Reviving the Production of National Accounts and Implementing the System of National Accounts (SNA 2008)

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A. Abstract

Beginning from the late 1990's the Central Statistical Office began to suffer low response rates to its economic surveys that were conducted on establishments using mail questionnaires. Normally Zimbabwe used to conduct an annual Census of Industrial Production (CIP) covering formal sector establishments engaged in mining, manufacturing, electricity generation and distribution, water supply and reticulation and construction. Other establishment based surveys included the Quarterly Employment Inquiry (QEI) covering all kinds of activities, the Volume of Manufacturing Index (VMI) survey, the Business Tendency Survey (BTS) covering mining and manufacturingsome commercial agricultural questionnaires as well special income questionnaires sent to nonprofit making bodies and transport operators. With response rates to the CIP falling below 20% the last published report on that survey before 2009 was for 1999. The results from the other surveys generally fizzled out by 2005 and 2006.

By 2006 in addition to the poor response rates the CSO also began to have no resources (financial for paper and printing of questionnaires as well as postage) to carry out the surveys. These were later compounded by hyperinflation. The surveys mentioned above are the major ones on which the compilation of national accounts was traditionally based.

In 2010, the statistical office, having transformed into a semi-autonomous Agency, the Zimbabwe National Statistics Agency (ZIMSTAT), received funding to resume conducting economic surveys. It carried out the CIP covering the years 2005 and 2009, the VMI (2006 to 2010), the QEI (2006 to March 2010) and the BTS 2010.

Before the collapse of the supply of raw data for the traditional production of National Accounts, CSO had implemented the 1993 System of National Accounts (SNA93) only with respect to the production account and the generation of income account. Beyond that however the concepts and definitions used in treating any item were those of SNA93, except where the raw data available could not allow such a treatment. Looking at the available data it would have been easy to then

implement SNA93 with respect to the Capital and Financial Accounts before finally tackling the use of income and the income distribution accounts.

This paper examines the methods that were used to make some GDP estimates without the traditional sources of data and without good alternatives either and later, in the face of hyperinflation. It also examines the way forward with respect to (i) firming up the estimates for which there was no survey data and (ii) generally reviving national accounts production and implementing the SNA 2008.

B. Introduction and Historical Background

The Central Statistical Office (CSO) of Zimbabwe, the predecessor to the present Zimbabwe National Statistics Agency (ZIMSTAT), used to produce a number of National Accounts tables and some accounts of selected institutions. The tables included those on the gross domestic product (gdp) analysed according to the production, the income and the expenditure approaches of traditional estimation of the gdp. The accounts included the production, the income and outlay and capital accumulation accounts for non-financial public corporations, financial institutions and general government. External transactions on the current account were also analysed and published. Detailed product flow tables were constructed annually but often not published being used mainly for firming up other estimates especially those relating to final consumption expenditure which was largely derived as a residual.

C. Some Key Sources of Data for the Traditional Estimation of National Accounts in Zimbabwe.

The description of the sources below is not meant to be exhaustive but rather to enable a clear appreciation of the impact of the drying up of the main sources of data during the crisis period and also an indication of the best way forward in reviving production. The sources of data for estimating the gross domestic product using the production approach are provided first and in relatively more detail than other sources because that method is the one that also anchors the estimates calculated using the other approaches. The same sources also provide information on some elements of the distributive and capital accounts.

The sources of raw data for these tables and accounts were annual and other regular censuses and surveys of establishments and enterprises, administrative

records of the public sector and published accounts of private and public corporations.

1. **Sources of Data for the Estimation of GDP Using the Production Approach**

The sources of information for the estimation of the gross domestic product using the production approach depended on the sector. They were as follows.

Agriculture, Forestry, Hunting and Fishing

(a) An annual Census of Agriculture covering commercial farms was conducted.
(b) An annual Agriculture and Livestock Survey (ALS) covering communal lands was introduced under the United Nations National Household Surveys Capability Programme (NHSCP) in 1983.
(c) Before the inception of the ALS, marketing authority records and estimates based on expected per capita consumption were used for the estimates of agricultural production by black Africans in communal lands.
(d) There were other dedicated surveys such as those on fruits, poultry, butcheries etc.
(e) Records of large estates and plantations were also used.

Mining, manufacturing, electricity and water supply and construction

(a) An annual Census of Industrial Production (CIP) was the main source of data for establishments engaged in the above kinds of economic activity.
(b) There was also data obtained from the Ministry of Mines through reports that miners are statutorily required to submit to that ministry. Estimates of the volume of mineral production were calculated based on that data.
(c) A survey to collect data for the calculation of the monthly Volume of Manufacturing Index (VMI) was conducted.
(d) A Quarterly Employment Inquiry (QEI) covering all kinds of activity except agriculture, forestry, hunting and fishing and the domestic services sector was conducted.

Finance and Insurance

(a) All formal sector enterprises in this sector produce annual reports from which information is gleaned.
(b) Information was also obtained from the Auditor General's report.
(c) Some information is obtained from the Registrar of Insurance.
(d) Questionnaires were sent out by CSO to collect details not available from the above sources.

Real Estate Sector

(a) Rental Income estimates were formerly based on an estimate of the number of dwelling units which was updated annually using information on new electricity connections. This covered areas where dwellings are supplied with electricity, i.e. excluded Communal Lands.
(b) Later information from the Income Consumption and Expenditure Survey (ICES), conducted once every five years, as part of the NHSCP, was also used. This includes Communal Lands. Estate agents are surveyed.

Distribution Hotels and Restaurants

(a) The 1981 Census of Distribution provided some benchmark data.
(b) Since then annual questionnaires sent to private sector establishments were introduced.
(c) Results of the QEI were also used for both the private and public sector establishments.
(d) Reports of public corporations involved in those kinds of activity have been used for that sector.

Transport and Communication

(a) An annual National Income questionnaire was sent to all registered private sector operators engaged in these kinds of activities.
(b) Records of the public corporations engaged in the kinds of activity as well as those of the Central Mechanical Department were used.
(c) The results of the QEI were used in conjunction with both (a) and (b) above.

Public Administration, Education, Health and Other Services(These included all the services not already specifically mentioned above, in terms of the International Standard Industrial Classification of all economic activities, (ISIC) rev. 2, but excluding domestic services)

(a) Data on establishments classified under public administration and those that are owned by general government and are classified under the education, health and other services industrial sectors, excluding public corporations, have the main source of data as the general government expenditure records.

(b) Data on public corporations engaged in the provision of education, health and other services was obtained from the records of the public corporations.
(c) Private sector corporations and quasi-corporations engaged in education, health and other services were sent an income questionnaire annually.
(d) Non-profit institutions serving households, engaged in the provision of education, health and other services were sent their own special version of the income questionnaire.
(e) The QEI also provides information on the sectors referred to in (a) to (d) above.

Domestic Services

(a) Information from the latest Population Census figures combined with data from the latest Labour Force survey was used to obtain benchmark data on numbers employed and employment earnings per person.

(b) A rent and domestic workers survey was conducted quarterly for the purpose of updating the consumer price index (CPI).

2. **Sources of Data for the Income Approach**

(a) When estimates of value added were made by kind of activity, i.e from the production approach, they were split among earnings, (compensation of employees), operating surplus and mixed income.
(b) While information on product taxes and other taxes on production payable and subsidies receivable was also collected through, the instruments for the collection of data for the calculation of value added by kind of activity, for example the CIP questionnaires, it was data on taxes obtained from the Ministry of Finance that was normally used for the GDP estimates. This was because the differences between the two sources were too large to be accounted for by timing differences. Also considering the poor response rates, even at that time, to National Income questionnaires, the Ministry of Finance figures, based on ZIMRA records, were considered more comprehensive.

3. **Sources of data for the Expenditure Approach**

Government final consumption expenditure (GFCE)

The source of information for the estimation of government final consumption expenditure is the same as that for estimating the public administration component of GDP, and the government component of education, health and other services from the production approach. Information on fees, sales and recoveries was also obtained from the same source.

Household Final Consumption Expenditure (HFCE)

(a) An Income Consumption and Expenditure Survey (ICES) is expected to be conducted once every five years. The last one was however conducted in 2001 with its successor being underway in 2011 to 2012.
(b) The product flow approach was also used for estimating the consumption expenditure.
(c) The control total would be largely obtained as a residual after subtracting other components of expenditure on the GDP from the total obtained from the production approach.

Non-profit institutions serving households final consumption expenditure (NPISHFCE)

Information from the national income questionnaires also used for the production approach estimates in the appropriate services was used

Gross fixed capital formation (GFCF)

(a) Demand side information was collected at the same time that information for estimating value added was collected.
(b) Special questionnaires were sent out to a sample of establishments, the same that supplied information for the volume of manufacturing index ((VMI), in order to obtain early estimates.
(c) Data on imports originally from the Zimbabwe Revenue Authority, processed by the international trade statistics section of ZIMSTAT, was also used for early estimates.

Changes in stocks of inventory

(a) Information on opening and closing stocks of finished goods, work in progress, goods bought for resale without further processing and goods bought for use as intermediate inputs, was collected as part of the information used for estimating value added by kind of activity, i.e GDP using the production approach.

(b) Changes in stocks of livestock used to be estimated using information collected through the annual census of agriculture covering large scale commercial farms (formally white commercial farms) and from the Department of Veterinary Services for livestock in communal lands.
(c) Stocks of crops used to be estimated using information from agricultural marketing authorities.
(d) Agricultural estates such as the tea, sugar and timber estates used to supply information separately on stocks.
(e) Information from the ALS has tended to replace that from (b) and (c) above.

Exports and Imports of Goods and Services

(a) Most of the data was obtained from the Zimbabwe Revenue Authority (ZIMRA) where it still is captured for revenue collection purposes using the Automated System of Customs Data (ASYCUDA) and is further processed for statistical purposes at ZIMSTAT using the EUROTRACE system.

D. Highlights of the Methods of Estimation

Final National Accounts

Because data for estimating national accounts become available with a time lag, the final estimates were also made with a delay of about two years in Zimbabwe. However, some early or preliminary estimates were made even before the year had ended or early the following year. For that purpose indicators would be used for carrying forward the previous year's estimates. The previous year's estimates used for that purpose would themselves be still not final. When the previous year's estimates became final, the current year's figures would also be revised to reflect the changed base, resulting in the second set of preliminary estimates. Normally, therefore, the final estimates are the third set of estimates to be made. The sources of data described above are largely those for making the final estimates.

1. Final Estimates at Current Prices

The Production Approach

Gross output at basic prices

= sales of own produce + sales of goods bought for resale + closing stocks of own produced finished goods +closing stocks of goods bought for resale + closing

stocks of work in progress + value of goods produced for own final consumption (this is for households) + own account capital formation + repairs + value of installation/erection work + hire of plant and equipment + work on customer's materials

Minus

Value of charges for transport, insurance and warehousing of output payable to other establishments + any product taxes payable on the output net of subsidies receivable + opening stocks of own produced finished goods + opening stocks of goods bought for resale without further processing

Intermediate consumption

= purchases of materials, parts and components for production and repairs + purchases of water + purchases of coal and liquid fuels +cost of work given out + hire charges for plant, machinery, equipment and vehicles + cost of repair and maintenance work paid + insurance premiums paid + cost of other services purchased + travelling expenses + payments to head office and branches + value of stocks of materials, fuels, parts etc at the beginning of the year

Minus

value of stocks of materials etc at the end of the year + insurance claims received

Value added (at basic prices) = Gross output *minus* intermediate consumption.

Gross domestic product at basic prices = sum of value added
Gross domestic product at market prices = sum of value added *plus* taxes on products

It may be noted that:-

(a) The gross output formula is often rearranged so as to explicitly bring out (i) the value of own produced goods at basic prices and the margin on sales of goods bought for resale without further processing and the changes in stocks of each.
(b) In the case of agricultural crops the whole amount of output is considered produced within the year the crop is harvested. Similarly the intermediate inputs are treated as though they were consumed the same year.

(c) The details of both the gross output and the intermediate consumption are collected using the questionnaires and other sources described in the section on sources of data.
(d) The formula for gross output above, applies to market producers. For non - market producers the gross output is obtained as the sum of intermediate consumption and compensation of employees.
(e) The questionnaires that collect the data are completed with respect to establishments. They however identify the institutional sector of ownership of the establishment. This enables the construction of both the production and the generation of income accounts.
(f) The value added, the domestic product, operating surplus, fixed capital formation and savings are all still calculated gross as there is no estimate of the capital stock and hence the consumption of fixed capital.

Income Approach

As stated above the estimates are tied to the production approach. To obtain the gross national income details of flows of property income to and from the rest of the world are obtained from the Reserve Bank of Zimbabwe. The net flows from the rest of the world are added to the gross domestic product at market prices to obtain the gross national income.

The Expenditure Approach

Government final consumption expenditure is calculated as total current expenditure by central and local government on goods and services less fees, sales and recoveries.

Household final consumption expenditure.

The total figure is still largely obtained as a residual after subtracting the other components of expenditure on the GDP from the GDP total obtained from the production approach. An independent estimate of the HFCE is also made by projecting benchmark expenditures at individual item level estimated for a year when there is an ICES, using indicators based on local production plus imports plus estimates of trade and transport margins plus estimates of product taxes per product minus intermediate use minus exports minus fixed capital formation minus increase in stocks. A comparison of the two estimates often leads to a rechecking and revision of each of the components of the supply and use of the products.

The details of local output and intermediate consumption by product are based on the details of sales and purchases respectively, obtained from the questionnaires that collect data for the production approach estimates.

The same method as for government final consumption expenditure is used for NPISH.

Gross fixed capital formation

Information on expenditures on fixed capital formation is obtained from the questionnaires and records used for obtaining information the data for calculating value added by kind of activity.

Changes in stocks of inventory

The output stocks and input stocks are split into individual product details in the same way as output and intermediate consumption. A revaluation of both opening and closing stocks at average annual prices is done using consumer price indices.

Exports and imports of goods and services

The merchandise trade data is processed in the Trade Statistics section. It is combined with the trade in services data from the Reserve Bank of Zimbabwe.

2 Use of the Commodity Flow Method For Strengthening National Accounts Estimates

Input – Output Tables were first published in the National Accounts and Balance of Payments of Rhodesia (the name of Zimbabwe before independence in 1980) of 1964. Another set of tables was published for 1965. From then on Commodity Flow Tables were constructed and used for strengthening the other estimates of national accounts, in particular the distribution of private consumption expenditure by product, but not published for most of the years. The commodity flow tables had, on the supply side, columns for local output, imports, import duties, trade margins, transport margins, indirect taxes (taxes on production) and subsidies (with a negative sign). On the demand side there were columns for intermediate consumption, government final consumption expenditure, private consumption expenditure, non-profit making bodies final consumption expenditure, gross fixed capital formation, changes in stocks and exports of goods and services. Both the local supply and the intermediate consumption columns were derived from

rectangles with columns showing producing or consuming industries, respectively and rows showing commodities (products) produced or consumed, respectively.

The gross output, at that time, was measured "at factor cost", that is excluding all indirect taxes less subsidies. The other taxes on production payable by an establishment (or industry by summation) were prorated on all products produced by the establishment, on the basis of the value of the product. Excise duties and subsidies were product specific. So was the sales tax which formed the bulk of product taxes other than import duties. Although sales tax could be collected at any stage in the production chain, it was payable on private final consumption expenditure only.

More elaborate work on the Supply and Use Tables was introduced at the CSO, with the assistance of Statistics Norway, in the mid1980s. The aim of the computerized project was to produce Supply and Use Tables on an annual basis and have them as the framework of the country. In particular, the production account, the generation of income account, the uses side of the use of disposable income account and the changes in assets side of the capital account would be directly extracted from the system. The system would also have enabled the derivation of GDP at constant prices by double deflation.

The implementation of the system introduced by Statistics Norway suffered, in the first instance from high staff turnover and subsequently from the drying up of primary statistics.

A similar system has been adopted in Malawi and a paper on that system is being presented at this conference.

3 Final Estimates at Constant Prices

Production Approach

The estimates were made by carrying forward the value added estimates of the base year using volume of output indicators. In practice the previous year's value added is carried forward to the current year, for which estimates are being made, using the ratio of the current year value of output over the previous year's value of output index. That is $VA_t = VA_{t-1}*R$,where VA stands for value added and R stands for the ratio of the current year output over the previous year output. R is ideally computed by combining indices at finer detail of the ISIC than that at

which VA is calculated. The weights for combining such indices were the value added at current prices for the previous year.

For example, in calculating the value added for mining, volume of output indices for each of coal mining, metal ore mining, other mining and quarrying and sand pits are calculated and made available to the national accountant. Let the volume of output indices, which have a fixed base year 0, for the current year for which estimates are to be made, at constant year 0 prices, be $I_{0,t,1}$, $I_{0,t,2}$, $I_{0,t,3}$ and $I_{0,t,4}$, respectively for each of the four subgroups of mining. Let the corresponding volume indices for the previous year be $I_{0,t-1,j}$, j = 1, 2, 3, 4. Let the final value added at current prices for the previous year be $w_{t-1,1}$ $w_{t-1,2}$, $w_{t-1,3}$ and $w_{t-1,4}$ for coal mining, metal ore mining, other mining and quarrying and sand pits, respectively. Then for mining $R = \sum(((I_{0,t,j})/I_{0,t-1,j})* w_{t-1,j})/ \sum w_{t-1,j}$, j = 1, 2, 3, 4.

The volume indices differ depending on the kind of industry/activity.

(i) For agriculture crop output and animal production indicators are used.
(ii) For mining the volume of mineral production is used
(iii) For manufacturing there is a volume of manufacturing index, based on data from a specific survey designed for that purpose.
(iv) For water and electricity appropriate volumes of water supplied and electricity generated and distributed are used.
(v) For the services sector generally employment data is used although for some of them some other indicators may be available

The expenditure Approach

Estimates of expenditure on the GDP at constant prices are obtained by deflating the current price estimates largely using consumer price indices (CPI). For government final consumption expenditure a combination of the CPI for deflating the purchase of goods and non-labour services and a per capita earnings index for deflating the compensation of employees component, was used.

For fixed capital formation the indices depend on the type of asset. These include the building materials and per capita earnings indices for building construction and the civil engineering price index for civil engineering.
For plant and equipment producer price indices were used, and where did not exist the CPI for the closest type of product would be used.For draft animals, breeding stock, dairy cowse.t.c prices were obtained from agricultural marketing authorities.

4. Preliminary Estimates at Current Prices

The preliminary estimates were based on the use of indicators in a manner comparable to the one used in estimating GDP at constant from the production approach, discussed above.

Production Approach

Separate estimates were made for gross output and intermediate consumption with value added being derived as the difference. Originally the gross output indicators were largely the sales turnover values obtained from ZIMRA. An assumption would then be made that in volume terms the ratio of output to intermediate inputs had not changed between the previous and the current year. Hence the indicator of growth in output would first be converted to a constant price change by deflating it by an appropriate price ratio. The change in output at constant prices would then be applied to the previous year value of each of the intermediate inputs of the industry. Finally appropriate price ratios would be applied to each of the inputs. The inputs would then be summed up for the industry and subtracted from the gross output at current prices to obtain value added at current prices.

Of late the same procedure was followed except that the constant price change in output indicator would be the same as the one used for the constant price estimates as described in the section on constant price final estimates above. The difference between the preliminary estimate procedure and the final estimate procedure for the constant price estimates of value added was that in the preliminaryvalue added of year t-3 would be the one available for weighting instead of that of the year t-2. Hence, continuing with the example of mining used above, the formula for R_{eco}, the ratio for carrying forward the previous year's gross output at constant prices for the early estimates, would be $R_{eco} = \sum(((\ I_{0,t,j}\ )/I_{0,t-1,j})* w_{t-3,j})/ \sum w_{t-3,j}$, j = 1, 2, 3, 4 instead of $R = \sum(((\ I_{0,t,j}\ )/I_{0,t-1,j})* w_{t-1,j})/ \sum w_{t-1,j}$, j = 1, 2, 3, 4, for the final estimates, as above.

To obtain R_{ecu}, the ratio of the change in output at current prices, price indices $P_{0,t,j}$, j = 1, 2, 3, 4, for each of coal mining, metal ore mining, other mining and quarrying and pit sands, need to be introduced into the formula.Hence, $R_{ecu} = \sum(((\ I_{0,t,j}\ )/I_{0,t-1,j})(\ P_{0,t,j}\ )/(P_{0,t-1,j})* w_{t-3,j})/ \sum w_{t-3,j}$, j = 1, 2, 3, 4. The gross output for mining, at current prices, for the previous year is multiplied by $R_{ecu}$to give the early estimate of the gross output at current prices. Hence $GO_t = GO_{t-1}*R_{ecu}$, where G_{Ot} is the current year gross output estimate and $GO_{t-1}$is the previous year gross output.

To obtain an early estimate of intermediate consumption of mining, the previous year values, at current prices, of each of the intermediate inputs into mining is then multiplied by the ratio of change in gross output of mining at constant prices, R_{eco}. This product is multiplied by the price ratios of the current over the previous year for each of the intermediate inputs and the resulting products summed to give the total early estimate of intermediate consumption. Let the intermediate inputs be Ci, i=1, …,n, and the corresponding price indices for each of the inputs be $P_{0,t,i}$and $P_{0,t-1,I}$, i = 1, 2, …,n for the current and previous year, respectively. Then the total value of intermediate consumption of mining for the current year is estimated by $X_t = R_{eco} \sum(((P_{0,t,i})/P_{0,t-1,i})* C_{t-1,i})$, i = 1, . . ., n.

Value added is given by $GO_t - X_t$.

The assumption, here, is that at constant prices there has been no change in input output coefficients.

Data on compensation of employees was obtained from the QEI, and used to become available for any quarter, the quarter after the following quarter.

The operating surplus would then be obtained as VA – E, where E stands for compensation of employees.

5.Preliminary Estimates at Constant Prices

As explained above, $R_{eco} = \sum(((I_{0,t,j})/I_{0,t-1,j})* w_{t-3,j})/ \sum w_{t-3,j}$, j = 1, 2, 3, 4 instead of $R = \sum(((I_{0,t,j})/I_{0,t-1,j})* w_{t-1,j})/ \sum w_{t-1,j}$, j = 1, 2, 3, 4, for the final estimates is used for carrying forward the gross output when making the preliminary estimates at constant prices. Given the assumption of no change in input output coefficients at constant prices between the current and the previous year, the preliminary estimate of value added at constant prices, is given by $VA_t = R_{eco}Va_{t-1}$.

Before the final estimates are made, there would be another round of preliminary estimates. For the second round the applicable formula would be $R_{eco2} = \sum(((I_{0,t,j})/I_{0,t-1,j})* w_{t-2,j})/ \sum w_{t-2,j}$, j = 1, 2, 3, 4.

Expenditure Approach

Current Prices

The preliminary estimates of general government final consumption expenditure depended on employee earnings data for carrying forward the value added.

The same applies to NPISHs as for general government.

Supply indicators from both local output and imports would be used in the first instance for preliminary estimates of gross fixed capital formation. Later an analysis of results of a short questionnaire sent to a sample of establishments covered by the annual CIP would also be used for carrying forward the previous year's estimates.

The sample of establishment receiving the GFCF questionnaire would also receive one on opening and closing stocks. Other stock positions would be obtained from the same sources from which they are obtained for final estimates.

International trade statistics, under normal circumstances, become available at least two months after the month of transaction.

Household final consumption expenditure would then be obtained as a residual.

E. The Effects of Drying Up of the Primary Data on the Estimates

The first type of data to be affected was that which is collected through questionnaires such as the annual Census of Industrial Production (CIP) and the annual Census of Agriculture (ALS). The last year for which a Census of Industrial Production report was produced was 1999. The CIP covers mining, manufacturing, electricity generation and distribution, water supply and reticulation and construction. From the methods of estimation described above, it follows therefore that the last year for which final estimates of the gross domestic product at current prices could be made was 1999. Final estimates at constant prices could be made only up to 2000.

The year 2002 was the last one for which the usual first preliminary estimates could be made since the formulae $R_{ecu} = \sum(((I_{0,t,j})/I_{0,t-1,j})(P_{0,t,j})/(P_{0,t-1,j})* w_{t-3,j})/ \sum w_{t-3,j}$, j = 1, 2, 3, 4 and $R_{eco} = \sum(((I_{0,t,j})/I_{0,t-1,j})* w_{t-3,j})/ \sum w_{t-3,j}$, j = 1, 2, 3, 4 could be used for the current price and constant price ratios respectively for carrying forward the previous year's gross output. Applying these formulae in 2003 would mean use of value added weights, $w_{t-3,j}$, which were themselves projections of the previous year's value added.

A decision was taken that in making the fourth and subsequent generation projections the 1999 weights should be used. Thus for 2003 $w_{t-4,j}$ was used in the above formulae. Continuing similarly, by 2008 $w_{t-9,j}$ was being applied.

Even if the volume and price indices, $I_{0,t,j}$ and $P_{0,t,j}$,respectively, remained available and robust, the estimates would become progressively weaker as the years became more removed from 1999, since for one thing structural changes taking place in the economy would be missed. The responses to the questionnaires collecting information for constructing the indices were themselves declining. After 2005 there were no volume of manufacturing indices being produced. The usual volume of mining indicators were similarly affected. The last ALS during that period was conducted for the season 2006/07.

The methods for finding substitute indicators were eclectic. Thus, for example those items whose production was mainly for export, trade figures were used for projecting production. Unusual sources such as the Chamber of Mines were also contacted. Similarly, estimates of agricultural output by the Ministry of Agriculture were being used. For the services public sector earnings and numbers employed figures continued to be relied upon.

Producer price indices ceased to be available. The consumer price index (CPI) was affected by both hyper- inflation and the unavailability of the products on the shelves of the selected outlets for observing the prices. Only those items whose prices had been measured at the same outlet both in the current and previous months were included in the computation of the current moth's index. Under normal circumstances about 15 000 such observations are made and included in the computation of the CPI. However towards the end of 2008, less than one thousand observations were being made.

Where an item was not observed throughout the country, then that item as well as its weight, was dropped from the computation of the ratio of price change which was used for carrying forward the previous month's index.

F. Implementation of the 1993 SNA

The strategy that had been adopted for implementing the 1993 SNA was first to ensure that the instruments for collecting data would provide information that would be compliant with the 1993 rather than the 1968 SNA. This included issues such as classification of institutions, kind of activity and types of assets. It also

included other issues as listed in the section on changes between the 1968 and 1993 SNA.

Next, the existing sources of data and national accounts statistics that were already being compiled were examined to see which aspects of the 1993 SNA could be implemented with minimum additional cost. That examination yielded the following ordered list of tasks, from the simplest to the most difficult. The tasks however need not be performed sequentially.

(i) To compile the production, the generation of income and allocation of income accounts for all sectors
(ii) To compile the full set of accounts for the general government, household and financial corporations sectors
(iii) To regularly compile supply and use tables
(iv) To estimate the capital stock and the consumption of fixed capital
(v) To conduct an enterprises survey
(vi) To complete the compilation of the full set of accounts
(vii) To compile various satellite accounts as per user demand

In implementing the strategy, the revision of the CIP questionnaires had been completed and the production and generation of income accounts compiled. Also migration from earlier classifications to later ones that are more compatible with SNA93 had been partially achieved. This includes the adoption of ISIC rev. 3 for the CIP and the adoption of classifications such as COFOG and COICOP.

Problems with primary statistics described above and the high turnover of staff in the National Accounts section however, hampered any further progress.

G. Way Forward, Implementing the 2008 SNA

Largely the same strategy that was intended to be followed in implementing the 1993 SNA is intended to be followed for the 2008 SNA. This may however be modified to take account of the continental strategy, particularly where resources are availed in to implement the prescribed strategy. Otherwise the local situation in Zimbabwe should determine the strategy.

On the positive side towards the implementation of the strategy Zimbabwe has already adopted the 2008 International Recommendations for Industrial Statistics (IRIS) in revising its CIP questionnaire and used the revised questionnaire for

collecting data starting with that for the year 2009. It is intended to migrate to ISIC rev. 4 beginning with the data for 2011 which will be collected in 2012.

A Poverty, Income, Consumption and Expenditure Survey (PICES) is currently in progress, to be completed in May 2012. A Child Labour and Labour Force Survey (CL&LS) has been completed. Similarly the fourth Population Census after independence is scheduled to be conducted in August 2012. All these should strengthen the data sources for making National Accounts estimates.

The Central Statistical Office has been transformed into the Zimbabwe National Statistics Agency (ZIMSTAT). The proposed structure of ZIMSTAT which has been adopted would make it much more efficient than CSO. The new Census and Statistics Act setting up ZIMSTAT provides for conditions of service which are at least better than those in the public service. Those conditions may attract and retain statisticians of a high caliber.

An issue that still needs quite some attention is the continued very poor response rate to the questionnaires sent by ZIMSTAT to establishments.

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Acronyms

1. ALS: Agriculture and Livestock Survey

2. ASYCUDA: Automated system of customs data
3. BTS: Business tendency survey
4. CIP: Census of industrial production
5. CPI: Consumer price index
6. COFOG: Classification of functions of government
7. COICOP: Classification of individual consumption according to purpose
8. CSO: Central Statistical Office
9. CL&LS: Child Labour and Labour Force Survey
10. GDP: Gross domestic product
11. GFCE: Government final consumption expenditure
12. GFCF: Gross fixed capital formation
13. HFCE: Household final consumption expenditure
14. ICES: Income, consumption and expenditure survey
15. NHSCP: National Household Survey Capability Program
16. NPISH: Nonprofit institutions serving households
17. IRIS: International Recommendations on Industrial Statistics
18. ISIC: International Standard Industrial Classification of all economic activities
19. PICES: Poverty, income, consumption and expenditure survey
20. QEI: Quarterly employment inquiry
21. VMI: Volume of manufacturing index
22. ZIMRA: Zimbabwe Revenue Authority
23. ZIMSTAT: Zimbabwe National Statistics Agency