



BOTSWANA

TECHNICAL ASSISTANCE REPORT—REPORT ON NATIONAL ACCOUNTS MISSION

February 2020

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TECHNICAL ASSISTANCE REPORT

BOTSWANA Report on the National Accounts Mission

OCTOBER 2019

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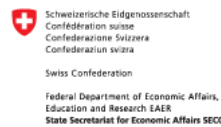


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Glossary

| | |
|-----------------|--|
| <i>2008 SNA</i> | <i>2008 System of National Accounts</i> |
| AFS | IMF's Regional Technical Assistance Center for Southern Africa - AFRITAC South |
| ANA | Annual National Accounts |
| BoB | Bank of Botswana |
| BoP | Balance of Payments |
| BURS | Botswana United Revenue Service |
| COE | Compensation of Employees |
| FISIM | Financial Intermediation Services Indirectly Measured |
| GVA | Gross Value Added |
| IMF | International Monetary Fund |
| MoF | Ministry of Finance |
| MTHS | Multi-Topic Household Survey |
| OOD | Owner-Occupied Dwellings |
| SB | Statistics Botswana |
| SGO | Statement of Government Operations |
| SUT | Supply and Use Tables |
| TA | Technical Assistance |
| TIN | Tax Identification Number |
| WCI | Wage Cost Index |

SUMMARY OF MISSION OUTCOMES AND PRIORITY RECOMMENDATIONS

1. **A technical assistance (TA) mission was conducted by IMF's Regional Technical Assistance Center for Southern Africa (AFS)¹ during August 19–29, 2019 to assist Statistics Botswana (SB) in improving the quality of the national accounts statistics.**
2. **Reliable national accounts are essential for informed economic policy-making by the authorities.** It also provides the private sector, foreign investors, rating agencies, donors and the public in general with important inputs in their decision-making, while informing economic analysis and IMF surveillance. Rebasing the national accounts is recommended every five years. Rebasing requires comprehensive surveys and ideally, Supply and Use Tables (SUT) to support coherence checking of data.
3. **As a result of recommendations made during the previous mission, SB have revised the release date for the rebase of national accounts estimates from March 2020 to December 2020 and updated the workplan accordingly.** This is more realistic and is achievable. Consequently, a revised workplan has been developed and they are working to achieve completion of tasks within this revised timetable.
4. **SB has made progress in finalizing the statistical frame and associated weights to compile gross value added (GVA) estimates for industries in the economic survey and estimates of GVA for the other industries.** Areas of improvement were identified for Public Administration, Public Health and Public Education; Finance and Insurance; Agriculture; Mining; and Owner-Occupied Dwellings (OOD) industries during this mission. These will be implemented by SB.
5. **The mission, SB and the head of the macro-fiscal unit within the Ministry of Finance (MoF) had a general discussion about the annual national accounts (ANA).** There is a Macro-Fiscal Framework workbook that was created in 2014 by an IMF Public Finance Management expert, which included a worksheet outlining the discrepancies between the ANA and the Statement of Government Operations (SGO); and the ANA and the Balance of Payments (BoP). The Botswana Financial Policy Programming Technical Working Group comprises of SB representative. All the issues were discussed and plans to resolve the discrepancies are ongoing. The mission strongly recommended that the MoF and SB work together to resolve the discrepancies now and on an ongoing basis. The mission stressed that the SGO provides the control totals for government data which the SB needs to use. Currently, the macro-fiscal

¹ AFS provides TA and training to Angola, Botswana, Comoros, Eswatini, Lesotho, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Zambia, and Zimbabwe. AFS donors are the European Union, Switzerland, Germany, China, Mauritius, the United Kingdom, Netherlands, European Investment Bank and Australia.

framework and associated discrepancies are compiled for annual data but the MoF indicated that it could and should be done quarterly. Once developed it will be provided to SB.

6. SB informed the mission that the industry and product classification for the SUT have been finalized, although it was recognized these may change slightly depending on data availability. The previous mission recommended that some specialized surveys needed to be undertaken to obtain product level data for the SUT, namely, manufacturing and trade sectors. The manufacturing and trade services survey instruments are being finalized and data collection will occur during October 2019.

7. SB were planning to use product level Foreign Trade data for imports and exports, however, this will result in a discrepancy with the BOP and ANA import and export totals. During the mission, SB obtained more disaggregated BoP data from the Bank of Botswana (BoB). It was recommended that SB provide the BoB with the SUT product classification (including the correspondence to the Harmonized System classification) and discuss with the BoB the possibility of obtaining the BoP data at that level. Thereby ensuring harmonization with the national accounts.

8. The mission attended two workshops SB had arranged – one with the Technical Working Group who will be working with SB on the rebase and the other a more general presentation to administrative data providers and data users to outline the purpose of the rebase. The mission assisted in finalizing the presentations for both workshops which involved considerable discussion on aligning the presentations to both audiences and focusing the presentations on the key issues/discussion points. The workshops were well received, and considerable discussion took place.

The following priority recommendations will improve the national accounts statistics for Botswana:

Table 1. Priority Recommendations

| Target Date | Priority Recommendation | Responsible Institutions |
|-----------------------|--|--------------------------|
| September 2019 | <i>Determine the statistical frame and weights for the economic survey.</i> | SB |
| October 2019 | <i>Undertake additional specialized surveys to collect missing product data.</i> | SB |
| December 2019 | <i>Compilation of rebased GDP by production estimates.</i> | SB |

Further details on the priority recommendations and the related actions/milestones can be found in the action plan under *Detailed Technical Assessment and Recommendations*.

ANNUAL NATIONAL ACCOUNTS REBASE

9. SB is currently rebasing the national accounts to a base year of 2016. An economic census commenced in 2016 with the first phase being a business listing exercise which resulted in the identification of 14,452 establishments (excluding branches). The second phase was the economic census (as opposed to a sample survey) which was undertaken during 2017. However, the response rate was extremely low with only 3,145 establishments responding.

10. The initial frame was supplemented with approximately 500 large establishments that SB realized weren't included in the business listing exercise. These units were identified from the large tax payer unit and other offices under the Botswana United Revenue Service (BURS). However, SB did not do any further reconciliation with the taxpayer list. As per the previous mission's recommendation, SB have been working on reconciling their list of establishments and the active taxpayer list. SB have identified 27, 248 active taxpayers and have matched to 25 400 using the Tax Identification Number (TIN). SB are attempting to match the remaining using name and address to determine the actual business frame.

11. Once the business frame is determined, SB will have to reconcile the establishments that responded to the economic census ensuring that there is good coverage of industries as well as size of establishments. Once this is determined SB can determine the grossing up factors for the sample. SB are aiming to complete this exercise by the end of September 2019. The mission stressed that this task is a very high priority. The longer it takes to determine this the longer it will be before GVA estimates can be compiled.

12. SB have been compiling GVA estimates for industries that are not reliant on the economic survey, namely, Public Administration, Public Health and Public Education; Finance and Insurance; Agriculture; Mining; and OOD. SB have obtained compensation of employee data (COE) data in order to estimate Public Administration, Public Health and Public Education GVA separately. SB will obtain data to compile a Wage Cost Index (WCI) in order to deflate Public Administration, Public Health and Public Education. The method for compiling a WCI is provided in Section A below.

13. The methods for estimation output for the Finance and Insurance Industry were discussed. Section B below provides an outline for the calculation of financial intermediation services indirectly measured (FISIM) which is the output for the Finance industry. SB have the data necessary to compile FISIM. The mission discussed the measurement of output for Insurance and Pension Funds using the *2008 System of National Accounts*² (*2008 SNA*). SB will discuss with Non-Bank Financial Institutions Regulatory Authority to determine what data is available to calculate GVA for insurance and pension funds.

² 2008 SNA sections 6.175 to 6.206.

14. The Agriculture Industry consists of several sub-components, namely, crops, livestock and horticulture. Each subcomponent was discussed, and various areas of improvement/investigation was identified. The Ministry of Agriculture is the source for most of the data. SB needs to investigate what data is available on an ongoing basis to improve the estimate of GVA for agriculture. For example, the harvesting cycle for each of the crops needs to be determined so that the value of the harvest can be attributed across the year. Livestock estimates appear to be good but a review to see what other sources are available is recommended. Horticulture is dominated by commercial operations, so the data should be available from BURS as well as the Ministry of Agriculture. Subsistence farming will be sourced from the Multi-Topic Household Survey (MTHS) and additional data for the base year will be sourced from the Agriculture Census.

15. The Mining industry is dominated by diamond mining and only a handful of establishments. SB obtain most of the data required from the establishments as well as the Ministry of Mines. However, these data do not necessarily align. The BoB and MoF also obtain a significant amount of data related to mining activities. It is recommended that SB work with the BoB and MoF to ensure the data is consistent.

16. Data from the Population Census (2011) and the MTHS will be used to compile the estimate of output for OOD. SB will extract stock data by the types of dwellings from the Population Census and rent data from the MTHS for the same dwelling types. Some adjustment will be required to move the estimate from 2011 to 2016. The later MTHS will be used in this process as well as data on residential building licenses (if available).

17. The mission, SB and the head of the macro-fiscal unit within the MoF had a general discussion about the ANA. There is a Macro-Fiscal Framework workbook that was created in 2014 by an IMF Public Finance Management expert, which included a worksheet outlining the discrepancies between the ANA and the SGO; and the ANA and the BoP. These have never been discussed with SB. The mission strongly recommended that the MoF and SB work together to resolve the discrepancies now and on an ongoing basis. The mission stressed that the SGO provides the control totals for government data which the SB needs to use. Currently, the macro-fiscal framework and associated discrepancies is compiled for annual data but the MoF indicated that it could and should be done quarterly. Once developed it will be provided to SB.

Recommended actions:

- SB to determine the statistical frame and weights for the economic survey.
- SB to obtain data to compile a WCI in order to deflate Public Administration, Public Health and Public Education.
- SB to determine what data is available to calculate GVA for insurance and pension funds.
- SB needs to investigate what data is available on an ongoing basis to improve the estimate of GVA for agriculture.
- SB work with the BoB and MoF to ensure the diamond mining data is consistent.

- SB to extract stock data by the types of dwellings from the Population Census and rent data from the MTHS for the same dwelling types to estimate OOD.
- SB and the MoF work together to resolve the discrepancies between the national accounts and the SGO now and on an ongoing basis.

SUPPLY AND USE TABLES

18. SB are planning to compile a SUT as part of the rebasing exercise. These are extremely beneficial as they enable the balancing of the measures of GDP. They also result in valuable ratios such as input to output ratios which are used in the ongoing compilation of GVA.

19. The industry and product classifications have been finalized since the last mission. Currently, there are 60 industries and 93 products which will provide the framework for the SUT. There may be some marginal changes to these once data is collected and the SUT is being populated especially if the data is not available.

20. A SUT requires detailed product level data. The previous mission noted that product level data are not available administratively, so it should be collected by survey. Most of the economic survey instruments provided the required data, however, for some industries a further follow-up specialized survey was required. These included the trade services, transport, construction and manufacturing industries.

21. Survey instruments for manufacturing and trade services (i.e., margins data) will be finalized shortly. Comments have been provided on the draft manufacturing survey instrument. It is expected that the data will be collected in October 2019. SB still need to draft survey instruments for the construction and transport industries.

22. SB were planning to use product level Foreign Trade data for imports and exports, however, this will result in a discrepancy with the BOP and NA import and export totals. During the mission, SB obtained disaggregated BoP data from the BoB which aligned with the Foreign Trade data for 12 key products. It is possible that the BoB may have more detailed products level data given that there are differences between the Foreign Trade data and BOP data for these 12 products. It was recommended that SB provide the BoB with the SUT product classification (including the correspondence to the Harmonized System classification) and discuss with the BoB the possibility of obtaining the BoP data at that level. Thereby ensuring harmonization with the national accounts.

Recommended actions:

- SB to undertake specialized surveys for manufacturing and retail trade during October 2019.
- SB to draft specialized survey instruments for the construction and transport industries.
- SB provide the BoB with the SUT product classification and discuss with the BoB the possibility of obtaining the BoP data at that level.

STRATEGIC ISSUES

23. The previous mission strongly recommended that the release date for the rebased estimates be revised given the workload in rebasing the national accounts. SB has revised the release date from March 2020 to December 2020. The rebasing will include the SUT.

24. SB have revised the workplan and updated the timetable to reflect the new release date. These dates are achievable if the team commits to meeting them. SB has indicated that the revised backseries will most likely be released during 2021 given the amount of work that is required in rebasing the national accounts. The backcast series may also be released in two parts – first 2006-2016 and then 1994 to 2005.

25. The two temporary staff that have been with the national accounts for approximately 18 months as reported by the previous mission have been extended for a further two years. This is very positive news as they demonstrated a good understanding of the national accounts and a willingness to build their capacity. SB could consider keeping them permanently as the resource level in the national accounts is low for the work that is required to compile ANA and quarterly national accounts on an ongoing basis.

DETAILED TECHNICAL ASSESSMENT AND RECOMMENDATIONS

Table 2. Results Based Framework

| Objective: Strengthen compilation and dissemination of data on macroeconomic and financial statistics decision making according to the relevant internationally accepted statistical standard, including developing/improving statistical infrastructure, source data, serviceability and/or metadata. | | | |
|--|--|------------------------|---|
| Outcome | Verifiable Indicators | | |
| Data are compiled and disseminated using the concepts and definitions of the latest manual/guide. | The general framework, concepts and definitions broadly follow the 2008 SNA. | | |
| Milestones | Assumptions | Target Completion Date | Comments |
| Statistical frame and weights determined and applied to economic survey. | | May 31, 2019 | Ongoing. Matching the SB list of establishments with the taxpayer list has progressed but not finalized. Change date to 30 September 2019. |
| Compilation of rebased GDP by production estimates. | | December 31, 2019 | Ongoing. Mining, Finance and Public Administration, Health and Education have been worked on. Estimates for Finance and |

| | | | Insurance, and Agriculture reviewed and some improvements to be made. |
|---|--|------------------------|---|
| Compilation of rebased GDP by expenditure estimates. | | January 31, 2020 | Ongoing. Trade data has been aligned to the BoP data. HFCE data is currently being analyzed. |
| SUT populated and balanced. | | June 30, 2020 | Ongoing. Product and Industry classifications have been finalized. |
| Dissemination of rebased GDP estimates. | | | To be determined. |
| Outcome | | Verifiable Indicators | |
| Higher frequency data has been compiled and disseminated internally and/or to the public. | National accounts compiled and disseminated on a quarterly or monthly basis. | | |
| Milestones | Assumptions | Target Completion Date | Comments |
| Review quarterly GDP methodologies and data sources. | | September 30, 2020 | Ongoing. Will be undertaken as part of the rebasing exercise. |
| Dissemination of revised quarterly GDP estimates based on the rebased annual national accounts. | | September 30, 2020 | |

A. Methodology for Deriving a Wage Cost Index

A wage index for government is relatively straight forward to calculate. The salary levels for each grade are known and these are weighted together using total payments—numbers multiplied by average rate—for the grade.

| <i>Hypothetical GSS example.</i> | | | | | | | | | | | |
|---|-----------------|--------------|-----------------|-----------------------|--------------|-----------------|--------------------|------------|---------|-------|-------|
| Grades | 2005 | | | 2006 | | | Deflated Wage bill | Wage index | | 2005 | 2006 |
| | Number in grade | Average Wage | Total Wage bill | volume number | Average Wage | Total Wage bill | | Weight | Weight% | | |
| GS | 1 | 10,000 | 10,000 | 1 | 11,000 | 11,000 | | 10,000 | 3.3 | 3.3 | 3.6 |
| DGS | 2 | 9,000 | 18,000 | 2 | 9,900 | 19,800 | | 18,000 | 5.9 | 5.9 | 6.5 |
| 8 | 4 | 8,000 | 32,000 | 4 | 8,800 | 35,200 | | 32,000 | 10.5 | 10.5 | 11.5 |
| 7 | 6 | 6,000 | 36,000 | 7 | 6,600 | 46,200 | | 36,000 | 11.8 | 11.8 | 13.0 |
| 6 | 6 | 4,000 | 24,000 | 5 | 4,400 | 22,000 | | 24,000 | 7.9 | 7.9 | 8.6 |
| 5 | 20 | 3,000 | 60,000 | 20 | 3,300 | 66,000 | | 60,000 | 19.6 | 19.6 | 21.6 |
| 4 | 30 | 2,000 | 60,000 | 30 | 2,200 | 66,000 | | 60,000 | 19.6 | 19.6 | 21.6 |
| 3 | 23 | 1,200 | 27,600 | 23 | 1,320 | 30,360 | | 27,600 | 9.0 | 9.0 | 9.9 |
| 2 | 10 | 1,000 | 10,000 | 10 | 1,100 | 11,000 | | 10,000 | 3.3 | 3.3 | 3.6 |
| 1 | 40 | 700 | 28,000 | 40 | 770 | 30,800 | | 28,000 | 9.2 | 9.2 | 10.1 |
| TOTAL | 142 | | 305,600 | 142 | | 338,360 | 307,600 | 305,600 | 100.0 | 100.0 | 110.0 |
| | | | | Real Growth | | | | | | | |
| | | | | Nominal Growth | | 10.7% | | | | | |
| | | | | | | | 0.7% | | | | |
| Scenario 1 | | | | | | | | | | | |
| All wages up 10% | | | | | | | | | | | |
| No change in total numbers, but 1 person promoted from grade 6 to grade 7. This promotion is equivalent to growth as it is assumed that persons at a higher grade have greater output, as a result of their greater experience. | | | | | | | | | | | |
| "Real growth" = growth in constant prices, where price is the same as wages. | | | | | | | | | | | |
| Wages = the price of labor. So a wage index is equivalent to a price index weighted by the total wages paid in each grade. | | | | | | | | | | | |

The example has wages being increased on January 1 and shows only an annual index, but a monthly index can be calculated using the same method. Most governments provide wage increases only once a year so, if wages are increased at the beginning of July, the monthly index will look something like this:

| | | |
|--|-----------------------|-----|
| | Jan | 100 |
| | Feb | 100 |
| | Mar | 100 |
| | Apr | 100 |
| | May | 100 |
| | Jun | 100 |
| | Jul | 110 |
| | Aug | 110 |
| | Sep | 110 |
| | Oct | 110 |
| | Nov | 110 |
| | Dec | 110 |
| | Annual Average | 105 |

B. Simple Method for Estimating FISIM

Using reference rates to determine the level and allocation of FISIM is theoretically attractive and there is a strong expectation (for example in the IMF's *Data Quality Assessment Framework*) that this procedure should be followed. But in practice, measurement is not straightforward.

Unless the financial services industry is dominant, as in a small "off-shore" tax haven, it is a complication that typically makes little difference to the level of GDP for low-income countries. The allocation is highly sensitive to the choice of reference rate, with unpredictable results when rates are varying. However, in many smaller developing countries, a service-free, risk-free, market-determined rate is not observable for use as a reference rate, for instance, because the inter-bank lending market is small or unrepresentative or at a rate that is artificial or controlled.

Given the uncertainties about the 'true' reference rate for FISIM, one simple, objective and transparent method is to calculate the reference rate as the simple average of the actual lending and borrowing rates. The required data are readily available from the banks' profit and loss accounts. Specifically, if:

y_L = stock of loans

y_D = stock of deposits

r_L = rate on Loans

r_D = rate on Deposits

then define the reference rate rr as:

$rr = (r_L + r_D)/2$

The Output of FISIM is then $= (r_L - rr) y_L + (rr - r_D) y_D$

(The 2008 SNA advises against this approach, but it is often used and gives sensible results in cases where the reference rate is either unavailable or gives unsuitable results.) Allocation (to sectors and activities) will require additional data, such as on the distribution of lending across activities. It will be important to get data for the loans and deposits of the household sector, which are usually available. By convention, government could be exempt from such allocation.

C. Officials Met During the Mission

| Name | Institution |
|---------------------|--|
| Dr. Burton Mguni | Statistics Botswana (Statistician General) |
| Malebogo Kerekang | Statistics Botswana (Deputy Statistician General) |
| Ketso Makhumalo | Statistics Botswana (Acting Director of Economic Statistics) |
| Lekoko Simako | Statistics Botswana |
| Winsten Kabo | Statistics Botswana |
| Chandler Madisa | Statistics Botswana |
| Boitumelo Kobua | Statistics Botswana |
| Phemelo Ntwayapelo | Statistics Botswana |
| Godiraone Gaolaolwe | Statistics Botswana |
| Michael Andina | Statistics Botswana |
| Tapologo Baakile | Statistics Botswana |
| Grace Mphetolang | Statistics Botswana |
| Phetogo Zambezi | Statistics Botswana |
| Eden Onyadile | Statistics Botswana |
| Kebonyethebe Johane | Statistics Botswana |
| Banabo Tshupeng | Statistics Botswana |
| Mavis Mogami | Statistics Botswana |
| Temba Sibanda | Statistics Botswana |
| Jimmy George | Statistics Botswana |
| Susan Matroos | Statistics Botswana |
| Golebaone David | Statistics Botswana |
| Nametso Kgosiyame | Statistics Botswana |
| Doulphy Nkele | eBotswana |
| Junior Mooketsi | eBotswana |
| Keneilwe Lephoi | eBotswana/Yaronafm |