote-ref-1)
2. For background and the default approach in PLEASe see Arndt and Simler (2010) and Tarp et al. (2002). In this approach, the analysis of consumption poverty is rooted in the cost of basic needs method. The consumption bundle is allowed to vary across regions and over time to reflect differences in preferences and prices. Utility consistency is maintained through the application of revealed preference conditions. The approach makes full use of available information by employing a maximum entropy approach to reconcile consumption bundles when revealed preference conditions are violated. Overall, the approach permits poverty lines to be sensitive to local preferences and norms (specificity) while maintaining (or, more specifically, not rejecting) a fixed-reference welfare level across time and space (consistency). [↑](#footnote-ref-2)
3. See Arndt et al. (2012). [↑](#footnote-ref-3)
4. Application is on-going in Ghana and Uganda. Pakistan is also interesting as a case where the so-called Food Energy Intake (FEI) method has been applied to the same data, and illustrative comparison is made in the relevant chapter. [↑](#footnote-ref-4)
5. Particular attention will be paid to the observation that the ways in which prices are calculated (median, transaction-level average, quantitative weighted average etc.) matter a lot for the resulting poverty estimates. [↑](#footnote-ref-5)