Paper 7: Poverty Lines and Poverty Counts in Bangladesh[1]

Abstract

Bangladesh has featured quite prominently in discussion of methodological issues involved in poverty calculation (Ravallion and Sen, 1996; Wodon, 1997; World Bank, 2002a), and some effort has been devoted to building capacity to measure poverty in Bangladesh. However, the latest estimates of poverty and poverty trends diverge widely (BBS, 2004; GoB, 2005). This paper reviews the methods and data used in these and other recent calculations of poverty lines in Bangladesh. Poverty line calculations for Bangladesh have been made using Food Energy Intake, Direct Calorie Intake, Cost of Basic Needs, and Unit Value based Consumer Price Index methods. A wide range of poverty lines and consequent poverty counts arises, with somewhat different spatial patterns and trends over time. Our implementation of a Cost of Basic Needs method slightly closer to the standard method, exploration of the different methods and data, and comparison with other measures of welfare suggests that we can have no confidence that current poverty calculations provide welfare aggregates measured by a constant yardstick, rather than variations in that yardstick. Hence, we do not know what has been happening to poverty, and cannot draw conclusions about whether recent trends and policies have been pro-poor or not. Given this unsatisfactory situation we must be sceptical that capacity to measure poverty in Bangladesh has indeed been developed.

Introduction

Poverty measurement in Bangladesh has played a significant role in the literature on poverty measurement in the Third World (Ravallion and Sen, 1996 (R&S), Wodon, 1997; see also Lanjouw, 1999), in particular in establishing the Cost of Basic Needs (CBN) method as the method maintained by the World Bank as appropriate for use in Poverty Reduction Strategies (World Bank, 2002). The Bangladesh Bureau of Statistics (BBS) which is the official organ for conducting household surveys which are used to compute CBN poverty has participated in construction of these poverty counts and is reported to have received considerable training in the methods.

However, there are several ways in which the CBN method can be implemented which give different results (Tarp et al., 2003, GoB, 2005). The draft Poverty Reduction Strategy Paper (PRSP) of the Government of Bangladesh gives two measures of poverty, both using CBN methods emanating from authors associated with the World Bank, which give Head Count Poverty Ratios for the fiscal year 2000/1 that differ by 10%, or more than 20 million people (GoB, 2005)[2]. One measure extends the series produced by R&S puts the HCR at around 40% (Sen and Mujeree, 2002 (S&M, 2002); the other method combines CBN base poverty lines with the use of Unit Value Consumer Price Indexes to update these lines gives a head count of just under 50%. Yet another CBN poverty calculation, which uses the poverty line method of Wodon, 1997 (see also World

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[1] Richard Palmer-Jones, May, 2005. With acknowledgments to but not implication of Rushidan Rahman, and participants in Stata training workshops at the General Economics Division of the Bangladesh Planning Commission.

[2] This divergence is to be dropped from the final PRSP, although no explanation is given.

Bank 1998), puts the HCR in 2000/1 at almost 60% (World Bank, 2001, Technical Appendix:p11).

Although the last two reports of the Bangladesh Household Income and Expenditure Surveys (HIES 1995/6 and 2000/1; BBS, 1998 & 2002) report the same calculations as those in the contemporaneous World Bank poverty assessments (World Bank, 1998, 2002), BBS also reports poverty calculations using the Direct Calorie Intake method (DCI) which give yet other poverty aggregates. Earlier, the Bangladesh Bureau of Statistics used the Food Energy Intake (FEI) method as well as the DCI method, and still uses the DCI method in its Poverty Monitoring Surveys (BBS, 2005) in part reflecting doubts that BBS staff have about the CBN method (personal communication, anonymous BBS staff)[3].

Closer examination shows that neither R&S nor Wodon implement the CBN method in a manner that conforms with the method proposed in Ravallion, 1992 (see also Ravallion, 1994 and 1998; Ravallion and Bidani, 1994; Lanjouw, 1999), nor that proposed by Tarp et al. 2003. The main difference is that both R&S and Wodon use the same normative food bundle that is quite untypical of the food consumption patterns of the poor as found in the HIES data; when the "behavioural" bundle (comprised of the proportions of foods consumed by households around the poverty line) is used much lower poverty lines results (see below). My calculations of a CBN poverty line suggest national poverty between 32 and 39 % in 2000/1 depending on how the non-UV component is calculated (see below).

The latest World Bank poverty assessment for Bangladesh (World Bank, 2002a), and BSS, 2002) use the Wodon CBN method to compute base poverty lines for 1991/2 but update these using a method that is claimed to be similar to that used by Deaton and Tarrozi, 1999, in their recent work on poverty lines in India (see also Deaton and Dreze, 2002; Deaton, 2003a & b; for an extended critique, see Dubey and Palmer-Jones, 2005a, b, & c[4]).

This paper reviews the methods of poverty measurement in Bangladesh, and draws attention to some of the methodological and institutional issues and problems that arise.

Poverty in Bangladesh

The draft PRSP in Bangladesh published two alternative poverty estimates (GoB, 2005) both emanating from authors associated with the World Bank, which differ by nearly 10% - or more than 20 million people; the HCR of the World Bank's 2002 publication, which is the same as that in the BBS report on the HIES 2000, suggests that the National poverty head count ratio (% of people living in households whose monthly per capita expenditure is below the relevant poverty line) is 49.8% of the population, while the

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[3] As well as questions about the capability of BBS to actually calculate CBN poverty lines; informal reports suggest that notwithstanding report that BBS staff have been trained in CBN methods by their collaboration with the World Bank poverty calculations, "World Bank consultants come, do the poverty calculations and write the reports, and go away without leaving any capacity behind" (personal communication, 2005, identity withheld).

[4] Deaton and our work on India does not use a CBN method to anchor PLs, or to update them spatially or temporally; instead CPIs are used for both spatial and temporal calculations of PLs from a base PL that is chosen arbitrarily as the all India Rural Poverty lines for 43rd and 38th Round respectively. The all India Rural poverty lines were originally based in a CBN/CPI calculation for 1973/4 (see Dubey and Palmer-Jones, 2005b; Sen 2005).

alternative method originally put forward by Ravallion and Sen,1996, and updated in a background paper to the I-PRSP, by Sen and Mujeree, 2002, is only 40.2%. Clearly, some clarification is called for.

In fact Bangladesh has been bequeathed five different methods of calculating poverty from the Household Income and Expenditure Surveys conducted by the Bangladesh Bureau of Statistics (BBS); see Table 1. The BBS has traditionally preferred a Food Energy Intake (FEI) method, and more recently a Direct Calorie Intake (DCI) method[5]. Beginning with the critical discussion of poverty estimation methods by Ravallion and Sen, 1996, authors from the World Bank have used two Cost of Basic Needs methods (CBN1 & CBN2)[6], and a third method that combines the CBN2 method for a base year with a Consumer Price Index (CPI) method for updating poverty lines, which I term CBN2/CPI1 because it uses CBN2 to compute base poverty lines in 1991/2 for each of fourteen areas in Bangladesh[7], and a Unit Values[8] based CPI for each area to update date these base PLs[9]. I have used a price index method based on Consumer Price Indexes[10] but anchored in our own base year CBN calculation of a national poverty line; spatial UV based CPIs are applied to this base PL and inter-HIES CPIs for each area are applied to these base PLs[11]. Table 2 and Figures 1 & 2 give the relevant urban and rural consumer price indexes and poverty lines used in or produced by the different CBN and CPI methods[12]. Figure 3 shows the national, rural and urban poverty counts given by the

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[5] The FEI method calculates the per capita expenditure at which households are expected to achieve a normative per capita calorie intake and counts as poor all households whose per capita expenditure falls below this level. The DCI method counts as poor all those in households whose computed per capita calorie intake is below the stipulated norm.

[6] CBN methods are explained and discussed in Palmer-Jones, 2005.

[7] These areas do not correspond to strata used by BBS for sampling; they are used for post-stratification. The basis on which these areas were delineated is not clear and no explanation or justification is given that I can find. The clearest statement is: "First, the country was divided into fourteen geographical areas. The list of areas and their sample size for the various years is given in Table A1" (Wodon, 1998a:4). These areas are: SMA Dhaka, Other urban Dhaka; Rural Dhaka; Rural Faridpur, Tangail & Jamalpur; SMA Chittagong; Other urban Chittagong; Rural Sylhet Comilla; Rural Noakhali & Chittagong; Urban Khulna; Rural Barishal & Pathuakali; Rural Khulna, Jessore & Kushtia; Urban Rajshahi; Rural Rajshahi & Pabna; Rural Bogra, Rangpur & Dinajpur.

Some of these groups include considerable heterogeneity and do not seem obvious spatial groupings. For example, it does not seem sensible to group Jamalpur with Tangail since Jamalpur is much further from Dhaka and less commercialized, or either with Faridpur, which is the other side of the Padma river. It does not seem sensible to group Comila with Sylhet.

[8] Unit Values are calculated from household expenditure surveys

[9] The World Bank, 2002, poverty lines are discussed in more Appendix 1.

[10] Similar to but not identical to that used by Deaton and Tarrozi, 1999, and Deaton, 2003, to calculate new poverty lines for Indian States, and to those used in Dubey and Palmer-Jones, 2005a&b. However, in this case I use sub-groups of official CPIs to compute the inflation between HIES of the non-UV items. I use the CPI for 4 divisions (Dhaka, Chittagong, Khulna and Rajshahi) for the rural indexes and for the 3 industrial workers (Narayanganj, Chittagong and Khulna) for urban CPIs; for urban Rajshahi I use the Khulna CPI.

[11] These calculations are provisional at the time of writing, as a revision is being undertaken; the final figures are not expected to differ greatly from those given here.

[12] CBN2, CBN2/CPI1 and CBN3/CPI2 methods are aggregated from the 14 areas to rural and urban aggregates using our estimated population weights for 1983/4-, 1985/6, 1988/9 and 1991/2 HIES and BBS strata weights for HIES 1995/6 and 2000/1. Our weights differ from those published in {Wodon 1998

World Bank. 2002, and our own CBN3/CPI2 calculations; the latter is notable for the significant rise in urban poverty in the second half of the 1990s, which we discuss further below[13].

It is evident from Figure 1 that both the levels and trends of poverty lines differ significantly between the different methods, and that all PLs inflate significantly less rapidly than the national Consumer Price Indexes, especially in thee rural areas. In both rural and urban areas, CBN1 has a lower trend than CBN2 (the highest trend), with CBN2/CPI1 (calculated only from 1991/2) starts with the same poverty line as CBN2 in 1991/2, but inflates slightly less over the 1990s. CBN3/CPI2 has the lowest level, but the trend is not greatly different to CBN2/CPI, largely because it uses similar UV and non-UV indexes to update the base PLs over time. For neither CBN2/CPI1 nor CBN3/CPI2 can we recalculate the poverty lines for the1980s because we have not been able to access the unit record data for the earlier HIES[14].

These differences are not hard to explain; leaving aside many details of the calculations, CBN1 and CBN2 methods use a food basket that is atypical of the expenditure pattern of the poor, having a higher proportion of higher value food items compared to staples rice and wheat. Hence, given price trends for different food items over the 1980 and 1990s, which are characterised by low inflation of rice compared to most other foods, this results in higher food poverty lines than the CBN3 method which uses a behavioural bundle (i.e. the food expenditure pattern of the poor rather than that given by the normative bundle). Recalculating the CBN2 poverty line at each round gives a higher inflation than using CPIs to calculate the inter-HIES inflation because there seems to have been a secular downward shift in the food and fuel Engel curve. This means that the non-food component of the poverty line rises disproportionately in the CBN2 method[15]. CBN1 uses a CBN method to recalculate the food poverty line at each HIES, but uses the official non-food Rural and Urban CPIs to inflate the non-food component of the PL set at 35% of the food poverty line for the 1983/4 PL calculation. This causes CBN1 PLs to inflate at a similar rate to CBN2/CPI1 but less than the CBN2 PLs inflate[16].

According to these CBN PL calculations, poverty fell more in the first half of the 1990s (1991/2 – 1995/6) than the second half (1995/6 – 2000/1), as Table 3 shows[17]. However, most trends in the Bangladesh economy were more positive in the second period. Also, although national trends in child nutrition cannot be cannot be computed for the first half of the 1990s, between 1996 and 1999 the Bangladesh Demographic and Health Survey

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#28790} although they use the same method; this is partly because the figures published in Wodon, op. cit. do not appear to have been produced by the method indicated.

[13] At this point it is worth commenting that peculiarities in the calculation of the UV CPIs in World Bank, 2001, account for the much smaller rise in urban poverty reported there.

[14] BBS can no longer supply the raw data for HIES prior to 1991/2; it seems clear that the World Bank consultants to the 1998 poverty assessment had access to the raw data for the earlier HIES (1983/4, 1985/6, an 1988/9) since otherwise calculations reported in official (World Bank, 1998) and academic (Wodon, 1997) literature could not have been made. However, efforts to recover these data from either source have been unsuccessful.

[15] Non-food shares in 1995/6 in CBN2 are around 50% for urban areas and 40% for rural areas - these are extraordinarily and implausibly high non-food shares of household expenditure for a poor person in South Asia. CBN1 results in non-food shares of more than 40% which are also implausible.

[16] CBN2 is a closer implementation of the CBN method set out in Ravallion, 1992, and Ravallion, 1998.

[17] CBN2 poverty calculations are not considered further.

shows a significant fall in child under-nutrition (Table 4). Infant mortality calculated from the BDHS shows a smaller fall between 1992/3 and 1995/6 than between 1995/6 and 2000/1 again supporting the idea that well-being improved more in the latter period (Table 5). A further feature of the trend in consumption that appears to support an improving situation in Bangladesh, is an apparent improvement in the quality of diet of households around the poverty lines that have been calculated (evidence not presented here, but see also World Bank, 2002). Notwithstanding a fall in calorie consumption of the poverty line expenditure group over each round (Table 6), it is the case that a culturally acceptable food bundle with the normative calorie content could have been bought by households whose expenditure corresponds to the poverty line; hence one concludes that the higher quality diet with fewer calories was preferred. This trend mirrors a similar one in India, where a rise in the share items of higher nutritional value such as fish, meat, poultry, milk and cooking oils, despite a fall in the calorie intake at these "real" expenditure levels (data and analysis available from the author), and an apparent slight rise in poverty as calculated by DCI and FEI methods (Table 7). While it is possible that this phenomenon reflects in part declining capture of food expenditure in the HIES (as Palmer-Jones and Sen, 2001, suggest for the Indian data), it – the apparently falling calorie consumption associated with a shift to higher cost calories available from higher quality foods (higher quality because of their generally higher content of proteins, vitamins and minerals) - is also found in India (Sen, 2005).

Spatial patterns of poverty in Bangladesh are also affected by the choice of poverty line method (Tables 3 & 5, and Map 1[18]). Generally there is more poverty in rural areas than urban, and in the north west of Bangladesh compares to the north-east and south-east. However, the CBN3/CPI2 method gives a somewhat different pattern to the CBN2/CPI1 method; the former shows more poverty in the central areas than areas to the west or east. I have considerable reservations about the area categorisations, which may entail considerable heterogeneity within areas.

Leaving this issue aside, several disturbing features emerge from closer examination of the calculations of PLs by the World Bank in 2002. The most significant is the lack of any justification for the changing methods used to calculate poverty lines by authors from the World Bank. Ravallion, 1998, seems indifferent between the two methods:

> "Having set the poverty line for one date, how should this be up-dated over time? There are two methods found in practice. The first is to use a consumer price index, preferably re-weighted to conform with the spending behavior of people at the poverty line, or somewhere below the line. The second is to re-do the poverty lines. The choice between the two methods will depend in part on the data available and its quality." (p20)

Noting the different method used in its 2002 document the authors of the World Bank, 2002, study comment:

> "[computing CBN] poverty lines for each year separately …does not guarantee that the poverty lines calculated across years represent basic-needs bundles of constant value. In particular, if living standards in a country improve over time, and even poor households spend a larger share of their income on non-food items, the allowance made for these items in the poverty line increases over time as well. The current methodology is superior in that it ensures

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[18] The areas shown in Map 1 may not exactly correspond to the areas as defined in the sources since there is some ambiguity as to which areas as are included in each of the 14 domains used by the World Bank and BBS.

> that comparisons of poverty rates over time are based on poverty lines that are held constant in real value terms."

This is an assertion rather than an argument, and is based on the assumption that households are getting better off, which is not demonstrated. Moreover, this argument would entail that the CBN method applied in 1991/2 to compute area base poverty lines is likely to have over-estimated the poverty line in 1991/2 compared to 1983/4, the first for which a comparable series is though to be computable, since a rising standard of living over the 1980s would have resulted in a rising non-food share. This is consistent with the R&S and S&M method, but undermines the comparison of poverty from 1991/2 onwards with CBN2 poverty levels calculated for the HIES before 1991/2.

Another non-trivial problem is the use of official National rural and urban CPIs for the non-UV items in the computation of the composite inter-HIES CPIs for updating the area base PLs. These national CPIs (for the rural and urban sectors) are for the total population and so do not correspond to the CPIs likely to be faced by the poor; further they are computed for an inappropriate level of spatial aggregation. It would be more appropriate to use non-UV items CPIs for the 14 spatial areas for which UV CPIs are calcaulted. Two other official CPIs are available for more disaggregated regions, namely for the rural sector for each of the 4 former Regions (Dhaka, Chittagong, Khulna, and Rajshahi)., and for industrial workers in three urban locations (Narayanganj, Chittagong and Khulna).[19]

These problems, and the lack of a literature discussing them and related issues, raises questions about the reliance on the World Bank to compute poverty and the lack of institutional capacity to undertake these calculations within Bangladesh[20]. This should not be because of lack of efforts to promote capacity to implement, process and analyse household expenditure surveys in Bangladesh, since the World Bank had projects to this purpose for the1995/6 and 2000/1 HIES. The main report of the former says:

> The Bank's South Asia Region started its capacity-building effort with the BBS in 1994. … centered initially on the design for the 1995-96 HES." (World Bank, 1998:3)

According to this report, the HIES survey methodology was enhanced by introducing BBS to concepts and practices of the Living Standards Measurement Surveys, supported by the World Bank poverty group, use of personal computers for data entry and validation, and the addition of a rotating module to address different topics in addition to household income and expenditure.

> "BBS staff were trained and a broader dialogue has been started on poverty issues…..
> 12 BBS staff participated in a specially designed, two-week workshop on poverty analysis arranged by World Bank staff in May 1997 in Kathmandu (officials from the Nepal Central Bureau of Statistics also took part in the training). The hands-on workshop included sessions on data management, poverty analysis, and public policy. Each participant had exclusive access to a personal computer and used data from the Bangladesh HES and the Nepal LSMS. The workshop was followed by seminars organized jointly with the government in Dhaka to discuss the preliminary findings from the 1995-96 and earlier HES data and the background work for this report. These

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[19] Yet more problems emerge on close examination, which are discussed in a separate paper available from the author.

[20] Similar questions are not raised in India where there is abundant national discussion of poverty calculations, even if it sometimes appears to be divided into international and national streams.

seminars and the ongoing collaboration with the BBS has promoted a dialogue among the government, researchers, and donors on how to best mainstream poverty analysis in public policy formulation, with the objective of making poverty analysis a much more integral part of designing and evaluating government and NGO policies and programs. The May 1998 meeting of Bangladesh's aid donors at the Bangladesh Development Forum in Dhaka will pay special attention to poverty issues."

A somewhat similar approach was followed for the 2000/1 HIES although no explicit details are given:

"While preparation of this PA [Poverty Assessment] started in the Fall 2001, the report is part of a long-term capacity-building effort initiated in late 1994. The World Bank and Asian Development Bank have worked with staff at the Bangladesh Bureau of Statistics (BBS) to help expand and enhance the information base on poverty. Extensive technical assistance and grant funding has been provided to help strengthen the National Accounts system as well as to enhance BBS's Household Expenditure Survey (HES) series." (World Bank, 2002: preface).

What is noticeable is that these efforts have left no trace outside BBS and within BBS there seems to have been either no or reluctant acceptance of many of the innovations promoted notwithstanding the statements quoted above. BBS in the latest Poverty Monitoring Survey has not adopted the CBN or CBN and CPI methods used in the 1998 and 2002 World Bank poverty assessments, and their own reports on the HIES (BBS, 2004), and senior BBS staff involved in the 1995/6 and 20001/ HIES appear not to fully agree with some of the methods used[21]. In the I-PRSP and PRSP provided opportunities for indigenous capacity to re-assess the poverty calculations, especially as there is widespread concern that the World Bank estimates are not accurate reflections of development in the Bangladesh economy over the 1990s (evidence of which has already been mentioned). The only independent work for the I-PRSP on measuring poverty, by Sen and Mujeree[22], used the rather simpler procedure of Ravallion and Sen, 1996, rather than the methods in which BBS has been trained in two successive HIES technical support projects from the World Bank.[23] Reports by the World Bank (2005) and UNDP (2005) on progress towards the MDG use the World Bank, 2002, poverty estimates without apparently undertaking any additional work.[24]

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[21] Personal anonymous communication. As an example, I have been asked by BBS staff on two occasions what is the reason for the regression procedure to estimate Unit Values for use in the CBN and CPI methods. The reasons are not given in the official World Bank publications, but can be found in an academic paper (Wodon, 1997). The method is supposed to estimate unit values that the poor are likely to pay by including dummy variables for household characteristics leaving out reference categories which are typical of the poor; this is discussed in Dubey and Palmer-Jones, 2005a.

[22] both of whom are currently expatriate from Bangladesh.

[23] It may also be noted that the UNDP funded a large program which included support to the Planning Commission (of which BBS is a part) to measure poverty and human development (Sustainable Human Development Model In Bangladesh Background Note June 2001, viewed November, 2005, at www.unescap.org/drpad/projects/casia/uzb_bgl.doc).

[24] The latter was part of the multi-million dollar UNDP funded Sustainable Human Development Project referred to in the preceding footnote. Again, there is little sign of any transfer of ability to compute poverty to the target staff in the Government of Bangladesh, as attested by the use of consultants using these same

Thus, there is some evidence that previous attempts to develop capacity for modern poverty assessment in Bangladesh have not been successful. The first of these projects may have resulted in several academic publications (for example, Wodon, 1996, 1997), but in little or no lasting capacity in Bangladesh. The approach of using hired consultants who undertake most of the work to prepare grey literature such as the working papers and World Bank country reports, even though they may publish parts of their work in academic journals, seems not to be appropriate in terms of developing local capacity.

Concluding Remarks

Poverty measurement based on the HIES as conducted by BBS, or the various other authors discussed not only give rather different pictures. From these data household welfare aggregates (usually monthly per capita expenditure) and, perhaps using also other data, poverty lines must be computed; poverty counting then requires aggregating persons living in households below these poverty lines. Computing poverty lines is the crucial step (even if rather more attention is devoted by economists to the theoretical attractions of alternative poverty aggregation procedures) and this requires robust Consumer Prices Indexes for which Unit Value CPIs computed from the HIES are only imperfect but useful substitutes[25]. It also requires widely agreed base poverty lines to which CPIs can be applied. Processing HIES and other large scale surveys requires skills in data capture, coding and documentation, cleaning and manipulation, analysis and presentation; these skills need to be widely distributed so that different perspectives can be brought to bear on what are inevitably complex and contested subjects. These skills seem almost non-existent in the public sector, academic and NGO institutions that one would expect to have some capacity in this area.

In the future more HIES data sets will become available and other GoB and civil society institutions should be able to make poverty analyses, not depending on the limited capabilities of BBS, whose prime task is to produce the data. As frequently noted, understanding the uses to which the data may be put is important to adopting appropriate methods of data production (World Bank, 1998)[26]. The 1991/2, 1995/6 and 2000/1 HIES are available at a price from BBS; this price is $1000.00 per data set, to which must be added the cost of capturing the data which is provided in raw form with limited documentation. This price is excessive compared to, say, charges for the NSS data from India. The Indian NSS charges $871 for the 1999/00 "thick" sample; this data set have samples of around 120,000 households while the BBS HIES have samples below 10,000

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methods in the preparation of the I-PRSP (Government of Bangladesh, 2003) and PRSP (Government of Bangladesh, 2005). Recent assessments of progress towards MDG undertaken in Bangladesh by the World Bank and UNDP similarly seem to have involved almost exclusive reliance on consultants (World Bank, 2005; UNDP, 2005). In the matter of poverty assessments both relied on the last World Bank poverty assessment (World Bank, 2002); for other MDG indicators the World Bank undertook new work using Bangladesh Demographic and Health Surveys, but again no transfer of capacity seems to have taken place. The UNDP consultants seem to have relied on published work for health and anthropometry.

[25] Their main deficiencies un-availability for non-food items, and possible biases due to confounding quality, outlet and other factors with underlying price changes or differences. The problems of official CPIs are lack of coverage of goods and outlets, and being inappropriate for the poor since they are generally prepared for the population as a whole. They also often are based on out of date weights, and procedures. We have not had access to BBS CPI preparation procedures despite frequent prompting.

[26] In this context we join the complaint of Khan and Sen, 2001, that BBS analysis lacks appropriate economic insights; staffing with a mixture people drawn from different social sciences and not statisticians alone, is necessary to produce good quality data.

households (earlier thick round data sets are available for a lower price; also, the NSS will enter into arrangements to supply the data free to academic institutions on submission of acceptable proposals. The HIES have income data but the NSS consumer expenditure surveys have a parallel survey of employment which comes for an additional $516. The cost and availability of the HIES (and other survey) data from BBS seems pitched to discourage independent research.

There are many approaches to measuring poverty from these data sources (as we have seen), and a recent paper summarising poverty assessments in Latin America found that depending on the (reasonable) assumptions made in computing poverty counts they could be either "20% or 66%" for the same survey (Szekele, et al. 2004). India has recently been experiencing much debate about levels of poverty computed from its National Sample Survey (Deaton and Kozel, 2004; see also Dubey and Palmer-Jones, 2005a, b, &c for further discussion and references)

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Table 1: Poverty Line Methods Used Recently in Bangladesh

Method	Authors	Base Poverty Lines	Updating procedures	Domains
CBN1	Ravallion and Sen, 1996; Sen and Mujeree, 2002	Food poverty line computed by CBN1[27] method Non-food share assumed to be 35% of food expenditure in 1983/4, updated by non-food rural and urban CPI for each round	Food poverty line updated by calculating food poverty line at each round Non-food component updated by multiplying 1983/4 non-food expenditure by national rural/urban non-food CPI	Rural and urban 1983-4 - 2000/1
CBN2	World Bank, 1998; Wodon, various publications	Food poverty line computed by CBN2[28] method for each of 14 areas using regression based (Ravallion and Benu, 1993) "unit values" Non-food share computed by an inverse Engel curve method (Ravallion, 1994) for each area for all households.	Food poverty line recalculated at each round Non-food share re-calculated at each round	14 "areas"[29] 1983/4- 1995/6
CBN2/CPI1	World Bank, 2002	Food poverty line computed by CBN2 method for 1991/2 Non-food share computed by inverse Engel Curve method for all households	Each area poverty line for 1991/2 updated using synthetic CPI combining a Tornqvist UV CPI for 14 food and fuel items representing 14 commodity groups[30] combined using average budget shares with non-food National Rural and Urban CPIs.	14 areas 1991/2 – 2000/1
CBN3/CPI2	TA BAN 4304 provisional PL calculation	National food poverty line computed by CBN3[31] method National non-food expenditure computed by inverse Engel curve method for expenditure group containing poverty line	Area poverty lines computed using spatial Tornqvist UV CPIs computed for the lower quartile and 4 Division or 3 Industrial Workers Non-food CPIs[32] using (democratic) average budget shares of UV items. Area poverty lines updated using Tornqvist UV CPIs for food items and former Division or Major Towns Non-food CPIs combined using democratic average budget shares for lower quartile.	14 areas 1991/2 – 2000/1

[27] CBN1 method uses a normative food bundle of 11 items, priced using unit values from the HIES; it is not clear if these are median or mean values.

[28] CBN2 uses the virtually the same normative food bundle as CBN1 priced using regression based unit values (Wodon, 1997)

[29] see World Bank, 1998. There are 8 rural areas and 6 urban areas. It is in fact not clear exactly how primary sampling units have been allocated to areas although it seems to be on the basis of 23 Regions and a classification into rural, Statistical Metropolitan Areas, and other urban areas. This probably results in considerable within area heterogeneity, with some rural locations close to Dhaka, or other SMA, being classified into the same area as rural areas considerably more remote. A more sensible approach might be classify rural areas according to their proximity to major urban areas. Since thana codes are provided in the HIES this can be readily achieved, although for purposes of comparability with BBS and World Bank sources I have refrained from doing this yet. Other classifications are of course possible (e.g identifying chaor, or coastal areas for example).

[30] Thus rice is used to represent cereals; lentils for pulses, and so on. Some of these choices are odd – for example, kerosene is used to represent fuels, but not only is this not common in rural areas but no UV can be calculated for the HIES 2000/1 as there are no quantities given. CPI2 uses on average 70 items in its UV CPIs.

[31] CBN3 uses the behavioural food bundle (e.g. democratic average quantities purchased per household for the expenditure pentile containing the computed poverty line) costed using median UVs computed for the bottom quartile of the expenditure distribution. All items that have more than 10 observations in the comparison locale are used – usually 60 -90 items in each CP. In later work we may use the lowest frequently occurring unit value.

[32] BBS compiles rural indexes for 4 former Districts–Dhaka, Chittagong, Khuln and Rajshahi, and for urban workers for Narayanganj (Dhaka), Chittagong, and Khulna (used for both Khulna and Rajshahi former Districts.

Table 2: Poverty Lines (Tk pc pm) and National Consumer Price Indexes, 1983/4 – 2000/1

	year	R&S CBN1	S&M CBN1	Wodon CBN2	WB 2002 CBN2/CPI1	RPJ CBN3/CPI2	Sector General CPI (1985=100)	National General CPI (1973/4=100)
Rural	1983	268.9	268.9	281.3	281.3			
	1985	319.1	319.1	319.3	319.3		62.1	
	1988	379.1	379.1	412.2	412.2		81	
	1991	469.1	469.1	517.7	512.6	381.0	100	
	1995		541.8	603.6	592.2	426.0	118.5	
	2000		634.5	730.8	653.3	489.0	130.9	
Urban	1983	301.7	301.7	322.2	322.2		52.6	
	1985	368.6	368.6	393.0	393.0		65	
	1988	453.6	453.6	485.0	485.0		84.2	
	1991	535.0	535.0	598.3	598.0	430.0	100	
	1995		650.5	810.7	733.7	503.0	115.7	
	2000		724.6	930.	804.2	613.0	138.1	
National	1985							357.4
	1988							436.0
	1991							578.6
	1995							724.4
	2000							819.2
Growth								
Rural	1983							
	1985							1.105
	1988		1.089		1.065		1.093	1.099
	1991		1.059		1.089		1.073	1.078
	1995		1.074		1.075	1.028	1.043	1.031
	2000		1.037	1.039	1.037	1.028	1.020	1.049
Urban	1983		1.032	1.039	1.020			
	1985							
	1988		1.105		1.104		1.112	
	1991		1.072		1.073		1.090	
	1995		1.057		1.072	1.040	1.059	
	2000		1.050	1.083	1.052	1.040	1.037	

Table 3: Trends in Head Count Ratio Poverty by Different CBN/CPI Poverty Line Calculations

area	CBN2/CPI1			CBN3/CPI2		
	hcr91	hcr95	hcr00	hcr91	hcr95	hcr00
Dhaka SMA	0.354	0.166	0.276	0.171	0.086	0.171
Dhaka Other Urban	0.501	0.273	0.208	0.547	0.277	0.229
Dha & Mym Rural	0.569	0.437	0.435	0.544	0.375	0.383
Faridpur, Tangail & Jamalpur Rural	0.712	0.509	0.506	0.728	0.521	0.561
Chg SMA	0.449	0.433	0.431	0.188	0.129	0.140
Chg Other Urban	0.509	0.359	0.388	0.421	0.213	0.296
Comilla & Sylhet Rural	0.492	0.445	0.445	0.365	0.369	0.379
Chg & Noakhali Rural	0.434	0.587	0.421	0.402	0.477	0.399
Khulna Urban	0.503	0.467	0.389	0.331	0.305	0.287
Barisal & Patuakhali Rural	0.620	0.502	0.371	0.656	0.484	0.320
Khulna, Jessore & Kushtia Rural	0.547	0.546	0.462	0.492	0.407	0.368
Rajshahi Urban	0.465	0.376	0.460	0.342	0.255	0.368
Rajshahi & Pabna Rural	0.773	0.688	0.599	0.618	0.472	0.428
Bogra, Rangpur & Dinajpur Rural	0.656	0.607	0.537	0.613	0.556	0.487
Rural	0.620	0.531	0.479	0.570	0.446	0.423
Urban	0.446	0.311	0.314	0.311	0.192	0.257
National	0.561	0.489	0.440	0.498	0.395	0.390

Note: These figures differ slightly from those published in World Bank, 2002; this is probably mainly because they are based on MPCE calculations by the author rather than the figures published by either BBS, or the World Bank. For 1991 the population weights have been recalculated from the 1991 Census.

Table 4: Proportion of Stunted Children in Bangladesh,

Division	1996/7	2000/1
Barisal	0.482	0.361
Chittagong	0.424	0.356
Dhaka	0.439	0.370
Khulna	0.358	0.296
Rajashahi	0.382	0.331
Sylhet	0.458	0.448
Total	0.424	0.360

Source: BDHS, 1996/6 & 2000/1, author's calculations

Table 5: Infant and Child Mortalities, 1963-2004

Survey	Age group	Five Year Period Ending								
		1963	**1968**	**1973**	**1978**	**1983**	**1988**	**1993**		
bdhs1	imr	90.1	79	68.6	72.8	57.9	52.9	41.3		
	q5	160.8	157.5	141.2	135.3	114.7	96.4	71.9		
	1q5	70.7	78.5	72.6	62.5	56.8	43.5	30.6		
			1966	**1971**	**1976**	**1981**	**1986**	**1991**	**1996**	
bdhs2	imr		72.8	81.2	65.5	59.7	54.2	42.4	38.5	
	q5		137.5	150.7	134.2	118.8	98.7	80.3	61.7	
	1q5		64.7	69.5	68.7	59.1	44.5	37.9	23.2	
				1970	**1975**	**1980**	**1985**	**1990**	**1995**	**2000**
bdhs3	imr			66.1	70.5	67.9	57.4	48.6	39.9	26.2
	q5			153.1	129.4	130.8	112.5	88.3	71.8	41.9
	1q5			87	58.9	62.9	55.1	39.7	31.9	15.7
					1974	**1979**	**1984**	**1989**	**1994**	**1999**	**2004**
bdhs4	imr				102.9	62.8	57.8	47.5	44.1	30	26.4
	q5				173.0	129.2	114.4	91.1	77.3	56.1	40.1
	1q5				70.1	66.4	56.6	43.6	33.2	26.1	13.7

Source: author's calculation from Bangladesh Demographic and Health Surveys

Table 6: Calorie Consumption at Poverty Lines

area	1991 cbn zu	cbn2 zu	1995 cbn2/ cpi1 zu	cbn3/ cpi2	2000 cbn2 zu	cbn2/ cpi1 zu	cbn3/ cpi2
Dhaka SMA	2365	2152	2121	2074	2176	2177	2175
Dhaka Other Urban	2138	2112	1939	1990	2163	2166	2163
Dha & Mym Rural	2360	2323	2277	2289	2311	2316	2309
Faridpur, Tangail & Jamalpur Rural	2324	2357	2252	2308	2156	2165	2154
Chg SMA	2149	2033	2097	1917	2103	2101	2076
Chg Other Urban	2094	2044	2056	2010	2041	2041	2036
Comilla & Sylhet Rural	2234	2126	2163	2150	2130	2133	2127
Chg & Noakhali Rural	2405	2328	2334	2272	2278	2281	2274
Khulna Urban	2261	2174	2148	2073	2046	2048	2041
Barisal & Patuakhali Rural	2111	2256	2154	2181	2275	2281	2274
Khulna, Jessore & Kushtia Rural	2435	2332	2354	2324	2293	2298	2287
Rajshahi Urban	2314	2195	2202	2148	2070	2071	2062
Rajshahi & Pabna Rural	2550	2387	2465	2311	2372	2367	2362
Bogra, Rangpur & Dinajpur Rural	2266	2324	2277	2230	2166	2171	2162

Note: All PLs are the same in 1991 hence have the same base calorie consumption; cbn2/cpi1 zu are the upper poverty lines in World Bank 2002, and cbn3/cpi2 are those we have calculated.

Table 7: DCI and FEI Head Count Ratio Poverty

	1991		1995		2000	
	dci	fei	dci	fei	dci	fei
Dhaka SMA	34.50	16.55	43.52	51.05	54.33	51.91
Dhaka Other Urban	49.81	41.38	53.47	54.15	46.03	50.63
Dha & Mym Rural	42.02	28.34	41.93	44.96	37.94	46.61
Faridpur, Tangail & J	51.93	96.80	43.96	43.80	49.46	52.74
Chg SMA	56.46	35.05	49.71	53.28	45.72	52.98
Chg Other Urban	53.63	44.07	51.15	53.54	59.76	52.49
Comilla & Sylhet Rural	44.44	32.08	48.38	47.63	53.03	52.80
Chg & Noakhali Rural	36.14	52.43	40.65	45.99	41.69	51.77
Khulna Urban	44.68	25.33	51.12	50.14	49.04	55.15
Barisal & Patuakhali	57.51	52.93	47.10	50.54	46.98	52.39
Khulna, Jessore & Kus	37.00	63.57	37.00	42.23	36.93	44.39
Rajshahi Urban	45.37	18.74	42.22	52.33	59.02	57.82
Rajshahi & Pabna Rura	42.02	47.61	40.40	44.00	32.42	40.55
Bogra, Rangpur & Dinajpur	55.00	66.17	47.82	46.00	49.20	51.33
rural	**45.44**	**42.82**	43.27	46.52	43.76	49.48
urban	**45.11**	**48.54**	46.94	51.78	51.95	52.75
Total	45.38	44.23	44.18	47.14	45.48	50.17

Note Rural and Urban FEI Poverty calculated from regression with rural/urban dummies; area FEI poverty computed from regression with area dummies

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1991=100

Note: the national CPI shows significantly more inflation than the sectoral CPIs
World Bank food inflates less than and non-food inflates more than either Sectoral CPIs
UV CPIs inflate less than either Official food or World Bank UV Indexes
Sources:
Official: Statistical Yearbook of Bangladesh, 2002, and 1996 volumes, BBS, Dhaka
National = Consumer Price Index, 1985-6 base
RF = CPI Rural Families (4 former Districts), 1973-4 base;
IW = CPI Industrial Workers (3 Towns), 1973-4 base
World Bank, 2002: food index - Unit Values average of area CPIs weighted by persons
non-food - Official National Rural and Urban non-food index 1985-6 base, reported in Technical Appendix
RPJ: UV CPIs calculated at national level (see text)
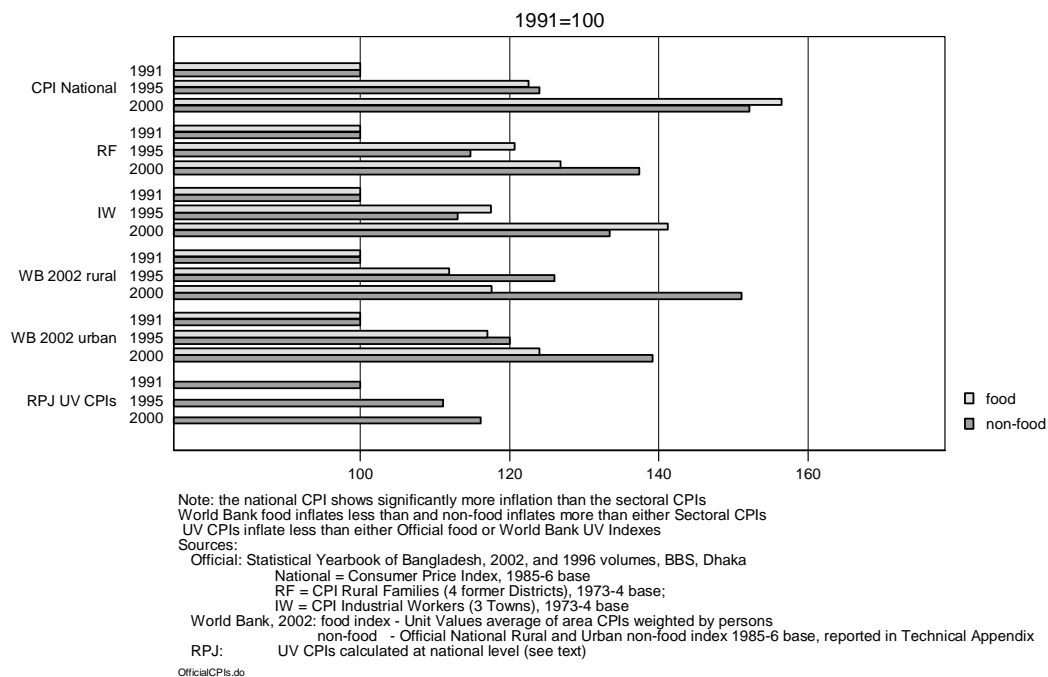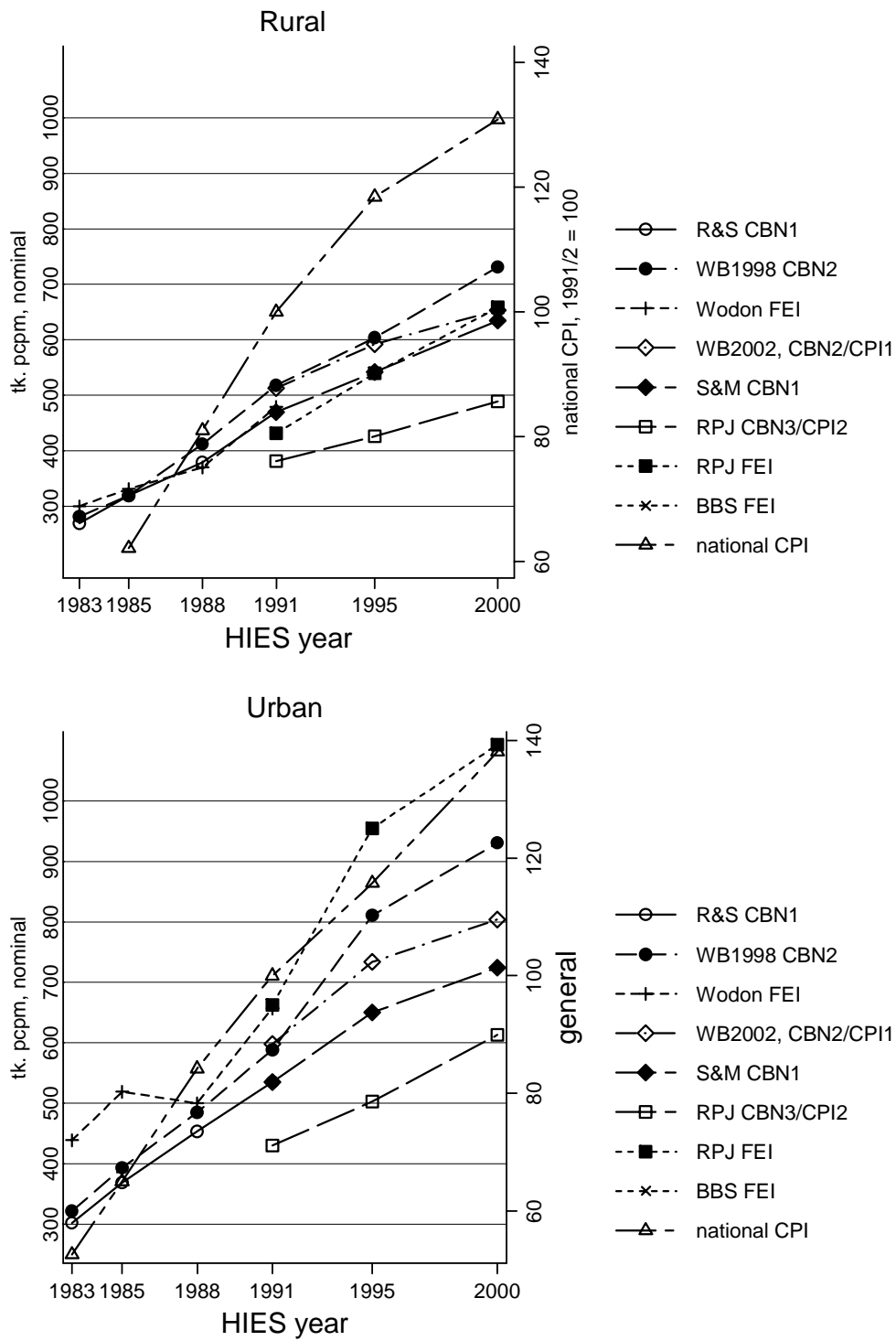
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Figure 1: National, Rural and Urban Consumer Price Indexes, Bangladesh, 1991/2-2000/1

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Note: upper povery lines only

Figure 2: CBN and FEI Poverty Lines, 1983/4-2000/1

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HCR by HIES and Poverty Line Calculation
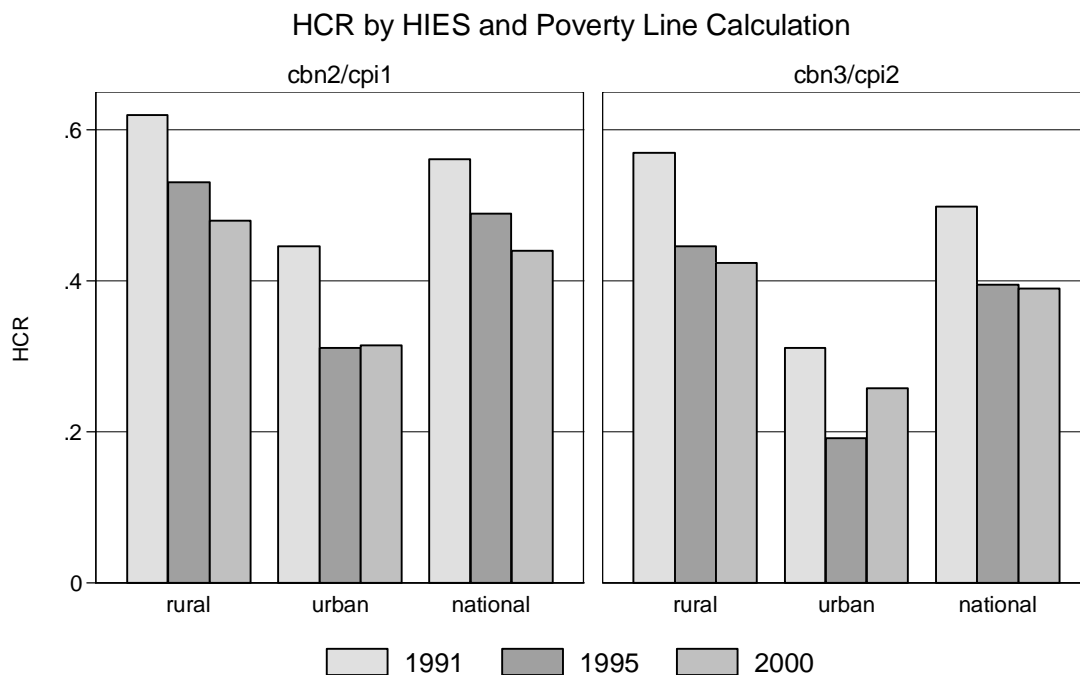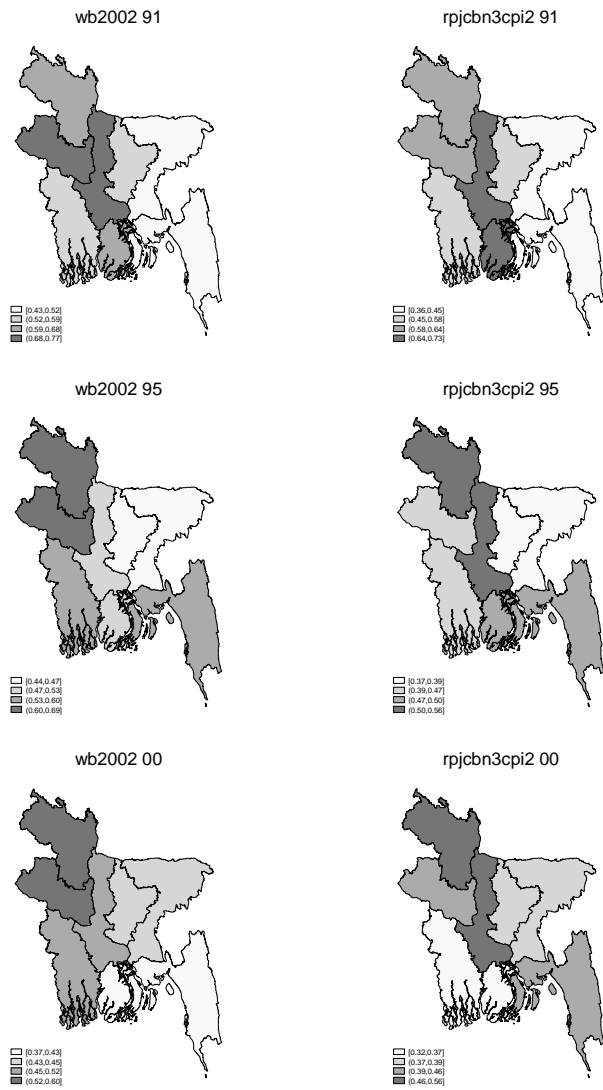

source: wb_areas.do

Figure 3: National, Rural and Urban Head Count Ratio Poverty by CBN/CPI methods

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Map 1: Spatial Distribution of Poverty in Bangladesh

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