Improving our Knowledge and Analysis of Changes in Poverty and Inequality: The International Statistical Architecture

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1.   Introduction

Economists and policy-makers are increasingly interested in analysing living standards across countries and changes in their relative rankings over time. The different social and institutional arrangements that exist in countries around the world create difficulties for such international comparisons. Comparisons of economic data are further complicated because economic variables are expressed in different currencies. One method of converting economic data from a national currency to a common currency such as the US dollar is to use exchange rates. However, this simplistic approach is not appropriate for comparisons of standards of living and other similar comparisons and can lead to quite misleading conclusions. For comparisons of this nature a more robust and appropriate method is to use 'purchasing power parities' (PPPs), which directly reflect differences in the prices of goods and services in different countries.

This paper describes the issues associated with using PPPs for making international comparisons. In making international comparisons analysts are also interested in comparing income distributions. The issues associated with these types of comparisons are also discussed in this paper.

2.   Making International Comparisons

Much economic analysis concentrates on what is happening within an individual country and, because economic statistics produced by the national statistical agency are expressed in the domestic currency, comparisons can be made easily between different sets of domestic data. However, from time to time, economists are interested in comparing economic data from different countries. In some cases, (e.g., such as comparing the recent growth rate of GDP in Australia with that in the US) it is fairly easy to do so. In this case, the monetary units in which the underlying data are expressed are not important because it is the rate of growth rather than the level of activity that is being compared. Other types of comparisons are less straightforward. For example, there is often interest in the relative levels of activity between countries or in obtaining an overall total measure of activity for a group of countries such as those in the OECD. It is common to see figures quoted for the level of GDP per capita in countries, as a rough measure of relative economic well-being, or an overall growth rate for, say, the whole of the 30 OECD countries. In the former case, the main problem in making the comparison is in adjusting the data expressed

in national currency units to a common currency such as the US dollar. In the latter case, it is necessary to aggregate across different currencies (Australian dollar, euro, British pound, etc).

One method of converting economic data from a national currency to a common currency such as the US dollar is to simply use exchange rates. An exchange rate represents the 'price' of a foreign currency (i.e., the number of units of the domestic currency required to purchase one unit of a foreign currency). As such, it is clear that it is appropriate to use exchange rates for applications such as calculating the amount of goods and services that could be imported with the proceeds of a particular level of exports or calculating the domestic currency costs of purchasing foreign goods and services abroad. However, in assessing relative standards of living, what is required is a means of comparing the volumes of goods and services actually available to residents of different countries in their own countries. Using exchange rates to convert the national currency values can be misleading because exchange rates are influenced by factors other than relative domestic price levels (e.g., financial flows and interest rate differentials can have a significant effect on exchange rates). 'Purchasing power parities' (PPPs) are specifically designed to provide rates of currency conversion that equalise the internal purchasing power of different currencies. Converting national currencies using PPPs eliminates the effects of different price levels between countries.

The simplest example of a PPP is regularly presented by *The Economist* magazine, which shows the relative levels of the prices of Big Mac hamburgers between various countries. This form of presentation provides an indication of which countries are 'expensive' (i.e., those whose PPP for a Big Mac is higher than the equivalent price based on exchange rates) and those that are 'cheap'. More sophisticated PPPs are constructed by reference to the relative prices of a much broader range of goods and services.

To calculate PPPs, it is necessary to identify goods and services that are identical in all the countries involved in the comparison and for which prices can be collected. The goods and services concerned need to be representative of the expenditures in each country as well as being comparable between the countries. Tensions arise in identifying products that meet these two criteria, so compromises have to be made in the process.

Many international comparisons focus on measures of inequality. However, one factor that complicates the assessment of inequality is that, in addition to income distribution between countries, income distribution within countries can also be important in such analyses. This suggests that information on income distributions within countries should be compiled as well as those between countries. Ideally, these measures would take account of differences in prices in different parts of a country (e.g., prices in rural areas may be less than in urban areas) and any differences in pricing patterns experienced by different income groups (e.g., very low income groups may pay higher per unit prices than others because they can afford to buy only in small quantities). These issues may be more relevant to less-developed countries than to developed ones.

3.   International Frameworks

The framework underlying the national accounts and which therefore influences standards for most economic statistics (including PPPs) is the *System of National Accounts 1993* (commonly referred to as 'SNA93'). It was produced jointly by the Commission of the European Communities (Eurostat), the IMF, the OECD, the United Nations and the World Bank (see Commission of the European Communities *et al* (1993)). Some changes have been made to SNA93 since its publication nine years ago to take account of changing economic instruments (e.g., the emergence of new types of financial derivatives). The procedures for making such changes are coordinated by the Inter-Secretariat Working Group on National Accounts, which consists of representatives of each of the above organisations plus representatives from some UN regional commissions. Proposed changes have to be ratified by the United Nations Statistical Commission, which is the peak body for international statistical matters.

SNA93 provides an internationally accepted framework for producing national accounts statistics and for making international comparisons of these data, but there is no similar framework available for setting the standards applicable to international comparisons of the distribution of household incomes. While the underlying concepts that should be embodied in household income distribution statistics are the same as the income concepts underpinning the SNA, the priorities and practical issues to be addressed in compiling national accounts and compiling household income distribution statistics differ substantially.

Limited international work has been undertaken on producing guidelines to countries for household income surveys, which are typically the source for household income distribution statistics. In 1973, the Twelfth International Conference of Labour Statisticians adopted a 'Resolution concerning household income and expenditure surveys' which briefly dealt with many of the issues relevant to conducting such surveys.[1] More recently, an International Expert Group on Household Income Statistics (the Canberra Group) was established under the auspices of the United Nations Statistical Commission. The report of the Group is 'a guide…on how to prepare harmonised and comparable statistics on income distribution. It is a synthesis of prevailing ideas which tries to reconcile the dual concerns to be faithful to the conceptual nature of income and its theoretical definition, whilst taking into account the practical difficulties of data collection and compilation…' (Canberra Group 2001, p 1). There is now a fairly broad consensus on standard approaches to be used in household distribution analysis.

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1.   See International Labour Organization (1973) for details of this Resolution.

4.   National Accounts and PPPs

The SNA 'provides a comprehensive accounting framework within which economic data can be compiled and presented in a format that is designed for purposes of economic analysis, decision-taking and policy-making'.[2] The adoption of the SNA by the majority of national statistical agencies means that there already exists an internationally comparable set of economic data with accepted and well-understood aggregates. The task is to enable those aggregates to be compared across countries, typically by converting them into a common currency.

SNA93 strongly recommends using PPPs in international comparisons of real production and consumption. Paragraph 1.38 states:

> ...When the objective is to compare the volumes of goods or services produced or consumed per head, data in national currencies must be converted into a common currency by means of purchasing power parities and not exchange rates. It is well known that, in general, neither market nor fixed exchange rates reflect the relative internal purchasing powers of different currencies. When exchange rates are used to convert GDP, or other statistics, into a common currency the prices at which goods and services in high-income countries are valued tend to be higher than in low-income countries, thus exaggerating the differences in real incomes between them. Exchange rate converted data must not, therefore, be interpreted as measures of the relative volumes of goods and services concerned...

Paragraphs 16.82 to 16.104 of SNA93 provide a detailed description of PPPs and the methods of calculating them.

As mentioned above, making international comparisons of levels of activity, income etc, using exchange rates can produce misleading results. In its publication *Purchasing Power Parities and Real Expenditures – 1999 Benchmark Year* (OECD 2002), the OECD showed that PPP-converted GDPs make better economic sense than do exchange rate converted GDPs for tracking trends in real production or living standards. Table 1 is based on data from that publication. It shows the GDP for Japan as a percentage of that for the US in 1985, 1990, 1993, 1996 and 1999

The average annual growth in GDP volumes between 1985 and 1999 was 2.6 per cent in Japan and 3.2 per cent in the US so, in the absence of significant structural change, the Japanese economy would be expected to have become somewhat smaller relative to the US over the whole period shown above. As can be seen from Table 1, this is in fact the case when the comparisons are based on PPPs (a decline in the Japanese economy from 35 per cent of the size of that of the US to 34 per cent) but not with the exchange rate based comparison, which shows the Japanese economy increasing its size relative to the US economy by about 50 per cent (from 33 per cent to 49 per cent). In addition, the PPP-converted data show a fairly plausible relationship between the GDP for the two countries for each benchmark year when the relative rates of GDP volume growth are taken into account. There is a fairly sharp rise between 1985 and 1993 in the size of the Japanese

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2.   Commission of the European Communities *et al* (1993), p 1, paragraph 1.1.

Table 1: GDP – Japan and the US
Per cent

	Japan/US GDP ratios				
	1985	1990	1993	1996	1999
Converted using:					
Exchange rates	33	52	67	60	49
PPP	35	39	40	40	34
	Average annual growth in GDP volumes				
	1985–1999	1985–1990	1990–1993	1993–1996	1996–1999
Japan	2.6	4.9	1.5	2.0	0.4
US	3.2	3.2	1.7	3.5	4.3

economy relative to the US's when Japan's growth rates were stronger than the US's, followed by a large fall from 1996 to 1999 when Japan's growth rate was substantially lower than that of the US. On the other hand, the exchange rate converted data show changes in the relationship of GDP between the two countries that are economically implausible, with the Japanese economy apparently doubling in size compared with the US in only eight years between 1985 and 1993, followed by a sharp reversal between then and 1999 but still leaving its size compared to the US at an implausible level given the relative growth rates between 1985 and 1999.

Despite the SNA's strong support for using PPPs rather than exchange rates in making international comparisons, in practice there is some variation in their application by international agencies. For example, the IMF, World Bank, and OECD are consistent users of PPPs in the analysis of real production levels or living standards. However, until recently, the United Nations Development Programme (UNDP) used a confused mixture of PPPs and exchange rates in producing its annual *Human Development Report* (HDR). As a result, some significant problems arose in interpreting the HDR and this issue was discussed in depth at the March 2000 meeting of the UN Statistical Commission. Following that meeting, the Chair of the Statistical Commission appointed a small group to review the relative merits of PPPs versus exchange rates in international comparisons of the type included in the HDR. The report of this review[3] was presented to the March 2001 UN Statistical Commission meeting.

The report revealed a consensus that the statistical problems involved in using PPPs when making international comparisons are of a much smaller magnitude than those associated with using exchange rates in such analyses. In particular, the review team reported that:

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3. United Nations Statistical Commission (2001).

…[there are] two important shortcomings of PPP conversion use that require a response. The first is the question of quality of the measurement instruments of the basic data, the data collection and the calculation of PPPs. The second is the question of coverage for the countries of the world. We acknowledge...that these are both important issues but they are not in our view of sufficient weight to justify the use of US dollar exchange rate conversion rather than PPP conversion …the quality issue [of PPP data] cannot justify switching from the PPP estimate to a US dollar exchange rate, which can be more than three times smaller for least developed countries. Given such large differences between the two measures, using the wrong measure because it is more accurate does not satisfy a 'fitness-for-purpose' criterion.

The report also presented an analysis of comparisons using physical measures of output and the use of goods and services. It showed that, despite the data problems so often referred to when PPPs are mentioned, the PPP data at the level of GDP provide a much more plausible comparison between various pairs of countries than does a comparison based on exchange rates. The report reaffirmed SNA93 by recommending that PPPs rather than exchange rates should be used in international comparisons of real production and living standards because exchange rates produce distorted results. This report has been a very important step in gaining broad acceptance by both international institutions and national statistical offices of the need to use PPPs rather than exchange rates in international comparisons. As a result of the report, the UNDP HDR is now more consistent in using PPPs, but the UN's world economic forecasts, which purport to be forecasts of levels of real economic activity, still wrongly use exchange rates where PPPs are appropriate.

5.   Calculating PPP Statistics

The calculation of high-quality PPP statistics requires high-quality national accounts and price data for each of the countries for which PPPs are being calculated.[4] Price data are weighted using national accounts data to form PPPs which are then normally divided into national accounts aggregates to convert them to a common currency.

As mentioned previously, most countries prepare national accounts statistics; however the quality varies across countries, with less-developed countries tending to have poorer-quality national accounts than well-developed ones. Most countries collect price information of some sort, typically for the purpose of compiling a consumer price index. Again the quality varies from country to country. However, because the national accounts aggregates for which PPPs are to be constructed are generally broad in coverage, a comprehensive suite of PPPs requires a broader range of prices than those collected for the CPI. Furthermore, in order to make international comparisons of prices, as well as being representative of expenditure the prices collected must be comparable between countries and consistent with the methods of valuation used to compile national accounts. For these reasons, collecting prices for PPP statistics typically involves additional effort for the countries involved.

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4.   It should be noted that poor quality national accounts data will also adversely impact on the quality of exchange rate based comparisons, in addition to the other concerns with this method of comparison.

PPPs are calculated in two stages. First, at the most detailed level for which weighting data are available (the 'basic heading'), PPPs are derived based on the price ratios for all the items which can be matched between each pair of countries in the comparison. In the International Comparison Program (ICP) the 'country-product-dummy' (CPD) method is used to impute prices below the basic heading level using regression techniques. The outcome is that either observed or imputed prices are available for every item for every country in the comparison and so PPPs can be calculated for each basic heading using a full set of prices. The OECD and Eurostat, though, use a different method in which basic heading PPPs are calculated based on prices for those representative products which can be directly matched between pairs of countries. The second stage is to combine the basic heading PPPs using national accounts data as the weights to provide PPPs for each level of aggregation (e.g., household final consumption expenditure) up to GDP. There are several formulas available for use in this stage of the process. The two most commonly used are the 'Elteto-Köves-Szulc' (EKS) and the 'Geary-Khamis' (GK) methods. The GK method has been used to aggregate the basic heading data in each round of the ICP.[5] On the other hand, the OECD switched to the EKS method for its headline results from the 1990 PPP round on, but some estimates based on the GK formula are also published in OECD (2002).

The disadvantage of the GK method is that it suffers from a bias known as the 'Gerschenkron effect'. Gerschenkron observed that GDP at partner country prices is always higher than when expressed in the prices of the country itself. The bias arises because, in practice, the GK method applies a price vector obtained by averaging the prices at each basic heading level to a matrix of expenditure weights based on each country's national accounts. The OECD observes that 'those countries whose price structures are different from the structure of the average prices used in the aggregation process will be shown as having higher relative volume levels than they would have had if average prices, more characteristic of their own prices, had been used'.[6] The OECD identified the countries most affected by the Gerschenkron effect in the 1999 OECD-Eurostat-ECE round as being the Russian Federation, Latvia, Bulgaria, Ukraine, Turkey, Romania, Macedonia, Estonia and Lithuania, which are all relatively low-income countries. The EKS formula is akin to a 'Fisher Ideal' index in time series and does not suffer from this bias. For this reason, it is favoured by SNA93 as the appropriate formula for compiling PPPs for GDP and the main expenditure aggregates.[7] The main disadvantage of the EKS formula is that the results obtained using it are not additive (i.e., the sum of the components of GDP does not equal the directly derived estimate of GDP).

In contrast to the Gerschenkron effect, which leads to an overstatement of the per capita GDP of low-income countries, exchange rate comparisons systematically understate per capita GDP in less-economically developed countries compared with

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5. A more detailed discussion of the issues is contained in Dowrick (this volume).

6. OECD (2002), p 165.

7. Commission of the European Communities *et al* (1993), p 397, paragraph 16.103.

those with relatively high GDP per capita. The reason is based on the productivity differentials between high- and low-income countries and is described as follows by the architects of the ICP:[8]

> International trade tends to drive the prices of traded goods, mainly commodities, towards equality in different countries [based on exchange rates]. With equal or nearly equal prices, wages in the traded goods industries in each country will depend upon productivity. Wages established in the traded goods industries within each country will prevail in the country's nontraded goods industries. In nontraded goods industries, however, international productivity differentials tend to be smaller. Consequently, in a high-productivity country high wages lead to high prices of services and other nontraded goods, whereas in a low-productivity country low wages produce low prices. The lower a country's income, the lower will be the prices of its home goods and the greater will be the tendency for exchange-rate conversions to underestimate its real income relative to that of richer countries.

How the biases associated with the GK methodology and exchange rates translate into assessments of changes in inequality is difficult to establish with precision. It is clear, however, that exchange rates do not provide a suitable starting point for assessing changes over time because they are such a fundamentally flawed means of comparison. Based on exchange rates, the gap in per capita income between the countries with the richest fifth of the world's population and those with the poorest fifth increased from a factor of 30 to 1 in 1960 to 74 to 1 in 1995. Ian Castles (1998) pointed out that, based on PPPs, this ratio was about 12 to 1 in 1960, 18 to 1 in 1990 and 16 to 1 in 1995. The report to the UN Statistical Commission of the team which reviewed the HDR discredited the use of exchange rates for making international comparisons within a year. The differences observed above in the two sets of time series indicate that per capita volumes based on exchange rates are not able to be used as an indicator of changes over time either because they are so (implausibly) different from the PPP-based measures. In other words, not only do exchange rate based comparisons produce extreme and meaningless estimates of relative levels but they also produce meaningless results over time. In addition, Table 1 shows empirically that time series of comparisons based on exchange rates produce results which are economically implausible, even when they are between two high-income countries. In practice, the only certainty with exchange rate based comparisons is that, for any point in time, they will significantly overstate the difference in per capita GDP volumes between high- and low-income countries. It is impossible to provide a definitive answer to the question of the extent of the change in this bias over time because it will depend on the countries being compared, the extent of the differences in the structure of their economies at each point in the time series under consideration and other factors which affect exchange rates (e.g., financial flows or interest rates).

Calculating PPPs is dependent on being able to collect the prices for similar products across all the countries in the comparison. The problem of matching up economies that are significantly different (e.g., Germany and Thailand) is handled by calculating PPPs for groups of like countries and then using a country that could

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8.   Kravis, Heston and Summers (1978), p 9.

be classified to more than one group as a 'bridge' to link the groups together (e.g., Austria was used to link together eastern and western European countries in the 1996 PPP project). If the GK methodology is used, grouping countries which are economically similar and linking the various groups will reduce the impact of the Gerschenkron effect.

If the quality of a country's national accounts and/or prices information is poor, then the quality of the PPP statistics for that country will also be poor. However, even though that country's data – depending on the choice of formula – can affect comparisons between two other countries, the impact of this is typically insignificant. The exception is if the country is used as a 'bridge' country to link together two sets of independently compiled PPP statistics.

6.   Availability of PPPs

PPPs were first calculated on an experimental basis in the 1960s by the University of Pennsylvania, which was working on the International Comparison Program (ICP) jointly with the United Nations Statistics Division. The catalyst for this work was the recognition by a number of economists (including Colin Clark) that using exchange rates in comparisons of incomes systematically biases the results for poor countries downwards when comparisons are made with economically developed countries. The ICP output was benchmark PPPs for various years, with 1970 being the first year of the ongoing, or production, series. The benchmarks were produced for 1975, 1980, 1985 and 1993, with the World Bank assuming the role of global coordinator for non-OECD countries in 1993; 118 countries were covered in the 1993 round, compared with 10 in 1970. In 1980 the OECD, in collaboration with the statistical office of the European Union (Eurostat), commenced a PPP program for its member countries. The OECD-Eurostat PPP Program was integrated within the ICP for those years in which the two overlapped. However, the OECD-Eurostat Program was run more frequently, providing benchmark data for Western European countries and the non-European OECD countries for 1980, 1985, 1990, 1993, 1996 and 1999. (In 1999, eastern European non-OECD countries were also included.)

Because PPPs are not available for all years for all countries, they are often extrapolated (either forwards or backwards) to provide estimates for 'missing' years. The extrapolation process generally used is fairly simple. It uses the ratio of the movement in the GDP deflator for each country and that of the US for the year concerned to move forwards (or backwards, as appropriate) from a benchmark PPP. The PPP estimated for each year using this procedure is divided into the current price GDP for the country to produce a time series of GDP volumes on a PPP basis. Broadly, the assumptions underlying this process are that the relative structure of expenditure on GDP for the US and that for each other country in the comparison is similar (and fixed) for each year compared with the benchmark year that they are estimated from. Even in the short term it can be shown that this assumption falls down if there are abrupt changes in prices, such as those for oil.

The problem is more marked when the countries included in the extrapolation are at different stages of economic development or if one of them is suffering from very

high inflation. Using this procedure to produce a times series in US dollars for a developing country by comparing its volume GDP growth with that of the US could produce quite misleading results, even in the short term. The longer the period between the benchmark and other years in the time series, the more likely that the time series of PPPs will be questionable.

The effects could be reduced by estimating the time series of PPPs using information at a more detailed level than GDP (e.g., for components of household final consumption expenditure, for components of gross fixed capital formation etc). The Penn World Tables (PWT), which present a time series of PPPs for about 170 countries, do project the PPPs at a more detailed level than GDP but only a handful of components are involved. The PWT contain data derived by '…integrating the different benchmark studies and developing methods that satisfy the need for information about countries that have not participated in benchmark studies and for years other than benchmark years. This has been accomplished through interspatial and intertemporal extrapolations of the ICP data to non-benchmark countries and years'.[9] The PWT provide the most comprehensive PPP data set available and are used extensively in different types of international economic analysis. However, they are based on benchmarks which, in the years since 1990, are calculated using different aggregation techniques – the EKS method for countries in the OECD-Eurostat-ECE comparison and the GK method for other countries – and so their usefulness is reduced in some types of comparisons. On the positive side, the PWT are as firmly based as any likely alternative given the problems associated with calculating time series of PPPs.

Other data sets, such as that produced by Maddison (2001) are based on simple extrapolations for many years from a single benchmark. A question that needs to be investigated is the extent to which the noise in time series of PPPs affects the longer-term analytical outcomes based on the estimates. It could be quite significant because of the rate of structural change over the past half century for which detailed country estimates have been presented in the above text, particularly for those countries which had centrally planned economies for much of this time. However, it is impossible to measure the impacts because of the lack of consistent benchmark data with which to compare these long-term time series of PPPs. Results from analysis of such time series should be treated as indicative rather than as precise estimates of changes over time.

7.   Current Status of the ICP

The last round of the ICP, conducted in respect of 1993, was dogged by problems. The funding available was insufficient to handle a project of the scope envisaged, the data supplied were often of poor quality, there was little understanding by many countries of the statistical implications of the data they were supplying, quality control of the data was poor, and the results took many years to compile. The

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9.   Heston and Summers (1997), p 3.

international statistical community did not begin to rejuvenate the ICP until the problems with the HDR re-focused attention on the need for high-quality PPPs to be used consistently for real production and living standard comparisons. Over the past couple of years, the World Bank has been planning to revitalise the ICP, with a new round covering 117 countries being planned for 2003.[10] This planning has taken account of two reports[11] prepared by eminent statisticians into the state of health of PPP statistics.

The World Bank is currently raising the funds required to run a 2003 round designed to avoid the pitfalls of the 1993 round (the necessary funding is estimated to be around US$14 million). It has also been planning how to strengthen the round. Broadly, the overall 2003 ICP will be conducted by a team at the World Bank, and run on a regional basis with coordinators being located in five UN regional commissions (the Economic and Social Commission for Asia and the Pacific (ESCAP) in the case of our region). The OECD and Eurostat will be responsible for about 45 countries which currently participate in their PPP Program. The project will be overseen by a high-level Executive Board which will be responsible for ensuring the project remains on track and that high-quality results are delivered.

Apart from the cost associated with establishing the international team to conduct the ICP, there will also be costs associated with providing technical assistance to countries to enable them to improve the quality of their national accounts and/or prices statistics, as well as the costs of collecting the necessary additional prices, which some less-developed countries cannot afford. The World Bank is preparing software that will assist countries in collecting and editing prices. Therefore, an important spin-off to the 2003 ICP will be an improvement in the underlying statistical infrastructure in many less-developed countries. The World Bank has also initiated a number of research projects to establish the conceptual approaches to be adopted in areas such as the survey framework, the lists of products to be priced, the index number formula to be used in aggregation, the method(s) to be used in linking countries and regions, etc. The United Nations Statistical Commission has given strong support to the 2003 ICP.

8. Measuring and Comparing Income Distribution

The measurement of income distribution usually requires household surveys to show how aggregate income received by the household sector (as might be measured in the national accounts) is shared amongst the population. Making international comparisons of the results of such surveys encounters at least the same problems as those in making comparisons of national accounts, as discussed above, including the need for PPPs to convert consumption, income or poverty lines in national currencies onto a common basis.

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10. See the World Bank website at < http://www.worldbank.org/data/>.

11. Castles (1997) and Ryten (1998).

Perhaps most importantly, household surveys of income usually only collect information about cash or near-cash income and this concept of income excludes other elements of material well-being which are captured within the national accounts. The omissions are likely to include own account production in transition economies, compensation to employees not provided in cash, imputed rent for owner-occupied dwellings and the services provided to households by government such as education, health services and subsidised housing. The omissions are particularly problematic when making comparisons over time and between countries because the relationship between cash and non-cash income relativities do vary significantly both between countries and over time.

The focus on cash income in household surveys is a practical issue, as household survey respondents are often not able to provide sufficient information to quantify the value of the non-cash elements of the economic resources available to them. Practical issues also lead to other differences such as in the definition of cash income, the time period to which income concepts apply, and in survey scope.

Even for cash income data items, the data collected in household surveys may not align in aggregate to total household cash income included in national accounting aggregates for a range of reasons, not least because survey respondents do not report accurately. The incomes by source may vary more significantly, even where total cash incomes do broadly align. For example, while the cash component for welfare transfer incomes may be a relatively small component of total cash incomes for the economy, and error in its measurement is not significant in a comparison of total household incomes, it is often a far more significant component of income for those at the bottom of the income distribution. Small errors in measuring aggregate incomes can have very significant impacts on distribution measurement at any point in time, and confound analysis of changes in distribution over time for a single economy. The problems multiply when inter-country comparisons are made over time.

It is also the case that the correspondence with national accounting aggregates changes over time as an economy develops. For example, while the incomes of small unincorporated businesses may be captured in national accounting aggregates for the household sector derived through taxation or business records information, this income can be very difficult to measure accurately in a household survey. Because its significance for those on lower incomes can be great, and its changing significance quite marked in relatively short time spans, household surveys are routinely less than ideal for capturing the impact of these changes on income distribution.

All these considerations make international comparisons at any point in time more difficult, and comparisons of relative change between countries over time very problematic. Putting aside the difficulties of getting appropriate PPPs at the country and intra-country level to try to get the income distribution analysis into the same unit of currency, and assuming that the basic measurement difficulties that differentially affect cash income statistics in different countries can be reconciled, apparent changes in income distribution based on these cash income surveys need not represent changes in consumption levels or their distributional impacts.

Failure to recognise all the difficulties inherent in measuring household income as an indicator of inequality has led some researchers to draw inappropriate conclusions about trends in income distribution within and between countries.

At a practical level, the Luxembourg Income Study (LIS) has attempted to assemble comparable data sets of income distribution microdata from around the world. Established in 1983, LIS is a research database that comprises microdata information from income surveys that has been made available in a confidentialised form. The data sets are harmonised as far as possible by maximising comparability in terms of units of analysis, income concepts, measures of inequality, and so on. The experience gained in this work helps identify the areas of greatest concern in achieving international comparability in household income statistics.

9.   Conclusions

International comparisons are crucial for economists and social statisticians in a number of ways, such as identifying what sets apart successful economies from those that are less successful, how income varies around the world, the relative incidence of poverty between countries and to what extent inequality of income in different countries is changing over time. In particular, poverty and inequality are areas of interest where the available statistical data are somewhat imprecise, vary in quality from one country to another and also vary over time, and are open to different interpretations depending on the techniques used in their analysis. However, as a result of the review of the data and methods used in the UNDP HDR, the United Nations Statistical Commission has reaffirmed the SNA93 recommendation that PPPs should be used for standardising data to a common currency for use in comparisons of real production levels or living standards.

In the past, widespread use of PPP data in such analyses has been held back by the lack of timeliness of the PPP benchmark data being released, misunderstandings on the part of many analysts concerning the ways in which PPP data can be used and misgivings (some real but many imagined) about the accuracy of the data which has often (misguidedly) led to exchange rates being used as a substitute in international comparisons. On the policy side, the outcome has been that much of the effort that should have gone into analysing various data sets has instead gone into debating the usefulness of PPPs versus exchange rates.

The 2003 ICP is an ambitious, yet achievable, effort to develop a high-quality set of PPP benchmarks. The G-20 can play an important role in ensuring that the 2003 ICP succeeds in its goal by encouraging countries to participate in the ICP to the best of their ability and by providing financial and technical support where possible. A successful 2003 ICP will remove some of the confusion surrounding the poverty/inequality debate by providing access to a better means of making international comparisons. There will be other benefits in the form of improved national data systems that, in turn, will lead to clearer evidence of the successes or failures of national policies. Australia is strongly committed to the 2003 ICP. The Australian Government's overseas aid agency (AUSAID) has indicated it is prepared to provide financial support and the Australian Bureau of Statistics has offered technical assistance to participating countries in the Asia and Pacific region.

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