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URBAN POVERTY AND THE WORKING POOR

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MICRO- AND MACRO-BASED APPROACHES FOR ESTIMATING WORKING POVERTY[*]

Note by the secretariat

SUMMARY

The revised Millennium Development Goal framework integrates employment and poverty statistics by adopting a new target, "Achieve full and productive employment and decent work for all, including for women and young people", to monitor progress towards achieving Goal 1. The present document describes the macro methodologies currently used by the International Labour Office to provide global and regional estimates of working poverty, which is one of the indicators selected to monitor the new employment target. The document also provides updated figures on working poverty for the world and for the Asian and Pacific region, based on this macro methodology. Given that direct measurement, especially at the country level, is preferable, two alternative micro methodologies to measure working poverty are presented. To illustrate the differences between macro- and micro-derived estimates, empirical evidence from the Philippines is examined.

The document concludes by summarizing the technical measurement issues for macro and micro approaches and discussing the implications for the role of countries in monitoring the Goals. The Committee is invited to provide comments and guidance on improving the methodology to estimate the working poor in the framework of monitoring the Goals.

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[*] This paper is the result of the cooperation between the ILO Regional Office for Asia and the Pacific and ESCAP and was prepared by Mr Steven Kapsos (ILO) in collaboration with the ESCAP secretariat.

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INTRODUCTION

1.   The revised MDG monitoring framework, discussed in document E/ESCAP/CPR(4)/3 introduces, under Goal 1, a new target relating to employment, "Achieve full and productive employment and decent work for all, including for women and young people", and four new indicators to track the progress made by countries towards achieving the target: (a) growth rate of GDP per person employed, (b) employment-to-population ratio, (c) proportion of people in employment living below $1 (PPP) per day and (d) proportion of own account and contributing family workers in total employment.

2.   The present document describes the methodology officially used by the International Labour Office (ILO) to estimate the last of these indicators and presents an updated set of world and regional working poverty estimates.[1] ILO regularly publishes global and regional estimates of the working poor generated from a macroeconomic estimation model based on assumptions on the correlation between poverty and employment. The use of these assumptions is due to an insufficient number of reliable micro-derived estimates of the labour force characteristics of the poor versus the non-poor. This "macro" methodology is designed primarily for producing aggregated estimates, in order to provide a broad representation of trends in the number and share of workers living in poverty in different regions of the world. In order to produce these estimates, ILO generates country-level estimates through an econometric model and then aggregates these values up to the regional and global levels. The aggregated estimates are assumed to be more reliable than country-level estimates because random country-level estimation errors would tend to cancel out during aggregation. In addition to the relative unreliability of the country-level estimates, these cannot be produced directly by countries, as the methodology for compiling the indicator is not available to them. This, in turn, hampers national monitoring of this particular Goal indicator.

3.   Given the several simplifying assumptions of the macro approach and the shortcomings in providing national estimates, in the present document alternative methodologies are proposed that make use of household survey microdata for the estimation of the working poor. These methodologies allow more robust estimates to be obtained of the working poor at the country level and, at the same time, encourage greater ownership of countries in monitoring the new employment target as the working poor indicator values could be calculated directly by national statistical bodies.

4.   Section I of the document describes the macro-based model developed progressively by ILO to estimate the number of the working poor. Section II discusses trends and projections in working poverty in the world and in Asia and the Pacific that are obtained using the macro model for the period 1990 to 2015. Section III presents two alternative and micro methodologies for producing

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[1] For previous estimates, see Steven Kapsos, *Estimating Growth Requirements for Reducing Working Poverty: Can the World Halve Working Poverty by 2015?* Employment Paper 2004/14 (Geneva, ILO, 2004).

working poverty estimates. The section includes a comparison of micro- and macro-derived estimates for the Philippines. Section IV presents the conclusions.

I. MACRO METHODOLOGIES FOR ESTIMATING WORKING POVERTY

5.   The working poor are defined as those individuals who work, but nevertheless live in households whose total income is below the poverty line. The total number of the working poor is divided by the total number of employed in a country to calculate the share of the working poor. Majid produced the first global estimates of the number of workers living below the $1 a day international poverty line for two points in time, 1986 and 1997.[2] His paper showed that over this period, the number of the working poor in the world had declined slightly, while it had actually increased in the lowest income countries.

Majid's estimates are based on the following decomposition of the working poor:

$$WP = POP_{poor} * LFPR_{poor} *(1-U_{poor})$$

where,

POP_{poor} is the working-age poor population

$LFPR_{poor}$ is the labour force participation rate of the poor

U_{poor} is the unemployment rate of the poor

6.   Because the joint distributions of poverty with population shares, labour force participation rates and unemployment rates are not known, Majid uses the following simplified definition instead, which combines international poverty rates with labour force figures:

$$WP_m = PovertyRate * LabourForce$$

This definition assumes that (a) the poverty rate of the official working-age population (typically 15 years and above) is equal to that of the population as a whole; (b) the labour force participation rate of the poor is equal to that of the working population as a whole; and (c) all (and only) economically active poor individuals are employed, that is, the unemployment rate of the poor is negligible. This definition provides a "lower bound" estimate of working poverty, as it assumes that not all the poor are employed among the working-age population, that is, the inactive.

7.   Berger and Harasty[3] expanded on this research, providing alternative world and regional working poverty estimates for the years 1990 and 1998, as well as projections of working poverty until the year 2010. These estimates are obtained by multiplying the international poverty rates by the working-age population figures, as follows:

$$WP_h = PovertyRate * WorkingAgePopulation$$

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[2] Nomaan Majid, *The Size of the Working Poor Population in Developing Countries*, Employment Paper 2001/16 (Geneva, ILO, 2001).

[3] Stefan Berger and Claire Harasty, *World and Regional Employment Prospects: Halving the World's Working Poor by 2010,* Employment Paper 2002/38 (Geneva, ILO, 2002).

This definition provides an "upper bound" estimate of working poverty, as the key assumption underlying this methodology is that all of the poor who are of working age are employed. Berger and Harasty also provided a lower bound, in which the number of the working poor is equal to the poverty rate times the number of employed individuals in an economy. This lower bound has not been implemented by ILO, since it implies no correlation between poverty and employment. However, assuming that the number of employed is estimated accurately, this lower bound may give a better indication of the working poor than that of Majid.

8.   Steven Kapsos[4] utilized the definitions established in the previous papers and refined the estimation methodology by using a cross-sectional time series database to estimate the number of $1 and $2 a day working poor for the years 1980 to 2004 and to forecast the extent of working poverty from 2005 to 2015. The paper presented an econometric model in which poverty data from a given year were aligned with data on macroeconomic conditions in the same year in order to predict poverty levels in countries for which data did not exist. More specifically, the missing country-level poverty rates were estimated using a linear ordinary least squares (OLS) model as follows:

$$Y_{it}^{T} = \ln\left(\frac{y_{it}}{1 - y_{it}}\right) = \alpha_i + x_{it}^{'}\beta + e_{it}$$

where y_{it} is the logistically transformed observed poverty rate in country i and period t and x_{it} is the set of covariates explaining the poverty rate, which includes per capita gross domestic product (GDP) (measured in constant 2000 international dollars), the share of the population aged 0 to 14, and a country dummy variable to capture the availability of poverty data for country i.

9.   Once the poverty rates were estimated, lower- and upper-bound working poverty estimates were generated using the equations used in paragraphs 7 and 8 above. This methodology results in annual working poverty estimates and therefore permits analysis of yearly changes.

10.   As mentioned in the introduction, the macro model aims essentially at producing regional and global estimates of working poverty rather than country-level estimates. The aggregation of estimates across many countries is assumed to reduce the effects of random estimation errors that bias national estimates of working poverty. In section III, two alternative and micro-data-based methodologies for estimating working poverty are presented. These methodologies are preferable to the macro methodology, particularly at the country and subnational levels, as they rely on direct measurement of the relationship between employment and poverty.

11.   The previous discussion makes clear that macro definitions and methodologies are based on several simplifying assumptions required in the absence of micro-derived data. Most significantly, the macro approach makes assumptions regarding the poverty rates of the working-age population

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[4] Kapsos, op. cit.

versus the total population, economic activity rates and unemployment rates of the poor versus the non-poor, and the ability to predict poverty rates in the absence of reported data.

II. EMPIRICAL RESULTS USING MACRO METHODOLOGY

A. Data used

12.   This section presents updated estimates of working poverty for the ESCAP region obtained using the macro-based model proposed by Steven Kapsos and maintained by the ILO Employment Trends Unit to produce the official global and regional working poverty estimates.[5] The following data are used to obtain these macro-based estimates of working poverty:

(a)   *Poverty rates* come from the World Bank's PovcalNet database and use reference lines of $1 and $2 per day in 1993 purchasing power parity (PPP) terms.[6] The years for the poverty figures range from 1980 to 2005;

(b)   *Labour force figures* come from the ILO Economically Active Estimates and Projections Version 5 database;[7]

(c)   *Employment figures* are taken from the Global Employment Trends Model, 2007, which gives employment rates and the total number of employed from 1991 to 2015;[8]

(d)   *Per capita GDP figures* in constant 2000 international dollars are taken from the World Bank's World Development Indicators 2006 database, which contains data for the period 1980 to 2005;[9]

(e)   *Real GDP growth rates* come from the International Monetary Fund (IMF) World Economic Outlook April 2007 database, which provides country-level real per capita GDP growth rates up to 2008. GDP per capita is forecast until 2015 by extrapolating from country-level trends during the preceding decade;[10]

(f)   *Demographic data,* including the share of the population aged 0 to 14, are taken from the United Nations World Population Prospects: the 2006 Revision Database.[11]