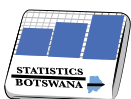


NATIONAL ACCOUNTS OF BOTSWANA

REBASE AND REVISIONS: 2016



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NATIONAL ACCOUNTS OF BOTSWANA REBASE AND REVISIONS: 2016

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Abbreviations

BEC	Broad Economic Categories
BMTHS	Botswana Multi-Topic Household Survey
BSIC	Botswana Industrial Standard Industrial Classification
BURS	Botswana United Revenue Service
CEE	Census of Enterprises and Establishments
CPI	Consumer Price Index
COICOP	Classification of Individual Consumption by Purpose
FISIM	Financial Services Indirectly Measured
GDP	Gross Domestic Product
ISIC	International Standard Industrial Classification
NADABAS	National Accounts Database System
NBFIRA	Non-Bank Financial Institutions Regulatory Authority
NPISH	Non-Profit Institutions Serving Households
SACU	Southern African Customs Union
SUT	Supply and Use Table
VAT	Value Added Tax



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June 2022

1. Background

National accounts at constant prices should not run for too many years without a change of the base year. The relative prices prevailing during a certain period have a decisive impact on numerous economic circumstances, e.g. production methods and consumption patterns. As time passes and relative prices change, the economic circumstances also change accordingly. Then, it does not make sense to continue the calculation of national accounts at the prices of some distant base period as the results tend to be less and less relevant.

International recommendations prescribe that national accounts should be rebased at least every five years. The rebase is also an opportunity to make revisions of the estimates, notably by including the results of intermittent surveys and new data sources. The previous rebase of Botswana's national accounts was completed in 2012 with the base year updated to 2006. Thus, a rebase had become overdue, and Statistics Botswana initiated the rebase in November 2018 with revised national accounts published on two occasions:

- July 2021: Quarterly and annual estimates of Gross Domestic Product (GDP) from the year 2014, compiled by the production and expenditure approaches.
- December 2021: Quarterly and annual estimates of GDP for the years 1994-2013; annual estimates of major national accounting aggregates such as Gross National Income; and estimates of capital stock.

2 Sources and methods; concepts and definitions

2.1 The 2008 SNA and classification of economic activities

The latest international recommendations on national accounts are known as the 2008 SNA (System of National Accounts), compiled by the UN in cooperation with four other international organisations. The rebase implemented the 2008 SNA as far as available sources allowed.

The rebase adopted the latest classification of economic activities, International Standard Industrial Classification (ISIC) Rev 4 adapted to Botswana International Standard Industrial Classification (BISIC). The revised national accounts include estimates of 58 economic activities (industries) defined in terms of BISIC for the years from 2014 and estimates on an aggregated level for the years 1994-2013. For some industries, the differences compared to the previous estimates are substantial, while they are quite close for others. Comments in this regard are provided below in the section on GDP compiled by the production approach.

2.2 The Supply and Use Table (SUT)

The Supply and Use Table has been compiled for 2016, the base year, for the first time in Botswana and provides benchmark estimates for the base year. The SUT is a powerful tool in the compilation of national accounts, as it coordinates estimates of supply and use in the economy. Thus, there is no discrepancy (errors and omissions) between GDP compiled by the Production and Expenditure approaches for 2016.

- Product flows with total Intermediate Consumption on the uses side. The flows were made to balance, in some cases with Intermediate Consumption calculated as a residual. Changes in inventories are only estimated for livestock and minerals and ignored for all other products.
 - **The output matrix.** It was not possible to estimate secondary output comprehensively and, therefore, output was assumed to include only products typically produced by an industry. However, there are a few exceptions. Real estate rentals are provided as secondary output by several enterprises and were recorded in the output matrix based on responses to the CEE.
-

- **The input matrix.** The sum of intermediate consumption across the rows of the matrix is normally not equal to intermediate consumption as estimated in the product flows, i.e. there is a discrepancy, which was eliminated in two steps:

- a) manual adjustments in many cases by shifting between related products; and
- b) an iterative procedure that resulted in minor adjustments of total intermediate consumption by industry.

The three matrices record 98 products in the rows classified by a so-called Classification of Products by Activity (CPA). The codes are structured in parallel with the ISIC-codes.

The SUT requires detailed data, which were provided by intermittent surveys and other sources including:

- The Census of Enterprises and Establishments (CEE) included detailed data for the SUT, crucially data on the input structures.
- The Botswana Multi-Topic Household Survey (BMTHS) included detailed data on household consumption, data on household businesses (the informal sector) and data on agriculture operated by households.
- Detailed data on revenue and expenditure by Central and Local Government including extra-budgetary accounts (parastatals). The latter were not properly included in the previous estimates
- Mini surveys of manufacturing, construction, trade margins and road transport.
- Foreign trade data classified by Broad Economic Categories (BEC) are useful for the allocation of uses in the product flow.

The informal sector (small-scale household enterprises) was calculated by economic activity for the base year based on the results of the business module in the BMTHS. An alternative method, based on employment data, was also used. The results were very close to the BMTHS. The estimates of the informal sector 2016 are included in Appendix 1.

2.3 Annual and quarterly estimates

Revised annual and quarterly estimates of GDP by the production approach were compiled on the detailed level of the 58 economic activities from 2014. Revised estimates for the years 2006-2013 were partly compiled on the detailed level and partly on the aggregated level by linking to the previous estimates. The years 1994-2005 are all derived by linking to the previous estimates on an aggregated level.

Annual estimates based on comprehensive data have been introduced as far as possible. Quarterly estimates are then based on less detailed quarterly indicators and benchmarked to the annual estimates. For many industries, however, comprehensive annual data are not available. Therefore, the annual estimates are based on the same quarterly indicators with annual values derived as the sum of four quarters.

Revised annual estimates of GDP compiled by the expenditure approach are based on detailed annual indicators from 2006 or 2014. Quarterly estimates are based on less detailed indicators and benchmarked to the annual estimates. Earlier years, 1994-2005 are derived by linking to the previous estimates.

The estimates of exports and imports of goods and services are based on quarterly data with annual estimates derived as the sum of four quarters.

There is a paucity of deflators for the estimates at constant prices. The Consumer Price Index (CPI) is the only price data compiled by Statistics Botswana. Other deflators, apart from the CPI have been used:

- A salary index has been compiled for deflation of government compensation of employees.
 - South African producer price indices, adjusted for changes in the exchange rate, are used for deflation of imports from that country.
 - Data on quantities, values and unit prices are used in a few cases, for example minerals and agricultural products.
-

3 Summary: the estimates of GDP

Summaries of the revised estimates of GDP compared to the previous estimates are provided in three tables and figures. **Table 3.1** (Production) and **3.2** (Expenditure) show the structure of GDP for 2016, the base year, while **Figure 3.3** compares the time series for the years 2006-2020.

GDP compiled by the Production Approach

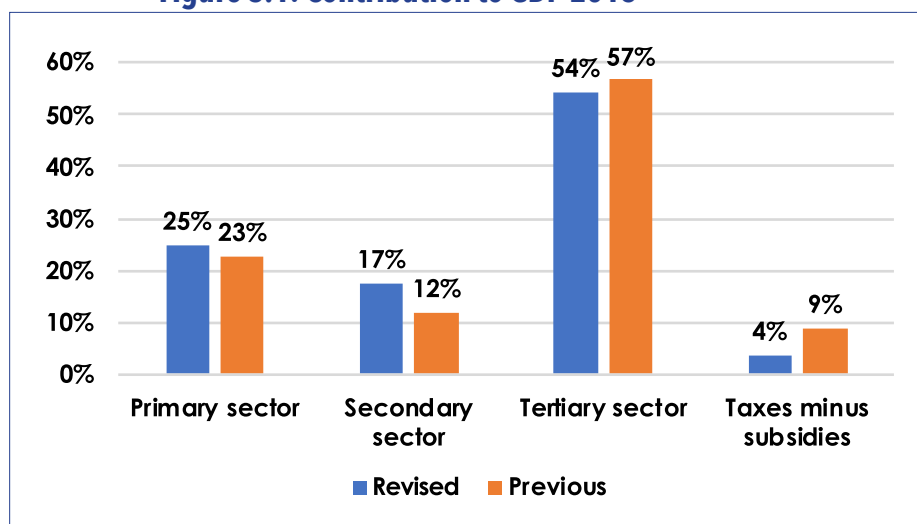
GDP for 2016 in the revised estimates is 3.6 percent below the level of GDP in the previous estimates. This is due to the estimates of import taxes. Total revenue accruing from Southern African Customs Union (SACU) was classified as import duties in the previous estimates. Only customs and excise duties actually collected in Botswana are now included. This is according to the 2008 SNA and in agreement with a decision of SACU, which is in line with definitions of the SNA.

Table 3.1: GDP 2016 compiled by the production approach

Economic activity	Million Pula		Percent	
	Revised	Previous	Revised	Previous
Agriculture, forestry, fishing (P)	3 249	3 496	2.0	2.0
Mining and quarrying (P)	37 639	35 212	22.9	20.6
Manufacturing (S)	10 693	8 859	6.5	5.2
Electricity and water (S)	1 966	395	1.2	0.2
Construction (S)	16 037	10 575	9.8	6.2
Wholesale and retail trade (T)	17 219	20 351	10.5	11.9
Transport and storage (T)	2 912	2 034	1.8	1.2
Accommodation and food services (T)	1 667	9 970	1.0	5.8
Finance and insurance (T)	7 715	5 278	4.7	3.1
Real estate (T)	7 172	5 637	4.4	3.3
Public administration and defence (T)	24 625	23 927	15.0	14.0
All other services (T)	27 681	29 678	16.8	17.4
Gross value added, all industries	158 575	155 413	96.4	91.1
Taxes minus subsidies on products	5 844	15 151	3.6	8.9
Gross domestic product	164 418	170 564	100.0	100.0

Substantial increases can be noted in Manufacturing, Electricity and Construction, while there is a huge decrease in Accommodation and Food Services. The revisions are discussed in more detail in Section 4. **Figure 3.1** illustrates the contribution to GDP by economic activity aggregated into the Primary, Secondary and Tertiary sectors (P, S and T) in **Table 3.1**.

Figure 3.1: Contribution to GDP 2016



GDP compiled by the expenditure approach

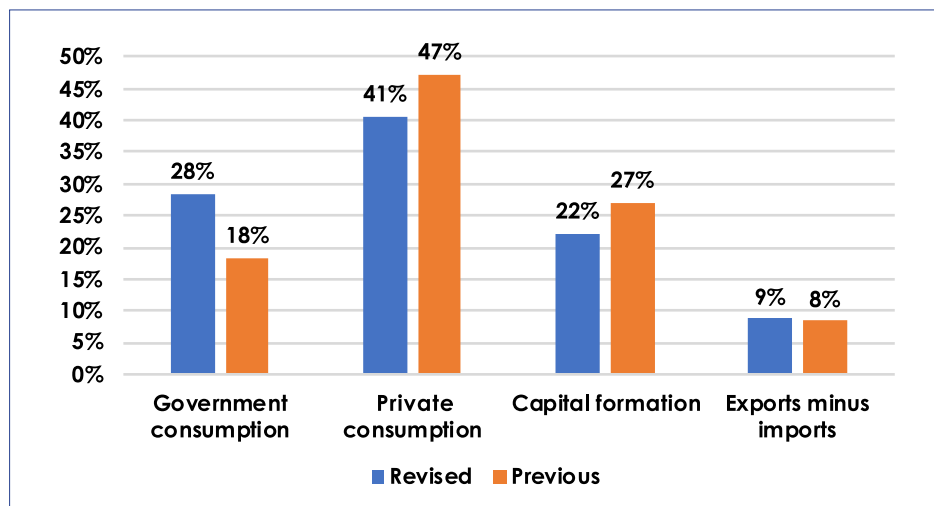
The revisions are substantial except for exports and imports. The revisions are discussed in more detail in Section 5.

Table 3.2: GDP 2016 compiled by the expenditure approach

Economic activity	Million Pula		Percent	
	Revised	Previous	Revised	Previous
Final consumption expenditure, government	46 819	31 033	28.5	18.2
Final consumption expenditure, households	66 434	78 061	40.4	45.8
Final consumption expenditure, NPISH	482	2 663	0.3	1.6
Gross fixed capital formation	40 314	52 986	24.5	31.1
Changes in inventories	-4 031	-6 879	-2.5	-4.0
Exports of goods and services	89 791	89 650	54.6	52.6
Imports of goods and services	75 391	75 391	-45.9	-44.2
Errors and omissions	-	-1 558	0.0	-0.9
Gross domestic product	164 418	170 564	100.0	100.0

Figure 3.2 illustrates the expenditure shares of GDP. Private Consumption includes Households and NPISH.

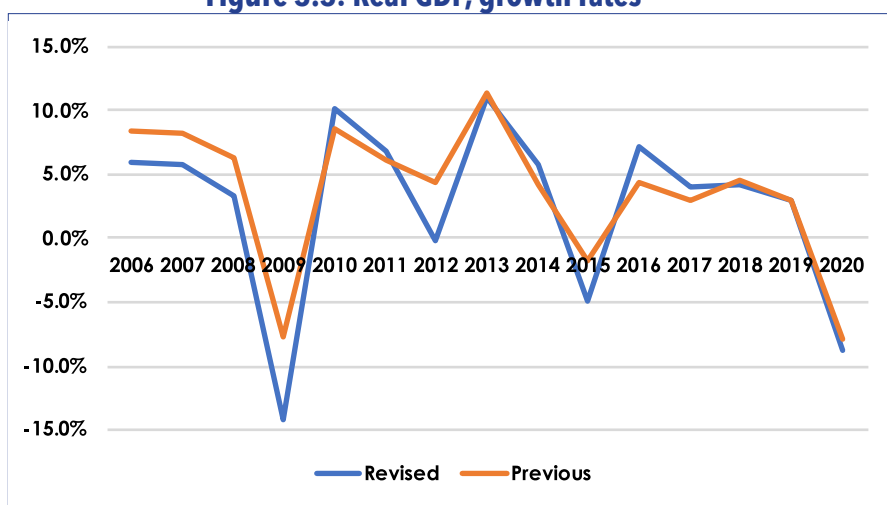
Figure 3.2: Expenditure shares of GDP



The estimates of GDP 2006-2020

Table 3.3 shows GDP from 2006, at current prices and annual changes of real GDP. The growth rates of GDP from 2006 are also illustrated in Figure 3.3. The growth path is roughly the same although the previous estimates showed slightly more rapid growth. The average annual growth of real GDP for the years 2006-2020 was 2.0 and 3.0 percent in the revised and previous estimates respectively.

Figure 3.3: Real GDP, growth rates



4 GDP compiled by the production approach

Annual production accounts from 2014 are compiled for the 58 industries listed in [Appendix 1](#) at current and constant prices. For some industries, proper production accounts have been compiled also for the years 2006-2013. For 2016, the base year, the production accounts are derived from the SUT and based on detailed data for Output and Intermediate Consumption with Gross Value Added (GVA) – the contribution to GDP – derived as the difference (the balancing item in the production account). Compensation of Employees (COE) is also estimated by economic activity. Gross Operating Surplus/mixed income is derived as the difference: GVA minus COE.

The revisions of the estimates by economic activity are discussed under 15 headings, which is the industry level on which the revised estimates can be compared with the previous ones.

4.1 Agriculture, forestry, fishing

Four industries are included in the revised estimates.

A0110	Crop farming; horticulture	A0140	Livestock farming
A0160	Support services	A0200	Forestry and fishing

Crop farming; horticulture and Livestock farming each make up close to 45 percent of the total. [Table 4.1](#) compares the revised and previous estimates of GVA from 2006.

Table 4.1: Agriculture, forestry, fishing

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes %	
	Revised	Previous	Revised	Previous
2006	1 005	1 211	13.3	13.3
2007	1 250	1 505	12.2	12.2
2008	1 567	1 887	2.0	2.0
2009	1 720	2 071	6.4	6.4
2010	1 795	2 161	5.8	5.8
2011	2 189	2 636	0.2	0.2
2012	2 459	2 961	-8.5	-8.5
2013	2 389	2 877	1.3	1.3
2014	2 527	3 045	-2.3	-0.4
2015	2 669	3 215	-2.8	0.3
2016	3 249	3 496	15.4	0.6
2017	3 070	3 584	-8.8	1.9
2018	3 678	3 794	10.3	2.6
2019	3 748	3 845	3.0	-0.1
2020	3 784	3 876	-1.7	2.3

Benchmark estimates for 2016 are based on the Agricultural Census 2015, the Annual Agricultural Survey 2017 and the agricultural module of the BMTHS as well as administrative data. Time series are based on the annual agricultural surveys and administrative data.

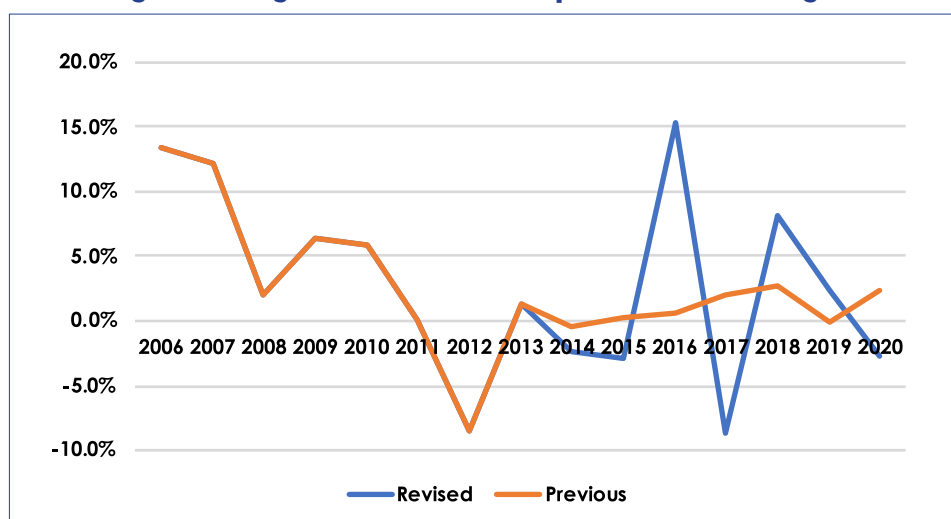
Quarterly estimates of crops are based on the annual estimates, which means that the quarters of the current year require a forecast. Quarterly estimates of livestock are based on slaughters as reported by Botswana Meat Commission and municipal abattoirs.

Change in livestock numbers should be included in the output (adjusted for imported animals) as changes in inventories or gross fixed capital formation. The trend of reported livestock numbers has been used instead of the actual numbers, as the large swings from year to year in the reported data don't seem plausible.

The estimates of agricultural support services are based on the movements of the output of crops and livestock.

The revised estimates from 2006 to 2013 are moved with previous estimates both at current and constant prices. **Figure 4.1** illustrates the growth from 2006 to 2020.

Figure 4.1: Agriculture at constant prices, annual changes



4.2 Mining and quarrying

Seven industries are included in the revised estimates:

B0510	Mining of coal	B0722	Mining of copper and nickel
B0724	Mining of gold	B0730	Mining of diamonds
B0894	Mining of soda ash and salt	B0899	Other mining and quarrying
B0900	Support services to mining		

Diamond mining makes up about 90 percent of the total. Gold mining is estimated separately in the revised estimates. It was previously included in other mining.

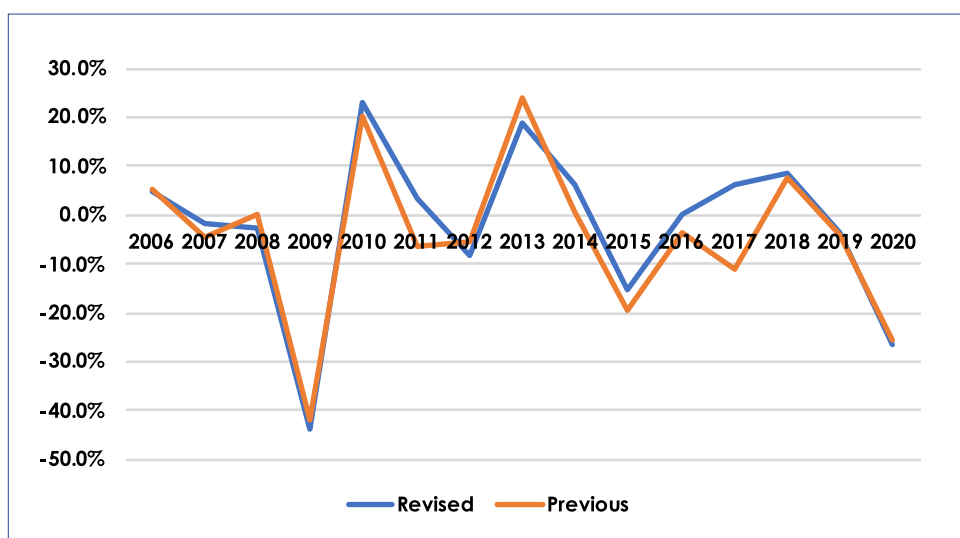
The same source data are used as in the previous estimates (mainly income statements) although the methods have been reviewed and adjustments have been made. Thus, the sources are income statements and quarterly data from all major mining companies. In addition, the estimates of quarrying and mining support services are based on the CEE and VAT-data. Revisions at the detailed industry level have been made from 2006.

Table 4.2 compares the revised and previous estimates of GVA from 2006, while **Figure 4.2** illustrates the growth since 2006 to 2020. Previously, Mining support services were classified as Business services but estimated separately. They are included in the columns containing the previous estimates

Table 4.2: Mining and quarrying

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes %	
	Revised	Previous	Revised	Previous
2006	17 859	19 120	4.6	5.1
2007	18 264	19 681	-1.8	-4.7
2008	18 463	18 782	-2.7	0.3
2009	11 042	11 370	-43.8	-42.0
2010	16 525	16 837	22.9	20.1
2011	24 475	24 732	3.5	-6.3
2012	19 406	19 514	-8.3	-5.6
2013	24 008	24 492	18.8	23.9
2014	32 303	32 670	6.0	0.5
2015	25 169	26 244	-15.3	-19.4
2016	37 639	35 212	0.3	-3.4
2017	31 368	31 566	6.3	-10.9
2018	27 793	31 734	8.4	7.5
2019	24 162	30 251	-3.7	-3.9
2020	14 956	21 086	-26.5	-25.7

Figure 4.2: Mining and quarrying at constant prices, annual changes



4.3 Manufacturing

The revised estimates are much more detailed and comprehensive compared to the previous ones. Fifteen industries are included in the revised estimates:

C1010	Production of meat and meat products (P)	C1050	Manufacture of dairy products
C1060	Manufacture of grain mill products	C1071	Manufacture of bakery products
C1079	Manufacture of other food products	C1100	Manufacture of beverages and tobacco (P)
C1300	Manufacture of textiles, clothing and leather products (P)	C1600	Manufacture of wood, paper and products thereof
C1800	Printing and reproductionn of recorded media	C2000	Manufacture of chemicals, chemical, pharmaceutical, rubber and plastics products
C2300	Manufacture of other non-metallic mineral products	C2500	Manufacture of basic metals and metal products
C2800	Manufacture, repair and installation of machinery and equipment	C3100	Manufacture of furniture; other manufacturing
C3214	Diamond sorting, cutting, polishing and setting		

(P) marks the industries that were previously estimated separately; all the others were included in Other manufacturing.

Table 4.3 compares the revised and previous estimates of GVA from 2006, while **Figure 4.3** illustrates the growth from 2006 to 2020.

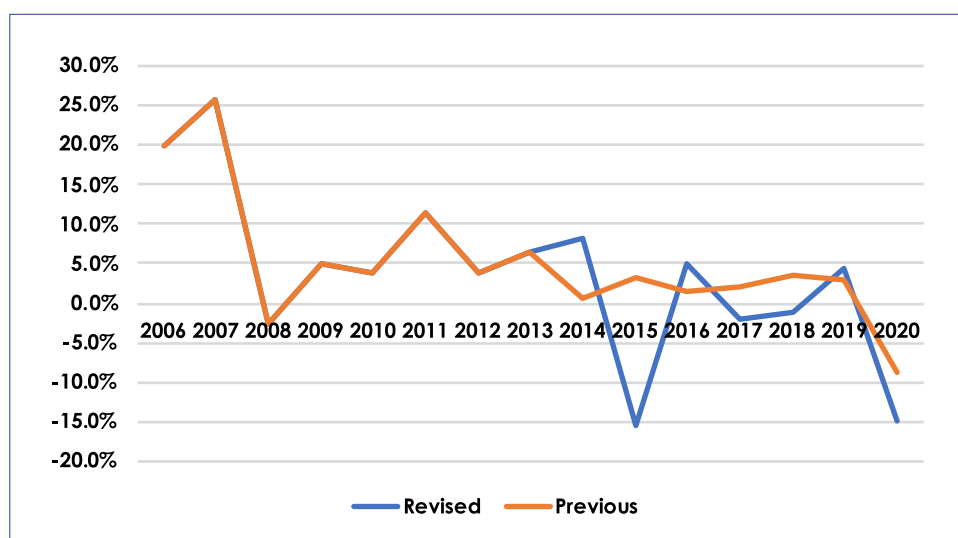
Table 4.3: Manufacturing

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes %	
	Revised	Previous	Revised	Previous
2006	4 107	3 123	20.0	20.0
2007	5 532	4 207	25.7	25.7
2008	5 628	4 279	-2.6	-2.6
2009	6 132	4 662	5.0	5.0
2010	7 297	5 548	3.9	3.9
2011	7 989	6 074	11.4	11.4
2012	8 579	6 523	3.7	3.7
2013	9 581	7 285	6.5	6.5
2014	10 899	7 740	8.3	0.5
2015	9 925	8 442	-15.5	3.2
2016	10 693	8 859	5.0	1.6
2017	10 288	9 214	-2.2	2.2
2018	10 680	9 795	-1.2	3.4
2019	10 960	10 353	4.5	2.8
2020	9 699	9 781	-14.9	-8.7

The value added for the base year is 20 percent above the previous estimates. The big difference is due to the fact that the revised estimates are more detailed and comprehensive. The benchmark estimates are mainly based on the CEE and the mini survey of manufacturing. The informal sector is based on the BMTHS. Indicators for the time series are largely based on VAT-data.

The revised estimates from 2006 to 2013 are moved with the previous estimates both at current and constant prices.

Figure 4.3: Manufacturing at constant prices, annual changes



4.4 Electricity; water; sewerage; waste collection

Table 4.4 compares the revised and previous estimates of GVA from 2006. The estimates of Electricity are based on data from Botswana Power Corporation, both for the benchmark and the time series. The tariff subsidy is recorded as a subsidy on products in the revised estimates, which is why the revised value added at basic prices is much larger in the revised estimates; it was previously negative for some years.

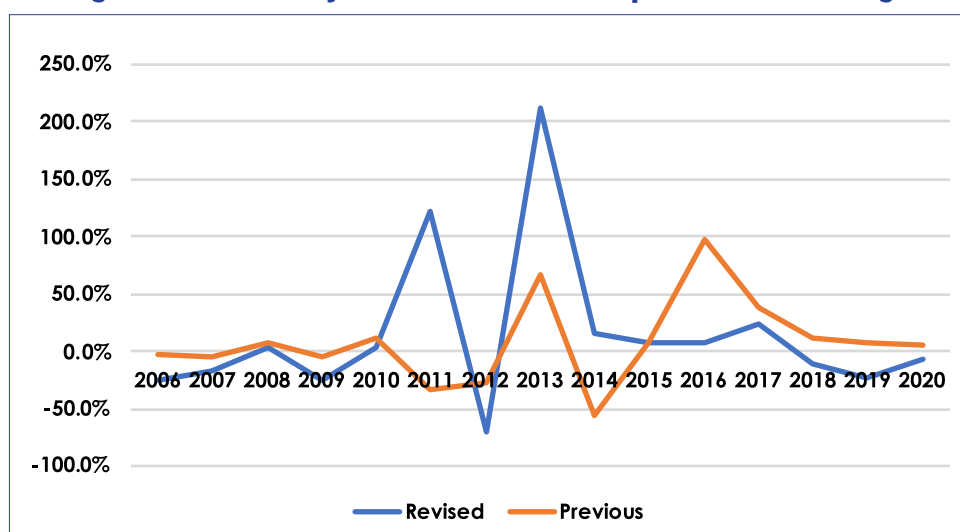
The estimates of **Water supply** are based on data from the Water Utility Corporation, both for the benchmark and the time series. The benchmark for **Waste collection** is based on the CEE, while the time series is moved with water.

Table 4.4: Electricity and water

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes %	
	Revised	Previous	Revised	Previous
2006	825	785	-25.4	-2.5
2007	786	752	-17.5	-4.9
2008	775	654	2.5	6.6
2009	345	317	-24.5	-5.2
2010	354	412	4.3	12.0
2011	671	-59	121.6	-34.2
2012	489	-621	-71.2	-27.5
2013	1 008	-123	212.3	67.5
2014	1 544	-582	15.6	-55.8
2015	1 916	-219	6.7	7.0
2016	1 966	395	8.4	96.6
2017	2 755	1 770	23.6	38.8
2018	2 912	2 301	-10.6	11.3
2019	1 642	1 996	-22.3	8.4
2020	2 084	2 403	-6.3	5.1

Figure 4.4 illustrates the growth from 2006 to 2020. The erratic growth is mainly due to Electricity and the fluctuating share of purchased electricity in intermediate consumption.

Figure 4.4: Electricity and water at constant prices, annual changes



4.5 Construction

Table 4.5 compares the revised and previous estimates of GVA from 2006, while **Figure 4.5** illustrates the growth from 2006 to 2020.

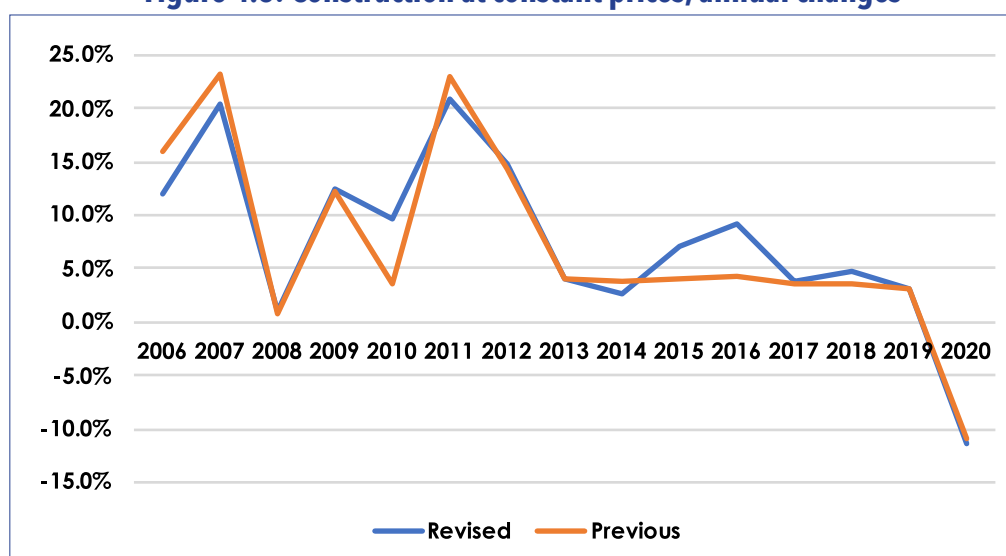
Table 4.5: Construction

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes %	
	Revised	Previous	Revised	Previous
2006	4 168	2 838	12.0	15.9
2007	4 918	3 544	20.4	23.2
2008	5 246	3 727	1.0	0.8
2009	6 305	4 495	12.5	12.3
2010	7 823	5 056	9.6	3.6
2011	9 677	6 247	20.8	23.1
2012	11 454	7 465	14.9	14.4
2013	12 278	7 998	4.0	4.1
2014	13 267	8 690	2.6	3.7
2015	14 444	9 607	7.1	4.0
2016	16 037	10 575	9.2	4.2
2017	17 417	11 488	3.9	3.5
2018	19 072	12 575	4.8	3.7
2019	20 387	13 423	3.1	3.0
2020	18 370	12 300	-11.4	-11.0

The benchmark estimates are mainly based on the CEE and the mini survey of construction. The informal sector is based on the BMTHS. The CEE and the mini survey both indicate the ratio of intermediate consumption to output at 50-55 percent, which is much lower than the previous estimates, at about 70 percent. This is why the value added is larger in the revised estimates, while construction output is lower.

Indicators for the time series are largely based on VAT-data and imports of cement.

Figure 4.5: Construction at constant prices, annual changes



4.6 Wholesale and retail trade; repair of motor vehicles

The revised estimates include two separate industries:

G4500	Wholesale and retail trade; repair of motor vehicles excl. diamond traders	G4668	Diamond traders
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Table 4.6 compares the revised and previous estimates of GVA from 2006. As explained below, the revised and previous estimates are not entirely comparable.

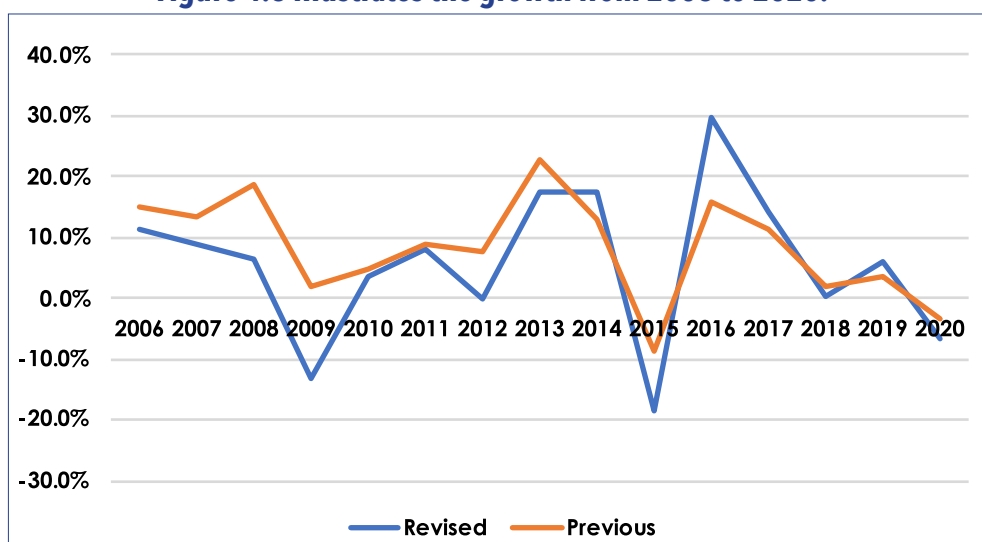
Table 4.6: Wholesale and retail trade

Year	GVA, current prices			GVA, constant prices	
	Million Pula			Annual changes %	
	Rev. total	G4668	Previous	Revised	Previous
2006	3 666	901	4 567	11.5	15.0
2007	4 379	922	5 301	8.7	13.2
2008	5 406	1 017	6 423	6.4	18.7
2009	5 894	617	6 511	-13.1	2.1
2010	6 594	929	7 523	3.6	4.8
2011	7 851	1 359	9 210	8.0	8.7
2012	8 655	1 157	9 812	-0.1	7.5
2013	10 411	1 861	12 228	17.3	22.7
2014	10 409	4 424	14 833	17.6	12.8
2015	10 402	2 704	13 107	-18.6	-8.8
2016	13 204	4 014	17 219	29.7	15.7
2017	15 275	3 288	18 563	14.4	11.2
2018	16 444	2 983	19 427	0.4	1.8
2019	17 900	2 155	20 055	6.2	3.4
2020	18 524	1 337	19 861	-6.8	-3.5

Diamond trading is based on income statements for the three enterprises involved. Data are available on values and quantities (carats). The previous estimates did not include Diamond Trading Company Botswana (DTCB), which was included in business services. Two other enterprises, DeBeers Botswana Global Sight holders Sales (DBGSS) and Okavango Diamond Company (ODC) started operations in late 2013 and were included in the previous estimates.

The benchmark for the rest of the industry is based on the CEE, the BMTHS for the informal sector and total trade margins as derived in the product flows. The time series estimates are based on VAT-data.

Figure 4.6 illustrates the growth from 2006 to 2020.



4.7 Transport and storage

Five industries are included in the revised estimates.

H4910	Rail transport	H4920	Road transport
H5100	Air transport	H5200	Storage and support services
H5300	Postal and courier services		

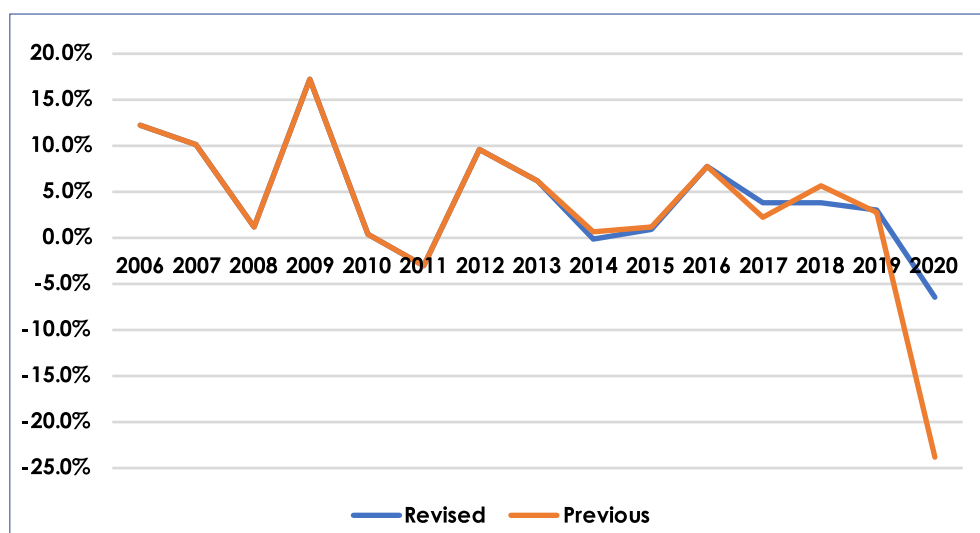
Table 4.7 compares the revised and previous estimates of GVA from 2006. The columns for the previous estimates do not include Postal and courier services, which were included in Communications. On the other hand, travel agents were included in the previous estimates, in "Other transport" together with storage and support services. It was not possible to adjust for that. Nevertheless, the previous GVA is substantially bigger compared to the revised GVA. The reason is an overestimation of Air transport in the previous estimates.

Table 4.7: Transport and storage

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes %	
	Revised	Previous	Revised	Previous
2006	796	1 474	12.2	12.2
2007	933	1 727	10.1	10.1
2008	1 108	2 051	1.2	1.2
2009	1 328	2 458	17.1	17.1
2010	1 406	2 604	0.5	0.5
2011	1 634	3 025	-3.1	-3.1
2012	2 122	3 929	9.6	9.6
2013	2 324	4 303	6.2	6.2
2014	2 518	4 729	-0.2	0.7
2015	2 704	5 063	0.9	1.0
2016	2 912	5 657	7.7	7.8
2017	3 090	6 189	3.9	2.3
2018	3 320	6 654	3.9	5.7
2019	3 494	6 820	2.9	2.7
2020	3 411	4 836	-6.4	-23.9

Rail transport and Postal services are based on income statements from the enterprises involved, both the benchmark and the time series. The benchmark for road transport is based on the CEE and the mini survey of transport, while the time series is based on the number of relevant registered vehicles. The benchmarks for Air transport, Support services and Courier services are based on the CEE, while the time series is largely based on VAT-data. **Figure 4.7** illustrates the growth from 2006 to 2020.

Figure 4.7: Transport and storage at constant prices, annual changes



4.8 Accommodation and food service activities

Two industries are calculated separately in the revised estimates; they were previously calculated together.

I5500	Accommodation	I5600	Food service activities
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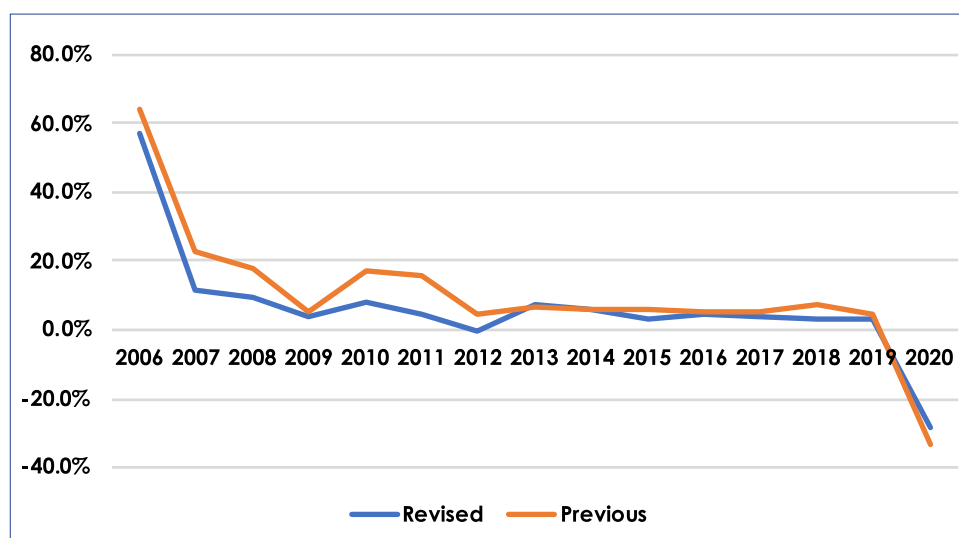
Table 4.8 compares the revised and previous estimates of GVA from 2006. The revised value added for 2016, the base year, is less than half of the previous estimates. The reasons are, firstly, that the annual increases from the previous base year, 2006 were vastly overestimated. Secondly, the input ratio at about 30 percent was underestimated.

Table 4.8: Accommodation and food services

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	1 553	2 369	57.1	63.9
2007	1 741	2 926	11.4	22.7
2008	2 010	3 628	9.7	17.8
2009	2 233	4 062	4.1	5.0
2010	2 560	5 053	7.8	16.9
2011	2 796	6 111	4.6	15.9
2012	2 844	6 557	-0.6	4.9
2013	3 068	7 140	7.5	6.7
2014	3 602	7 957	5.8	5.7
2015	3 889	8 857	3.3	5.9
2016	4 238	9 970	4.5	5.2
2017	4 539	10 917	3.9	5.6
2018	4 869	11 966	3.4	7.2
2019	5 162	12 886	3.0	4.6
2020	3 755	8 705	-28.5	-33.3

The benchmark estimates are based on the CEE for the formal sector and the BMTHS for the informal sector. The time series before 2014 are made to equal output for 2006 with the growth rates scaled down until 2014. **Figure 4.8** illustrates the annual changes from 2006.

Figure 4.8: Accommodation and food services at constant prices, annual changes



4.9 Information and communication

Four industries are included in the revised estimates:

J5800	Publishing and motion picture	J6000	Radio and television broadcasting
J6100	Telecommunications	J6200	Computer programming and information service activities

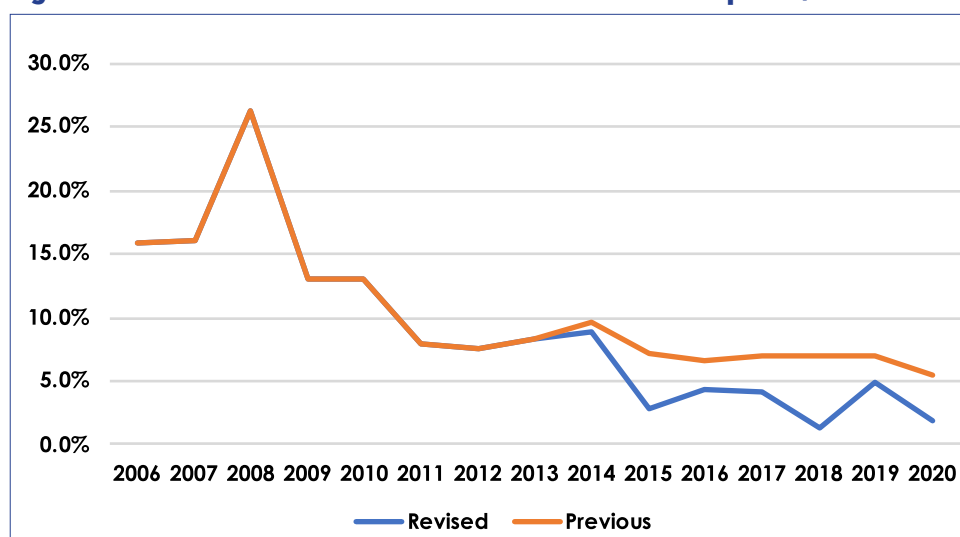
The previous estimates included Telecommunications and Postal services, the latter being a minor part of the total. Thus, the revised and previous estimates are not entirely comparable. Nevertheless, **Table 4.9** compares the revised and previous estimates of GVA from 2006, while **Figure 4.9** compares the growth rates.

Table 4.9: Information and communication

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	940	858	15.8	15.8
2007	1 098	1 002	16.1	16.1
2008	1 461	1 333	26.3	26.3
2009	1 760	1 605	13.0	13.0
2010	2 116	1 931	13.0	13.0
2011	2 383	2 174	7.9	7.9
2012	2 623	2 393	7.6	7.6
2013	2 898	2 644	8.3	8.3
2014	3 313	3 058	8.9	9.7
2015	3 595	3 465	2.8	7.1
2016	3 936	3 957	4.4	6.7
2017	4 236	4 388	4.2	7.0
2018	4 524	4 802	1.4	7.1
2019	4 844	5 263	5.0	6.9
2020	5 065	5 615	2.0	5.4

The benchmark estimates are based on the CEE for the formal sector and the BMTHS for the informal sector. The time series from 2014 is mainly based on VAT-data. The slower growth in the revised estimates is due to decreases in Publishing (J5800) and Broadcasting (J600). The years before 2014 are moved with previous estimates.

Figure 4.9: Information and communication at constant prices, annual changes



4.10 Finance and insurance

Four industries are included in the revised estimates.

K6411	Central banking	K6419	Monetary intermediation and financial services
K6500	Insurance and pension funding	K6600	Financial and insurance auxiliary services

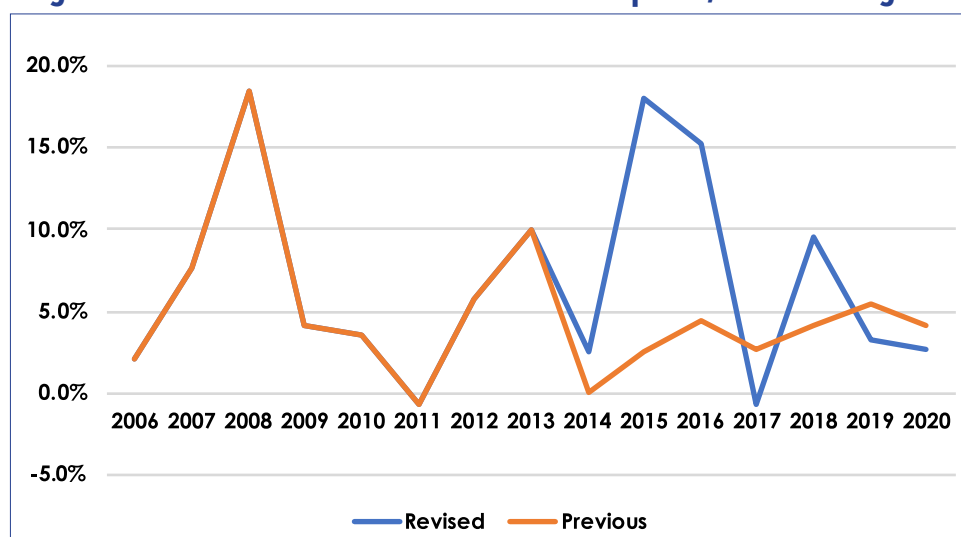
Detailed annual and quarterly data are available for the Central bank, Commercial banks, Botswana Building Society (BBS) and Botswana Savings Bank (BSB) are used also for the benchmark estimates. The estimates of Insurance are based on data from NBFIRA. The benchmark estimates of Auxiliary services are based on the CEE, while the time series are based on VAT-data. The backcast estimates of the years before 2014 are based on the movements in the previous estimates. **Table 4.10** compares the revised and previous estimates of GVA from 2006.

Table 4.10: Finance and insurance

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	2 108	2 638	2.1	2.1
2007	2 406	3 011	7.6	7.6
2008	3 100	3 879	18.5	18.5
2009	3 263	4 083	4.2	4.2
2010	3 613	4 521	3.5	3.5
2011	3 909	4 892	-0.7	-0.7
2012	4 378	5 478	5.7	5.7
2013	4 882	6 109	9.9	9.9
2014	5 161	6 388	2.6	0.1
2015	6 201	7 015	18.0	2.5
2016	7 715	7 552	15.2	4.4
2017	7 901	7 842	-0.7	2.7
2018	9 180	8 263	9.5	4.2
2019	10 075	8 412	3.3	5.4
2020	10 290	8 508	2.7	4.1

Figure 4.10 illustrates the growth rates in the revised and previous estimates. Double deflation is used in the revised estimates from 2014 and explains the significant changes in the annual growth rates.

Figure 4.10: Finance and insurance at constant prices, annual changes



4.11 Real estate activities

Two industries are included in the revised estimates

L6801	Owner occupied dwellings	K6802	Real estate activities
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The benchmark estimates of owner-occupied dwellings and residential rentals are based on the BMTHS, while non-residential rentals are based on the CEE and the input matrix, i.e. total intermediate consumption of rentals by all industries. It should then be noted that rentals are recorded as secondary output in many industries and, thus, is not the output of real estate activities.

Table 4.11: Real estate activities

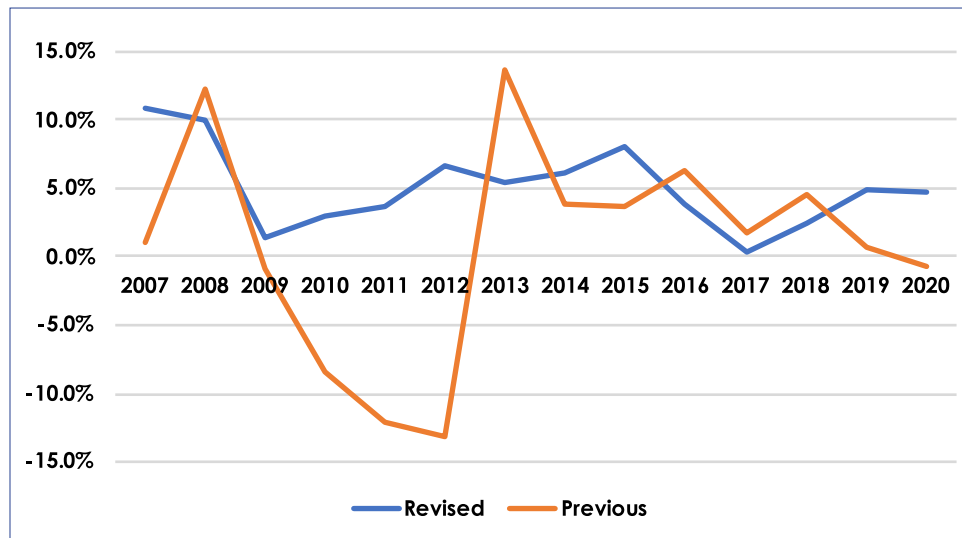
Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	2 513	2 282	-0.9	-2.0
2007	2 654	2 374	1.7	2.6
2008	3 227	2 691	11.6	4.3
2009	3 535	2 937	6.5	3.6
2010	3 961	3 234	4.9	3.3
2011	4 258	3 592	1.1	7.6
2012	4 893	4 244	4.9	3.4
2013	5 387	4 550	6.8	3.3
2014	5 929	4 887	4.6	2.9
2015	6 603	5 374	5.9	3.4
2016	7 172	5 637	6.0	3.5
2017	7 791	6 045	5.0	3.2
2018	8 387	6 328	5.4	3.3
2019	8 970	6 643	5.5	4.3
2020	8 778	6 628	-3.1	-0.8

The time series for owner-occupied dwellings is based on population growth and property loans, like in the previous estimates. Other real estate activities are based on the movements in the previous estimates for the years before 2019 and on VAT-data from then onwards.

Figure 4.11 illustrates the growth rates in the revised and previous estimates. The differences are due to substantial revisions of the two components:

GVA current prices, 2016	Revised	Revised	Previous	Previous
	Mn Pula	Percent	Mn Pula	Percent
Owner-occupied dwellings	1 803	25.1	3 510	62.3
Real estate activities	5 369	74.9	2 128	37.7
Total	7 172	100.0	5 637	100.0

Figure 4.11: Real estate activities at constant prices, annual changes



4.12 Business services

Three industries are included in the revised estimates

M6900	Professional services	N7900	Tour operators and travel agencies
N8200	Administrative & support services		

The previous estimates included DTCB, a diamond trading company as explained in Section 4.6 above. An adjustment has been made to the previous estimates by deducting approximate estimates of DTCB. IT consultancies were also included, while they are now included in Information and Communication; see Section 4.9 above. On the other hand, travel agents were included in Transport as explained in Section 4.7

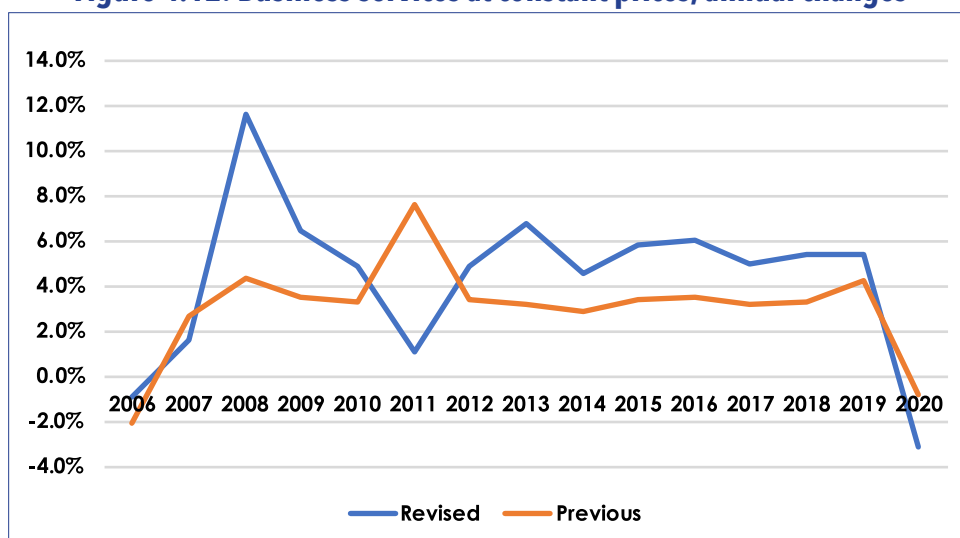
Table 4.12 compares the revised and previous estimates of GVA from 2006. As explained above, however, the revised and previous estimates are not entirely comparable.

Table 4.12: Business services

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	1 489	1 620	-4.1	-4.5
2007	1 854	2 982	17.7	73.5
2008	2 186	3 159	11.2	-2.5
2009	2 378	2 219	2.4	-30.5
2010	3 030	3 216	20.0	35.5
2011	3 426	4 346	5.8	24.0
2012	3 722	4 722	2.7	2.6
2013	4 126	5 234	5.6	8.1
2014	4 596	5 914	5.7	7.0
2015	4 947	6 532	1.9	5.7
2016	5 328	7 260	2.6	7.8
2017	5 720	7 988	3.9	6.6
2018	6 102	8 735	1.2	6.5
2019	6 474	9 459	4.0	6.7
2020	6 340	9 149	-4.5	-5.0

The benchmark estimates are based on the CEE, while the informal sector is based on the BMTHS. The time series from 2014 are based on VAT-data. Earlier years are moved with the previous estimates adjusted for DTCB as explained above. **Figure 4.12** illustrates the growth rates in the revised and previous estimates.

Figure 4.12: Business services at constant prices, annual changes



4.13 Public administration and local government

Two industries are included in the revised estimates.

O8400	Public administration, central government	O8414	Local government
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Central government includes all activities except education and health, which are included under these industries (see below). Thus, all other government activities are classified as public administration. Local government is estimated as a separate industry. **Table 4.13** compares the revised and previous estimates of GVA from 2006.

Table 4.13: Public administration and local government

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	8 431	7 869	-2.1	-2.0
2007	9 541	8 944	7.8	5.6
2008	11 568	10 982	4.1	0.7
2009	13 232	12 399	6.1	2.4
2010	13 938	13 490	4.1	7.4
2011	15 892	14 878	9.5	6.2
2012	17 342	16 875	-0.2	2.7
2013	18 767	17 815	5.5	5.9
2014	19 873	20 035	-0.5	4.6
2015	23 230	22 629	8.0	3.3
2016	24 625	24 050	2.5	2.5
2017	25 920	25 972	1.5	1.6
2018	27 820	27 659	2.7	3.4
2019	31 923	29 947	11.0	3.6
2020	35 582	31 221	7.0	2.7

4.14 Social and personal services

Private education and health, recreation and other services were all included under Other services in the previous estimate as well as government education and health. NPISH was estimated separately as is the case in the revised estimates. Five industries are included in the revised estimates:

P8500	Education	Q8600	Human health and social work
R9000	Arts, entertainment and recreation	S9400	Membership organisations
S9600	Other services		

The five industries are estimated separately from 2014, while the back series (each component) are moved with the previous estimates both at current and constant prices. The revised and previous estimates are compared in **Table 4.14**.

Table 4.14: Social and personal services

Year	GVA, current prices		GVA, constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	4 942	2 939	13.8	13.8
2007	5 475	3 256	8.2	8.2
2008	6 470	3 847	15.2	15.2
2009	7 724	4 593	11.3	11.3
2010	8 816	5 243	6.2	6.2
2011	9 890	5 881	8.3	8.3
2012	11 351	6 750	10.7	10.7
2013	12 350	7 344	8.0	8.0
2014	13 819	8 138	4.7	4.2
2015	13 675	8 653	-6.2	3.6
2016	15 845	9 259	11.5	3.5
2017	17 176	9 899	-2.6	2.8
2018	17 889	10 502	4.4	3.6
2019	19 145	11 046	6.9	3.0
2020	20 181	10 968	-0.6	-1.9

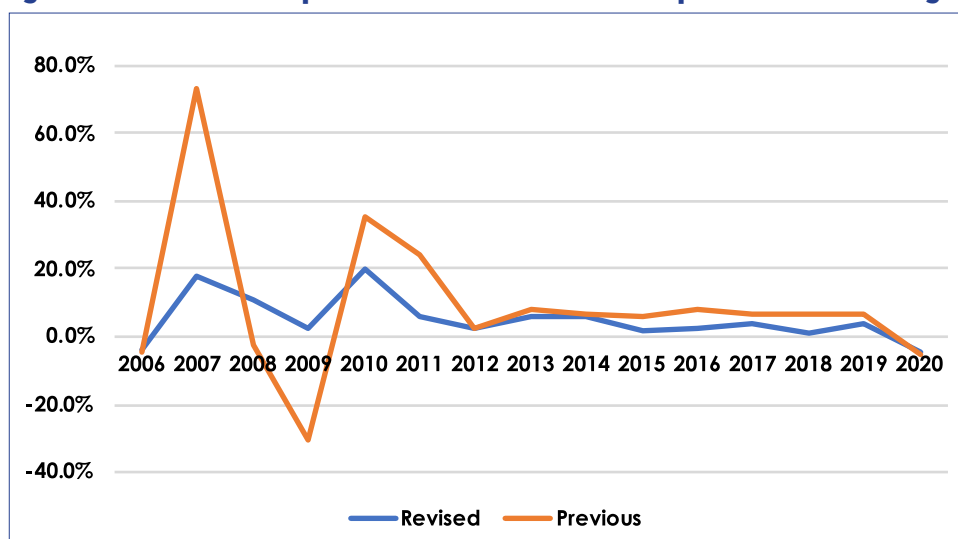
Education includes both market (private education) and non-market producers. The benchmark for market producers is based on the CEE. The time series are based on enrolment numbers (students in private education). Non-market producers are based on government data and income statements for five parastatals, all of them institutions for higher learning.

Human health and social work include both market (private health) and non-market producers. The benchmark for market producers is based on the CEE and the BMTHS (includes traditional doctors). The time series are based on VAT-data. Non-market producers are based on government data.

Arts, entertainment and recreation: The benchmark estimates are based on the CEE, while the informal sector is based on the BMTHS. The time series are based on the previous estimates and VAT-data.

Other services: The benchmark estimates are based on the CEE, while the informal sector is based on the BMTHS. The time series are based on the previous estimates and VAT-data. Note that Households as employers (domestic servants) are included (estimated as a separate product in the SUT).

Figure 4.14 compares the growth rates in the revised and previous estimates.

Figure 4.14: Social and personal services at constant prices, annual changes

4.15 Taxes and subsidies on products

Table 4.15 compares taxes and subsidies on products in the revised and previous estimates.

Table 4.15 Taxes and subsidies on products

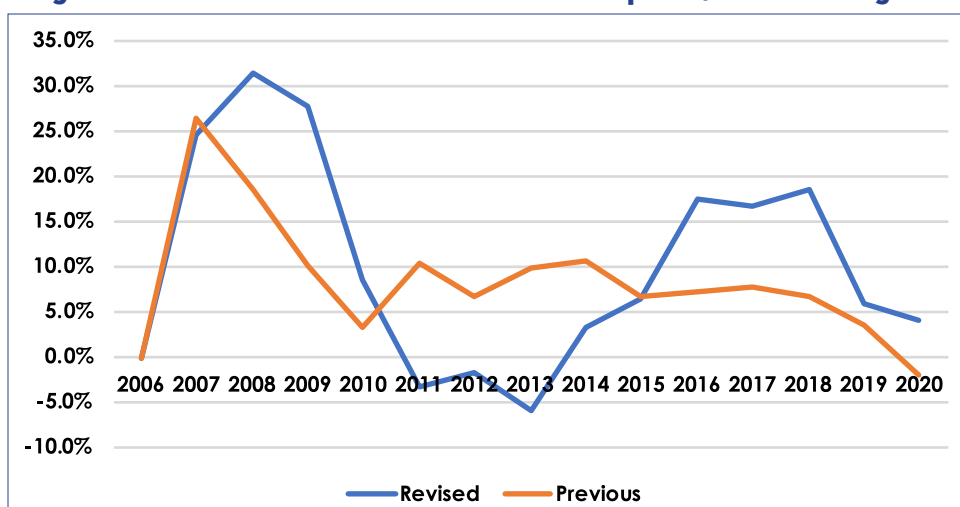
Year	Revised estimate, current prices		Previous estimates, current prices		Constant prices	
	Million Pula		Million Pula		Annual changes	
	Taxes	Subsidies	Taxes	Subsidies	Revised	Previous
2006	2 193	-	5 705	-290	6.4	6.3
2007	2 774	-	7 170	-329	24.6	26.3
2008	3 649	-	8 489	-374	31.5	18.6
2009	4 660	-	9 372	-425	27.7	10.2
2010	5 060	-	9 677	-433	8.6	3.3
2011	5 393	-495	10 654	-448	-3.2	10.4
2012	5 592	-780	11 365	-473	-1.8	6.7
2013	5 860	-1 334	12 486	-518	-5.9	9.9
2014	6 795	-2 117	13 799	-567	3.3	10.6
2015	7 301	-2 323	14 747	-619	6.4	6.8
2016	7 674	-1 831	15 836	-685	17.4	7.2
2017	8 324	-1 510	17 035	-720	16.6	7.7
2018	9 036	-964	18 180	-785	18.5	6.6
2019	9 189	-650	18 891	-875	5.8	3.6
2020	9 410	-525	18 582	-902	4.1	-1.9

Total revenue accruing from SACU was classified as import duties in the previous estimates. Only customs and excise duties actually collected in Botswana are now included, which decreased total taxes and the level of GDP by 8.2 billion for the base year. Other taxes, apart from the SACU duties, include the VAT, the alcohol levy, the fuel levy, the electricity standard cost levy and a levy paid on telecommunication services. Constant prices are derived by applying the movements of related supply and use items. However, VAT is deflated by CPI for all items.

Subsidies on products now include the electricity tariff subsidy increasing the value added of electricity at basic prices; see Section 4.4 above. Subsidies in the previous estimates were based on erroneous classifications.

Figure 4.15 shows the growth rates of taxes on products net of subsidies in the revised and previous estimates.

Figure 4.15: Taxes net of subsidies at constant prices, annual changes



5 GDP compiled by the expenditure approach

Theoretically, GDP compiled by the expenditure approach is equal to GDP compiled by the production approach. A SUT was used to compile GDP for 2016, the base year. It is a powerful tool in the compilation of national accounts, as it coordinates estimates of supply and uses in the economy. Thus, there is no discrepancy between GDP compiled by the production and expenditure approaches for 2016. For all other years, the production approach is deemed to provide a better estimate of GDP compared to the expenditure approach. Therefore, the expenditure tables include an item "Errors and omissions", which is the discrepancy between the two estimates. As explained in Section 5.4 below, the estimates of changes in inventories have been used to some extent to manage the discrepancy.

5.1 Government Final Consumption Expenditure (GFCE)

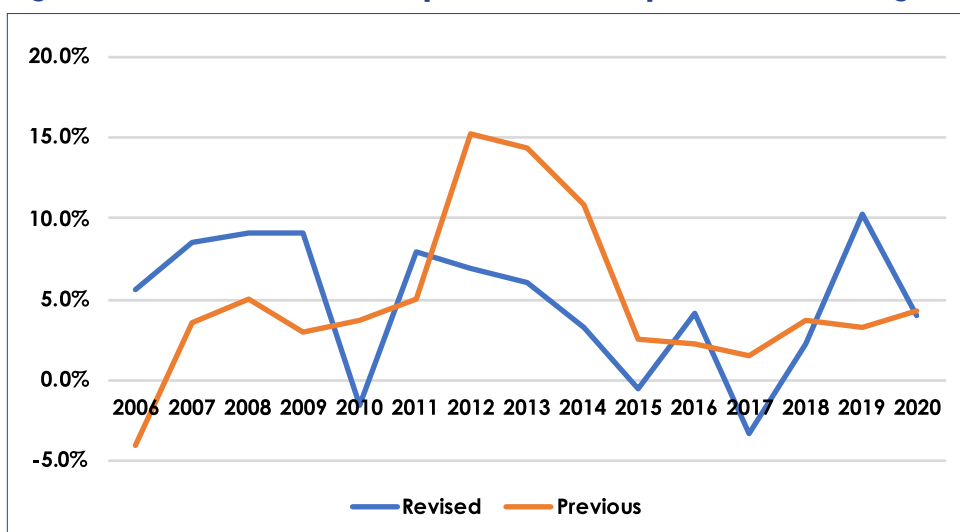
Government Final Consumption Expenditure is defined as the non-market output by government institutions minus revenue from incidental fees. GFCE is classified as individual or collective. Individual consumption comprises government education and health, while collective consumption includes the central bank, public administration and local government. Data sources are indicated in the relevant sections above. A review of government revenue resulted in revisions downwards of incidental fees. The revised and previous estimates are compared in **Table 5.1**.

Table 5.1: Government final consumption expenditure

Year	Current prices		Constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	16 028	10 071	5.5	-4.0
2007	18 104	11 815	8.5	3.5
2008	22 341	15 207	9.1	5.0
2009	26 019	15 493	9.1	3.0
2010	26 421	17 162	-1.6	3.7
2011	29 275	19 407	8.0	5.0
2012	33 832	21 196	7.0	15.2
2013	37 235	23 215	6.0	14.4
2014	40 622	29 078	3.2	10.8
2015	43 363	30 057	-0.5	2.5
2016	46 819	31 033	4.1	2.3
2017	48 124	33 190	-3.3	1.5
2018	50 552	34 653	2.2	3.7
2019	56 924	38 191	10.3	3.3
2020	61 946	43 025	4.0	4.3

The previous estimates did not include government consumption of education and health, which explains the huge difference compared to the revised estimates. In addition, the inclusion of parastatals and the review of sales revenue contributed to the difference. **Figure 5.1** illustrates revised and previous growth rates.

Figure 5.1: Government consumption at constant prices, annual changes



5.2 Private final consumption expenditure

Private final consumption expenditure includes consumption by households and Non-Profit Institutions Serving Households (NPISH), the latter less than one percent of the total. **Table 5.2** shows the revised and previous estimates from 2006, while **Figure 5.2** shows the growth rates.

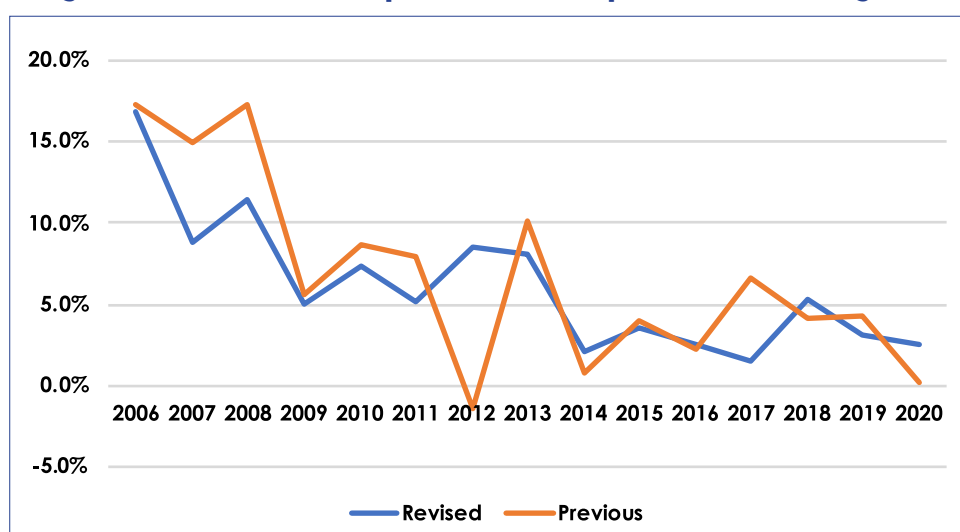
The benchmark is based on the product flows and estimates consumption by COICOP 2-digit level. The results of the BMTHS were tested and used to some extent for the benchmark estimate.

Table 5.2: Private final consumption expenditure

Year	Current prices		Constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	19 269	22 893	16.8	17.2
2007	22 469	26 622	8.8	15.0
2008	28 225	32 929	11.4	17.3
2009	31 987	37 224	5.1	5.5
2010	36 723	42 692	7.4	8.6
2011	41 871	48 629	5.2	7.9
2012	48 873	57 100	8.5	-1.4
2013	55 820	65 110	8.1	10.1
2014	58 752	68 475	2.1	0.8
2015	63 041	75 985	3.6	4.0
2016	66 916	80 723	2.6	2.2
2017	70 062	88 763	1.4	6.6
2018	75 514	94 113	5.4	4.1
2019	79 612	100 353	3.1	4.2
2020	83 503	94 258	2.6	0.2

The annual and quarterly estimates from 2014 are based on supply indicators for the COICOP 2-digit levels, i.e. relevant output and foreign trade: output + imports – exports. The foreign trade data are classified by BEC as well as COICOP. Estimates at constant prices are derived by deflation by the relevant CPI. The implicit deflator for total consumption is slightly different compared to the CPI for all items because the weights are slightly different. It should also be noted that direct purchases abroad by residents (except by the government) is included in household consumption, and that direct purchases by non-residents in Botswana are recorded as a negative item in household consumption.

Figure 5.2: Private consumption at constant prices, annual changes



Only the total is estimated for the years 2006-2013, which is moved with the previous estimates at constant prices. The implicit deflator in the previous estimates was different from the CPI. The revised constant prices are deflated by the CPI, which explains the differences in the growth rates.

5.3 Gross Fixed Capital Formation (GFCF)

The benchmark estimate is based on the product flows and specifies consumption by type of capital asset. The annual and quarterly estimates are then based on supply indicators by type of asset:

- Buildings and structures are based on construction output; see Section 4.5 above. A smaller output in the revised estimates is the reason why the revised GFCF is smaller compared to the previous estimate.
- Transport equipment, machinery and other equipment are based on the supply of capital goods: Output + imports – exports. A major part of capital goods is imported. The different level compared to the previous estimates is due to that imports are now classified as capital goods based on the Broad Economic Classification. The previous estimates didn't go into that detail.
- Mineral exploration is based on data from mining companies.

Figure 5.3a illustrates the revised and previous estimates by type of asset for 2016, the base year, while **Table 5.3** shows the revised and previous estimates from 2006

Figure 5.3a: Gross fixed capital formation 2016, million Pula

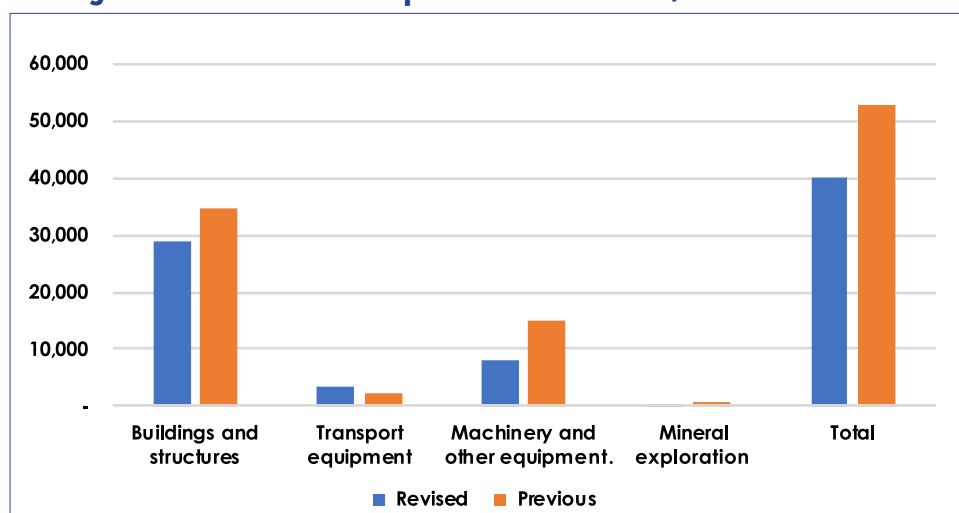
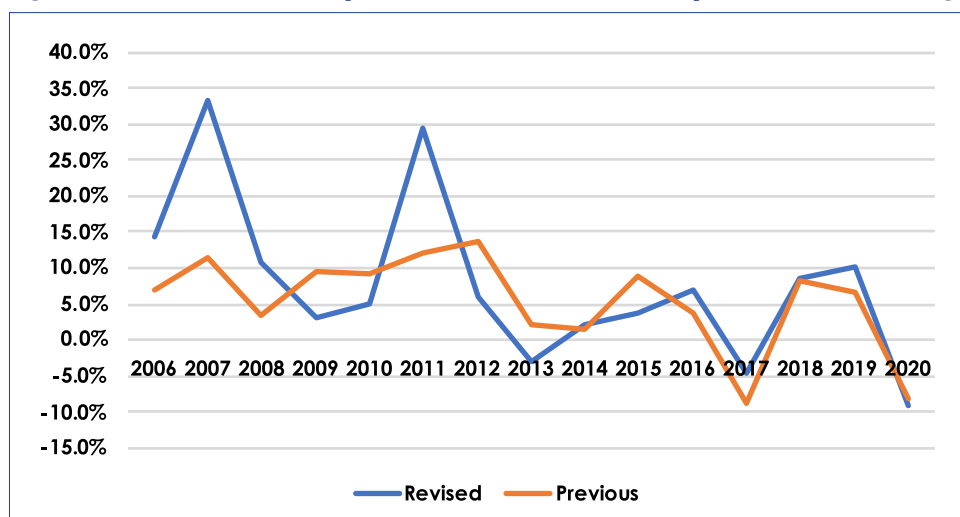


Table 5.3: Gross fixed capital formation

Year	Current prices		Constant prices	
	Million Pula		Annual changes	
	Revised	Previous	Revised	Previous
2006	11 718	15 487	14.4	7.0
2007	15 937	19 061	33.2	11.3
2008	18 597	22 852	11.0	3.3
2009	20 514	25 645	3.0	9.5
2010	22 978	29 202	5.1	9.2
2011	31 204	33 641	29.4	12.2
2012	33 436	39 804	5.8	13.6
2013	33 071	41 925	-2.9	2.0
2014	35 320	44 433	2.2	1.5
2015	37 146	49 643	3.7	8.8
2016	40 314	52 986	7.0	3.6
2017	40 294	52 433	-4.6	-8.8
2018	45 852	57 550	8.6	8.1
2019	51 901	62 253	10.2	6.6
2020	47 356	57 591	-9.2	-8.2

Figure 5.3b compares the growth rate in the revised and previous estimates. The deflators have been reviewed and are now based on relevant supply items (output and imports).

Figure 5.3b: Gross fixed capital formation at constant prices, annual changes



5.4 Changes in inventories

The estimates are not comprehensive. Data are available on minerals and livestock, although a trend has been used for the latter; see comments in Section 4.1 above. Quarterly data on inventories (quantities and values) of minerals are available from major producers including diamond traders. Annual changes of inventories are estimated as the sum of four quarters. Changes in inventories are also used to some extent to close the gap between the GDP estimates by production and expenditure. **Table 5.4** shows the revised and previous estimates.

Table 5.4: Changes in inventories

Year	Current prices	
	Million Pula	
	Revised	Previous
2006	828	1 380
2007	-969	799
2008	7 386	8 292
2009	3 109	-2 995
2010	6 814	3 854
2011	9 217	3 578
2012	4 818	2 038
2013	-3 249	-5 117
2014	-253	-3 299
2015	1 837	-2 021
2016	-4 031	-6 879
2017	1 378	-2 667
2018	-852	-1 520
2019	3 545	3 431
2020	8 735	7 072

5.5 Exports and imports of goods and services

Detailed quarterly data on exports and imports of goods are available, classified by product and BEC. The balance of payments provides data on foreign trade in services. The totals are the same as the totals reported in the balance of payments although there is a tiny discrepancy regarding exports of goods. The totals at current prices are the same as in previous estimates, while the change rates have been revised. **Table 5.5** shows the values and annual changes

Table 5.5: Exports and imports of goods and services

Year	Current prices		Constant prices, annual changes			
	Revised Exports	Previous Imports	Exports Revised	Exports Previous	Imports Revised	Imports Previous
2006	29 946	20 144	-0.3	3.1	-1.4	0.0
2007	36 639	27 256	8.8	8.5	32.4	25.0
2008	34 392	38 139	-11.8	-2.5	39.7	17.5
2009	25 943	38 116	-32.0	-37.7	-8.6	-10.9
2010	36 182	45 068	18.2	16.0	11.0	6.5
2011	45 710	56 547	-0.8	27.5	11.1	19.2
2012	51 127	67 752	16.8	17.8	25.3	32.1
2013	73 574	77 198	39.7	37.8	14.3	10.0
2014	85 098	80 837	1.2	3.7	-1.3	3.5
2015	72 763	81 971	-7.4	-18.3	5.8	2.8
2016	89 791	75 391	-8.4	13.1	-20.9	-5.4
2017	71 525	64 999	-5.5	-16.2	-12.9	-21.1
2018	76 836	75 096	11.9	7.2	15.9	11.8
2019	66 722	82 764	-7.1	-16.1	11.9	11.7
2020	53 628	79 478	-18.1	-21.4	5.2	4.3

The deflators have been reviewed leading to changes in the growth rates as illustrated in **Table 5.5** and **Figure 5.5a** and **5.5b**. Relevant implicit output deflators are used for the estimates of exports at constant prices. A major part of imports, about 70 percent, is imported from South Africa. Thus, South African producer price indices, adjusted for changes in the exchange rate, is used as deflator combined with the relevant CPI.

Figure 5.5a: Exports at constant prices, annual changes

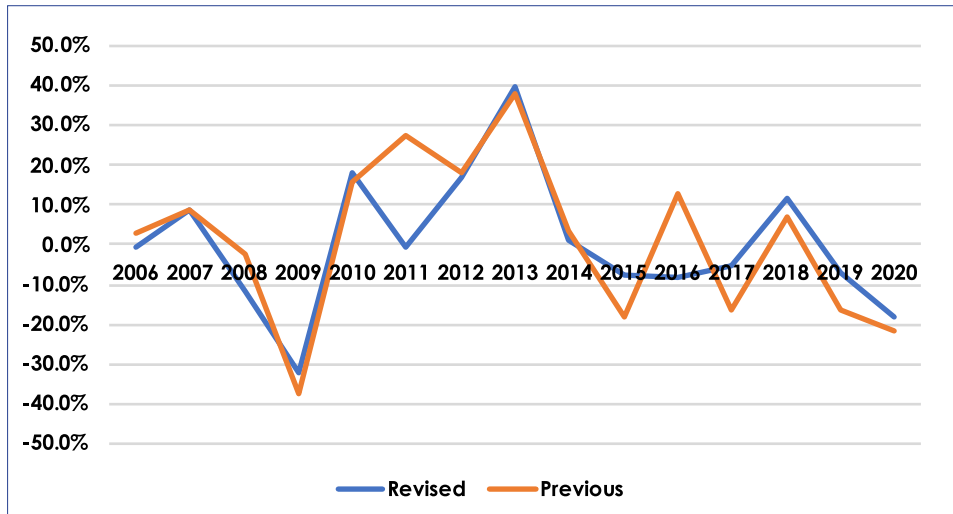
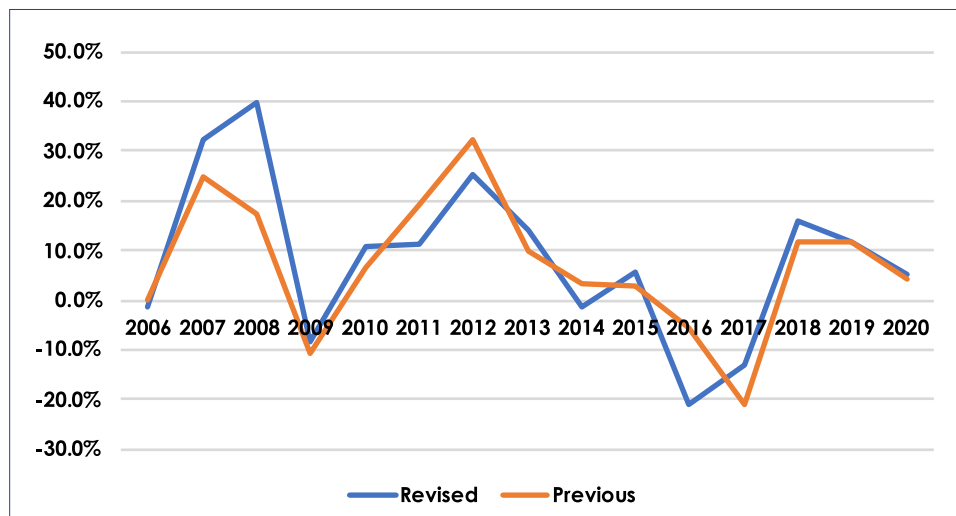


Figure 5.5b: Imports at constant prices, annual changes



Appendix 1: The informal sector

Table A1 shows the estimates of the informal sector for 2016, the base year. The annual and quarterly estimates do not specify the informal sector, which is included in the total and, thus, moved with the same source data and indicators.

Table A1: GDP 2016 compiled by the production approach

Economic activity	Million Pula		Percent
	Total	Informal	Informal
Revised estimates			
Agriculture, forestry, fishing (P)	3 249		
Mining and quarrying (P)	37 639	50	0.1
Manufacturing (S)	10 693	588	5.5
Electricity and water (S)	1 966		
Construction (S)	16 037	1 036	6.5
Wholesale and retail trade (T)	17 219	3 684	21.4
Transport and storage (T)	2 912	601	20.6
Accommodation and food services (T)	1 667	466	27.9
Finance and insurance (T)	7 715	798	10.3
Real estate (T)	7 172	369	5.1
Public administration and defence (T)	24 625		
All other services (T)	27 681	1 087	3.9
Gross value added, all industries	158 575	8 678	5.5
Taxes minus subsidies on products	5 844		
Gross domestic product	164 418	8 678	5.3
Previous estimates			
Gross value added, all industries	155 413	6 181	4.0
Taxes minus subsidies on products	15 151		
Gross domestic product	170 564	6 181	3.6

The estimates of the informal sector in the previous estimates were based on the 2007 survey of the informal sector. The survey provided a benchmark, and the quarterly and annual estimates were moved the rest of the industry.



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