

Final report

# Review of national accounts estimation in Bangladesh

A stocktaking  
exercise

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**REVIEW OF NATIONAL ACCOUNTS ESTIMATION IN BANGLADESH:  
A STOCKTAKING EXERCISE**

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August, 2017  
Dhaka

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# **REVIEW OF NATIONAL ACCOUNTS ESTIMATION IN BANGLADESH: A STOCKTAKING EXERCISE**

**S. R. Osmani\***

## **I. Introduction**

The Bangladesh Bureau of Statistics (BBS), the official agency responsible for producing national accounts statistics, has decided to undertake a thorough revision of national accounts while at the same time changing the base year from 2005-06 to 2015-16. BBS also proposes to create a new time series of national accounts going as far backward as possible (at least up to 1995-96, in the first instance), based on the revised procedures and the new base year. The present report is intended as a stock-taking background study to facilitate the proposed rebasing and revision exercise.

Since the last revision and rebasing of national income statistics, which took place in 2014, new sources of data have become available, which allow for improvement in the existing estimation procedures. Moreover, several new economic activities have gained in importance so as to deserve separate attention. A revision of the national accounts is, therefore, now in order. At the same time, ongoing changes in the structure of the economy, with the accompanying changes in the shares of sectors and sub-sectors in the GDP, require a rebasing of the time series of national accounts. The new data bases should also make it possible to follow a more detailed classification of activities, set new benchmarks for improved coverage, and to obtain better estimates of value-added through updating of input cost estimates across a number of sectors and sub-sectors including both traditional and new activities.

The challenge, however, lies in reconciling data from various sources in order to ensure consistency of estimates and to address the problems of data gaps and overlaps, so as to result in a more comprehensive and methodologically sound estimation of national accounts that also conform better to internationally accepted standards. Finding suitable methodology to deal with data deficiencies, including data gaps and overlaps, may also lead to innovative accounting methods that are both academically interesting and policy-relevant (e.g. in terms of interpreting the estimates and pointing to the need for generating new data).

Against this backdrop, the present report attempts a rigorous stock-taking of the current state of the national income accounts in Bangladesh with the aim of (i) addressing existing gaps in data and coverage, and (ii) outlining methodological improvements. A detailed critical review

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of the existing methodology and the quality of data sources underlying various parts of GDP estimation – from both production and expenditure side – is undertaken in Section II. Section III discusses some conceptual issues involving BBS’s treatment of a couple of broad aggregates of national accounts – namely, gross national income (GNI) and domestic saving (DS) – and makes recommendations on how to deal with them. Section IV makes some suggestions on how BBS can enhance the usefulness of its national accounts statistics by venturing into some new areas – namely, direct estimation of saving and change in stock, estimation of factor incomes, and separate estimation of rural and urban GDP. Finally, Section V offers some concluding observations – mainly, by way of drawing attention to the need for improving co-ordination among different parts of BBS so that the national accounts of Bangladesh can be based on a more solid empirical foundation.

## **II. A Review of GDP Estimation Procedures as Practised by BBS**

In this section, we undertake a detailed review of the methodology and data base underlying the estimation of various components of GDP, with a view to identifying the scope for both methodological improvement and the need for strengthening the database.<sup>1</sup> The discussion is not meant of a comprehensive review of what BBS does while compiling the national accounts data; instead it focusses on some major areas where the scope for improvement exists.

### ***Agriculture***

Crop output, which is by far the major part of agriculture, is measured by multiplying estimated area under each crop by estimated yield per hectare of cropped land. Each year, land area under each crop is estimated by the Agricultural Wing of BBS, based on the information provided by its field staff located all over Bangladesh. This information is validated by consultation with the field staff of the Ministry of Agriculture and further corroborated from the GPS images provided by the Bangladesh Space Research and Remote Sensing Organization (SPARRSO). The resulting estimates of land use pattern can be claimed to be reasonably robust (except perhaps for some of the minor crops).

There are, however, certain issues with the estimation of yield rates that need to be addressed. Two different procedures are used for major and minor crops respectively. Six crops – the three paddy varieties (*Aus*, *Aman* and *Boro*), wheat, jute and potato – are considered major crops, and the rest are treated as minor.

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<sup>1</sup> What is described as ‘BBS practice’ in this report is based partly on written documents, especially the following: *Bangladesh National Accounts Statistics: Sources and Methods*, (Bangladesh Bureau of Statistics, 2014), which explains the estimation procedures adopted at the time of the previous rebasing and revision exercise. But, to a large extent, the author has also drawn heavily from the in-depth discussion he has had with the staff of the National Accounting Wing of BBS.

- For the major crops, a long-standing procedure has been to estimate the yields ‘objectively’ by conducting crop-cutting experiments on a scientifically chosen sample of plots. Over time, however, the objectivity or the scientific nature of these estimates has been compromised to some extent for two different reasons – one structural and the other administrative.
- The structural problem arises from the fact that the chosen sample of plots remains unchanged over a long period of time whereas land use pattern is constantly changing: old crops are replaced by new crops on the same plot, some plots simply disappear due to land erosion or diversion to non-agricultural uses, and so on. The solution to this problem lies in more frequent revision of the sample of plots. The last revision took place in 2008. A further revision is urgently needed for the purposes of the upcoming revision of the national accounts.
- Perhaps a more serious problem is the administrative one. While BBS has the official responsibility for collecting and disseminating information on crop output, the Ministry of Agriculture (MoA) also collects this information independently for administrative purposes through its own field staff. Traditionally, the MoA estimates have almost invariably exceeded the BBS estimates, sometimes with a significant margin. This divergence caused quite a furore recently as the Ministry looked upon the BBS estimates as ‘undermining’ its own, more upbeat, estimates. A decision has since been taken to produce a ‘joint estimate’ through harmonization – by requiring co-ordination between BBS and MoA initially at the field level, from where the raw data emanates, and again at a higher administrative level before the estimates are finally ‘approved’. In practice, such harmonization has invariably led to an ‘upward’ adjustment of BBS’s initial crop-cutting estimates. This is a matter of some concern because there is reason to suspect that the MoA estimates may have an in-built upward bias stemming from the pressure on its field staff to ‘meet targets’. Furthermore, in the name of harmonization, this practice also creates the scope for political manipulation of statistics. It is essential that the neutrality and objectivity of BBS is not compromised. While it may be useful for BBS field staff to consult with the MoA field staff with a view to corroborating their crop-cutting estimates, the final decision should remain solely with the BBS, not with a joint committee involving MoA.
- For minor crops, the procedure is much more ad hoc: information is collected by interviewing just five farmers from each union, validated where possible by consultation with the MoA field staff and other knowledgeable people in the community. When minor crops were truly minor, such ad hoc procedure may have been tolerable. But this is no longer the case – minor crops now account for almost 30 per cent of the crop value-added. As such, a more scientific approach is now needed for the minor crops as well.

- To begin with, some of the more important minor crops should be reclassified as a major crop and should be subjected to crop-cutting experiments. A notable candidate is maize, which has now become more important than wheat in terms of area and output.
- Whilst crop-cutting experiments may not be feasible for most of the minor crops because of the large number of crops involved, leaving interviewing farmers as the only feasible method, the reliability of estimates needs to be improved by adopting a more elaborate sampling procedure. It is recognised of course that, since there is large regional variation in the types of minor crops grown, it may be very expensive to carry out separate nationally representative sample survey for each crop every year. An alternative exists, however, in the form of Integrated Sample Surveys – of the kind which BBS has already carried out in the recent past for estimating cost of production of various crops, including some minor crops. Once such a sampling design has been developed to cover all (or almost all) of the minor crops, and the necessary procedures have been set up for carrying out the surveys, they may be used both for deriving annual estimates of output with a simple questionnaire and for collecting periodic estimates of cost of production with a more elaborate one.

Wastage and by-product ratios: Before arriving at gross crop output, a certain percentage is deducted for wastage, and a certain percentage is added to account for values of by-products. However, the ratios that are used for obtaining the amount of wastage and by-products are based on a survey that was carried out long ago – in the early 1990s. An up-to-date survey is urgently needed.

Valuation of crops: According to BBS (2014), once the quantities of various crops are estimated, their current price values are obtained by using ‘homestead prices’, which are derived from the harvest prices of all crops collected by the Department of Marketing (DAM), after adjusting for transport charges from farm yards to primary markets. In reality, however, this procedure was followed only for the base year 2005-06. For all subsequent years, homestead prices are estimated by the BBS by inflating the base-year price by an index of food inflation; in some years the same index is used for all crops. This raises a couple of issues.

- The practice of using a food inflation index for updating the prices of crops seems very odd (since there is much more to food than crops), and using the same index for all crops is even more so. Since DAM collects harvest prices regularly, actual crop-specific prices should be used.
- A more fundamental issue relates to the use of harvest prices (as translated into homestead prices after adjusting for transport margin) for the purpose of valuation. The use of harvest price is justified if farmers sell an overwhelming proportion of their marketable surplus immediately after harvest. Such a scenario was probably true in Bangladesh years ago, but with the manifold-increase in yield and output that has been made possible by the Green Revolution technology, more staggered sale is becoming

increasingly common even if the major part is still sold at the harvest time. In consequence, the use of harvest price will underestimate the current price value of crop output. Efforts should, therefore be made, to co-ordinate with DAM so that crop prices can be obtained at least for two or three points in time so that a more realistic picture can be obtained.

- If it proves very difficult to obtain such data every year, then at the very least, this should be done for the new base year by conducting a specially designed marketed surplus survey. BBS is already planning to carry out surveys of marketed surplus for various economic activities in order to update its database for estimating value-added in the Wholesale and Retail Trade sector. What is being proposed here is that the study on agriculture should try to obtain information on the quantity and prices of crops marketed at different times of the year. The ratio between harvest price and the weighted average of selling prices at different points in time can then be used in subsequent years to adjust the information on harvest prices collected by DAM (until another survey on marketed surplus can be undertaken).

Estimating value-added of crops: Value-added is estimated by deducting the cost of material inputs from the value of output, but BBS does not use actual data on the use of inputs such as fertilizer, pesticides, irrigation, etc., while estimating the cost of production. Instead, it relies on certain input-output ratios, which until recently were based on very old Input-Output tables prepared by the Planning Commission in the early 1990s. The situation has improved recently after BBS carried out Cost of Production Surveys for 6 major crops and 4 minor crops in 2008-2009. These surveys now provide more up-to-date input-output ratios, which were used in the latest revision of national income accounts. More such surveys are planned for the future, which will improve the database further, but a major issue still remains.

- For as weather-sensitive items as crops, the use of fixed input-output ratios seems unwise. If output falls due to bad climatic conditions (especially of the kind that reduces output without disrupting the process of cultivation), estimated input cost will also fall, even though actual input cost will remain largely unaffected. This means that under the current practice, the value-added is overestimated in bad years (and probably overestimated in good years). Furthermore, the use of inputs may vary from year to year depending not just on the amount of crop output but also on the availability and price of inputs. Ideally, therefore, cost of production should be based on the actual use of inputs, instead of relying on input ratios.
- It should not be too difficult to adopt this procedure, because BBS already compiles data on the net availability of various commodities – including fertilizer, pesticides, etc. – for the purpose of estimating value-added in the Wholesale and Retail Trade sector and also as part of its ongoing exercise in constructing Supply and Use Tables (SUT). Additional information (and assumptions) may be needed on the use of electricity,

diesel, etc. for irrigation, but the task is by no means beyond the realm of feasibility. The Indian national accounting system has been using this procedure for years.

- It is recognised that availability is not the same thing as use, as one ought to allow for the possibility of change in stocks. But it is quite standard to use the assumption of unchanged stocks to allow availability to be interpreted as use; after all, BBS itself makes this assumption while estimating value-added in the Wholesale and Retail Trade sector.
- Should it prove very difficult to collect data on the actual use of inputs, so that one has no option but to rely on input ratios derived from cost of cultivation studies, then at the very minimum one must use a different ratio from the one BBS is currently using. BBS uses input-output ratio, but for reasons of climatic variability noted above, linking inputs to outputs would be a risky proposition. These ratios do have a place in the Input-Output tables where one is trying to provide an ‘average’ picture of the structure of an economy (i.e., averaging over short-term climatic variations); but they are unreliable when it comes to providing information on a particular year. It would be much better to relate inputs to the cropped area rather than to output. That is, if we are to use input ratios at all, these should be input costs per hectare of gross cropped area, which would be much less sensitive to climatic variation. The same cost of production surveys that are used for constructing input-output ratios can also be used for constructing input/area ratios.

Horticulture: Horticulture is a growing activity in Bangladesh, but BBS is fully aware that there is no systematic survey to estimate horticultural output (BBS, 2014, p.). The only documentary source on output is the *Report on Forestry, Nursery and Horticulture Activities in Bangladesh, 1998*. Using the data from this report as the base, BBS applies a constant growth rate to obtain constant price values for subsequent years. The method of estimating value-added is fraught with an even bigger problem as the input-cost ratios are derived from an even older source: *Survey on Selected Economic Activities 1994-95*. This is clearly unsatisfactory. BBS should seek collaboration with the relevant government agencies to establish a current database on horticultural activities, which are only going to grow in the coming years. The relevant department in the Ministry of Agriculture certainly collects some data for administrative purposes; it’s a matter of helping them to collate and present the data (and to collect some additional data if necessary) in a manner that is useful for BBS.

Conversion from constant to current prices is also problematic. In the absence of any price information, in the case of rubber, the average of last five years’ prices is taken as the current price; since last year’s price was also an average of preceding five years, and so on, this clearly amounts to relying on very old data. For flowers and nurseries, some old base year prices are inflated every year by using the overall inflation rate, for which there is very little justification. Efforts must be made to involve the Price Wing of BBS to collect regular price data on

horticultural products, in collaboration with the relevant department of the Ministry of Agriculture, just as it is done for price data on crops.

Animal products: The procedure for estimating value-added in the livestock sector has improved recently with the carrying out of two surveys by BBS: *Household Based Livestock and Poultry Survey, 2009*, and *Farm Poultry and Livestock Survey, 2007-08*. These surveys provide valuable information on slaughter rates of animals, the yield of animal products per unit of each type of animal and related the input costs. Problem still remains, however, with regard to information on the stock of animals in any given year, on which the slaughter rates and the yield rates are to be applied. Using data from the Agricultural Census of 2008 as the base value, a constant growth rate is applied to derive the stock in subsequent years, which sounds reasonable enough until one realises that the growth rates are derived from the intercensal growth rates between the Agricultural Censuses of 1996 and 2008. For a rapidly growing sector such as livestock and animal husbandry, this growth rate is clearly too outdated, almost certainly resulting in underestimation of value-added originating from this sector. The next Agricultural Census is due to be carried out in 2018, whose results might be available just in time to feed into the proposed revision of national accounts. This is reassuring, but a long-term solution to the problem cannot rely solely on decadal censuses. Some kind of sample surveys should be contemplated for interim periods.

An additional problem lies in the derivation of current price values of output. Base year (2005-06) prices, obtained from the Department of Marketing (DAM) of the Ministry of Agriculture, are inflated by the index of food inflation to derive current prices of all items of animal products. This procedure is clearly not satisfactory since there is no reason to believe that (a) the prices of animal products would change in line with general food inflation, or that (b) the prices of all items of animal products would change in the same direction and by the same proportion. Actual product-specific prices should be used. If DAM was able to provide the prices for the base year, they should be able to do the same for other years as well.

Forest products: The problems with the procedure of estimating value-added of this the sector are similar to those of animal products: (1) in order to obtain output of each type of product (timber, bamboo, firewood, honey and others) in physical terms, a constant growth rate is applied on the base year (2005-06) value, where the growth rate relates to a period prior to 2005-06, and is hence clearly outdated, (2) value-added is estimated by using input cost ratios that are based on a survey carried out in 1998, again grossly outdated, and (3) in order to obtain current price values, a constant inflation rate of 6 per cent is applied on the base year value of each of the five items. Updating of the database is urgently needed, along with an effort to obtain actual prices of each type of product in collaboration with DAM.

## ***Manufacturing***

BBS practice with regards to estimation of value-added in the manufacturing sector seems to be reasonably sound. The most serious limitation, however, stems from the fact, unlike in other sectors such as crop agriculture or construction, estimation of value-added in this sector is not based on firm annual data. The primary source of actual data on manufacturing is the *Survey of Manufacturing Industries (SMI)*, which is currently conducted at irregular intervals – the last one was carried out in 2012, and the previous one in 2005-2006. In the absence of actual annual data, BBS is forced to employ indirect methods. For the registered sector, the base year output values obtained from an old SMI (the current series is based on 2005-2006 SMI) are blown up by an annual Quantum Index of Industrial Production (QIIP). The QIIP is based on sources of varying quality; for 65 per cent of industries, QIIP is constructed by soliciting information on total production data collected from respective associations and the Export Promotion Bureau (EPB); for the rest, output and prices are obtained from a relative small sample of firms. Furthermore, input data is based on old input-output ratios since no annual information is collected on inputs in the process of collecting data for the Quantum Index. The value-added estimates are, therefore, largely a synthetic entity that is constructed by combining output and input values that in many cases do not represent actual reported values for any particular year (except for the base year).

This is clearly not acceptable for a country which aspires to be a developed industrialised country in not too distant a future. In order to estimate manufacturing value-added in a reliable manner, befitting a rapidly industrializing country, BBS must conduct SMI every year. There was a time, when annual surveys were actually conducted (it was called Census of Manufacturing (CMI) at that time). Around the turn of the present century, BBS took the retrograde step of converting an annual survey into a survey of longer, and in practice irregular, intervals; it should go back to the practice of carrying out annual SMIs.

BBS breaks down the estimates of manufacturing value-added into two parts: large/medium and small industries. A number of issues are to be noted here.

- The *National Industrial Policy of 2010* divides manufacturing industries into five categories in respect of employment size: viz. (i) large, (ii) medium, (iii) small, (iv) micro and (v) cottage. If the Policy is to have any operational use, BBS ought to provide information on each of the five categories instead of following the current two-way classification. Clearly, the transition to five-way classification would be more demanding in terms of data requirements, and hence in terms of resource requirements. But if the Government takes its own Industrial Policy seriously, the necessary resources must be made available.
- If the transition to five-way classification takes time, and one has to continue with two-way classification during the transition period, BBS will need to rename its current categories. BBS defines large/medium industries as those employing more than 10 workers and small industries as those employing less than 10 workers. This is not

consistent with the new Industrial Policy, which defines small industries as those employing 25-99 workers. What BBS calls ‘small’ is actually described as ‘cottage’ in the classification proposed by the Industrial Policy.

For some of the major export-oriented industries, such as garments, the Quantum Index is based on the information on exports provided by the Export Promotion Bureau (EPB). Since this index is used to blow up total output, regardless of whether it is exported or sold domestically, this procedure implies the assumption that export and domestic sales are growing at the same rate. There is no obvious reason why this assumption should hold. This would not be matter of serious concern if the domestic sales of export-oriented industries were negligible, but this is not so: according to the SMI of 2012, some 6 per cent of garments output and 29 per cent of leather products were sold domestically. Until annual SMIs become available, two separate Quantum sub-indices should be constructed for the domestic part and the export part respectively of these industries. A weighted average Quantum index can then be created by using base year proportions of exports and domestic sales as weights.

Small-scale industries: The basic procedure of calculating value-added in the small-scale sector is essentially the same as that for large and medium scale sector – in that a Quantum Index is applied on base-year values of output in order to obtain annual output figures, but the database is far inferior. In the first place, while the base year for large and medium scale sector was brought forward to 2005-06 during the last revision of national accounts, the base year for the small-scale sector remained unchanged at 1995-96. An annual quantum index is being applied on the output values of this very old base year. Secondly, the base year values are themselves of a synthetic nature. Output values for the base year 1995-96 were estimated by multiplying productivity per worker obtained from *Annual Establishment and Institution Survey (AEIS)* by information on the number of workers employed in an industry, as obtained from the *Labour Force Surveys*.

Clearly, there is an urgent need for updating the database for estimating the value-added of what BBS currently defines as the small-scale sector. Ideally, annual surveys along the lines of *AEIS* should be conducted. If this proves infeasible, then at the very minimum an updated version of *AEIS* is absolutely essential, to serve as the base on which Quantum Indices can be applied in the future. Furthermore, the *AEIS* type survey should be carried out much more frequently than has been the case so far (the last *AEIS* was carried out in 2002-03).

There is a further problem in converting constant price values into current prices. For both large-medium and small-scale industries, a producer price index (PPI) is used for this purpose. The problem, however, is that while two separate Quantum Indices are used for the two sub-sectors, the PPI is the same for both – PPI for the large-medium sector is applied also to the small-scale sector. This is an unnecessary anomaly. For large and medium industries, price information is collected through the same process which is used for collecting output data for the purpose of constructing the Quantum Index. The same can be done for the small-scale

sector as well since there is already a procedure in place for obtaining output information on the basis of which the small-scale Quantum Index is constructed.

### ***Construction***

Methodologically, the estimation of value-added in the construction sector is quite robust, although there are some relatively minor issues, as discussed below. The main problem, however, lies in the use of very old database for several components of the sector.

Estimates for building construction are given in two parts – kutchra and pucca. For estimating gross output of ‘pucca building construction’ (both public and private dwellings – residential as well as non-residential), input-output ratios are used to convert ingredients of construction (cement, bricks, timber, steel, etc.) into output, and the commodity flow method is used to estimate current values of the ingredients. For gross availability of ingredients, actual values of net imports are added to the estimated values of domestic production, which are derived by applying quantum index to the base year values obtained from the SMI of 2005-06. A certain percentage of gross availability is then deducted as ‘other industrial uses’ in order to arrive at net availability, on which the input-output ratios are finally applied. The following issues need attention in this procedure.

- Since domestic production is the principal source of all the major ingredients, it is unfortunate that we do not have actual annual figures of domestic production (we have actual figures for net exports, though). The problem originates mainly from the absence of annual surveys of manufacturing industries. In the absence of annual data, BBS is compelled to blow up base year values with a Quantum Index. The current base year of 2005-06 is very old. This particular problem will be mitigated to some extent in the next revision of national accounts because of the availability of SMI 2012 (and probably a more up-to-date one). But the problem will reappear in the near future if SMIs are only available as irregularly as has been the case over the last decade and a half. An annual series of SMI is urgently needed, not just for the sake of making reliable estimates of value-added in the manufacturing sector but also for the construction sector (and, as we shall see, for the Wholesale and Retail Trade sector as well).
- Considering the fact that SMIs cover only establishments with 10 employees or more, it will also be necessary to have more regular surveys of the AEIS type, which used to provide valuable information on small-scale establishments, but have not been carried out since 2002-03. This gap may not be very serious for ingredients such as cement and steel, but it may well be important for bricks and timber.
- The ratios that are used by BBS to allow for ‘other industrial uses’ – in order to move from gross to net availability of the ingredients – are based on some old obscure sources. These ratios are in fact carried forward from an earlier rebasing and revision exercise that was undertaken in the late 1990s. This means that we are still using ratios

that are at least two decades old. To assume that the proportions in which cement and other ingredients are allocated between ‘buildings’ and ‘other uses’ have remained unchanged over such a long period time would be too bold to inspire much confidence. As such, the estimates of net availability of ingredients, and hence the value of ‘building construction’, also cannot carry full conviction. These ratios need to be updated. The newly conducted *Construction Survey 2013-14* can be of help in this regard.

- The methodology of estimating the value of Kutcha construction has also been dependent on very old database so far. The availability of *Construction Survey 2013-14* will help improve this part of estimation as well.

‘Other public construction’: Construction other than ‘buildings’ that uses ingredients such as cement, bricks, steel, etc. – e.g., roads, highways, bridges, dams, and so on – falls into this category. BBS assumes, not too unreasonably, that all of this construction occurs in the public sector – hence the description ‘other public construction’. Accordingly, most the necessary information is extracted directly from government books. As such, the data source can be considered to be quite solid. A few issues, however, still remain.

- In order to move from output to value-added, a value-added ratio is used instead of using actual input costs. In the absence of detailed information on input costs, this may be a reasonable procedure to adopt, but the problem is that the value-added ratio that is applied here actually relates to building construction. Since other construction such as roads are typically more labour-intensive than buildings, the applied ratio most likely underestimates the value-added ratio and hence the value-added in other construction. More appropriate ratios should be found – especially, from the newly available *Construction Survey 2013-14*.
- While collecting data from government books, BBS rightly goes beyond the figures for the central government to cover also public corporations, autonomous bodies as well as local governments. It is the last part – namely, local governments – that has caused a lot of problems for BBS. They have been able to collect the data, even from the *upazila* levels, but found it extremely hard to organize the data in a uniform framework and analyse them in a consistent manner. As a result, they often end up using only a small part of the data, and that too on an ad hoc basis rather than on the basis of a scientifically chosen sample. The National Accounting Wing of BBS puts down the problem to lack of resources. The Wing itself does not have the necessary staff to deal with the data; so, they have to rely on the Computer Wing, and coordination between the two Wings is not always what it ought to be. The unfortunate outcome of this problem is not just that we end up with an unsatisfactory estimate of ‘other public construction’, but also a distorted estimate of public investment as a whole, of which other public construction is an important part. A proper intra-agency institutional arrangement needs to be set up to allow the local government data to be analysed properly – in the same way that other

large data sets are dealt with through close collaboration between other Wings of BBS and its Computer Wing.

- For conversion between constant and current prices, BBS uses a specially constructed building materials price index – for both buildings and ‘other public construction’. This does not seem right because the weights of ingredients that are appropriate for buildings may not be appropriate for ‘other construction’ (e.g., the weight of steel would be much lower for other construction). Different weighted indices should be used for different types of construction. The necessary price information is already available; all that needs to be done is to extract the relevant weights – perhaps from the newly available *Construction Survey 2013-14*.

Installation cost of irrigation: This part of construction has two sub-components – tubewells, and canal/drainage.

- Tubewells: The cost of tubewell installation is estimated by multiplying the number of tubewells installed in a year with an average cost of installing a tubewell. There are serious problems with both the number of tubewells installed and the average cost of installation. The number is provided by the Government’s Irrigation Department (*Shech Bhaban*), but the data is very irregular and usually available with a time lag. As a result, BBS has to take recourse to projection of past data, often on an ad hoc basis. For cost of installation, BBS relies on a very old survey, carried out in 1994, and inflates the data for that year with the building materials price index. All this is clearly unsatisfactory, but it should be totally avoidable. The necessary information – on both the number of tubewells installed and the current cost of installation – is certainly within the reach of the Irrigation Department. BBS should try to forge an institutional relationship with the Irrigation Department so that the latent information can be extracted and made available in time for the National Accounting Wing to be able to use it on a regular basis.
- Canal, drainage, etc.: Baseline information is used from a 1989-90 survey on how much drainage is needed to irrigate an acre of land and on the labour cost of that drainage work. BBS first inflates that labour cost with agricultural wage rate for unskilled workers to derive labour cost per acre in current prices and multiplies it by current year’s net cropped area to arrive finally at current cost of drainage. Although the baseline information is very old, given the nature of information involved, its use does not seem too unreasonable. However, it seems that odd that labour cost per acre is multiplied by current net cropped area for the purpose of estimating current cost of drainage; net irrigated area should be the relevant variable.

## ***Transport and Communication***

The overall methodology used for this sector is quite robust, but as in the case of most other sectors, the main problem lies in the absence of accurate and up-to-date data. This sector is divided into two parts – public and private, and the nature of problem faced is different for the two parts.

For the public sector, information on both output and intermediate costs are obtained directly from government books. The data are easily available and they are also up-to-date, but the problem is that the recorded value of sales and receipts for services rendered does not reflect the true value of output because of what is euphemistically called ‘system losses’ – this is especially the case with Railways and BRTC. BBS tries to deal with this problem by adding operational losses to the recorded income, which is sensible. But, even with this adjustment, the value of output would be underestimated if actual ‘system loss’ is higher than the recorded operating loss – in other words, if the accounts were to show positive profits in the absence of system loss, which is not at all improbable. A further upward adjustment of 5 to 10 per cent would not be too far off the mark. Once the base year value has been adjusted in this manner, constant price estimates can be obtained by taking the base year estimates forward by using information on passenger kilometres for BRTC and a weighted index of passenger kilometres and net tonne kilometres for Railways and BIWTC.

The private sector is further sub-divided into organised and unorganised sectors, which roughly equates to the division between mechanised and non-mechanised transport. The basic methodology in all cases is to apply an estimate of earning per vehicle of a particular type to total number of vehicles of that type.

For registered vehicles, the annual numbers are obtained from respective registration authorities. The exception is rickshaws, for which the City Corporation of Dhaka gives a constant figure of 89,000 only because they are not allowed to register more rickshaws. For rickshaw and non-registered vehicles, growth rates based on some old surveys are applied on the base year number. For country boats, growth rates are based on the Agricultural Censuses of 1995-96 and 2008.

Since it is difficult to obtain annual figures for unregistered vehicles in the absence of an annual survey, which can be an expensive affair, the practice of using growth rates is acceptable, but in order to carry conviction these rates should be based on surveys or censuses that are carried out at frequent intervals – no more than 3 to 4 years. Currently, much of the information is based on Economic Censuses and Agricultural Censuses, which are carried out with an interval of a decade or more. For a rapidly modernising economy, growth rates based on such long-interval surveys are not acceptable.

Information on earnings per vehicle and intermediate cost ratios are obtained from a couple of surveys: *Private Commercial Mechanized Transport Survey of 2009* and *Survey on Mechanised and Non-Mechanised Private Transport in Urban and Rural Areas in Bangladesh*

of 1993-94. The latter survey is hopelessly outdated. BBS is contemplating carrying out a new survey to support its proposed revision of national accounts; this is certainly essential.

Storage: For rural areas, the storage amount is projected by using growth rates calculated from data contained in Agricultural Censuses of 1995-96 and 2008. Current price estimate is then obtained by applying the house rent index. For urban areas, information is collected only on cold storage (from the Cold Storage Association). Clearly, rural information is based on too old data sources, and urban information suffers from underestimation in the absence of data on warehouses other than cold storage. Hopefully, these problems can be addressed better in the course of the proposed revision exercise with the availability of *Agricultural Census* of 2018 and a new proposed *Study on Cold Storage and Warehouse Activity*. Over the longer term, however, excessive reliance on decadal reports such as *Agricultural Census* will recreate the problem of outdated growth rates. BBS should try to obtain more frequent information from relevant trade associations.

### ***Wholesale and Retail Trade***

The procedures for estimating value-added in Wholesale and Retail Trade are best discussed separately by the sources of the goods that are traded – namely, agriculture (broadly defined), manufacturing, and imports.

Agriculture: BBS extracts estimates of marketed surplus ratios of various agricultural products from a survey carried out in the early 1990s, adjusted by HIES data of more recent years. By applying these ratios to gross output, BBS first gets the volume of commodities traded. This is multiplied by a trade margin per unit of output to obtain gross output of trade in agricultural products. Finally, an intermediate cost coefficient is applied to obtain value-added.

- Most of the data sources are very old. The proportion of marketed surplus, trade margin and input ratios would all have increased by now, which implies that the value-added of the trade sector is probably underestimated. BBS is already contemplating carrying out a new survey on marketed surplus, which is certainly essential.

Manufacturing: Some 67% of garments production is assumed to be exported. The remaining 33% of garments, along with the whole of the rest of the manufacturing sector output, is assumed to enter domestic trade. Trade margins are then applied on these output values to get the value of output in the trade sector and an input coefficient is then applied to arrive at the value-added.

- The figure of 33% of garments output being sold domestically is obtained from some old and obscure source. SMI 2012 shows that only about 6% of garments output are sold in the domestic market. This figure needs to be adjusted.
- Besides, it's wrong to assume that all other manufactures are sold entirely in the domestic market. SMI 2012 clearly shows this assumption to be far from the reality.

For example, the export ratios are found to be 74% for leather products, 72% for paper products, and 57% for textiles. The methodology should be revised to incorporate the export ratios obtainable from SMI. And, of course, as discussed in the context of the manufacturing sector, the SMI should itself be conducted on an annual basis so that actual data on production and trade can be used every year.

Imports: A three-way classification of imported goods is made: (a) consumer goods, (2) intermediate goods, and (c) capital goods. All of consumer goods are assumed to enter domestic trade. About 40 percent of capital goods, and 60 per cent of intermediate goods, are assumed to be used directly by importing firms. The rest are assumed to enter domestic trade. The ratios used for capital and intermediate goods are based on very old data. New surveys are needed to obtain up-to-date ratios.

For all three sources of goods that enter domestic trade, trade margin and intermediate costs are obtained from the *Wholesale and Retail Trade Survey of 2009*, which is not too old, but an updated version would still be useful.

### ***Other Services***

Renting and Business Services: Base year values of gross output are blown up by growth rates. For residential dwellings, BBS uses inter-censal population growth rate; for non-residential dwelling, growth rates are obtained from *Economic Censuses*. The main problem here is that the current estimates are based on a very outdated *Economic Census (2001-2003)*. The new revision exercise should benefit from working with the latest *Economic Census of 2013*.

For business services, a combined growth rate for all such services is used as obtained from AEIS 2002-03 and the previous one. The same source is used for estimates of intermediate costs. Apart from the fact that these are obviously very old sources, it is also very odd that a common growth rate is applied to all kinds of business services. Hopefully, the proposed revision exercise will benefit from the *Survey of Selected Business Services* of 2012-13. The information derived from this survey should be combined with information from the *Labour Force Surveys* to derive separate growth rates for different types of business services.

Financial Services: In the latest revision of national accounts, value-added created by Microfinance Institutions (MFIs) was included for the first time. This is a welcome move, but BBS might consider the following suggestions.

- Currently, only the NGO operated activities are covered, which leaves out both Grameen Bank and the microfinance-related activities of commercial banks – these are which are absorbed in the estimates for formal sector financial services. This separation makes sense for commercial banks, but not for Grameen Bank, which should be

included in the microfinance sector in order to give a more realistic picture of the contribution made by MFIs.

- For the microfinance sector, gross output is calculated by applying portfolio yield ratio to total outstanding loan. This is different from the procedure used for formal sector banking, for which gross output is calculated by adding information on interest, fees and charges. Such information was not available for the MFIs in the past, so the procedure used by BBS was a fine substitute. But MRA has now made the necessary data available, so that it should now be possible to adopt a consistent procedure both MFIs and formal banks.

### *Expenditure Side*

In what follows, I discuss only final consumption expenditure, since much of what I have to say about Investment has already been covered in my remarks on Construction and Transport.

The basic procedure is to arrive at an estimate for the base year and then to blow it up for subsequent years by applying growth rates to various items of consumption. For the base year estimate, food and non-food expenditure are taken from HIES, but the non-food estimates are adjusted by the commodity flow method since HIES expenditure on non-food items is believed to be underestimated. For non-HIES years, estimates are projected by taking note of GDP growth, population growth, sectoral consumption growth rates and CPI. The method of projection is entirely ad hoc, relying a great deal on the statistician's subjective judgement of what seems sensible. In order to arrive at more credible estimates, BBS might consider two alternative approaches.

The first approach would continue to rely on projecting the base year values, but in a more rigorous manner. For major food and non-food categories, a set of Engel's curves may be estimated relating per capita consumption to per capita income (or, expenditure). This can be done by using information on the successive rounds of HIES, of which quite a few are now available. Information on estimated GDP (derived from the production side) and population estimates can then be used in conjunction with estimated Engel's curves to derive total consumption of each category for any particular year. In order to improve the quality of estimates, separate Engel's curves should be constructed for rural and urban areas. In that case, one would of course also require separate estimates for rural and urban GDP, which are currently not available. We are, however, proposing elsewhere in this report that BBS should in any case consider producing separate estimates of rural and urban GDP, because of their policy relevance.

The second, and in principle a superior, approach would be to rely on the commodity flow method, in which HIES will be one but not the only, and not even the most important, source of information. (India follows this method.) The information generated in the process of GDP estimation for the production side already provides the database from which commodity flows

can be constructed. For a number of items, the conversion of commodity flows into consumption would require information on different types of uses – that is, how much of the available quantity is used for final consumption, how much for intermediate consumption and how much for capital formation. But this type of information needs to be generated in any case for constructing the Supply and Use (SUT) tables. SNA recommends that SUT tables should be constructed as a statistical foundation for making national accounts estimates, and BBS has already had some experience of making such a table (for 2010-11).

### **III. Gross National Income (GNI) and Domestic Saving (DS)**

In this section, we argue that the way BBS defines and measures two important aggregates of national accounts – namely, gross national income (GN) and domestic saving (DS) – is problematic and suggest ways of dealing with them in a way that is conceptually more defensible.

#### ***Gross National Income (GNI)***

The way BBS currently defines GNI is inconsistent with the recommendations of the United Nations' *System of National Accounts* (SNA) and the IMF's *Balance of Payments Manual* (BPM).<sup>2</sup> Specifically, the problem is that BBS includes worker's remittances in its estimation of GNI, but according to both SNA and BPM remittances should be included in the broader concept of Gross Disposable National Income (GNDI) and not GNI.

According to SNA (2008), "Gross national income (GNI) is defined as GDP plus compensation of employees receivable from abroad plus property income receivable from abroad plus taxes less subsidies on production receivable from abroad less compensation of employees payable abroad less property income payable abroad and less taxes plus subsidies on production payable abroad." (p.333) To put it differently, "...difference between the numerical values of GNI and GDP is equal to the difference between the total primary incomes receivable by residents from non-residents and the total primary incomes payable by residents to non-residents (that is, net income from abroad)." (p.134)

Thus, the difference between GDP and GNI is that GNI is derived by adding to GDP 'net primary incomes', previously called 'net factor incomes' (NFI), receivable from abroad. In equation form,

$$\text{GNI} = \text{GDP} + \text{NFI} \quad (1)$$

SNA (2008) defines GNDI as follows: "Gross national disposable income is equal to GNI less current transfers (other than taxes, less subsidies, on production and imports) payable to non-

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<sup>2</sup> United Nations, World Bank, IMF, OECD and EU (2009), *System of National Accounts 2008*, New York. IMF (2009), *Balance of Payments and International Investment Position Manual, Sixth edition (BPM6)*, Washington, D.C.

resident units, plus the corresponding transfers receivable by resident units from the rest of the world.” (p.35)

Thus, the difference between GNDI and GNI is that GNDI is derived by adding to GNI net current transfers (NCT) from abroad. In equation form,

$$\text{GNDI} = \text{GNI} + \text{NCT} \quad (2)$$

Combining equations (1) and (2),

$$\text{GNDI} = \text{GDP} + \text{NFI} + \text{NCT} \quad (3)$$

BBS’s definitions of GNI and GNDI correspond to these equations; so, there is no problem in this regard. The problem lies in the way BBS defines NFI while calculating GNI. Note that according to the SNA definition given above, NFI should include only ‘net primary income’ receivable from abroad, and primary income in turn includes ‘compensation of employees’ and ‘property income’. It is noteworthy that there is no mention of workers’ remittance here, and yet BBS includes remittances, in addition to ‘compensation of employees’ and ‘property income’, in its definition of NFI (or primary income).

By contrast, both SNA and the BPM include workers’ remittance under current transfers (NCT), and as such it should be included in GNDI and not in GNI. As SNA 2008 states, “Transfers receivable from abroad include remittances from nationals working abroad for long enough (more than one year) to be treated as resident elsewhere.” (para 16.56) In the same vein, BPM6 states, “Workers’ remittances are current transfers made by employees to residents of another economy.” (para 12.22) These definitions require that remittances are to be included in transfers and not in factor income (or primary income).

To understand why remittances are to be included in transfers rather than primary income, it is necessary to clarify the concepts of residents and non-residents as employed by both SNA and BPM because the residence status of the parties involved in a transaction plays a decisive role in distinguishing between transfer and primary income.

According to SNA 2008: “The concept of residence in the SNA is not based on nationality or legal criteria. An institutional unit is said to be a resident unit of a country when it has a centre of predominant economic interest in the economic territory of that country; that is, when it engages for an extended period (one year or more being taken as a practical guideline) in economic activities on this territory.” (para 2.19)

According to BPM6 2009: “The residence of households is determined according to the center of predominant economic interest of its members. The general guideline for applying this principle – being present for one year or more in a territory or intending to do so – is sufficient to qualify as being a resident of that economy” (para, A5.21).

Thus, according to these definitions, Bangladeshi nationals who work abroad for less than a year would be treated as residents of Bangladesh and those who work (or intend to work) for more than a year would be treated as non-residents.<sup>3</sup> Since, in practice, most of these workers stay (or intend to stay) for more than a year in the host countries, they are to be treated as non-residents from the point of view of Bangladesh.

This difference in residence status has implications for how transactions between a country and the rest of the world are to be recorded in the balance of payments (i.e., whether as primary income or as current transfer), and hence for the measurement of GNI. As BPM6 explains “Residence is important for remittance data because transactions are recorded differently depending on the residence status of the individual in his or her host economy. Border, seasonal, and other short-term workers are not resident in the economy where they work and their gross income is recorded as “compensation of employees.”” (A5.22)

Thus, when a resident of a country transfers back home the income he/she has earned abroad as a temporary migrant (i.e., working for less than a year), it counts as primary income (or, factor income) of that country, and it should be included in GNI. On the other hand, when non-residents transfer a part of their income to another country, it cannot be counted as primary income of the receiving country. Since the migrant workers who send remittances to Bangladesh are to be treated as non-residents as far Bangladesh is concerned (since they usually stay abroad for more than a year), the money they send cannot be counted as primary income (or, factor income) of Bangladesh. Therefore, if the concepts and definitions of SNA and BPM are to be followed, remittances cannot be included in GNI. Remittances should be treated as current transfer from non-residents to the residents of Bangladesh, and as such they are to be included in the Gross National Disposable Income (GNDI) of Bangladesh.

The Bangladesh Bank follows this SNA/BPM classification in its Balance of Payments documents. The nomenclature varies slightly for the period before 2011-12 when the conventions of BPM5 were followed, as compared to the period since 2011-12 when BPM6 has been in place, but the underlying concepts are largely the same. Under BPM5, the relevant accounts were called the ‘Income’ account and the ‘Current Transfers’ account, both of which are sub-accounts of the Current Account. Under BPM6, these are now called ‘Primary Income’ and ‘Secondary Income’ accounts respectively, thus bringing the terminology in line with SNA 2008.<sup>4</sup> Compensation of employees and property income received from abroad – i.e., what used to be called net factor income (NFI) from abroad – were included in the Income account before and are included in the Primary Income account now. On the other hand, worker’s remittances

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<sup>3</sup> An exception is made for specific cases of students, medical patients, and ships’ crews as well as diplomats, military personnel, and civil servants employed abroad in government enclaves. Regardless of the length of stay in a host economy, these groups are considered residents of the originating economy.

<sup>4</sup> The terminological change is also accompanied by a slight change in substance. For instance, workers’ remittances are now split up into two parts – cash and bonds; cash remittances are included into the Secondary Income Account, while the part of remittance that takes the form of wage earners’ bond is now counted as part of the Capital Account. Furthermore, government grants are now included in the Secondary Income sub-account of Current Account whereas previously they were included in the Capital Account.

were included in the Current Transfer account before and are included in the Secondary Income account now, as can be seen from Appendix Table 1.

Thus, BBS's inclusion of worker's remittance in the category of primary income or net factor income (NFI) is not consistent with either the conceptual categorization employed by SNA and BPM, or the practice of Bangladesh Bank. In order to be consistent with SNA and BPM, as well as with the practice of Bangladesh Bank, remittances ought to be included in the category of secondary income or net current transfer (NCT). Accordingly, remittances should not be included in GNI; they should enter only in the estimation of GNDI.

The implication of all this is that, judged by the SNA definitions, GNI is grossly overestimated by BBS (but GNDI is estimated correctly). Since remittances are included in GNI, the estimated value of GNI exceeds GDP by a considerable margin. During the five-year period from 2011/12 to 2015/16, the estimated GNI has exceeded GDP by about 7.1 per cent on the average<sup>5</sup>. By contrast, if GNI had been estimated in line with SNA, by adding only primary income to GDP, the value of GNI would have actually been lower than GDP since, as can be seen from Appendix Table 1, transfer of primary income is consistently negative for Bangladesh (as is the case for most developing countries). During the period from 2011/12 to 2015/16, the SNA-consistent estimate of GNI would have been about 1.4 per cent lower than GDP on the average. Thus, on the whole, by the standards of SNA, GNI has been overestimated in Bangladesh by 8.5 per cent in recent years.

As a matter of reference, it may be noted that Bangladesh's neighbours such as India, Sri Lanka and Nepal measure GNI in accordance with SNA definitions (Pakistan is an exception), by adding only net primary income from abroad to GDP, and including workers' remittances in the broader category of GNDI. As a result, in all these countries, GNI systematically falls short of GDP (since primary income from abroad tends to be negative, as in Bangladesh), whereas the opposite is true in Bangladesh because of the way remittances are treated by BBS.

It may be noted that, if one leaves aside the SNA/BPM framework, it may not be altogether unreasonable in the context of Bangladesh to include workers' remittances in factor income (or, primary income), and hence in the estimation of GNI. It is true that the one-year criterion adopted by SNA/BPM to define residence status makes the Bangladeshi migrants non-residents from the point of view of Bangladesh, and that's what makes their remittances a part of current transfer (or, secondary income) rather than a part of factor income (or, primary income). However, there is nothing sacrosanct about the one-year cut-off line, and this is not even a legal definition of residence; it's merely a convention adopted by SNA/BPM to classify different types of financial flows from abroad. One could argue that even though the Bangladeshi workers normally live abroad for more than one year, for all practical purposes they still remain residents of Bangladesh since they have no predominant economic interest in the host country

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<sup>5</sup> See, Bangladesh Bureau of Statistics (2016). *National Accounts Statistics*, Table 8, p.16. Ministry of Planning, Government of Bangladesh, Dhaka.

– their entire life and work is geared towards sending money to families back home and eventually returning to them.<sup>6</sup> Accordingly, the remittances sent by them could be counted as factor income (or primary income) for Bangladesh and thus be included in GNI.

This is a reasonable argument. However, if this argument is employed to justify the current way of estimating GNI, Bangladesh will have to consider the consequences of doing so. It will have to confront not only the problem of inconsistency with the globally approved system of national accounts but also the problem of comparability of GNI with other countries who do follow SNA guidelines, including most of the country's neighbours.<sup>7</sup>

### ***Domestic Saving (DS)***

While presenting national accounts aggregates, BBS provides two different saving estimates corresponding to two definitions of saving – these are called domestic and national saving respectively. A little reflection shows, however, that domestic saving, as defined, is a meaningless concept and should be dispensed with completely. BBS defines the two concepts as follows:

Domestic saving (DS) = GDP – C, where C stands for consumption expenditure.

National saving (NS) = GNDI – C,

where GNDI stands for Gross National Disposable Income, which as noted earlier, is defined as

$GNDI = GDP + \text{net factor income from abroad (NFI)} + \text{net current transfer from abroad (NCT)}$

Conceptually, saving is simply ‘the part of income that is not consumed’ – this is true as much of a country as of an individual or a household. Accordingly, domestic saving, as measured by BBS, stands for the ‘part of GDP that is not consumed’ and national saving stands for the ‘part of GNDI that is not consumed’. Thus, the two concepts of saving employed by BBS relate to two distinct concepts of income – namely, GDP and GNDI respectively. Since GDP and GNDI are both meaningful, albeit distinct, concepts of income, it might appear that DS and NS are also both meaningful concepts of saving, but they are not – only NS is meaningful for an open economy.

The meaning of national saving (NS) is clear enough; it gives us the total saving of the economy as we deduct total consumption from total disposable income of the country. But what exactly is domestic saving (DS) supposed to represent? BBS does not explain the rationale behind defining the concept of domestic saving as a separate entity from national saving. However,

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<sup>6</sup> This is especially true of the workers who go to the Middle-East or in the South-east Asian countries like Malaysia, Singapore and Brunei, and less true about those who go to Europe or USA.

<sup>7</sup> There is also the broader issue that if sending countries like Bangladesh include remittances in their GNI going against SNA guidelines, while the host countries include these same figures in their own GNI by following SNA, this will lead to double counting in any attempt to estimate global income.

from the way it is measured, one may surmise that the intention is perhaps to estimate the part of saving that can be attributed to GDP. In other words, the underlying thinking seems to be that total saving (NS) can be thought of as being composed of two parts, attributable to two distinct sources of disposable income – namely, GDP, which originates from within the economy, and (NFI+NCT), which originates from outside the economy. By trying to measure DS, BBS seems to be asking: how much do the people of Bangladesh save out of the domestically produced part of total disposable income?

If that is the intention, then the procedure used by BBS to calculate DS clearly fails. Note that total consumption C is subtracted from GDP to arrive at domestic saving. But by subtracting the whole of C from just one part of disposable income, one is implicitly assuming that nothing is consumed from the other part (NFI + NCT). That is, one is assuming that the people save 100 per cent of the part of disposable income that originates from outside the economy. There is of course no basis at all for making this assumption.

The point here is that if one wants to split up saving in a way that can be attributed to different sources of income, one must first split up consumption in a way that can be attributed to different sources of income. But this cannot be done in a meaningful way. The particular procedure followed by BBS involves an extreme kind of split – in which 100 per cent of consumption is attributed to GDP and 0 per cent to (NFI+NCT), which is completely arbitrary. But the problem cannot be solved by choosing any alternative way of splitting consumption, because there is no meaningful way of splitting up consumption, and hence saving, by sources of income. The essential issue here is the fungibility of income, which entails that particular uses of income cannot be attributed to particular sources of income. Consumption, and hence saving, must be related to total disposable income (i.e., GNDI); therefore, only national saving (NS) is a meaningful concept.

There is a special case, however, which may appear to be an exception. Suppose, we knew, as an empirical fact, that a nation consumes a constant fraction of income (c) regardless of the level of income. One would then be able to say that total consumption C is made up of two parts:

$$C = c(\text{GNDI}) = c[\text{GDP} + (\text{NFI} + \text{NCT})] = c(\text{GDP}) + c(\text{NFI} + \text{NCT}).$$

Domestic saving could then be defined as,

$$\text{DS} = \text{GDP} - c(\text{GDP}) = (1-c)\text{GDP}.$$

This might appear to be a meaningful way of defining domestic saving, but it doesn't really solve the problem because the assumption that a constant fraction of income is saved regardless of the level of income is not consistent with either theory or fact.

BBS should, therefore, dispense with its concept of domestic saving altogether. Saving should be defined uniquely as the part of GNDI that is not consumed. It is noteworthy that SNA does

not contain anything equivalent to BBS's domestic saving; on the contrary, by stating that "Gross national disposable income measures the income available to the total economy for final consumption and gross saving" (SNA 2008, para. 2.145), it clearly opts for what BBS calls national saving. For reference, one might also note that the Indian National Accounts System does make any distinction between domestic and national saving either; in the national accounts tables only the terms gross saving and net saving are used. The concept that is used, however, is that of total saving, which corresponds to what BBS calls national saving.

The demands of both logic and international comparability, therefore, suggest that BBS should discontinue its measure of domestic saving and offer only one measure defined as  $S = \text{GNDI} - C$ . There is an issue of by what name this measure should be called. One option is to call it simply saving (gross or net); another is to continue to call it national saving as BBS currently does. But it is arguable that there is also a case for calling it domestic saving, so as to distinguish it from another part of saving that exists in an open economy, which is referred to as 'foreign saving'.

Consider the following identities:

$$\begin{aligned} \text{GNDI} &= \text{GDP} + \text{NFI} + \text{NCT} \\ &= C + I + \text{NX} + \text{NFI} + \text{NCT} \text{ (where NX stands for net exports)} \\ I &= \text{GNDI} - C - (\text{NX} + \text{NFI} + \text{NCT}) \\ &= S + [-(\text{NX} + \text{NFI} + \text{NCT})] \end{aligned}$$

The final identity shows that total investment of a country is financed from two sources – namely,  $S$  and  $[-(\text{NX} + \text{NFI} + \text{NCT})]$ . The latter source is typically called 'foreign saving'; in contrast, we may call  $S$  'domestic saving', even though BBS currently calls it 'national saving'. It may be noted that Indian national accounts documents use the term domestic saving freely while referring to what in the national accounts tables goes by the name of just 'saving' (which is conceptually equivalent to BBS's national saving).

I realize, however, that replacing the term national saving by domestic saving in the BBS documents might cause confusion because of the different meaning attached to the term earlier. So, I would just opt for 'saving'. The term 'national saving' was coined by BBS in order to differentiate it from the concept of 'domestic saving'. If the estimation of 'domestic saving' is to be discontinued, this differentiation is no longer necessary; so, just plain 'saving' should do.

#### **IV. New Directions**

Apart from improving the detailed procedures for estimating GDP, BBS is also looking forward to undertaking some new activities with a view to enhancing the usefulness of its national accounts system for the prospective users. In some ways, the system developed by BBS so far is still quite rudimentary in comparison with the elaborate system of multiple accounts whose

templates have been developed by the latest UN System of National Accounts (SNA 2008). There is a lot in SNA 2008, however, that are applicable mainly for the advanced economies; many of the refinements proposed by SNA are not feasible in the developing countries given the informational constraints they face, and many may not even be necessary given the relatively low level of sophistication of their economies.

It is, however possible to embrace gradually some of the ideas proposed by SNA. BBS has already taken steps to incorporate some of them – for example, by (a) adding a new institutional sector called Non-Profit Institutions Serving Household Sector (NPISH) to the standard classification of non-financial corporate sector, financial corporate sector, government sector and household sector, (b) expanding the notion of gross fixed capital formation to include some new elements such as weapons system/military hardware and research and development (R&D), and (c) shifting some output-generating activities from value-added in public administration to value-added in other sectors where government departments may be contributing to the creation of value-added e.g., irrigation services provided by the Ministry of Agriculture are now included in the value-added of the agricultural sector, the services provided by the Bangladesh Forest Industries Development Corporation (BFIDC) are included in the value-added of the forestry sector and the services provided by the Fisheries Development Corporation (FDC) are included in the value-added of the fisheries sector.

At the next step, BBS is contemplating the adoption of at least two more innovations – namely, (a) moving from the current ISIC (rev 3) classification of 15 major sectors of economic activities to ISIC (rev 4) 22 sectors, and (b) initiating a quarterly estimate of GDP. As the economy gets more diversified and new types of economic activities emerge, it makes sense to move over to the more detailed classification of economic activities as proposed by SNA. In my view, BBS should, however, have only limited ambition in this regard. In particular, while providing data on the basis of the new 22-sector classification in future, BBS should stick to the old 15-sector classification while trying to revise the national accounts backwards. This is mainly because sufficient information may not be available for the years gone by to convert the old 15-sector based national accounts into 22 sectors. Furthermore, to impose a classification that is appropriate for a more diversified economy onto a period when the economy was much less diversified would not make much sense in any case.

The idea of providing quarterly estimates of GDP is slightly more contentious, for at least a couple of reasons. The first problem is that when the estimation of annual GDP is itself based on a rather weak database, resulting in significant measurement errors, the seasonal fluctuations purportedly revealed by quarterly estimates will carry little credibility, as it might be difficult to isolate fluctuations from measurement errors. Secondly, one must ask what use the policymakers are going to make of the quarterly estimates. These estimates are useful mainly for the purpose of macroeconomic stabilization of the economy through fine tuning – principally with the help of the instruments of monetary policy. But I am not convinced that the Bangladesh economy has reached the level of financial depth and breadth where the

transmission mechanisms of monetary policy are strong enough to permit fine tuning of the economy on a quarterly basis. Quarterly estimates will no doubt be needed at some stage in the future; but one would be to wise to wait till the database of national income estimation has been sufficiently improved and monetary transmission mechanisms have been sufficiently strengthened. In the meantime, BBS would be better advised to employ its scarce manpower and other resources to improve other aspects of national accounts which deserve more immediate attention. Some suggestions are offered below.

### ***Direct Estimate of Saving***

Currently, BBS estimates saving as a residual. I strongly recommend that saving be estimated directly. BBS uses two concepts of saving – domestic and national, and both are derived as residuals. They are computed by subtracting a direct estimate of consumption (C) from a direct estimate of income, which is taken to be GDP in the case of domestic saving and the broader concept of Gross National Disposable Income (GNDI) in the case of national saving. I have argued elsewhere in this report that henceforth BBS should measure only national saving, and discontinue with the measurement of domestic saving, which is conceptually problematic. In the discussion that follows, I focus only on national saving, which refers to the totality of saving within the economy.

Estimating saving as a residual is potentially highly problematic because it can be subject to large measurement errors. When we calculate  $S$  as  $GNDI - C$ , measurement errors in the estimation of both GNDI and  $C$  get combined as measurement error of  $S$ . In the happy circumstances that the error in GNDI and the error in  $C$  are in the same direction and of roughly the same order of magnitude, the two errors will cancel each other out and the estimate of  $S$  will be fine. But there is no guarantee that this will be the case. The opposite may easily happen, with the two component errors going in opposite directions, in which case the error in  $S$  will get magnified. For example, if GNDI is overestimated by 5 per cent and  $C$  is underestimated by 5 per cent,  $S$  will get overestimated by about 10 per cent, which is a serious overestimation. On the other hand, if GNDI is underestimated by 5 per cent and  $C$  is overestimated by 5 per cent,  $S$  will be underestimated by about 10 per cent. A problem is aggravated by the fact that we may have no way knowing for certain which way the component errors lie; as a result, we shall have to allow for the possibility that, in our particular example, the actual value of  $S$  may fall within a 20 per cent range of the estimated value. Such a high degree of uncertainty in the value of as crucial an economic variable as national saving is certainly not acceptable. It's much better to have a direct estimate of saving; it will of course have its own measurement error, but at least it won't have to carry the combined measurement errors of two other variables.

Direct measurement of saving requires a good deal of information and some sound judgements, but this is no means beyond the realms of feasibility. After all, as long ago as in 1974,

Mohiuddin Alamgir and Atiqur Rahman, two economists from the Bangladesh Institute of Development Studies (BIDS), made a pioneering attempt to create a time series of saving estimates for the pre-Independence period of Bangladesh, even though paucity of data compelled them to make many heroic assumptions.<sup>8</sup> Over time, both the availability and quality of data have improved greatly. Meanwhile, our understanding of how conceptually sound saving estimates can be made, bearing in mind the kind of informational constraints faced by a typical developing country, has also been greatly enhanced, especially through the work several expert committees in India comprising eminent economists and statisticians. Three such reports have been produced so far: known respectively as the *K. N. Raj Report*, *Raja Chelliah Report* and the *Rangarajan Report*.<sup>9</sup> These reports contain a wealth of insights and practical guidance that can be very relevant for Bangladesh as well.

There is in fact one aspect in which the data base of Bangladesh can claim to have an advantage over that of India in this regard – namely, the existence of the *Household Income and Expenditure Surveys* (HIES). One of the recurring themes of the expert committee reports in India has been lamenting over the fact that they do not have a similar integrated survey of income, assets, and expenditure of households (they do have regular surveys of household expenditure, though). In the absence of such surveys, CSO is obliged to estimate household saving through various indirect and ad hoc methods. BBS will be much better placed in this regard, because of the availability of HIES, even though some challenges will still arise from the fact that it is a quinquennial survey rather than an annual one.

But Bangladesh has disadvantages too, especially as regards the private (non-financial) corporate sector, because of the absence of annual surveys of manufacturing industries and of the informal sector. It has been a recurring theme of this report that the quality of national accounts estimates in Bangladesh has been compromised by the facts that the *Survey of Manufacturing Industries* (SMI) is now carried out intermittently instead of annually (as before) and a survey of the informal sector such as the *Annual Establishment and Institution Survey* (AEIS) has not been available since 2002-03. It will be difficult to make reliable estimates of savings by the private non-household sector in the absence of regular surveys of this kind. Carrying out these surveys must be accorded top priority – not just for facilitating direct estimation of saving, but also for making all-round improvement in various components of GDP estimation, as discussed in section II.

It is possible that even with the availability of more and better surveys, BBS may find it difficult to attempt direct estimation of saving on its own, because of the lack of both time and

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<sup>8</sup> Alamgir, M. and Rahman, A. (1974), *Saving in Bangladesh 1950/60-1969/70*, Research Monograph no. 2, Bangladesh Institute of Development Studies, Dhaka. The Central Statistical Office (CSO) of India produced first direct estimates of saving consistent with national accounts as early as 1961.

<sup>9</sup> Raj, K. N. *et al.* (1982), *Capital Formation and Saving in India: 1950-51 to 1979-80*, Department of Statistics, Ministry of Planning, Government of India; Chelliah, R. *et al.* (1996), *Saving and Capital Formation in India: 1950-51 to 1994-95*, Department of Statistics, Ministry of Planning, Government of India; Rangarajan, R. *et al.* (2009), *Report of the High Level Committee on the Estimation of Saving and Investment*, Ministry of Statistics and Programme Implementation, Government of India.

manpower. A preferred option would be for BBS to team up with some research institution or a group of researchers to devise and agree on a set of detailed methodologies appropriate to the specific condition of Bangladesh, for the very first estimate (the base year of the next revision of national accounts). Once the methodologies are in place, and the necessary database has been identified, BBS should be able to produce saving estimate by itself in subsequent years.

### *Estimation of Factor Incomes*

How GDP is distributed among different segments of the population is one of the issues of fundamental concern for policymakers and, for that matter, for anyone trying to understand the well-being of the population at large. In Bangladesh, the distributional question has been addressed so far through the information provided by the *Household Income and Expenditure Surveys* (HIES). What this type of survey delivers is called personal (or household) income distribution, which is an important starting point, but in order to delve deeper into the question of why the personal income distribution is evolving the way it has been, it is necessary to have additional information at the aggregate level. One such piece of information is called functional income distribution i.e., the distribution of national income among the factors of production – namely, labour, capital, land and entrepreneurship. Information on factor incomes cannot be reliably obtained from household surveys, however. The national income accounting framework is – both conceptually and practically – the most appropriate framework for estimating factor incomes. Calculation of GDP from the production side involves estimation of value-added in various economic activities, and value-added is nothing but the sum of factor incomes. Thus, estimating factor incomes is simply a matter of splitting up the value-added, which is being estimated in any case, and attributing the shares to various factors of production. It is thus a small step from the estimation of GDP to the estimation of factor incomes, but a vital step for those who seek to understand the structural dynamics of an economy, which both shapes and is shaped by functional income distribution. This report strongly recommends that BBS undertakes this exercise regularly beginning with the base year of the next round of revision of national accounts.

It needs to be emphasized that the task of estimating factor incomes on a regular basis cannot be left to the users – such as researchers or policy-makers – hoping that once BBS makes the estimates of sectoral value-added available, the users would be able to split them up between factor incomes. In practice, users will find it extremely hard to lay their hands on the detailed sector-specific information that would be needed to do the splitting. On the other hand, BBS will be the repository of all the relevant information, to the extent that they are available, and would in fact be using much of this information in estimating value-added in the first place. The National Accounting Wing of BBS is thus the right place for generating data on factor incomes, as part of its regular exercise in estimating GDP.

The task may be simplified in the early stage by making only a two-way splitting – between labour and capital income – by subsuming land and entrepreneurship under a broad category of capital. For most analytical and policy purposes, this two-way classification should suffice.

When it comes to splitting the value-added, the precise method would vary among the sectors depending on how value-added is estimated and what kind of supplementary information is available. Three types of sectors may be distinguished. First, there are sectors for which value-added is estimated by adding factor incomes in the first place – for them the split is available to begin with. Second, there are sectors for which value-added may be derived by subtracting input costs from gross output, but additional information may be available on the remuneration of at least one of the factors (usually, labour). For them, remuneration for the other factor can be estimated as a residual. Third, like the second category, value-added may be derived by subtracting input costs from gross output, but additional information may not be available on the remuneration of either factor. For such cases, it will be necessary to undertake some survey (to be updated from time to time) to estimate the relative shares of labour and capital. It is my understanding that given the current methodology of BBS' estimation of sectoral value-added, the majority of sectors will fall in the second category, thus making the estimation of factor incomes quite straightforward. The third group will pose a challenge since new surveys might be needed, but such surveys are worth undertaking in any case to strengthen the database of national income accounting.

If taken seriously, the challenges involved in estimating factor incomes should not be unsurmountable. The CSO of India has been producing a time series of factor incomes – as part of its national accounting exercise – since as early as 1976. There is no reason why BBS should not be able to do it more than fifty years later.

### ***Estimation of Rural and Urban GDP***

Apart from factor income distribution, rural-urban distribution of GDP is also a parameter of great interest to both policymakers and researchers. Knowledge about rural-urban distribution of GDP is essential for understanding both the causes and consequences of structural changes that the economy is going through in an era of rapid urbanization. And, as in the case of factor income, national accounting framework is the most appropriate one for separating out rural and urban GDP. HIES is currently the only source of information on rural-urban distribution in Bangladesh, but it is well-known that household-based surveys such as HIES fail to capture the very rich households adequately, and this is true especially in urban areas. HIES, by itself, is thus liable to give a somewhat misleading picture of rural-urban distribution. Supplementary information – by way of a breakdown between rural and urban GDP – can improve upon the information basis of studying the important dynamics of rural-urban distribution. BBS can render a very useful service to the user community by providing this information.

In terms of informational requirement, allocating GDP to rural and urban sources is somewhat more complicated than allocating it to labour and capital. The allocation will have to be done on the basis of certain indicators, some of which, such as the residence of labour, may be more readily available than others for which special surveys and censuses may be needed. Considering the higher level of complexity involved, BBS might start by offering the rural-urban distribution only for the base year to begin with (and that too in collaboration with external researchers), and gradually move towards more frequent estimates as the database improves and more experience is gained.

### *Estimating Change in Stocks*

Currently, BBS does not make any estimate of change in stocks (CIS); it gets merged into the residual category called ‘statistical discrepancy’. This omission leads to a certain degree of distortion of investment estimates because change in stock is part of investment. Since the level of stock is generally expected to rise with the level of output (if only to maintain the ratio of stock to output), the change in stock is expected to be positive (and possibly rising over time), especially during a period of rapid growth.<sup>10</sup> This means that investment is probably being underestimated in Bangladesh at present. BBS should start direct estimation of change in stocks as it embarks on revising and rebasing the national accounts.

The basic methodology of measuring CIS in an economy like Bangladesh would not be very different from the ones followed by other developing countries, especially India, where there is a long tradition of estimating CIS directly. Bangladesh can learn a great deal from their practices. As in the case of estimating saving, the starting point is to divide the economy into three broad institutional sectors – namely, public sector, private corporate sector and the household sector. Public sector information is readily available from government books, which the BBS already analyses thoroughly for the purpose of estimating gross fixed capital formation. For the household sector, information from HIES can be combined with other data sources to project for non-HIES years. It is with the private corporate sector that the biggest problem will be faced at present. But if, as has been urged repeatedly in this Report, BBS undertakes annual SMIs and more frequent informal sector surveys such as AEIS, much of the data gap in this sector will also be filled. As in the case of saving, it would be advisable for BBS to do this exercise initially in collaboration with external researchers – to provide an estimate for the base year. Once the methodology is well established, BBS should be able on its own to provide the estimates for subsequent years.

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<sup>10</sup> It may be noted that, in India, where change in stocks is directly measured, the value of change has been consistently positive in recent years.

## V. Concluding Observations

The present Report has identified a number of areas in which BBS can bring about methodological improvements in its national accounts system – both in the detailed procedures for estimating sectoral value-added as well as in measuring some broad aggregates such as GNI, consumption expenditure and capital formation. The Report has also suggested that BBS improves the overall usefulness of its national income estimates by making direct estimates of saving and change-in-stock and adding some new statistics such as factor incomes and the breakdown between rural and urban GDP.

None of these would be feasible, however, unless the database with which BBS works is considerably improved. As can be expected of an encompassing exercise as the estimation of national income, BBS does rely on a vast array of studies, surveys and administrative data. The set of studies and surveys used in the process of the previous rebasing and revision exercise carried out in 1913-14 is presented in Appendix Table 2. The list is quite impressive in its diversity and number; and yet it will be apparent that most of the sources are hopelessly outdated by now, and many were already outdated even when the revision was made. Since then, quite a few new studies and surveys have become available (Appendix Table 3) and some more new ones are being contemplated for the specific purpose of supporting the forthcoming revision (Appendix Table 4). A set of further surveys are available, which were carried out by a team from the Policy Research Institute (PRI) and South Asian Network for Economic Modelling (SANEM) on behalf of the Planning Commission of Bangladesh to support the construction of an Input-Output table and a Social Accounting Matrix (SAM) for 2012 (Appendix Table 5). Together, these new and prospective studies and surveys will go a long way towards improving the database for national income estimation. I would like to emphasise here a few areas that demand attention on a priority basis.

First, prior to undertaking the revision exercise, BBS should embark upon two inter-related background exercises – namely, revision of the Input-Output (I-O) table of 2012 and construction of a Supply and Use Table (SUT). These exercises will not only help generate many of the parameters (coefficients, ratios, etc.) that would eventually feed into the revision and rebasing process, but will also help identify the areas in which further studies and surveys might be necessary, and point to the areas where links with various government agencies and departments would need to be forged, or existing links strengthened, in order to extract necessary administrative data. BBS already has some experience of constructing SUT, gained in the process of undertaking a pilot exercise in 2011. For the I-O table, however, external help might be needed; BBS could, for example, collaborate with PRI and SANEM – the two research institutions that were involved in the preparation of the I-O table for 2012.

Second, while a whole range of new surveys would be needed, special emphasis must be given to the *Survey of Manufacturing Industries* (SMI) and a wide-ranging survey of the informal sector in the mould of the *Annual Establishment and Institutions Survey* (AEIS). The most immediate use of these two surveys would be to provide the basic information for estimating

the value-added in the manufacturing sector – SMI for the registered sector and AEIS for the unregistered informal sector. But their usefulness extends far beyond the manufacturing sector. Value-added in the trade and transport sector as well as in the construction sector is estimated by the commodity flow method, where the flow of manufactured commodities is derived from these two sources. Value-added in several informal services is also extracted from AEIS. Both SMI and AEIS also figure eminently in the estimation of investment, where the commodity flow method is again used as the predominant methodology. Furthermore, if BBS has to undertake direct estimation of saving and change-in-stock, as has been recommended in this Report, it will have to rely heavily on these two sources yet again.

In view of such pervasive nature of the relevance of these two surveys, it cannot but be a matter of serious concern that BBS has treated them with utter neglect in the recent past. SMI, which used to be known as the Census of Manufacturing Industries (CMI), was originally an annual survey (although it was never a census contrary to what the name implied); but it has now been transformed into an occasional irregular survey. The latest SMI is available for 2012, and the previous one was undertaken in 2005-06. The fate of AEIS is even more pathetic; the last survey was conducted in 2002-03 and the previous one in 1992-93 – the irony of calling it an annual survey could not be starker. If BBS is serious about developing a modern credible national accounting system, worthy of a country that aspires to become a developed country in not too distant a future, there is no alternative but to carry out these surveys regularly and more frequently – preferably on an annual basis.

Third, better use must be made of a number of decennial censuses that form an important part of the database for national income estimation in Bangladesh. These include the population census, agricultural census, and economic census. For the national accounting exercise, the main use to which BBS has put them so far is to derive inter-censal growth rates of various entities that are used for the purpose of interpolating and extrapolating a whole range of variables for the non-census years. For an economy that is going through rapid structural change, the use of such long-interval growth rates can be seriously misleading. As far as the population census is concerned, the problem is mitigated to some extent by the availability of *Labour Force Survey* for at least some of the intervening years. But the same cannot be said for the other two censuses, and that is a serious shortcoming. For example, when it comes to estimating the number of animals or country boats, one has to extrapolate the inter-censal growth rates found from the *Agricultural Censuses* of 1996 and 2007-08 to project what has been happening in 2017!

Since censuses tend to be expensive affairs, it is understandable that they cannot be conducted very frequently, but that is not a valid reason for using out-dated inter-censal growth rates for projection purposes. Censuses should be used mainly to provide the sampling frame for conducting more frequent sample surveys, and it is these survey results that should be relied upon, along with census figures, for the purpose of interpolation and extrapolation. BBS should accord top priority to conducting such surveys on a frequent basis during inter-censal years.

It is clear from the preceding discussion that there is a great deal the BBS needs to do in order to create a solid informational foundation for its national accounts system. This in turn will require a good deal of coordination among different wings of BBS on the one hand and between BBS and various government departments on the other. The need for co-ordination arises from the fact that while the National Accounting Wing of BBS is responsible for compiling the available data within the framework of its national accounts system, it is not primarily responsible for collecting the data. This responsibility falls mainly on other wings of BBS – for example, the agricultural wing, the industry wing, census wing, and so on. The National Accounting Wing can work only with the data that is made available to it by the rest of the system. Therefore, if, as has been pointed out in this Report, much of Bangladesh's national accounts rests on rather shaky empirical grounds, the fault lies not so much in the National Accounting Wing as in the lack of co-ordination within the organisation as a whole. A stark example of this absence of co-ordination is the conversion of annual surveys of manufacturing industries into an occasional and irregular one and complete discontinuation of the most informative survey on the informal sector called the *Annual Establishment and Institution Survey* (AEIS) since 2002-03. If a proper system of internal co-ordination had existed, it is inconceivable that the National Accounting Wing would have been allowed to be so severely handicapped by the absence of such surveys.

In my view, the weakness of internal co-ordination is attributable primarily to the administrative structure of BBS – in particular, the way it is governed. The rules under which BBS is governed stipulate that its administration will be run by a senior government official, who can come from any Ministry and go back to any other Ministry (or, as is sometimes the case, retire at the end the term) before he or she had the opportunity to acquire any long-term stake in the professional activities of the organisation. Even the offices of the Director General and Deputy Director General, who are supposed to supervise and guide the professional activities of BBS, are manned by generalist civil servants who can come from and go back to any Ministry at any time. Thus, the whole of the top echelon of BBS remains in a constant state of flux. It is hardly surprising that, in these circumstances, no one takes long-term responsibility for setting out a consistent agenda of work for the organisation and for ensuring that this work is performed efficiently, with proper co-ordination among different parts of the organisation and with other government departments. This state of affairs should not be allowed to continue. The top echelon of BBS must consist of professionals who have a long-term stake in the activities of the organisation. Only then would it be possible for different wings of BBS to act in a co-ordinated manner, which is essential for creating an informational base that can feed the national accounting exercise in a timely and adequate manner.

From time to time, the need for administrative reform of BBS is discussed in public forum – on the grounds of insulating it from undue political interference that can compromise the integrity and credibility of the data it generates. This is certainly an important matter. But what is being argued here is that administrative reform is needed not just for freedom from external

influence but also for internal efficiency – in particular, for the efficiency of the national accounting exercise. National accounting is an all-encompassing enterprise, requiring a vast amount of information on all aspects and all sectors of the economy. BBS is in principle capable of collecting and generating the necessary information through its various departments, but in the absence of close co-ordination among the departments the information they generate is currently failing to underpin the complex task of national income accounting in an efficient manner. Efficient co-ordination calls for fundamental administrative reform which will ensure that the top echelon of BBS consists of seasoned professionals who have a long-term stake in the efficiency with which the professional activities of the organisation are performed.

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## Appendix Table 1

### Balance of Payments of Bangladesh (Current Account)

(Taka in million)

<i>Items</i>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>
<b>Current Account</b>	54958	145053	229561	52753	89163
1. Trade Balance	-366552	-323845	-356379	-521819	-596667
1.1 Export (f.o.b.)	971101	1071950	1123451	1641592	1933755
1.2 Import (f.o.b.)	-1337653	-1395795	-1479830	-2163411	-2530422
2. Services	-102564	-114183	-102574	-172077	-225099
2.1 Receipts	129103	122451	154534	182929	193704
2.2 Payments	-231667	-236634	-257108	-355006	-418803
3. Income	-59074	-96596	-100147	-103954	-117189
3.1 Receipts	15151	6531	5517	8717	15233
3.2 Payments	-74225	-103126	-105664	-112671	-132422
4. Current Transfers	583148	679676	788661	850603	1028118
<i>of which, Workers' remittances</i>	542969	655607	746675	820188	1010209

*Notes:* Classification is based on IMF's *Balance of Payments Manual ver.5* (BPM5).

(contd.)

<i>Items</i>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>
<b>Current Account</b>	<b>-9159</b>	<b>149903</b>	<b>80777</b>	<b>145255</b>	<b>280204</b>
1. Trade Balance	-683869	-607841	-558894	-461710	-421293
1.1 Export (f.o.b.)	1895881	2116430	2309463	2384837	2618226
1.2 Import (f.o.b.)	2579750	2724271	2868357	2846547	3039519
2. Services	-267137	-257860	319165	-405997	-303530
2.1 Credit	197062	226011	242129	239569	271567
2.2 Debit	464199	483871	561294	645566	575097
3. Primary Income	-120787	-184766	-201566	-221872	-196019
3.1 Credit	15233	9650	10115	5826	12001
3.2 Debit	136020	194416	211681	227698	208020
4. Secondary Income	1061634	1200370	1160402	1234834	1201046
4.1 General Government	8292	5166	6152	5946	5321
4.2 Other Transfer	1054342	1195204	1154250	1228888	1195725
<i>of which, Workers' remittances</i>	1010209	1146621	1097060	1178417	1168557
<i>(current a/c portion)</i>					

*Notes:* Classification is based on IMF's *Balance of Payments Manual ver.6* (BPM6).

*Source:* Bangladesh Bank, *Balance of Payments 2015-16*, Table XVII, pp. 100-102.

## Appendix Table 2

### Surveys and Studies Used for the Previous Rebasings and Revision Exercise Carried Out in 2013-14 with Base Year 2005-06

#### Agriculture and Forestry Sector

- Census of Agriculture, 1996, 2007-08, BBS
- Farm Forest Survey, 1988, BBS
- Farm Poultry and Livestock Survey, 2007-08, BBS
- Household Based Livestock and Poultry Survey, 2009, BBS
- Report on Forestry, Nursery and Horticulture Activities in Bangladesh, 1998
- Study on Fisheries Activities in Bangladesh, 2006-07, DOF
- Survey on Fisheries Activities in Bangladesh, 1993-94, BBS
- Survey on Livestock and Poultry Activities in Bangladesh, 1993-94, BBS
- Surveys on Cost of Production of Selected Crops, 2008-09, BBS
- Use of Agricultural Inputs for Major Crops in Bangladesh, 1989-90 and 1993-94, BBS

#### Manufacturing Sector

- Annual Establishment and Institution Survey, 2002-03, BBS
- Bangladesh Census of Manufacturing Industries, 1995-96, BBS
- Bangladesh Handloom Census, 1990, BBS
- Labour Force Survey, 2005-06, BBS
- Monthly Release on Quantum Index of Industrial Production (QIIP)
- Survey of Manufacturing Industries, 2005-06, BBS
- Survey on Small Scale and Cottage Industries in Bangladesh, 1991, BBS

#### Construction Sector

- Case Study on Major Inputs Used in Building Construction and I-O Coefficients, 2011, BBS
- Pilot Construction Survey, 1998-99, BBS
- Private Construction Survey in Urban and Rural Areas of Bangladesh, 1993-94, BBS
- Report of the Construction Consultant: Construction Sector of Bangladesh, 1994, BBS
- Sample Vital Registration System (SVRS), BBS

#### Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles, and Personal and Household Goods Sector

- Annual Establishment and Institution Survey (AEIS), 1992-93, 2002-03, BBS
- Integrated Annual Survey of Non-Farm Economic Activities 1992-93, BBS
- Integrated Annual Survey of Non-Farm Economic Activities, 1989-90, BBS
- Report of Survey on Estimation of Market Part of Agricultural Production and Distributive Trade, 1998, BBS

#### Hotel and Restaurants Sector

- Annual Establishment and Institution Survey (AEIS), 1992-93, 2002-03, BBS
- Hotel and Restaurant Survey 2009-10, BBS

### Transport, Storage and Communications Sector

- A Pilot Survey on Urban Storage in Private Sector, 1998, BBS
- Private Commercial Mechanized Transport Survey 2009, BBS
- Survey on Communication 2011, BBS

### Real Estate, Renting, and Business Services Sector

- Annual Establishment and Institution Survey 1995-96, BBS
- Annual Establishment Institution Survey (AEIS) 2002-03, BBS
- Economic Census, 2001/2003, BBS
- Household Income and Expenditure Survey (HIES) 2005-06, BBS
- Household Income and Expenditure Survey (HIES) 2010, BBS
- Population and Housing Census 2001, BBS
- Population and Housing Census 2011, BBS
- Survey of Selected Business Services, 2012, BBS
- Survey on Occupied Residential Houses and Real Estate Services 1997-98, BBS

### Education Sector

- Survey of Private Education Services in Bangladesh 1997, BBS
- Survey of Private Education Services in Bangladesh 2007, BBS

### Health and Social Work Sector

- Survey of Private Health Service Establishment, 2007, BBS
- Survey of Private Non-Profit institutions in Bangladesh 2007, BBS

### Other Community, Social, and Personal Services Sector

- Labour Force Survey, 2002-03, BBS
- Labour Force Survey, 2005-06, BBS
- Survey on Cultural and Recreational Activities 2010, BBS
- Survey on Non-profit Institutions Serving Household 2007, BBS
- Survey on Professional and Miscellaneous Services Personnel, 1993-94, BBS

### Others

- Household Income & Expenditure Survey (HIES), 2005-06, BBS
- Household Income & Expenditure Survey (HIES), 2010, BBS
- Industry Study Survey (ISS), 1991, the World Bank, Dhaka
- Input Output Table, 1992-93, CIRDAP and 1993-94, BIDS
- Input Output Table, 2005-06, BIDS
- Survey of Selected Economic Activities, 1994-95, BBS

### **Appendix Table 3**

#### **New Studies and Surveys Already Available since the Previous Rebasing and Revision Exercise**

- Case Studies of Selected Economic Activities 2014
- Construction Survey 2013-2015
- Economic Census 2013
- Household Income and Expenditure Survey 2016
- Labour Force Survey 2013
- Labour Force Survey 2015
- Private Sector Gross Fixed Capital Formation in Computer Software Survey 2016
- Private Sector Gross Fixed Capital Formation in Entertainment and Literary Survey 2015
- Productivity Survey of Maize, Ginger, Chilli, Turmeric, Onion, Cauliflower, Pumpkin, Banana, Pineapple 2013-2015
- Real Estate Activities Survey 2011-12
- Survey of Captive Power Generation (Informal) 2011-12
- Survey of Gross Fixed Capital Formation in Cultivable Biological Resources 2014
- Survey of Inventory 2011-12
- Survey of Manufacturing Industries 2012
- Survey of Selected Business Activities 2012
- Survey of Self Employed Professionals 2011-12
- Survey on Non-Profit Institutions Serving Households (NPISHs) 2016
- Tourism Satellite Account (TSA) of Bangladesh (Pilot) 2011-12

## **Appendix Table 4**

### **New Studies and Surveys under Consideration of BBS**

- Agricultural Census 2018
- Fisheries and Livestock Census 2018
- Hotel and Restaurant Survey
- Household Income and Expenditure Survey 2019-20
- Private Education Institute Survey
- Private Health Services Establishment Survey
- Study of Cold Storage and Warehouse Activity
- Study on Machinery Equipment's and Transport Equipment's Imports
- Survey of Manufacturing Industries
- Survey of Trade and Transport Margin and Market Surplus of Agriculture, Industry and Import Items
- Survey on Private Commercial Mechanized/Non-Mechanized Land and Water Transport
- Survey on Private Sector GFCF in Research and Development
- Survey on Renting Activities
- Tourism Satellite Accounts
- Wholesale and Retail Trade Survey

## Appendix Table 5

### Surveys Carried Out by PRI/SANEM for the Planning Commission for Preparing the Input-Output Table and Social Accounting Matrix (SAM) 2012

- Input-Output Sectoral Survey Report: Fisheries Activities 2013
- Survey Report for Food Processing Sector 2014
- Survey Report for ICT 2013
- Survey Report for Leather 2013
- Survey Report for Livestock 2013
- Survey Report for Pharmaceuticals 2013
- Survey Report for Plastic 2013
- Survey Report for Poultry 2013
- Survey Report for Rice 2013
- Survey Report for Textile Sector 2014
- Survey Report for Wholesale and Retail Trade 2014
- Survey Report for Woven Garments and Knitwear Activities 2014

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The International Growth Centre (IGC) aims to promote sustainable growth in developing countries by providing demand-led policy advice based on frontier research.

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