CONSUMER PRICE INDEX
TECHNICAL MANUAL - DECEMBER 2018
STATISTICS BOTSWANA

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Consumer Price Index
Technical Manual-December 2018

Preface

Compilation of the Consumer Price Index dates back to 1969 when a quarterly food items index was produced. The Consumer Price Index has since undergone remarkable evolution, both in item and area coverage. This progress was, in essence, a response to user needs and the desire by Statistics Botswana to improve the precision of this important economic indicator.

The results of the 2015/16 Botswana Multi-Topic Household Survey (BMTHS)) enabled yet another review of household expenditure patterns and consequently the index basket. New items were added to the basket and a few removed. With the 2018 revision, the size of the basket increased from 393 to 400 items. The base month of the revised index is December 2018.

This manual provides detailed information on the coverage, price collection, computation and other methodological aspects of the Consumer Price Index. Such details will be useful to both users and Statistics Botswana staff members who may wish to familiarise themselves with price indices.

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1   Introduction

1.1 Background

Botswana's first Consumer Price Index, covering only food prices, was calculated for the second quarter of 1969 and continued up to the end of 1973. In January 1974 a monthly index was introduced, with the coverage extended to other consumer goods. A new Consumer Price Index was introduced in August 1980, with a revised set of item weights based on expenditure data from the 1978/9 Household Expenditure Survey. At the same time the entire price index system was computerised. In the 1980 revision, price collection was extended to cover smaller villages - prior to 1980 only the (then) four main towns and certain large villages were covered. The weights for the 1980 and 1985-based indices were based on the 1978/9 Household Expenditure Survey results.

Revision of the Consumer Price Index basket and items weights depends very much on the availability of income and expenditure data. Therefore, when the results of the 1985/86 Household Income and Expenditure Survey were published in 1988, there was yet another opportunity for a revision. Based on the results of this survey, the index was revised once again in November 1991, with a new set of weights. Another Household Income and Expenditure Survey was started in November 1993, ending in January 1995. The results of this survey were published in December 1995. Expenditure data from the survey were the basis of the weights for the (November 1996) index series. Another Household Income and Expenditure Survey was started in March 2002, ending in April 2003 and its results were used for weighting the September 2006 index series.

Household Income and Expenditure Survey then called Botswana Core Welfare Indicator Survey (BCWIS) was started in March 2009, ending in April 2010. Expenditure data from the survey were the source of the weights for the September 2016 index series. Apart from the revision of the weights, the geographic coverage was also expanded.

Botswana Multi-Topic Household Survey was conducted in November 2015 and ending in December 2016. It was a modular survey containing the Household Income and Expenditure component. Expenditure data from the survey were the basis of the weights for the (December 2018) current index series. The current plan is to conduct Botswana Multi-Topic Household Survey (BMTHS) every five years which shall enable frequent revisions of the Consumer Price Index Basket and weights to cater for the ever changing consumption pattern. This will be in accordance with international best practice to revise CPI Basket and weights after every five years.

1.2 Consumer Price index definition

The Consumer Price Index (CPI) is an indicator of changes in consumer prices experienced by Households. It is an index which measures price changes in goods and services with reference to a base period. The current Botswana CPI series has a base period of December 2018.

It should be noted that the CPI is used as a key indicator of the change in the general level of consumer prices or the rate of inflation.

1.3 CPI Uses

i) CPI is a useful tool to adjust contracted payments such as private and public wages/salaries, old age pension allowances, and food basket for the poor provided by Botswana government etc.

ii) It is helpful for setting and monitoring the implementation of economic policy. The CPI is useful to monitor the monetary policies

iii) CPI is used as a deflator for Gross Domestic Product (GDP).

1.4 Price Inflation

Inflation rate is defined as the percentage change in the Consumer Price index over two periods Consider, for example, the month of January 2016 when the Consumer Price index was 114.3 (on the December 2018 base). Moving twelve months backwards, in January 2015 the index was 107.9. The rate of inflation for January 2016 is, therefore, 5.9 percent. In algebraic form the rate of inflation (year-on-year) is computed as follows:

$$\left(\frac{I_n}{I_{(n-12)}} - 1 \right) * 100 \ = \ \left(\frac{114.3}{107.9} - 1 \right) * 100 \approx 5.9 \ \text{percent} ....(1)$$

where I_n is the index in month "n" and $I_{(n-12)}$ the corresponding index 12 months backwards.

2   Scope of the Index

The scope of the Consumer Price Index (CPI) is defined to indicate what the CPI is intended to measure. Subsequently there are many uses of the CPI, its scope has been defined to suit as many purposes as possible.

The CPI defines the average price change of a fixed basket of consumer products purchased by Botswana private households. Therefore, the scope consists of transactions, for the purpose of consumption, between households in Botswana and retail outlets operating in Botswana. Only those transactions for purposes of consumption are included in the CPI.

In practical terms, the scope of the CPI can be drawn to several dimensions, specifically: population coverage, geographical coverage, product coverage and prices. The scope is reflected in the product and geographical classifications for which basket weights, derived primarily from the Botswana Household Income and Expenditure are assigned. The intention and ideal scenario is that each good or service in scope for the CPI be represented by observed transaction prices.

i.   Population Coverage

For the CPI, the target population consists of families and individuals living in urban and rural private households in Botswana. It should be noted consumption expenditures made by people living in institutions or collective households (e.g. prisons or Hospitals), as well as members of the Botswana forces living in military camps are excluded from the surveys.

ii.   Geographical Coverage

In case of geographical coverage, the CPI covers price changes experienced by private households in all the districts in Botswana. During the sampling of areas each district was selected to be represented by urban and rural village.

Statistics Botswana CPI is currently embraced by the national concept i.e. National coverage refers to the consumption expenditure of the resident population of the country, regardless of where the expenditure took place. This implies that the expenditure of resident households in Botswana should be added with the expenditure of resident households abroad and deducting the expenditure of non-resident households (tourists) in the Botswana territory.

iii. Product Coverage

On the issue of product coverage, the CPI measures price change for consumer products (goods and services), which are bought for the purpose of consumption. Ideally all products included in the CPI must be associated with a transaction price, i.e. with an amount of money that a consumer must pay to purchase a specific quantity and quality of a good or service.

It should be noted that the prices included in the CPI are final prices, inclusive of all taxes paid by consumers. In particular, they include the Value Added Taxes (VAT), as well as liquor and tobacco levies wherever applicable. It follows that the CPI could change as a result of changes in any of these types of taxes.

3 International Participation of Statistics Botswana

Statistics Botswana has been participating in a number of international statistical initiatives to enhance concepts, methodologies and definitions of CPI. This participation was of paramount importance to Statistics Botswana in gauging its applied statistical methodologies compared to other international best practice in CPI compilation.

i) Southern African Development Community (SADC) Harmonized Consumer Price Index

Botswana has adopted the domestic concept in-line with requirement of the Harmonized Consumer Price index (HCPI) and its providing monthly HCPI data to SADC Secretariat. Domestic concept refers to the situation whereby consumption expenditure is made within the domestic territory of the country, including those of foreign residents. HCPI is an initiative of the SADC secretariat adopted in August 2011 and quoting verbatim; "The main aim of the HCPI process is to produce Consumer Price Indices (CPIs) among Member States, which are produced using comparable methodologies and classifications and using the same statistical frameworks to facilitate comparison of the indices among member states. Among others, the index is useful for monitoring progress towards attainment of goals and targets for economic convergence in the SADC region". It should be noted that both HCPI and CPI share a number of activities such as area/outlets coverage, items specifications and classification, data collection and processing.

ii) International Comparison Program (ICP)

Botswana has been involved in the ICP prices collection since 2005 and has participated in 2005, 2011 and 2017 round of ICP by providing validated data as per agreement. The International Comparison Program (ICP) represents one of the largest efforts to develop Purchasing Power Parity (PPP). The ICP is a worldwide statistical program led by the World Bank under the backings of the United Nations Statistical Commission, with the main objective of providing Purchasing Power Parity (PPP) conversion factors, as an alternative to direct conversion of currencies based on exchange rates, so as to be able to compare GDP between countries on a real time, among countries within and across regions. ICP basket uses the same item classification with the CPI.

4 The Basket of Goods and Services

4.1 Updating the Consumer Price Index (CPI) Basket

The primary purpose of updating the CPI basket is to ensure that the weights apportioned to elementary aggregates are representative of current consumer spending patterns. In the past, the basket for the CPI was updated every ten (10) years using new expenditure data from the most recent Household Income and Expenditure Survey (HIES). Starting with the 2016 basket update, the CPI weights are being planned to be updated every five years, which is in accordance with the international best practice.

Besides the updating and assuring the quality of the weights, the process of a basket update also provides a chance to review and update other aspects of the indices which include:

i.   Refining the product, retail outlets and/or geographical classifications to be more representative.
ii.   Revising and apprising the sample of representative products and outlets.
iii.   Updating weights below the elementary aggregate level.
iv.   Reviewing procedures and concepts of CPI compilation
v.   Updating CPI reports and metadata for dissemination.

4.2 CPI Basket

The current basket has a total of 400 items which are categorised into 51 sections and 12 groups, while the previous basket had 393 items, but still classified into the same number of sections and groups. In order to facilitate tracking of the underlying causes of rising or falling prices, the index basket is usually divided into groups and sections. The groups, sections and the corresponding number of items are stated in Table 4.2.1.

The number of basket items has been increased and modified to cater for the changes in the consumption patterns as per 2015/16 Multi-Topic Household Survey results. Each item/product in the basket is representative of all other similar items, hence the weights reflect the relative importance of an item to other items in the entire basket. It is therefore based on the fact that the behaviour of the price of an item will be similar to that of the items it represents. The basket is presented as Appendix A

Table 4.2.1: Group and Sections by number of items

COICOP CODES	GROUP/SECTION DESCRIPTION	ITEMS	COICOP CODES	GROUP/SECTION DESCRIPTION	ITEMS
01	**FOOD AND NON- ALCOHOLIC BEVERAGES**	**93**	**06**	**HEALTH**	**21**
1.1	Bread and cereals	16	6.1	Medical Products, Appliances And Equipment	9
1.2	Meat (Fresh, Chilled, Frozen)	13	6.2	Out-Patient Services	10
1.3	Fish (Fresh, Chilled, Frozen)	3	6.3	Hospital Services	2
1.4	Milk, Cheese and Eggs	8			
1.5	Oils and Fats	7	**07**	**TRANSPORT**	**34**
1.6	Fruit	7	7.1	Purchase Of Vehicles	7
1.7	Vegetables	14	7.2	Operation Of Personal Transport Equipment	16
1.8	Sugar, Jam, Honey, Chocolate and Confectionery	6	7.3	Transport Services	11
1.9	Food Not else where classified	9			
1.1	Coffee, Tea and Cocoa	5	**08**	**COMMUNICATION**	**25**
1.11	Mineral Waters, Soft Drinks, Fruits & Vegetable Juices	5	8.1	Postal Services	5
			8.2	Telephone And Telefax Equipment	4
			8.3	Telephone And Telefax Services	16
02	**ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS**	**17**			
2.1	Alcoholic Beverages	13	**09**	**RECREATION AND CULTURE**	**39**
2.2	Tobacco	4	9.1	Audio-Visual, Photographic And Information Processing Equipment	15
			9.2	Other Recreational Items And Equipment, Gardens And Pets	6
03	**CLOTHING AND FOOTWEAR**	**36**	9.3	Recreational And Cultural Services	4
3.1	Garments	18	9.4	Newspapers, Books And Stationery	14
3.2	Other Articles of Clothing & Clothing Accessories	4			
3.3	Cleaning, Repair and Hire of Clothing	6	**10**	**EDUCATION**	**9**
3.4	Footwear	8	10.1	Pre-Primary And Primary Education	4
			10.2	Secondary And Tertiary Education	5
04	**HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS**	**23**			
4.1	Actual Rentals Paid by Tenants	6	**11**	**RESTAURANTS AND HOTELS**	**9**
4.2	Materials for Maintenance and Repair of the Dwelling	8	11.1	Restaurants, Cafes and the like	6
4.3	Water Supply and Miscellaneous Services Relating to the Dwelling	3	11.2	Accommodation Services	3
4.4	Electricity,Gas and Other Fuels	6			
			12	**MISCELLANEOUS GOODS AND SERVICES**	**37**
05	**FURNISHING, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE**	**57**	12.1	Personal Care	15
5.1	Furniture and Furnishing	5	12.2	Personal Effects N.E.C	3
5.2	Carpets and Other Floor Coverings	3	12.3	Social Protection	1
5.3	Household Textiles	6	12.4	Insurance	4
5.4	Household Appliances	9	12.5	Financial Services	3
5.5	Glassware,Tableware and household Utensils	12	12.6	Taxes Licences, Fees	11
5.6	Small tools, miscellaneous accessories	5			
5.7	Goods and services for routine household maintenance	17		**TOTAL**	**400**

4.3 Basket Classification

Classification of Individual Consumption by Purpose (COICOP) has become a critical factor in international standard for CPI classifications, in line with the requirement of System of National Accounts (SNA) 2008. The usage of the COICOP is to make certain that national, regional and international comparisons for inflation at any level below the all-items CPI is guaranteed.

Statistics Botswana has adopted the Classification of Individual Consumption by Purpose (COICOP) for all items in the new basket. COICOP is an international classification system that categorises consumption goods and services according to their primary purpose. It has benefits of regional and international comparability as well as providing an integrated set of household expenditure and consumption statistics.

4.4 Special Commodities

Although prices for almost all items are collected from conventional outlets, there are some whose prices are collected from non-conventional outlets. Such items are referred to as "Special Commodities" and include mainly services. Most "special commodities" are priced in Gaborone but the prices are used in the rest of the areas. These items, about 51 in number, are all included in separate questionnaires.

Some of the special commodities require additional explanation:

a) Item 388: Levy plus interest payable on a Self-Help Housing Agency (SHHA) plot. The interest is what a person would have to pay per month to repay a building loan, the value of which is index-adjusted starting at P3600 in January 2019.

Calculation of Item 388: Levy plus interest on SHHA plot:

Month	Last month's index	Index-linked Value of loan last(2)*(1) last (1)	Interest Rate (%)	Monthly interest payment (2)*(3) 12*100	Service levy	Total (4)+(5)
	(1)	(2)	(3)	(4)	(5)	(6)
Jan 2019	112.9	3600.00	10.0	30.00	12.00	42.00
Feb 2019	113.6	3622.32	10.0	30.19	12.00	42.19

b) Items 386 and 387 are index adjusted. These are respectively, **House contents insurance for P25, 000" and Monthly repayment on a P100, 000 loan starting in December 2018".** The values of both those items are index-linked because it is assumed that the size of the loan required for purchasing a house, or similarly the amount insured, rises as the Cost-of-Living increases. Indeed this is rather a simplistic assumption since in reality the trend in property prices may not be in congruence with movements in the Consumer Price Index. However, in the absence of a property index, the Consumer Price Index is a reasonable proxy.

In view of the linking, the 'prices' of those two items will rise in line with the index, even if the interest rates (in case of the loan) or the premium rates remain constant. If the interest or premium rate increases, this will also be reflected as a rise in the item 'prices'.

Calculation of Item 387:"Monthly repayment on a P100, 000.00 loan"

Month	Last month's index	Index-linked Value of loan $\frac{last(2)*(1)}{last\,(1)}$	Interest Rate (%)	Interest re-payment $\frac{(2)*(3)}{12*100}$
	(1)	(2)	(3)	(4)
Jan 2019	99.5	100,000.00	14.5	1208.33
Feb 2019	100	100,502.51	14.5	1214.41
Mar 2019	100.6	101,106.02	14.5	1221.7
Apr 2019	101.3	101,809.54	14.5	1230.2

Calculation of Item 386:"House contents insurance for a sum starting at P25, 000"

Month	Last month's index	Index-linked Premium Value $\frac{last(2)*(1)}{last\,(1)}$	Premium Rate (%)	Re-payment $\frac{(2)*(3)}{12*100}$
	(1)	(2)	(3)	(4)
Jan 2019	99.5	25000.00	3.5	875.00
Feb 2019	100	25125.62	3.5	879.41
Mar 2019	100.6	25276.76	3.5	884.69
Apr 2019	101.3	25452.64	3.5	890.84

c) Item 385 ,"*Fully comprehensive insurance on a Toyota Corolla 1.3L*". This will change whenever the price of a new Toyota Corolla 1.3L changes (Item 385) or whenever there is a change in the overall percentage premium charged by the insurance company.

5 Consumer Price Index Weights

5.1 Item Weights

The item weight provides a measure of the relative importance of each item in the index basket. Items with high weights are more important in relative terms while for those with low weight the converse is true. In view of that, the effect of a price change for a specific item on the index depends on its weight, relative to the weights of other items in the basket. In line with international convention, the sum of all item weights in any index (all items, group, section, etc.) is set to 100.0. The weights for the 400 items comprising the December 2018 index basket are presented in Appendix A.

5.2   2015/16 Botswana Multi-Topic Household Survey (BMTHS)

Botswana Multi-Topic Household Surveys (BMTHS) are usually the major basis of weights for the Consumer Price Index. The BMTHS collects expenditure data on a wide range of items hence the availability of such data provides an opportunity to review the expenditure levels of items in the basket.

Weights used in the December 2018 index series were derived from the 2015/16 BMTHS results and were based on a national sample of 7199 households. Out of these households, 1857 were in cities/towns, 2766 in urban villages and 2676 in rural areas. Each of these households was visited daily for a period of one calendar month during which data on income and expenditure were collected.

While the Household Income and Expenditure module provided detailed expenditure data on various items, there are some items whose nature is such that their expenditure will always be underreported especially alcohol and tobacco. The expenditure data on alcohol and tobacco as recorded in the 2015/16 BMTHS, were below the combined level of local production and imports of alcoholic beverages and tobacco. Subsequently, the expenditure figures (not only for alcohol but for other affected items as well) were adjusted using the local production and imports figures. Table 5.2.1 below shows changes in group weights.

Table 5.2.1: **Changes in group weights – 2016 and 2018 Index series**

Group Code	Group Descrption	September 2016 Weights	December 2018 Weights
01	Food & Non-Alcoholic Beverages	16.51	13,55
02	Alcoholic Beverages & Tobacco	7.83	4.24
03	Clothing & Footwear	6.27	5.95
04	Housing, Water, Electricity, Gas & Other Fuels	14.9	17.45
05	Furnishing, Household Equipment & Routine Maintenance	6.39	4.85
06	Health	3.62	3.38
07	Transport	20.65	23.43
08	Communications	4.27	6.94
09	Recreation & Culture	2.92	3.82
10	Education	3.34	4.6
11	Restaurants & Hotels	2.76	3.66
12	Miscellaneous Goods & Services	10.55	9.01
	All Item Index	**100.00**	**100.00**

5.3   Comparison of group weights – 2016 and 2018

Households expenditure patterns change over time due to a variety of factors – change in tastes, level of economic development, economic performance, etc. Needless to say, these factors affect different income groups differently.

Comparison between 2016 and 2018

Table 5.3.1 presents expenditure shares by commodity groups for 2016 and 2018. At national level, the share apportioned to food decreased from 16.51 percent in 2016, based on the 2009/10 Botswana Core Welfare Indicator Survey (BCWIS), to 13.55 percent in 2018 founded on the 2015/16 Botswana Multi-Topic Households Survey (BMTHS). The highest expenditure share was allocated transport, increasing from 20.65 percent in 2016 to 23.43 percent in 2018. At national level, there has been a change in order of importance, with transport, housing and food being allocated the highest shares of 23.43, 17.45 and 13.55 percent of the consumption expenditure budget respectively in 2018, while in 2016, the highest shares were allocated to Transport, Food and Housing with 20.65, 16.51 and 14.90 percent respectively.

Table 5.3.1: **Expenditure shares by commodity groups for 2016 and 2018**

Group Code	Group Description	Cities and Towns		Urban Villages		Rural villages		National	
		2016	2018	2016	2018	2016	2018	2016	2018
01	Food & Non-Alcoholic Beverages	10.79	8.86	17.51	13.54	25.14	22.07	16.54	13.55
02	Alcoholic Beverages & Tobacco	7.04	3.45	7.81	4.56	9.26	5.5	7.86	4.34
03	Clothing & Footwear	5.59	5.9	6.83	5.89	6.63	6.17	6.3	5.95
04	Housing, Water, Electricity, Gas & Other Fuels	15.77	19.34	16.33	18.41	11.3	12.16	14.93	17.45
05	Furnishing, Household Equipment & Routine Maintenance	6.32	5.48	6.44	3.93	6.42	5.52	6.42	4.85
06	Health	1.74	4.48	3.08	2.69	7.7	2.74	3.82	3.38
07	Transport	24.6	21.76	18.86	24.57	16.27	24.26	20.68	23.43
08	Communications	4.16	6.74	4.61	7.5	3.99	6.21	4.3	6.94
09	Recreation & Culture	3.34	3.26	2.63	2.79	2.59	2.08	2.32	2.82
10	Education	4.42	6.9	3.16	3.53	1.69	2.48	3.37	4.60
11	Restaurants & Hotels	4.32	4.35	1.98	3.51	1.14	2.71	2.79	3.66
12	Miscellaneous Goods & Services	11.91	9.48	10.75	9.06	7.86	8.09	10.58	9.01
	All Groups	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

6 Use of weights for CPI and HCPI

The weights obtained from Table 5.3.1 were used for both CPI and HCPI. The weights are used to determine the share of items, sections and groups in the overall index.

Even though the CPI and HCPI use the same expenditure to derive the weights, the HCPI weights are usually supplemented by data from Tourism department so as to meet the requirement of domestic concept. The Tourism Survey categorises visitor expenditure by nature of visit - tourist, visiting friends & family, and business. Furthermore it also breaks down expenditure by category e.g. meals, accommodation, recreation, travel, shopping etc. The different use of weights between CPI and HCPI emanates from the fact that the Statistics Botswana CPI adopted the national concept while HCPI conforms to the domestic concept as per SADC requirement. National concept refers to the consumption expenditure of the resident population of the country, regardless of where the expenditure takes place whereas domestic concept refers to the situation whereby consumption expenditure is made within the domestic territory of the country, including that of foreign residents (tourists). Already there are important synergies, which were identified between HCPI and CPI such as integrated data collection and processing and hence inspires efficient utilization of resources.

7 Selection of Locations, Outlets and Items (Products)

7.1 Area Coverage

On area coverage, all cities and three (3) towns are included in the sample; sampling was done in urban and rural villages within each district using the 2011 Population and Housing Census data; ensuring that, where possible, within each district, an urban and rural village is selected. Proportional to Size sampling technique was used to select urban villages while purposive sampling was used to select rural villages. Area coverage in 2016 CPI Rebasing was largely extended to areas in the western side of the country i.e. Shakawe, Gumare, Charleshill and Hukuntsi so as to fulfill the needs of users. Other areas were removed due to proximity to other areas where prices were already collected. However, there were no changes in the number of areas covered between September 2016 and December 2018. Table 5.1.1 presents a summary of the areas covered. Areas designated for price collection are presented on Appendix B, with the number of retail outlets visited given in brackets.

Table 7.1.1 **Summary of the areas covered**

CPI Area Coverage	
Strata	**Number of Area**
Cities/Towns	5
Urban Villages	23
Rural Villages	21
Total	**49**

7.2 Outlets Selection

Listing of outlets within all the selected areas for price collection was done. In selecting outlets, purposive sampling was used based on the number of items the outlet can provide in relation to the CPI Basket.

During the CPI Rebasing prices collection, enumerators were required to re-list all the outlets in each area. After listing the enumerators were instructed to price the CPI basket in each outlet to identify the number of products sold per outlet. Outlets which covered a number of items were supposed to replace those similar outlets which sold less items. The pricing of the basket was necessary to ensure that items sold in a particular outlet (area) are captured so as to ascertain representation within the areas.

7.3   Outlet Items (Products) Selection

After outlets are selected, a set of representative products is assigned to be observed in each outlet. Enumerators are provided with the specifications of products for which prices are to be collected. Enumerators then select specific products that meet the representative product definitions. This approach ensures the enumerators have a clear understanding about what kind of item (product) to select while at the same time providing leeway to choose products that are locally popular.

8   Price Collection and Data Editing

8.1 Monthly Price Collection

Price collection is carried out during the first two weeks of each month. All types of retail outlets (shops) are represented in the price collection exercise – large, medium and small. In all, about 2366 different retail outlets are visited each month. A total of about 39,840 price quotations are collected every month. Only cash purchases are taken into account. Discounts, sales prices and free-market prices for items, which also have official prices, are used whenever they occur.

Like other data collection exercises by Statistics Botswana, the price collection is carried out in accordance with the Statistics Act of 2009. This Act requires that respondents provide the data needed but at the same time, requires Statistics Botswana to treat the data as strictly confidential and not to reveal it to any person, organisation or other Government departments outside Statistics Botswana. So the only prices Statistics Botswana publish are average prices. In this way Statistics Botswana does not reveal details of price quotes from individual stores.

8.1.1 Questionnaire

A predetermined selection of items is listed for pricing at the individual outlets covered for the Consumer Price Index. The items priced at these outlets are based on the results of a survey of retail outlets conducted at the time of the revision. "Special Commodities" are grouped together in one questionnaire and priced from non-conventional outlets.

Information on the questionnaire include the following:

- Name of Enumerator
- Date Collected
- Reference period for price collection
- Name and code of the retail outlet
- Item Code
- A detailed description of every item to be priced at this outlet
- Last month's price and a space for this month's price with the item code separating the two
- The total number of items to be priced at an outlet.

If an item cannot be priced at an outlet, the price collector records a "dash" and this is entered into the computer as a "zero" price. The reason for entering this as a zero price is to ensure that the item is listed in the following month's questionnaire. This then means that questionnaires are printed monthly, after validating and finalising the current prices database.

8.1.2 Quarterly Surveys

Four quarterly surveys are carried out in Gaborone and Francistown to derive average prices on:

a)   Item 109 of the Consumer Price Index basket: Average private rent paid by the tenant of one-roomed accommodation in Gaborone and Francistown.

b)   Item 172: Average domestic servant's wage in Gaborone and Francistown

"Price quotes" for the two items derived from these surveys are used in all other areas, not just in the two cities. The assumption is not that rents and domestic servants' wages in Gaborone and Francistown are the same as in the rest of the country - they are almost certainly not.

However, changes in rents and domestic servants' wages in the two cities are likely to be a reasonable indication of changes in the rest of the country. And since it is changes in prices and not absolute prices that the price index measures, this is quite acceptable - particularly bearing in mind practical problems associated with conducting such surveys in other areas.

The domestic wages and one-room rental surveys are carried out during the last month of each quarter: March, June, September, and December, after completion of the regular price collection exercise. These surveys are conducted at the same time.

a)   Private Rentals Survey

A purposive sample is selected from those areas of Gaborone and Francistown where one-roomed accommodation predominates. A listing of all dwellings in these areas was made, one-roomed accommodation identified and a sample drawn. Each enumeration area is based on sample size of at least 10 one-roomed houses.

There are 21 Enumeration Areas (EAs) in Gaborone and 10 in Francistown. The selected EAs are as follows:

Gaborone Rentals		Francistown Rentals	
EA	**Locality**	**EA**	**Locality**
EA 1480	Ledumang	EA 0925	Coloured
EA 1443	G-West	EA 0900	Area W
EA 1431	G-West	EA 0770	Block 7
EA 1133	Tsholofelo	EA 0571	Block 1
EA 1131	Tsholofelo	EA 0511	Donga
EA 0942	Maruapula	EA 0462	Bluetown
EA 0781	Broadhurst Metro	EA 0341	Kgaphamadi
EA 0453	Old Naledi	EA 0262	Monarch
EA 0452	Old Naledi	EA 0240	Monarch
EA 0451	Old Naledi	EA 0071	Somerset
EA 0401	Old Naledi		
EA 0172	Bontleng		
EA 0171	Bontleng		
EA 0973	BBS		
EA 0782	Broadhurst Metro		
EA 1191	Tshweneng		
EA 0941	Maruapula		
EA 0562	New Stands		
EA 0752	Gaborone Village Ext.5		
EA 0240	Gaborone Sun Ext. 44		
EA 0100	Phologolo Ext 9		

Calculation of Average Rental

The procedure for calculating a single room "average" rental is as follows:

(i) For each dwelling, a "price relative" is calculated as – (current price)/(Last Quarter month Price base price)

(ii) An average price relative is calculated for each EA.

(iii) An average rent for each EA is calculated as follows
Current average price = Average Last month quarter price x Average price relative.

(iv) The weighted average price for one room rentals for each city is calculated as the weighted average for the "n" (= 18 for Gaborone and = 13 for Francistown) current prices for each EA, using the sample sizes as the weights.

(v) The weighted average price for one room rental is derived by combining the Gaborone and Francistown weighted average prices using the 2011 Population Census figures for the two cities as weighting factors. It is this figure that is used in the calculation of the Consumer Price index for Item 149.

Consideration is on the way to improve the quarterly Rental Index by extending the rental data collection to other areas such as Maun, Shakawe, Palapye, Ghanzi, Letlhakane, Jwaneng, Lobatse, Kasane, Selibi-Phikwe and Hukuntsi. This will make rental index more representative covering a wide range of areas. Again the real estate agents will be involved and requested to assist with the information on rental values so as to augment the current quarterly rental survey.

Statistics Botswana intends to introduce the Owner Occupied Housing in the next CPI Rebasing. The inclusion of owner-occupier housing costs will improve the representativeness and relevance of the CPI. However, there is need to develop statistics compilation of housing stock in Botswana especially during the conduct of future Household Income and Expenditure Survey. The measurement of Owner Occupied Housing continues to bring challenges that require clearer guidance. For the countries which include Owner Occupied Housing in their CPI, it tends to account for a larger share of CPI weights and hence it will remain a challenging issue in Botswana to be addressed by both CPI compilers and users.

b)   Domestic Servants Wages

The Domestic Servants Wages Survey is based on a purposive sample of high-cost housing areas in Gaborone and Francistown. Thirteen enumeration areas are covered in Gaborone and three in Francistown. Summary details of the selected EAs are given below.

Gaborone Wages		Francistown Wages	
Enumeration Area(EA)	Locality	Enumeration Area(EA)	Locality
EA1741	Phakalane	EA 0913	Molapo
EA 2052	Gaborone Block 7	EA 0122	Tati River
EA 2037	Gaborone West Block 10	EA 0051	Area A
EA 2034	Gaborone West Block 10		
EA 1642	G-West Phase I		
EA 1611	Gaborone West Phase II		
EA 1590	Gaborone West Phase II		
EA 1457	Gaborone West Block 6		
EA 1180	Tshenyana Ex 47		
EA 0753	Gaborone Village Ext 5		
EA 0752	Gaborone Village Ext.5		
EA 0240	Gaborone Sun Ext. 44		
EA 0100	Phologolo Ext 9		

The interviewer records only the plot number and the individual monthly wage paid to the domestic workers at the dwelling. Either the domestic worker or the employer is asked for information. Part-time employees are excluded. As with most surveys, there will always be non-contacts with occupants at selected dwellings. While in other surveys recalls are made to establish contact with occupants, in this survey the timing of the release of the index does not usually permit such efforts. Other useful information such as hours worked and the nature of the duties are not collected. However, past results suggest very little correlation between hours worked and level of pay.

Calculation of Average Wage

The procedure for calculating the average wage is as follows:

a) For each EA a simple average wage is determined and the number of observations noted.

b) A weighted-average is calculated, weighting the simple average by the number of observations and dividing by the total number of observations.

c) The overall average wage is a weighted-average for the two cities, derived by using their 2011 Census figures as weights.

8.2 Data Editing

8.2.1 Questionnaire Editing

Upon arrival from the field, completed questionnaires are visually inspected for consistency checks. In essence, this is mainly a comparison of last month's prices with this month's prices. If a price change is more than one might reasonably expect – and there being no written comments from the price collector – the price collector is asked for an explanation. If there is no satisfactory explanation, a decision has to be made as to whether to allow this price quote to stand or whether the current month's price should be estimated by CPI system. The editing procedure could be summarised as follows:

• Checks for mistakes such as price quotes written on wrong slots.

• Price quotes too high or too low compared to last month's price

• Zero or missing prices

• Shop deletions - shops closed are not deleted

8.2.2 Updating CPI Basket to include new products

Quarterly review is conducted to check on the appearance of new products and disappearing of the existing products. After checking all the existing products in the basket, Consumer Price Index (CPI) annual review is carried out to replace all the obsolete items. The updating of the CPI basket is being done on an annual basis while overall rebasing used to be done after every 10 years; it has been revised to 5 years.

8.2.3 Missing outlets

When the situation arises where an outlet permanently closed, the outlet is replaced with the same type, e.g. if a bakery closed permanently it will be replaced with another one.

8.2.4 Quality Adjustment

When an item is being substituted or replaced or an outlet replaced, direct quality adjustment has to be made so as to reflect the real price change in the index. The price for replaced item collected for the first month is not used in the index as the item price is estimated by CPI system using other existing prices collected of the similar products to calculate the index. The collected price is captured or stored so that it can be used in the next month to calculate the price relative. Statistics Botswana is currently using the class mean imputation for quality adjustment. Class mean imputation refers to imputing price changes based on price changes of comparable items. **Table 8.2.4.1** shows the example of direct quality adjustment:

Table 8.2.4.1 **Example of direct quality adjustment:**

Area Code	Shop Code	Item Code	June Prices 2019	July Prices 2019
1	1	1	54.95	54.95
1	2	1	49.95	45.95
1	4	1	49.95	49.95
1	5	1	55.9	55.9
1	7	1	54.95	54.95
1	9	1	51.65	51.45
1	11	1	44.95	44.95
1	12	1	49.95	49.95
1	13	1	46.95	46.95
1	14	1	49.95	47.95

The above Prices have been collected from the field for the month of June 2019 and July 2019, in July 2019, Item 1 for shop 5 and 12 have been replaced with another item of the same type, i.e. change of quantity or brand.

Table 8.2.4.2 shows the calculation of the July 2019 price relatives and average Price Relative excluding the replaced items.

Table 8.2.4.2 **Calculation of the July 2019 price relatives and average Price Relative excluding the replaced items.**

Area Code	Shop Code	Item Code	June Prices 2019	July Prices 2019	Price Relative July 2019
1	1	1	54.95	54.95	1
1	2	1	49.95	45.95	0.92
1	4	1	49.95	49.95	1
1	5	1	55.9		
1	7	1	54.95	54.95	1
1	9	1	51.65	51.45	0.99
1	11	1	44.95	44.95	1
1	12	1	49.95		
1	13	1	46.95	46.95	1
1	14	1	49.95	47.95	0.96
Average Price Relative					**0.98**

Table 8.2.4.3 **Average Price relative**

Area Code	Shop Code	Item Code	June Prices 2019	July Prices 2019	Price Relative July 2019
1	1	1	54.95	54.95	1
1	2	1	49.95	45.95	0.92
1	4	1	49.95	49.95	1
1	5	1	55.9	55.01	0.98
1	7	1	54.95	54.95	1
1	9	1	51.65	51.45	0.99
1	11	1	44.95	44.95	1
1	12	1	49.95	49.16	0.98
1	13	1	46.95	46.95	1
1	14	1	49.95	47.95	0.96
Average Price Relative					**0.98**

The average Price relative is then used to input/calculate the July 2019 item 1 prices for shop 5 and 12 as shown in Table 8.2.4.3. The average Price relative is then recalculated, please note that the average Price relative does not change.

Table 8.2.4.4 **Calculation of the Price relative for August 2019**

Area Code	Shop Code	Item Code	June Prices 2019	July Prices 2019	August Prices 2019	Price Relative August 2019
1	1	1	54.95	54.95	54.95	1
1	2	1	49.95	45.95	47.95	1.04
1	4	1	49.95	49.95	47.95	0.96
1	5	1	55.9	55.9	55.9	1
1	7	1	54.95	54.95	54.95	1
1	9	1	51.65	51.45	51.45	1
1	11	1	44.95	44.95	44.95	1
1	12	1	49.95	49.95	49.95	1
1	13	1	46.95	46.95	46.95	1
1	14	1	49.95	47.95	47.95	1
Average Price Relative						**1.00**

The collected Prices for month of July 2019 are then captured in the system updating the imputed prices. The prices are then used to calculate the price relatives in August 2019, thus measuring the pure price change as the price in August 2019 comparing it to the price in July 2019 are for the same product. The example is shown in Table 8.2.4.4 above.

8.2.5 Imputation in the Consumer Price Index

a) Temporarily missing price observations.

Statistics Botswana has adopted the imputations to estimate the temporarily missing price observations. The imputation technique uses the price changes of other observed prices of items as estimates of the price change of the missing item price. The prices of the missing item in the March 2019 , is imputed by multiplying its prices in the immediately preceding February 2019 the geometric mean of the price relatives of the remaining matched items in the product group over the two periods. There is also Carrying forward imputation, which is a method used to carry forward the last observed price to the next period. Although simple to apply, carrying forward the last observed price has intends to bias the resulting index towards zero. Illustration on how to derive the imputed price using the imputation is as stated below;

Example: Imputation a missing Month's Value (item price)

		Item description	March 2019 Price	April 2019 Price
Outlet	A	Rice 1kg	13.00	13.50
	B	Rice 1kg	13.00	13.25
	C	Rice 1kg	11.95	12.00
	D	Rice 1kg	14.00	X

Notes:

Calculate monthly movement of comparable Averages
Current Month Average (a) = Geometric mean (AxBxC), given by Geometric mean (13.50 x 13.25 x 12) =**12.90**
Previous Month Average (b) = Geometric mean (AxBxC), given by Geometric mean (13 x 13 x 11.95) =**12.64**
Monthly Movement (C) = a/b given by 12.90/12.64 = **1.02057**
Imputed price (X) for outlet D =Last month Price for outlet D x C given by 14 x 1.02057 =**14.287**

Prices with Imputed Price

		Item description	March 2019 Price	April 2019 Price
Outlet	A	Rice 1kg	13.00	13.50
	B	Rice 1kg	13.00	13.25
	C	Rice 1kg	11.95	12.00
	D	Rice 1kg	14.00	14.287

b) Imputation of Indices

It should be noted Imputations can be made using the index movement of a group or section. In the case of imputation, the group index, is calculated using only those observed prices of indices that are available and missing index assumes the same change as the group index. Similarly if the section index is missing within the group the imputation calculation will be based only on those available observed prices of section indices; for example if all item prices of alcoholic beverages section index are all missing then the available observed prices of tobacco section index will used to estimate alcoholic beverages because they belong to the same group index.

Using available section indices to estimate the missing section index

	December 2017 Weights	Long term Indices		
		January 2018	February 2018	March 2018
6. Health Group Index	**3.38**	**100.8**	**101.0**	**101.9***
6.1 Medical Products, Applications & Equipment	0.98	101.8	102.3	Y
6.2 Out-Patient Services	0.93	101.0	101.2	102.4
6.3 Hospital Services	1.47	100.0	100.0	101.0
Available Index multiply by weights				(0.93x102.4)+(1.47x101.0)= 243.7
Long –term group index (Health group index)				243.7/2.4 =101.5417
Monthly change			1.0019	101.5417/101.0=1.005363

In order to get missing Y (Medical Products, Applications & equipment) previous month index of 102.3 is multiplied by monthly change of March 2018 which 101.5417/101.0=101.005363. I.e. 102.3 x 1.005363 = 102.85 which is the estimated missing section index of Medical Products, Applications & equipment.

Recalculation of Health group index; (0.93x102.4) + (1.47x101.0) + (0.98x 102.85) = 344.4936

- Recalculated Health group index; 344.4936/3.38 =101.9

8.2.6 Validation Report

In the process of computing indices, several reports are produced and these include the following:

a)   Prices Validation Report

All price quotes that have been entered into the computer are printed out as a "validation" report. This report has the data sorted by area, item and is in ascending order of item prices.

Validation is yet another step of data editing. The following checks should be done on the validation report.

- Checks for out of range prices – these are by far the most common. Price quotes that are outside a particular range are marked with an asterisk in the validation report. The appearance of an asterisk on the validation report is simply a flag that alerts the editor to the possibility of an error. If, on checking, the price is considered acceptable, it is retained. If flagged price quotes are retained, the index program uses them anyway - it does not reject them. If upon inspection the flagged price is rejected, it must be set to zero rather than deleted.

- Only those price quotes that are obviously wrong must be rejected. However, it must be remembered that prices for some items will always vary. So a range of quotes from P41.95 to P73.99 for a man's shirt has to be expected - whereas if the price of 155g canned fish ranged from P1.85 to P5.40 there is clearly a mistake which has to be rectified. The editor must always refer back to the questionnaire when deciding whether or not to reject a price quote.

- Checks for misprinted prices or wrong prices

- Checks for duplicated prices.

- Checks for missing prices.

When all the necessary corrections have been made the VALIDATION program must be run once again and the process repeated until all the price quotes look reasonable.

b)   Averages Report

Although checking through the validation report will reveal most errors, some will slip through. In particular, if only one price quote has been recorded for an item then there is nothing to compare it with. For this reason comparing changes in average prices and indices between successive months is very useful.

Average prices by area are also produced to help in the checking process. For each area the following information is listed:

- the month and year
- for each item, its code and full description
- this month's average price
- last month's average price
- lasts year's average price
- percentage change, last month to this month

The last column of the Averages Report is useful in the checking procedure since it highlights those items, which have increased or decreased in price by a substantial amount compared to last month.

- For those items where the change is high (e.g. more than 20 percent in either direction), reference is made to the validation report to see if perhaps one wrong price quote was responsible for an abnormal average.

c)   Checking Indices

When errors arising from the validation report and/or the average prices listing have been rectified, indices are then run. The procedure for checking indices involves comparing indices at section (sub-group) level for the current month with the previous month's indices. Some of the checks involve the following:

- Have any indices moved up or down by a significant amount (say by at least 2 percent); If they have, look at the particular sub-group to see if any specific area is responsible for the national change.

- Where there are significant changes that are not immediately explainable, the price quotes for items in that section are checked on the validation report.

d)   Production of Consumer Price Index (CPI) Report

Presented in the CPI report are sections, groups, and "all items" indices for national as well as "all items" indices for cities/towns, urban villages and rural villages. Also included in the report is a brief commentary on index movements and underlying causes of major changes.

9   Calculation of the Index

9.1 Introduction

The calculation of the all items group and section indices is carried out in several stages. This section outlines the various steps involved.

9.2 Determination of Price Relatives

The compilation of the Statistics Botswana CPI entails calculating price relatives using prices in the current and previous survey month. The price relatives of item x is given by current month price of item x divided by previous month price of item x. The average price relative of item x is calculated using the geometric mean (Jevon's). The geometric mean of the price relatives is adopted due to its advantage over the previously used ratio of arithmetic mean prices because it is less influenced by extreme prices (values).

The price relative for item x in area **a** is calculated as:

$$R_c = \left(\frac{P_{ta}}{P_{t-1a}} \right)$$

The average price relative for item x is calculated as:

$$R_c = \prod \left(\frac{P_t}{P_{t-1}} \right) 1/n$$

Where P_t and P_{t-1} are the current prices and previous prices for item **x** in area **a**, respectively, n is the number of price quotes.

Table 9.2.1: **Illustration of Price Relative calculation - Food Group**

Area Code	Item Code Code	Item Name	Previous Price Feb 2019 (1)	Current Price Mar 2019 (2)	Geometric Mean Col (1) (3)	Geometric Mean R(1)*(2) Col (2) (4)	Price Relatives =(4)/(3)
1	1	Rice, 5kg (TASTIC)	54.95	46.95	55.95	54.54	0.97
2	1	Rice, 5kg	54.95	54.95			
3	1	Rice, 5kg	47.95	49.95			
4	1	Rice, 5kg	47.95	47.95			
N	1	Rice, 5kg	78.95	78.00			
1	2	Basmati Rice, 1 kg	37.00	37.00	34.91	37.05	1.06
2	2	Basmati Rice, 1 kg	37.68	37.00			
3	2	Basmati Rice, 1 kg	27.18	36.20			
4	2	Basmati Rice, 1 kg	37.00	38.00			
N	2	Basmati Rice, 1 kg	37.00	37.00			
Total	**N**						

9.3 Calculation of Elementary Indices

Elementary aggregates consist of product groups or services which are homogeneous. Calculation of elementary indices is also based on the geometric mean due to less responsive extreme values and hence its elementary price indices are less volatile. Elementary indices normally show the average price change of the items in each of the 400 CPI item-area combinations. They are obtained by multiplying the previous month elementary index with the current average price relatives as per example 1 below;

Table 9.3.1: **Illustration of Elementary Index calculations - Food Group**

Area Code	Item Code Code	Item Name	Previous Price Feb 2019 (1)	Current Price Mar 2019 (2)	Geometric Mean Col (1) (3)	Geometric Mean R(1)*(2) Col (2) (4)	Price Relatives =(4)/(3) (5)	Elementary IANDEX Indices Feb (6)	Elementary Index March 30 (7)
1	1	Rice, 5kg (TASTIC)	54.95	46.95	55.95	54.54	0.97	111.85	109.01
2	1	Rice, 5kg	54.95	54.95					
3	1	Rice, 5kg	47.95	49.95					
4	1	Rice, 5kg	47.95	47.95					
N	1	Rice, 5kg	78.95	78.00					
1	2	Basmati Rice, 1 kg	37.00	37.00	34.91	37.04	1.06	105.84	112.27
2	2	Basmati Rice, 1 kg	37.68	37.00					
3	2	Basmati Rice, 1 kg	27.18	36.20					
4	2	Basmati Rice, 1 kg	37.00			38.00			
N	2	Basmati Rice, 1 kg	37.00			37.00			
Total	**N**								

9.4 Calculation of the Indices

The Consumer Price Index basket is divided into 12 groups and each group is subdivided into sections. The first stage in the calculation of indices is to compute the section indices which are then aggregated to form the group indices, which in turn are all combined to produce the "all items" index.

9.4.1 The Section and Group Indices

(i) Calculation of Section Indices

The section index is the sum of the item (product) weights multiplied by the price relatives of all the items.

Let

m = the serial number of the first item in the sub-index
p = the serial number of the last item in the sub-index
R_{xa} and W_{xa} are the price relative and weight for item x in area a, respectively
$I_{a, g/s}$ be the group and section indices for the different areas

Then the general formula for an index in a section/group is

$$I_{as} = 100 * \frac{\sum_{s_x=m}^{p} W_{s_xa} R_{s_xa}}{\sum_{s_x=m}^{p} W_{s_xa}}$$

Note that $W_{sxa} = W_{xa}$ and $R_{sxa} = R_{xa}$

In the following example, we illustrate the calculation of the "Education" group and its associated section indices in Botswana.

Item Code	Previous Month Jan (1)	Current Month Feb (2)	Price Relative (3) =(2)/(1)	Item Weight (4)	(5) =(3)*(4)	Index (6) =(5)/(4)*100
Section 10.1: Pre-Primary and Primary Education						
346	50	55	1.10	0.10	0.11	
347	5400	6000	1.11	0.87	0.96	
348	7500	8250	1.10	0.86	0.94	
349	170	200	1.18	0.07	0.08	
				1.89	2.10	110.79
Section 10.2: Secondary and Tertiary Education						
350	86400	86400	1.00	1.26	1.26	
351	450	450	1.00	0.43	0.43	
352	300	300	1.00	0.65	0.65	
353	250	250	1.00	0.07	0.07	
354	12750	12750	1.00	0.29	0.29	
Total				2.70	2.70	100.00
Group 10: Education						104.44

* Figures may appear incorrect due to rounding.

The procedure for calculating the group indices is the same as that for calculating the section indices except that for the group indices, summation is done over all the items in the group. Also, groups use the same weights and price relatives as those used in the calculation of the section indices.

In the next few pages the procedure for calculating the group and section indices are summarised. It should be noted that the section and group indices are calculated for each area.

(ii)Calculation of Group Indices

$$I_{a,g} = 100 * \frac{\sum_{x=1}^{93} W_{xa} R_{xa}}{\sum_{x=1}^{93} W_{xa}}$$

The Food group has 11 sections. The indices for these sections are as follows:

Section 1.1: Bread and Cereal (1-16)

$$I_{a,1.1} = 100 * \frac{\sum_{i=1}^{16} W_{ia} R_{ia}}{\sum_{i=1}^{16} W_{ia}}$$

Section 1.2: Meat (Fresh, Chilled, Frozen) (17-29)
Section 1.3: Fish (Fresh, Chilled, Frozen) (30-32)
Section 1.4: Milk, Cheese and Eggs (33-40)
Section 1.5: Oils and Fats (41-47)
Section 1.6: Fruits (48-54)
Section 1.7: Vegetables (55-68)
Section 1.8: Sugar, Jam, Honey, Chocolate and Confectionery
 (69-74)
Section 1.9: Food Not Elsewhere Classified (N.E.C.) (75-83)
Section 1.10: Coffee, Tea and Cocoa (84-88)
Section 1.11: Mineral Waters, Soft Drinks, Fruits & Vegetable Juices (89-93)

The relevant items are substituted in the above formula to get all the relevant section indices under the Food group.

(iii) All Items Index Group (Items 1-400)

$$I_{a,g=1\text{-}12} = 100 * \frac{\sum_{i=1}^{400} W_{ia} R_{ia}}{\sum_{i=1}^{400} W_{ia}}$$

which reduces to

$$I_{a,g=1\text{-}12} = 100 * \sum_{i=1}^{400} W_{ia} R_{ia}$$

Since

$$\sum_{i=1}^{400} W_{ia} = 1$$

9.4.2 Calculation of strata Indices

Having calculated the section and group indices for different areas, these have to be combined to get the cities/towns and all the strata indices.

The Cities/Towns, Urban Villages and Rural Villages

The expenditure data obtained from the 2015/16 Botswana Multi-Topic Household Survey was used to derive the weights of the Cities/Towns, Urban and Rural Villages.

Cities/Towns Weight = 0.3806
Urban Villages weight = 0.4092
Rural Villages weight = 0.2102

The National Index

National Index = 0.3806 * Cities/town Index + 0.4092 * Urban Villages Index + 0.2102 * Rural Villages Index

Summary of Indices calculated

There are 3 indices:

- 1 Cities/Towns Index
- 1 Urban Village index
- 1 Rural Villages Index.

Note that for each of these, relevant sections, groups and the "all items" indices are calculated.

These 3 indices are combined in a variety of ways to produce the following 4 indices:

- 1 Cities/Towns' Index
- 1 Urban Villages' index
- 1 Rural Villages' index
- 1 National index by combining the Cities/towns, Urban Villages and Rural Villages' indices.

Amongst all these indices only the following are published.

- Cities/Towns (All items Index)
- Urban villages (All items Index)
- Rural Villages (All Items Index)
- National (All items Index, Groups and Section Indices)

Indices by Tradeability

In addition to classifying items into the different sections and groups (commodity type) another classification can be done by tradeability. This classification divides the basket into two groups: Non-tradeables and tradeables goods. The latter is further divided into two - domestic tradeables and imported tradeables. This classification helps in tracing the underlying sources of inflation, whether inflation is higher or lower for a particular tradeable group. In the first column of Appendix A, the symbols IT, NT, DT indicate whether the item is an imported tradeable, non-tradeable, or domestic tradeable, respectively. Total group weights (in percent) are as follows;

DT = Domestic Tradeables   15.4563
IT = Imported Tradeables   42.2559
NT = Non-Tradeables.   42.2878

Indices are calculated for each of the above groups by following the same procedure as for the calculation of the indices by commodity type.

10   Core Inflation

The Consumer Price Index (CPI) is used to derive the headline inflation and Core Inflations namely 16 percent trimmed mean core inflation and core inflation by exclusion. The Core Inflation is a measure of inflation that seeks to capture the underlying inflation trend due to underlying demand and supply conditions. The trimmed mean method attempts to remove 8 percent (by weight) of the commodity sub-groups with the largest price changes at each of the end of an ordered series of price changes in any given month. The measure of core inflation by exclusion attempts to remove the volatility inherent in prices that are only adjusted periodically and not always in response to currently prevailing market forces.

11   Chain linking the index

Although the base period for the current index series is December 2018, different users may require the same index but on a different reference base, depending on the nature of the task to which the indices are applied. The necessary adjustment usually takes two forms - i) re-basing, and ii) linking/ splicing. An example of the former would be, a tax consultant wishing to re-base the current series to coincide with the Tax Year.

In the case of re-basing, the process involves dividing the desired index by the index number of the required base and then multiplying by 100. It must be noted that the indices for both the two periods must be on the same base for a start. If j is the desired new base, then the index value for i on the new base is given by:

$$I_{NB}(i) \; = \; \frac{I_{OB}(i)}{I_{OB}(j)} * 100$$

Where I is the Index, NB denotes new base, OB the old base, i is the month earmarked for rebase and j is the base month.
Linking or splicing is usually necessary when it is desired to convert an index on one base to another on a different base. An example that immediately comes to mind is that of splicing/linking the September 2016 index with the December 2018 index.

The technique of splicing is best illustrated with reference to the following table on the Consumer-Price Index for the "all items" index.

Table 11.1: **Illustration: September 2016 index spliced with December 2018 index**

Year	Month	September 2016=100	December 2018=100	Spliced Series	
				September 2016=100	December 2018=100
2018	Jan	104.1		104.1	97.0
	Feb	104.4		104.4	97.2
	Mar	104.6		104.6	97.4
	Apr	106.0		106.0	98.7
	May	106.1		106.1	98.7
	June	106.1		106.1	98.8
	July	106.2		106.2	98.8
	Aug	106.2		106.2	98.8
	Sep	106.2		106.2	98.9
	Oct	106.9		106.9	99.5
	Nov	107.3		107.3	99.9
	Dec	107.4	100.0	107.4	100.0
2019	Jan		100.3	107.7	100.3
	Feb		100.5	107.9	100.5
	Mar		100.6	108.0	100.6
	Apr		101.2	108.6	101.2
	May		101.3	108.8	101.3
	June		101.5	109.0	101.5
	July		101.7	109.2	101.7

Column (1)   Old November 2016 based index, which ended in December 2018.
Column (2)   New index, introduced in December 2018.
Column (3)   The old index spliced with the new, with September 2016 as the base.
Column (4)   The new index spliced with the old, with December 2018 as the base.

In order to carry forward the old index, multiply the new index by the December 2018 value on the old base (107.4) and divide by 100. Similarly, to carry backwards the new index, divide the old index by its December 2018 value and multiply by 100.

12   Publications and Dissemination

The new index series, with December 2018 as its base, started with a value of 100.0 as is the convention for the start of any new index series. For those users wishing to refer to the national Consumer Price index series for 2016 to 2018, these have been included in Appendices C and D, respectively.

The national Consumer Price index series for

a) 2016-2018 with September 2016 = 100.0 is Appendix C
b) 2016-2019 with December 2018 = 100.0 is Appendix D
c) Consumer Price Index by Tradeability is Appendix E

The new series should be compared with the series given in Appendix C.

To publicise the latest Consumer Price index and inflation rate Statistics Botswana publishes a monthly release entitled "Consumer Price Statistics". Included in this release are:

-    the Consumer Price index series up-dated to include that month's figures

-     the latest rate of inflation based on the national Consumer Price Index

-    A short commentary highlighting the most important features of the latest index figures.

Statistics Botswana CPI is currently Special Data Dissemination Standards (SDDS) compliant in accordance with the International Monetary Fund (IMF) requirements. The CPI brief is released on the 15th of each month.

13   Conclusion

The CPI usage is of paramount importance to the Botswana government and other key stakeholders to inform economic and monetary policy. Globally, the CPI is one of the most extensively used statistics for measuring price changes i.e. inflation. Therefore to make CPI relevant there is need to continuously update the basket and weights whenever the household Income and Expenditure data is made available. Statistics Botswana has committed to conduct the Botswana Multi-Topic Households Survey after every five years, which is commendable effort to keep abreast with the best international standards.

Statistics Botswana's approach to the CPI is focused on ensuring the sample adequately captures different Botswana's geographic terrain by so doing balancing prices taken from urban and rural villages.   Areas as far as Shakawe, Ghanzi and Kasane form part of locations where CPI data is collected so as to capture prices variation revealed by distance.

During the CPI Rebasing, Statistics Botswana established the Technical Working Group consisting of public and key stakeholders to work on the project, providing guidance. This implied that the organisation can withstand diverging views. This transparency by allowing the key stakeholders to review and critique the CPI methodologies helps maintain the credibility of CPI data and this should be encouraged in the future CPI Rebasing activities.

14   APPENDICES

APPENDIX A: CPI BASKET AND WEIGHTS 2018

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
				0.38	0.41	0.21	1.00
	1		**FOOD AND NON- ALCOHOLIC BEVERAGES**	**8.8645**	**13.5417**	**22.0689**	**13.5545**
	1.1		**Bread and Cereals**	**2.3546**	**4.0501**	**8.0989**	**4.2561**
IT		1	Rice, 5kg	0.6495	1.1182	1.3906	0.9971
IT		2	Basmati Rice, 1 kg	0.0749	0.1266	-	0.0803
DT		3	Bread, one white loaf, Not sliced	0.0655	0.1019	0.2338	0.1157
IT		4	Biscuits, 200g	0.0151	0.0215	0.0730	0.0299
DT		5	Fat cake, one	0.0655	0.1019	0.2338	0.1157
DT		6	Brown bread (1 Loaf, not sliced)	0.0655	0.1019	0.2338	0.1157
DT		7	Roll (sold loose)	0.0655	0.1019	0.2338	0.1157
IT		8	Spaghetti, 500g without eggs	0.0908	0.1226	0.1975	0.1262
IT		9	Macaroni 500g	0.0908	0.1226	0.1975	0.1262
DT		10	Maize meal, 5kgs	0.5570	1.0527	2.8834	1.2489
DT		11	Sorghum meal, 5kgs	0.2881	0.5554	1.2981	0.6098
DT		12	White bread flour, 5kgs	0.2222	0.3667	0.6914	0.3800
DT		13	Samp, 2.5kg	0.0262	0.0521	0.1752	0.0681
IT		14	Oats 500g	0.0106	0.0135	0.0613	0.0225
IT		15	Corn Flakes, 1kg box	0.0208	0.0280	0.0691	0.0339
IT		16	Instant noodles, any flavor, 73g	0.0469	0.0626	0.1265	0.0701
	1.2		**Meat (Fresh, Chilled, Frozen)**	**1.7254**	**2.3251**	**3.5535**	**2.3552**
DT		17	Rump steak per kg	0.1156	0.1537	0.2625	0.1621
DT		18	Beef mince per kg	0.1687	0.2209	0.3795	0.2344
DT		19	Beef, brisket per kg	0.1735	0.2306	0.3937	0.2431
DT		20	Chuck , per kg	0.1735	0.2306	0.3937	0.2431
DT		21	Ox liver per kg	0.0617	0.0854	0.1369	0.0872
DT		22	Beef bones per kg	0.1133	0.1489	0.2554	0.1577
DT		23	Goat meat per kg	0.0634	0.0783	0.1342	0.0844
DT		24	Chicken, frozen per kg	0.1605	0.2164	0.2697	0.2064
DT		25	Chicken Braii Pack 2kg	0.2676	0.3607	0.4495	0.3439
DT		26	Chicken Liver per kg	0.1070	0.1443	0.1798	0.1376
DT		27	Corned Meat, canned, 300g	0.1469	0.2235	0.3125	0.2131
DT		28	Ox Tripe (Mogodu) per kg	0.1172	0.1575	0.2610	0.1639
IT		29	Pork, loin chop per kg	0.0566	0.0744	0.1253	0.0783
	1.3		**Fish (Fresh, Chilled, Frozen)**	**0.1023**	**0.1883**	**0.2953**	**0.1781**
IT		30	Frozen hake fillets, 400g	0.0341	0.0511	0.1016	0.0553
IT		31	Tinned pilchards, 155g	0.0546	0.1179	0.1553	0.1017
IT		32	Tuna in vegetable oil 170g	0.0135	0.0193	0.0383	0.0211
	1.4		**Milk, Cheese and Eggs**	**0.6525**	**1.1141**	**1.3317**	**0.9842**
DT		33	Fresh milk, 500mls, carton or bottle	0.1503	0.2652	0.3410	0.2374
IT		34	Long-life milk, 500mls	0.2505	0.4420	0.5684	0.3957
IT		35	Powdered milk, 400g tin	0.0604	0.1103	0.1316	0.0958
IT		36	Yoghurt 175mls	0.0093	0.0153	0.0126	0.0125
IT		37	Liquid Yoghurt 250g	0.0040	0.0066	0.0054	0.0054
IT		38	Sliced cheese (single packet)	0.0288	0.0425	0.0350	0.0357
IT		39	Sour milk, 500 ml	0.0575	0.0995	0.1326	0.0905
DT		40	Eggs, one dozen, size 2	0.0917	0.1327	0.1051	0.1113

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
	1.5		**Oils and Fats**	**0.6129**	**0.8574**	**1.5922**	**0.9189**
IT		41	Butter 250g- 500g	0.0233	0.0361	0.0307	0.0301
IT		42	Soft margarine, 500g Regular	0.0202	0.0339	0.0239	0.0266
IT		43	Margarine 250g - Not `soft' Butter Cup	0.0202	0.0339	0.0239	0.0266
IT		44	Sunflower cooking oil, 750ml bottle	0.4838	0.6631	1.3328	0.7357
IT		45	Olive oil, extra virgin, WKB	0.0547	0.0749	0.1506	0.0831
IT		46	Cooking fat 125g	0.0082	0.0112	0.0226	0.0125
IT		47	Peanut Butter, 400g	0.0027	0.0042	0.0076	0.0043
	1.6		**Fruits**	**0.6222**	**0.8227**	**0.9986**	**0.7834**
IT		48	Oranges, per kg	0.1154	0.1533	0.1873	0.1460
IT		49	Bananas per kg	0.0649	0.0863	0.1043	0.0820
IT		50	Apples, red, per kg	0.1014	0.1346	0.1622	0.1278
DT		51	Watermelon (Legapu) per kg	0.2020	0.2654	0.3223	0.2532
IT		52	Pineapples per Kg	0.0022	0.0028	0.0034	0.0027
IT		53	Dried raisins, 250g	0.1276	0.1687	0.2049	0.1607
IT		54	Canned, fruits-peaches 410g	0.0088	0.0115	0.0141	0.0110
	1.7		**Vegetables**	**0.7744**	**1.1082**	**1.5842**	**1.0812**
IT		55	Potatoes per kg	0.1688	0.2370	0.2880	0.2218
DT		56	Rape Leaves per 500g	0.0404	0.0587	0.0985	0.0601
DT		57	Spinach, per 500g	0.0404	0.0587	0.0985	0.0601
IT		58	Frozen Vegetable, 1kg, Mixed	0.1361	0.1792	0.2142	0.1702
DT		59	Cabbage per kg	0.0498	0.0941	0.1654	0.0922
DT		60	Tomatoes per kg	0.1247	0.1755	0.2779	0.1777
IT		61	Carrots per kg	0.0460	0.0616	0.0719	0.0578
IT		62	Onions per kg	0.1245	0.1730	0.2624	0.1733
IT		63	Fresh cucumber	0.0116	0.0168	0.0282	0.0172
IT		64	Fresh green pepper	0.0231	0.0335	0.0563	0.0344
IT		65	Tinned peas, 410g	0.0012	0.0025	0.0017	0.0018
DT		66	Dried beans, 500g	0.0018	0.0042	0.0064	0.0037
IT		67	Baked beans, 410g	0.0028	0.0059	0.0039	0.0043
IT		68	Potato Chips (Crisp) 30g pkt	0.0032	0.0075	0.0109	0.0066
	1.8		**Sugar, Jam, Honey, Chocolate and Confectionery**	**0.7182**	**1.0548**	**1.9421**	**1.1132**
DT		69	Sugar, white, 2.5 kg	0.5706	0.8299	1.7506	0.9248
IT		70	Apricot jam, smooth, 450g	0.0155	0.0230	0.0201	0.0195
IT		71	Chocolate, 80g	0.0300	0.0429	0.0348	0.0363
DT		72	Chewing gum per one - small	0.0446	0.0711	0.0608	0.0589
IT		73	WILSON'S X.X.X mints	0.0164	0.0276	0.0245	0.0227
IT		74	Ice cream, 2kg (VANILLA)	0.0411	0.0603	0.0513	0.0511
	1.9		**Food Not Elsewhere Classified (N.E.C.)**	**0.3529**	**0.5356**	**0.8662**	**0.5356**
IT		75	Tomato sauce, 700mls	0.0531	0.0769	0.1160	0.0761
IT		76	Mayonnaise 750ml	0.0563	0.0880	0.1370	0.0863
IT		77	Fine Salt, 500g	0.0508	0.0844	0.1480	0.0850
IT		78	Cayenne Pepper 7g,	0.0079	0.0216	0.0132	0.0146
IT		79	Packet soup 60g	0.0468	0.0934	0.1819	0.0943
IT		80	Baking powder, 50g	0.0411	0.0508	0.0869	0.0547
IT		81	Instant Yeast 10g	0.0411	0.0508	0.0869	0.0547
IT		82	Baby food 250g	0.0466	0.0527	0.0847	0.0571
DT		83	Mageu, Cream Flavour, 500 ml	0.0092	0.0171	0.0117	0.0130

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
	1.1		**Coffee, Tea and Cocoa**	**0.4267**	**0.6809**	**1.3684**	**0.7287**
IT		84	Coffee 60g	0.1178	0.1597	0.1941	0.1510
IT		85	Coffee, in tin, 250g	0.1178	0.1597	0.1941	0.1510
IT		86	Tea leaves, 125g	0.0637	0.1205	0.3268	0.1423
IT		87	Tea bags, 100 with tags	0.0637	0.1205	0.3268	0.1423
IT		88	Rooibos bags, 40 Teabags	0.0637	0.1205	0.3268	0.1423
	1.11		**Mineral Waters, Soft Drinks, Fruits & Vegetable Juices**	**0.5223**	**0.8045**	**0.4378**	**0.6200**
DT		89	Mineral water 500mls	0.0637	0.0434	0.0516	0.0528
DT		90	COCA COLA, 330ml can	0.3525	0.5803	0.2821	0.4309
DT		91	FANTA, 2 liter	0.0220	0.0363	0.0176	0.0269
IT		92	Fruit juice, 1 liter	0.0220	0.0363	0.0176	0.0269
IT		93	Orange squash, 2litre bottle	0.0621	0.1082	0.0688	0.0824
	2		**ALCOHOLIC BEVERAGES AND TOBACCO**	**3.4495**	**4.5637**	**5.5049**	**4.3375**
	2.1		**Alcoholic Beverages**	**2.8268**	**3.8173**	**4.1651**	**3.5135**
IT		94	Cane Spirit 750mls	0.0031	0.0037	0.0021	0.0031
IT		95	Whiskey, 750mls	0.0052	0.0064	0.0039	0.0054
IT		96	Brandy, 750 mls	0.0031	0.0037	0.0021	0.0031
IT		97	Gin, 750mls	0.0101	0.0135	0.0105	0.0115
IT		98	Tassenberg 750mls	0.0092	0.0135	0.0090	0.0109
IT		99	Beer (Cider) 340 mls bottle	0.0092	0.0135	0.0090	0.0109
IT		100	Wine, 750 mls (AUTUMN HARVEST-CRACKLING)	0.0112	0.0150	0.0117	0.0128
IT		101	750 mls (White Wine)	0.0112	0.0150	0.0117	0.0128
IT		102	Nederburg Rose 750mls	0.0112	0.0150	0.0117	0.0128
DT		103	Beer, 330 ml can (St.Louis)	0.7879	1.0541	0.8222	0.9040
DT		104	Beer 750mls Bottle	0.7879	1.0541	0.8222	0.9040
DT		105	Chibuku, 1 liter carton	0.3898	0.5562	1.6269	0.7180
IT		106	Beer 330 ml Bottle	0.7879	1.0541	0.8222	0.9040
	2.2		**Tobacco**	**0.6226**	**0.7464**	**1.3399**	**0.8241**
IT		107	Cigarettes, 20 Peter Stuyvesant Filter	0.2375	0.2783	0.4518	0.2993
IT		108	Cigarettes, Craven A, 20	0.2375	0.2783	0.4518	0.2993
IT		109	Cigarettes,Slim, Vogue	0.1188	0.1392	0.2259	0.1497
IT		110	Tobacco, 50g	0.0287	0.0507	0.2103	0.0759
	3		**CLOTHING AND FOOTWEAR**	**5.9009**	**5.8934**	**6.1705**	**5.9545**
	3.1		**Garments**	**2.4082**	**2.6405**	**2.8448**	**2.5951**
IT		111	Men's suit, 65 polyester 35 cotton (two buttons), size 3	0.1341	0.1841	0.1953	0.1674
IT		112	Men's trousers, polyester/cotton, size 4	0.3421	0.3532	0.4060	0.3601
IT		113	Men's shirt, polyester/cotton,size 16	0.1061	0.1181	0.1520	0.1207
IT		114	Men's socks (1 Pair)	0.0084	0.0056	0.0068	0.0069
IT		115	Men's brief, Medium size, pack of 3	0.0068	0.0100	0.0122	0.0092
IT		116	Ladies dress, polyester and cotton	0.3326	0.3631	0.4038	0.3601
IT		117	Ladies cardigan, wool/acrylic, size 36	0.0019	0.0062	0.0133	0.0060
IT		118	Ladies blouse, cotton or poly-cotton, size 36	0.0159	0.0307	0.0103	0.0208
IT		119	Ladies brassiere, size 36	0.0728	0.0790	0.0852	0.0779
IT		120	Ladies tights (pantyhose)	0.0162	0.0208	0.0171	0.0183
IT		121	Ladies briefs, poly-cotton	0.0734	0.0791	0.0858	0.0783

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
IT		122	Dress material,100% cotton, per meter (German printing)	0.0799	0.0523	0.0513	0.0626
IT		123	Head Scarf, Medium size, plain	0.0230	0.0221	0.0187	0.0217
IT		124	Boys school shorts, size 6	0.2984	0.3175	0.3485	0.3167
IT		125	Boys school shirt, size 6	0.2913	0.3191	0.3498	0.3150
IT		126	Girls' dress, cotton or poly-cotton, size 28	0.3010	0.3311	0.3485	0.3233
IT		127	Baby's Romper, 6-12 months	0.2881	0.3263	0.3370	0.3140
IT		128	Disposable Nappy, child 5-7kg	0.0164	0.0221	0.0030	0.0159
	3.2		**Other Articles of Clothing & Clothing Accessories**	**0.6682**	**0.7291**	**0.7808**	**0.7168**
IT		129	Tie, polyester/cotton	0.2899	0.3169	0.3396	0.3114
IT		130	Leather belt, pure leather medium	0.2899	0.3169	0.3396	0.3114
IT		131	Sewing thread, standard reel	0.0442	0.0476	0.0508	0.0470
IT		132	Small Pack of Needles (10)	0.0442	0.0476	0.0508	0.0470
	3.3		**Cleaning, Repair and Hire of Clothing**	**0.6133**	**0.5951**	**0.6567**	**0.6150**
NT		133	Dry cleaning, men's two-piece suit	0.1580	0.1503	0.1702	0.1574
NT		134	Dry cleaning, ladies' two-piece suit	0.1296	0.1190	0.1366	0.1267
NT		135	Dry cleaning, men's trouser	0.2573	0.2636	0.2903	0.2668
NT		136	Dry cleaning, ladies' skirt	0.0435	0.0360	0.0431	0.0403
NT		137	Alteration of trousers at the bottom	0.0124	0.0131	0.0083	0.0118
NT		138	Fitting of new zip fastener	0.0124	0.0131	0.0083	0.0118
	3.4		**Footwear**	**2.2112**	**1.9286**	**1.8882**	**2.0277**
IT		139	Men's shoes, size 7, leather uppers, rubber sole	0.6079	0.4917	0.4830	0.5341
IT		140	Men's sandals, size 7, leather, rubber sole	0.1520	0.1229	0.1208	0.1335
IT		141	Ladies sandals, size 6, rubber sole	0.2417	0.2467	0.2436	0.2442
IT		142	Ladies high heeled shoes, size 6	0.3625	0.3701	0.3653	0.3662
IT		143	Boys leather school shoes, size 2	0.2713	0.2251	0.2164	0.2409
IT		144	Girls leather school shoes, size 2	0.2713	0.2251	0.2164	0.2409
NT		145	Repair of men's; shoes, ordinary half sole & heel	0.1522	0.1234	0.1214	0.1340
NT		146	Repair of ladies; shoes, ordinary half sole & heel	0.1522	0.1234	0.1214	0.1340
	4		**HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS**	**19.3414**	**18.4103**	**12.1648**	**17.4516**
	4.1		**Actual Rentals Paid by Tenants**	**11.5943**	**6.8442**	**2.6901**	**7.7786**
NT		147	Monthly rent BHC House Type LC48	0.6317	0.1280	0.0057	0.2940
NT		148	Monthly rent BHC Type 2 "Improved"	0.9236	0.0640	0.0057	0.3789
NT		149	Private rent, low-cost 1 room house	4.2778	2.6737	1.9473	3.1315
NT		150	Private rent, 21/2 house (servant quarter)	3.2632	1.9893	0.5344	2.1682
NT		151	Private rent, 2 bedroom house	1.6892	1.3368	0.1157	1.2142
NT		152	Private rent, 3 bedroom house with single garage	0.8088	0.6524	0.0812	0.5918
	4.3		**Materials for Maintenance and Repair of the Dwelling**	**1.9162**	**5.2377**	**4.5405**	**3.8270**
DT		153	Stock brick, one	0.1551	0.3257	0.3001	0.2554
IT		154	Roof tiles, single sheet	0.3638	1.5007	0.5536	0.8689
IT		155	Corrugated iron roofing/linear meter, Standard size 3m	0.1885	0.4040	0.3935	0.3198
DT		156	Cement, 50kg Bag	0.4122	1.6179	1.7952	1.1963
IT		157	PVA water paint White, 5 liters	0.1430	0.2328	0.2483	0.2019

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
IT		158	Window pane (30 cm X 30 cm)	0.1541	0.3302	0.2769	0.2520
IT		159	Door, interior, wooden, 8.13 x 203.2 x 11.5cms, Hollow core	0.1527	0.2314	0.3299	0.2222
IT		160	Lever lock	0.3468	0.5950	0.6430	0.5106
	4.4		**Water Supply and Miscellaneous Services Relating to the Dwelling**	**1.9996**	**2.0967**	**1.6063**	**1.9567**
NT		161	Water: 10kls per month	1.1868	1.2574	0.9620	1.1684
NT		162	Water: 20kls per month	0.7912	0.8382	0.6413	0.7789
NT		163	Cost of security monitoring system installation with 1 sensor & monthly payments	0.0216	0.0011	0.0030	0.0093
	4.5		**Electricity, Gas and Other Fuels**	**3.8313**	**4.2317**	**3.3279**	**3.8893**
NT		164	Electricity, 100kwh per month	2.1732	2.3167	1.7486	2.1426
NT		165	Electricity, 500kwh per month	1.4488	1.5445	1.1657	1.4284
IT		166	Gas, 19kgs (ex-deposit)	0.1012	0.2496	0.2828	0.2001
IT		167	Paraffin, per liter	0.0611	0.0629	0.0698	0.0637
IT		168	Charcoal, 5kgs	0.0272	0.0104	0.0079	0.0163
DT		169	Firewood, 5kg	0.0199	0.0476	0.0530	0.0382
	5		**FURNISHING, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE**	**5.4788**	**3.9268**	**5.5221**	**4.8529**
	5.1		**Furniture and Furnishing**	**1.5862**	**1.1584**	**1.2942**	**1.3498**
IT		170	Double bed, with mattress	0.6476	0.5358	0.6793	0.6085
IT		171	Lounge suite 2 2-seater + 2 1-seater	0.5281	0.2710	0.2248	0.3591
IT		172	Plastic Garden Chair	0.1558	0.0539	0.0287	0.0874
IT		173	Wardrobe	0.0836	0.1367	0.1717	0.1239
IT		174	Foam mattress/single bed/190 x 90 x 15cm	0.1711	0.1610	0.1897	0.1709
	5.2		**Carpets and Other Floor Coverings**	**0.2780**	**0.2313**	**0.3361**	**0.2711**
IT		175	Carpet 220 x 150' (ordinary floral)-loose carpets	0.0928	0.0781	0.1144	0.0913
IT		176	Porcelain Floor Tiles Box	0.0926	0.0765	0.1063	0.0889
IT		177	Ceramic Floor Tiles Box	0.0926	0.0766	0.1154	0.0909
	5.3		**Household Textiles**	**0.3310**	**0.1923**	**0.4100**	**0.2909**
IT		178	Blanket, woolen, 150cms x 200cms	0.0831	0.0498	0.1532	0.0842
IT		179	Duvet Cover Set (3 piece)	0.0606	0.0373	0.1149	0.0625
IT		180	Bed sheets, cotton, for double bed (fitted/Flat)	0.0652	0.0394	0.0399	0.0493
IT		181	Bath towel	0.0320	0.0097	0.0144	0.0192
IT		182	Pillow, one standard	0.0078	0.0050	0.0048	0.0060
IT		183	Curtains, Standard size(Ready made)	0.0822	0.0512	0.0827	0.0696
	5.4		**Household Appliances**	**0.7891**	**0.6046**	**0.8002**	**0.7160**
IT		184	Electric refrigerator, 250-275 liters	0.2950	0.2777	0.2912	0.2871
IT		185	Washing machine (top loader) (8-13kg)	0.0145	0.0093	0.0076	0.0109
IT		186	Electric cooker (4 plates with oven)	0.0461	0.0388	0.0073	0.0349
IT		187	Gas stove, 4 burners, with oven, no grill	0.1076	0.0904	0.1710	0.1139
IT		188	MICRO-WAVE, 25 - 30 liters	0.0326	0.0165	0.0203	0.0234
IT		189	Pedestal fan	0.0644	0.0324	0.0592	0.0502
IT		190	Electric heater, two bar, 1kw (1000w)	0.0534	0.0382	0.0378	0.0439
IT		191	Electric iron, steam	0.0777	0.0326	0.0813	0.0600
IT		192	Electric kettle 1.5-2 liter, plastic one	0.0978	0.0687	0.1244	0.0915

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
	5.5		**Glassware, Tableware and Household Utensils**	**0.2436**	**0.2212**	**0.2423**	**0.2341**
IT		193	Paraffin lamp (Base Lamp)	0.0119	0.0067	0.0049	0.0083
IT		194	Paraffin Lamp Glass	0.0119	0.0067	0.0049	0.0083
IT		195	Mug Cup	0.0318	0.0560	0.0685	0.0494
IT		196	Kettle, Not electric	0.0066	0.0034	0.0033	0.0046
IT		197	Dinner plate, plain pattern, china	0.0681	0.0648	0.0460	0.0621
IT		198	Can opener, steel	0.0067	0.0035	0.0041	0.0049
IT		199	Teaspoon, stainless steel, set of six	0.0135	0.0070	0.0082	0.0097
IT		200	Chopping knife	0.0135	0.0070	0.0082	0.0097
IT		201	Cooking pot, 3 legs+lid, Size3	0.0318	0.0184	0.0263	0.0252
IT		202	Saucepan, aluminium, 225 diam.	0.0068	0.0065	0.0121	0.0078
IT		203	Standard ironing board	0.0133	0.0138	0.0132	0.0135
IT		204	Plastic pail/bucket, 20 - 30 liters	0.0276	0.0275	0.0426	0.0307
	5.6		**Small Tools, Miscellaneous Accessories**	**0.0374**	**0.0459**	**0.0335**	**0.0400**
IT		205	Wheelbarrow concrete one	0.0012	0.0088	0.0029	0.0046
IT		206	Spade, flat, all steel	0.0010	0.0075	0.0025	0.0040
IT		207	Paint brush, standard size	0.0069	0.0069	0.0106	0.0077
IT		208	Hose pipe, standard one, specify size	0.0012	0.0088	0.0029	0.0046
IT		209	Light bulb, 11w,Energy Saver	0.0272	0.0139	0.0146	0.0191
	5.7		**Goods and Services for Routine Household Maintenance**	**2.2135**	**1.4732**	**2.4059**	**1.9510**
IT		210	Household soap, 250g	0.0452	0.0552	0.1312	0.0674
IT		211	Washing powder, 2kg	0.1356	0.1655	0.3935	0.2021
IT		212	Sta-Soft 2 litres	0.1795	0.1091	0.0443	0.1223
IT		213	Dishwashing liquid, 750ml	0.0452	0.0552	0.1312	0.0674
IT		214	Bleach, 750ml	0.0430	0.0270	0.0391	0.0356
IT		215	Floor polish, 350ml tin, white	0.0221	0.0474	0.0227	0.0326
IT		216	Shoe polish, 50ml	0.0335	0.0349	0.0686	0.0414
IT		217	Lavatory cleaner, 500g	0.1004	0.0629	0.0911	0.0831
IT		218	Scouring powder, 500g	0.1004	0.0629	0.0911	0.0831
IT		219	Insecticide, size 300g	0.0430	0.0270	0.0391	0.0356
IT		220	Candles, six, white	0.0165	0.0325	0.1122	0.0432
IT		221	Broom with handle, soft/nylon	0.2627	0.0036	0.2683	0.1579
IT		222	Matches, packet of 10 boxes	0.0169	0.0154	0.0555	0.0244
DT		223	Battery,1.5 volts	0.0169	0.0154	0.0555	0.0244
IT		224	Dish cloth, standard size	0.0464	0.0489	0.0628	0.0508
IT		225	Air freshener 100 mls	0.0250	0.0263	0.0338	0.0274
NT		226	Domestic servants' monthly wage	1.0811	0.6841	0.7660	0.8524
	6		**HEALTH**	**4.4847**	**2.6927**	**2.7357**	**3.3837**
	6.1		**Medical Products, Appliances and Equipment**	**1.7082**	**0.6621**	**0.2732**	**0.9785**
IT		227	PARACETAMOL/ PANADO syrup, 100ml	0.2477	0.0536	0.0301	0.1225
IT		228	Cough syrup, 100ml BORSTOL	0.1586	0.0767	0.0315	0.0984
IT		229	Milk of MAGNESIA, 100 ml	0.1490	0.0584	0.0306	0.0870
IT		230	Painkillers, two COMPRAL	0.1479	0.0964	0.0299	0.1020
IT		231	20 Doxycycline antibiotic tablets	0.4984	0.1649	0.0776	0.2734
IT		232	Contraceptive pills pkt of 28	0.0003	0.0009	0.0003	0.0005
IT		233	Condoms pkt 3	0.2264	0.1066	0.0425	0.1387

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
IT		234	Adhesive plasters - per one	0.0545	0.0122	0.0108	0.0280
IT		235	Cost of Spectacles	0.2254	0.0925	0.0200	0.1278
	6.2		**Out-Patient Services**	**1.3832**	**0.8807**	**0.2199**	**0.9330**
NT		236	Consultation with private doctor	0.2067	0.1424	0.0298	0.1432
NT		237	Consultation with Government doctor	0.1938	0.1899	0.0804	0.1683
NT		238	Consultation with Optician	0.1230	0.0538	0.0102	0.0709
NT		239	Consultation with Dentist	0.1008	0.1340	0.0267	0.0988
NT		240	Consultation: gynecologist	0.1416	0.0475	0.0099	0.0754
NT		241	Consultation: pediatrician	0.2832	0.0949	0.0199	0.1508
NT		242	Dentist: Extraction of a molar without complications.	0.1841	0.0804	0.0160	0.1063
NT		243	Filling of 1 (one) Molar tooth	0.1227	0.0536	0.0107	0.0709
NT		244	Consultation with traditional doctor	0.0085	0.0067	0.0041	0.0068
NT		245	X-ray taking -private clinics/hospital (Chest)	0.0189	0.0776	0.0122	0.0415
	6.3		**Hospital Services**	**1.3933**	**1.1499**	**2.2426**	**1.4722**
NT		246	Rate to stay in a private hospital for 24 hour in a general ward (bed only)	0.6270	0.5174	1.0614	0.6735
NT		247	Rate to stay in a public hospital for 24 hour in a private ward (bed only)	0.7663	0.6324	1.1812	0.7987
	7		**TRANSPORT**	**21.7552**	**24.5718**	**24.2559**	**23.4335**
	7.1		**Purchase of Vehicles**	**4.8756**	**6.4540**	**5.9299**	**5.7431**
IT		248	Toyota Hilux 2.0 pick-up AC (Colour White)	1.6248	2.1607	0.8713	1.6856
IT		249	Toyota Corolla 1.30 ESTEEM (Colour White)	1.0832	1.4404	0.7215	1.1533
IT		250	Isuzu 2.5 litre Base pick-up (Without AC) (Colour White)	0.5416	0.7202	0.4083	0.5867
IT		251	Second Hand Car (Toyota Corolla 1.5)	0.4972	0.5631	3.1316	1.0780
IT		252	Nissan bakkie, 2 liter (Colour White)	0.5416	0.7202	0.6398	0.6353
IT		253	VW Polo 1.0 liter TSI (Colour White)	0.5416	0.7202	0.1103	0.5240
IT		254	Men's bicycle	0.0456	0.1292	0.0473	0.0801
	7.2		**Operation of Personal Transport Equipment**	**11.6349**	**12.7263**	**13.9271**	**12.5634**
IT		255	195 R14 C radial tyre	0.2649	0.5959	0.1118	0.3681
DT		256	Car battery, 622	0.1674	0.2042	0.2476	0.1993
IT		257	Spark plug - NGK	0.2901	0.3701	0.0668	0.2759
IT		258	Wiper blade, two (Set of wipers)	0.0095	0.0260	0.0492	0.0246
IT		259	Bicycle tyre	0.0032	0.0087	0.0164	0.0082
IT		260	Windscreen for car	0.1732	0.2194	0.4557	0.2515
IT		261	Petrol per liter (95)	6.1411	6.2651	6.4740	6.2618
IT		262	Diesel, per liter (50ppm)	3.1965	3.3735	5.2847	3.7079
IT		263	Engine oil (Petrol), 500mls	0.0240	0.1237	0.2286	0.1078
IT		264	Engine oil, 500ml (Diesel Engine)	0.0160	0.0824	0.1696	0.0755
NT		265	Labour charge per hour - car repairs	0.5005	0.6061	0.1345	0.4668
NT		266	Replacement of brake pads, Labour only car	0.2493	0.2020	0.1914	0.2178
NT		267	Full Car wash (Motor Car)	0.2518	0.2020	0.1914	0.2187
NT		268	Tyre Repair (Puncture)	0.3170	0.3839	0.1091	0.3006
NT		269	Driving lesson per month	0.0214	0.0318	0.1672	0.0563
NT		270	Road worthiness test	0.0090	0.0316	0.0290	0.0224

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
	7.3		**Transport Services**	**5.2448**	**5.3915**	**4.3989**	**5.1270**
NT		271	Bus fare, single, Gaborone-Mochudi	0.5722	0.6899	0.9773	0.7055
DT		272	Minibus fare, Gaborone-Johannesburg	0.6547	0.5492	0.7459	0.6307
NT		273	Taxi fare (Not "special")	1.0568	0.6807	0.5405	0.7944
NT		274	Bus fare, single, Gaborone-Francistown	0.2287	0.8987	0.9420	0.6528
NT		275	Minibus fare, within cities/towns/villages	1.0988	0.8531	0.6930	0.9129
NT		276	Car Rental	0.2215	0.0561	0.1316	0.1349
NT		277	Call Cab (Main mall to Phase 4)	0.2194	1.0419	0.0303	0.5162
NT		278	Railway Passengers Fare	0.0850	0.0887	0.0966	0.0889
NT		279	Air fare, economy single, Gaborone-Maun	0.2121	0.2133	0.0837	0.1856
DT		280	Air fare, economy single, Gaborone-Johannesburg	0.6540	0.1600	0.0790	0.3310
DT		281	Air fare, economy single, Gaborone-London(UK)	0.2416	0.1600	0.0790	0.1740
	8		**COMMUNICATION**	**6.7371**	**7.5047**	**6.2113**	**6.9407**
	8.1		**Postal Services**	**0.2041**	**0.2537**	**0.1475**	**0.2125**
NT		282	Local Standard Letter tariff rate	0.0116	0.0161	0.0089	0.0129
NT		283	Air Parcel to Europe (0.5 KG)	0.0077	0.0107	0.0059	0.0086
NT		284	Rental of Post Office box	0.1415	0.1805	0.1027	0.1493
NT		285	Standard letter (weight/size 120x235mm), Air.	0.0193	0.0269	0.0148	0.0214
NT		286	Freight/Courier cost of 0.5kg parcel, Gaborone to F/town	0.0239	0.0194	0.0153	0.0203
	8.2		**Telephone and Telefax Equipment**	**1.2797**	**1.1592**	**0.8019**	**1.1299**
IT		287	Purchase of a cell phone hand set (Open)	0.4456	0.4526	0.3000	0.4178
IT		288	Purchase of a Smart phone hand set	0.3950	0.3125	0.2513	0.3310
IT		289	Tablet PC	0.3386	0.2679	0.2154	0.2838
IT		290	Cellphone Charger	0.1004	0.1262	0.0352	0.0973
	8.3		**Telephone and Telefax Services**	**5.2533**	**6.0919**	**5.2619**	**5.5983**
NT		291	Telephone Installation	0.0029	0.0025	0.0022	0.0026
NT		292	Telephone Charges/rate between zone (per second charge)	0.0043	0.0038	0.0034	0.0039
NT		293	Telephone Charges/rate within zone (per second charge)	0.0043	0.0038	0.0034	0.0039
NT		294	Telephone rate international (per second)	0.0043	0.0038	0.0034	0.0039
NT		295	Telephone charges/rate to mobile(All Mobles)	0.0057	0.0051	0.0045	0.0052
NT		296	Mascom charges/rate to all network (peak hour per minute charge)	0.6531	0.7583	0.6549	0.6965
NT		297	Mascom charges/rate to all network (off/ off-off peak hour per minute charge)	0.5225	0.6066	0.5239	0.5572
NT		298	Orange charges/rate to all network (peak hour per minute charge)	0.6531	0.7583	0.6549	0.6965
NT		299	Orange charges/rate to all network (off/ off-off peak hour per minute charge)	0.5225	0.6066	0.5239	0.5572
NT		300	Bemobile charges/rate to all network (peak hour per minute charge)	0.6531	0.7583	0.6549	0.6965
NT		301	Bemobile charges/rate to all network (off/ off-off peak hour per minute charge)	0.5225	0.6066	0.5239	0.5572
NT		302	Mobile Charge International Charge (Orange+Mascom+Bemobile)	0.5225	0.6066	0.5239	0.5572

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
NT		303	Prepaid Phone Card - Short Message Service (SMS)	0.3919	0.4550	0.3930	0.4179
NT		304	Internet Café Fee per hour	0.0029	0.0025	0.0022	0.0026
NT		305	Mobile data Pass (1GB; 1month)	0.7837	0.9100	0.7859	0.8358
NT		306	Internet connection fee to Home computers	0.0043	0.0038	0.0034	0.0039
	9		**RECREATION AND CULTURE**	**3.2599**	**2.7885**	**2.0828**	**2.8195**
	9.1		**Audio-Visual, Photographic and Information Processing Equipment**	**2.3983**	**2.0883**	**1.5797**	**2.0994**
IT		307	Radio (standard one)	0.1706	0.1315	0.1141	0.1427
IT		308	32 Inches LCD Television	0.5240	0.4334	0.2249	0.4241
IT		309	Laptop Personal Computer	0.5444	0.3482	0.4003	0.4338
IT		310	USB flash drive - 8 GB	0.0665	0.0665	0.0424	0.0614
NT		311	Digital Prints	0.0654	0.0687	0.0435	0.0621
IT		312	Satellite Dish	0.0655	0.0542	0.0653	0.0608
IT		313	TV Decoder, standard	0.1300	0.1205	0.1077	0.1215
IT		314	Digital Camera, small one	0.3275	0.3776	0.2520	0.3321
IT		315	Blank CD	0.0652	0.0740	0.0430	0.0641
IT		316	CD Popular music	0.0343	0.0094	0.0333	0.0239
IT		317	DVD, popular music	0.1519	0.1390	0.1070	0.1372
IT		318	DVD Player-Panasonic	0.0671	0.0784	0.0518	0.0685
IT		319	Purchase of home Printer	0.0651	0.0650	0.0326	0.0582
IT		320	Scientific calculator, sharp	0.0141	0.0136	0.0049	0.0120
NT		321	Phone repair, replacement of screen for Smart phone	0.1067	0.1082	0.0571	0.0969
	9.2		**Other Recreational Items and Equipment, Gardens and Pets**	**0.3069**	**0.3095**	**0.2531**	**0.2966**
IT		322	Tennis ball	0.0017	0.0023	0.0017	0.0020
IT		323	Football, Standard Mitre	0.0671	0.0699	0.0449	0.0636
IT		324	Soccer boot, size 7-10	0.0727	0.0717	0.0544	0.0684
IT		325	Tennis Racquet (Beginner)	0.0395	0.0370	0.0315	0.0368
IT		326	Tinned pet food, 400g	0.0532	0.0592	0.0710	0.0594
NT		327	Veterinary charges (Injection- rabies)	0.0727	0.0693	0.0497	0.0664
	9.3		**Recreational and Cultural Services**	**0.4407**	**0.2584**	**0.1929**	**0.3140**
NT		328	Admission to Premier football match, uncovered stands	0.0109	0.0015	0.0083	0.0065
NT		329	Gym fee per month	0.0332	0.0407	0.0220	0.0339
NT		330	Cinema admission, stalls, evening show	0.0095	0.0007	0.0123	0.0065
DT		331	Monthly subscription to TV	0.3871	0.2155	0.1502	0.2671
	9.4		**Newspapers, Books and Stationary**	**0.1140**	**0.1323**	**0.0571**	**0.1095**
IT		332	The BIBLE	0.0032	0.0397	0.0046	0.0184
IT		333	Dictionary	0.0047	0.0596	0.0069	0.0276
NT		334	Botswana Guardian, weekend edition	0.0103	0.0038	0.0056	0.0067
NT		335	BOTSWANA SUNDAY STANDARD	0.0103	0.0038	0.0056	0.0067
NT		336	Price of local daily Newspaper - Mmegi	0.0103	0.0038	0.0056	0.0067
NT		337	The Voice	0.0062	0.0023	0.0034	0.0040
NT		338	Kutlwano	0.0041	0.0015	0.0023	0.0027
IT		339	Exercise book, 72 pages	0.0027	0.0053	0.0052	0.0043
IT		340	Pencil, without rubber	0.0175	0.0012	0.0017	0.0075

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DT		341	Ballpoint pen, BIC orange fine point	0.0129	0.0014	0.0025	0.0060
DT		342	Envelopes/white/postcard-size/pkt of 20	0.0001	0.0016	0.0018	0.0011
IT		343	Sharpener	0.0118	0.0018	0.0009	0.0054
IT		344	Paper glue	0.0039	0.0062	0.0108	0.0063
IT		345	Plastic ruler	0.0161	0.0005	0.0000	0.0063
	10		**EDUCATION**	**6.9034**	**3.5338**	**2.4827**	**4.5952**
	10.1		**Pre-Primary and Primary Education**	**2.6326**	**1.5851**	**1.1522**	**1.8927**
NT		346	Tuition/sport/feeding/PTA 1 child public schools	0.1146	0.0939	0.0874	0.1004
NT		347	Pre-primary school fees per Term (reception)	1.2432	0.7125	0.4902	0.8677
NT		348	Private Primary school fees per Term	1.2082	0.7138	0.4910	0.8551
DT		349	Primary school Uniform (Dress)	0.0665	0.0649	0.0835	0.0694
	10.2		**Secondary and Tertiary Education**	**4.2707**	**1.9487**	**1.3306**	**2.7024**
DT		350	Private Secondary School annual fees excluding board	2.1068	0.8297	0.5829	1.2638
NT		351	School fees (Senior Sec.) public school	0.6535	0.3319	0.2332	0.4335
NT		352	Junior Secondary School fees (public)	0.9802	0.4978	0.3497	0.6503
DT		353	SECONDARY school uniform (Dress)	0.0665	0.0649	0.0835	0.0694
DT		354	College and university fees (BA Social Science)	0.4637	0.2246	0.0812	0.2854
	11		**RESTAURANTS AND HOTELS**	**4.3488**	**3.5097**	**2.7149**	**3.6619**
	11.1		**Restaurants, Cafés and the Like**	**3.6220**	**2.7171**	**2.5196**	**3.0199**
NT		355	Meat and Chips	0.8005	0.4254	0.3805	0.5587
NT		356	Cooked maize meal and meat to take away	0.5942	0.4389	0.4123	0.4924
NT		357	Cold beer in a Restaurant	0.2310	0.2808	0.2622	0.2580
NT		358	Purchase of soft drink in a restaurant, Fizzy,330ml	0.9902	1.2033	1.1239	1.1055
NT		359	Fried chicken and chips from a take-away	0.8005	0.2483	0.2282	0.4542
NT		360	Purchase of double tot	0.2056	0.1203	0.1124	0.1511
	11.2		**Accommodation Services**	**0.7268**	**0.7926**	**0.1952**	**0.6420**
NT		361	Top hotel (, single, 1 Night, no b/fast	0.1817	0.1982	0.0643	0.1637
NT		362	Average hotel, single, 1 night, no b/fast	0.2544	0.2774	0.0667	0.2243
NT		363	Lodge single, 1 Night excluding breakfast	0.2907	0.3171	0.0643	0.2539
	12		**MISCELLANEOUS GOODS AND SERVICES**	**9.4759**	**9.0627**	**8.0855**	**9.0145**
	12.1		**Personal Care**	**2.1773**	**2.3420**	**2.5938**	**2.3323**
NT		364	Hairdressing, ladies' "Blow-out"	0.1347	0.1231	0.1180	0.1265
NT		365	Ladies' haircut	0.1347	0.1231	0.1180	0.1265
NT		366	Men's haircut	0.1797	0.1641	0.1573	0.1686
DT		367	Bath soap, 175g bar	0.3752	0.3748	0.4348	0.3876
IT		368	Toothpaste, 100ml Original	0.0743	0.0944	0.1578	0.1001
IT		369	Shampoo 350 ml	0.0938	0.0937	0.1087	0.0969
IT		370	Body Lotion 400 ml	0.2297	0.2315	0.3193	0.2492
IT		371	Petroleum jelly, 50ml	0.1148	0.1157	0.1596	0.1246
IT		372	Razor blade, pkt 5 disposables	0.0005	0.0006	0.0005	0.0006
IT		373	Sanitary Pads pkt of 10	0.3946	0.5467	0.4751	0.4737
IT		374	Lip balm	0.0574	0.0579	0.0798	0.0623
IT		375	Roll-on Antiperspirant, 50 ml	0.1723	0.1736	0.2395	0.1869
IT		376	Tooth Brush, Standard size	0.0318	0.0404	0.0676	0.0429

Tradeability	Group code	Item Code	Item Description	Cities/Towns	Urban Villages	Rural Villages	National
IT		377	Shaver (Non-electric), standard size	0.0033	0.0040	0.0076	0.0045
DT		378	Toilet roll, single-ply, one	0.1805	0.1984	0.1503	0.1815
	12.2		**Personal Effects N.E.C.**	**0.1530**	**0.1849**	**0.3881**	**0.2155**
IT		379	Wrist watch	0.1370	0.1613	0.3419	0.1900
IT		380	Suitcase, with trolley system	0.0064	0.0094	0.0185	0.0102
IT		381	Ladies Hand Bag	0.0096	0.0142	0.0277	0.0153
	12.3		**Social Protection**	**0.1655**	**0.1335**	**0.0787**	**0.1342**
NT		382	Playschool fees Creche, Kindergarten etc, per Term	0.1655	0.1335	0.0787	0.1342
	12.4		**Insurance**	**3.9858**	**3.6487**	**2.9241**	**3.6247**
NT		383	Employee contribution to medical aid, Standard Benefit, 1, salary(600+)	1.5901	1.5865	1.4049	1.5497
NT		384	Employee contribution to medical aid, High Benefit, 1, salary(5000-8000)	1.4861	1.1489	1.0173	1.2496
NT		385	Fully comp. car insurance	0.8743	0.8817	0.4657	0.7914
NT		386	Ann. premium-house contents insurance (P25000)	0.0353	0.0316	0.0362	0.0340
	12.5		**Financial Services**	**1.1899**	**1.2715**	**0.5707**	**1.0931**
NT		387	Monthly repayment on P100,000 loan-index linked	0.4847	0.6875	0.2228	0.5126
NT		388	Levy + loan (P3500) interest on SHHA plot	0.0638	0.0665	0.0426	0.0604
NT		389	Bank Charges/Financial Charges	0.6415	0.5175	0.3053	0.5201
	12.6		**Taxes, Licences, Fees**	**1.8043**	**1.4821**	**1.5300**	**1.6148**
NT		390	Driver's License charge	0.0303	0.0245	0.0144	0.0246
NT		391	Annual road tax (for bakkie)	0.1708	0.1378	0.0813	0.1385
NT		392	Annual road tax- (for sedan)	0.1398	0.1128	0.0665	0.1133
NT		393	Fee for the issue of a passport	0.0584	0.0525	0.0464	0.0535
NT		394	Council rates to house + plot valued at P200,000	0.0525	0.1478	0.0524	0.0915
NT		395	Photocopy (A4)	0.0118	0.0174	0.0222	0.0163
NT		396	Car advert (20 words)	0.0204	0.0208	0.0397	0.0246
NT		397	Advertisement (20 words)	0.0204	0.0208	0.0397	0.0246
NT		398	Total charge for undertaking a funeral arrangement for one, including transport	0.6048	0.9140	1.1556	0.8471
NT		399	Union's monthly subscription fee	0.0796	0.0202	0.0070	0.0400
NT		400	Fees for legal services (initial consultation 2for will and trust)	0.6155	0.0135	0.0047	0.2408

Note: NT **Non-Tradables**
  IT **Imoorted-Tradables**
  DT **Domestic-Tradables**

APPENDIX B. CPI AREAS COVERAGE

Cities and Towns

Area 1	GABORONE(225)	Area 4	LOBATSE(86)
Area 2	FRANCISTOWN(130)	Area 5	JWANENG(71)
Area 3	SELIBE PHIKWE(87)		

Urban Villages

Area 6	SEROWE(79)	Area 14	KASANE(62)	Area 22	SHAKAWE(37)
Area 7	LETLHAKANE(81)	Area 15	GANTSI(72)	Area 23	KANG(42)
Area 8	PALAPYE(83)	Area 16	MOLEPOLOLE(66)	Area 24	MASUNGA(43)
Area 9	BOBONONG(59)	Area 17	MOCHUDI(55)	Area 25	RAKOPS(31)
Area 10	MAUN(95)	Area 18	RAMOTSWA(55)	Area 26	NATA(43)
Area 11	TUTUME(45)	Area 19	KANYE(75)	Area 27	GOODHOPE(35)
Area 12	TONOTA(67)	Area 20	MAHALAPYE(70)	Area 28	LETLHAKENG(36)
Area 13	TSABONG(49)	Area 21	GUMARE(37)		

Rural Villages:

Area 29	TSHESEBE(18)	Area 36	PANDAMATENGA(13)	Area 43	MACHANENG(16)
Area 30	RATHOLO(20)	Area 37	HUKUNTSI(34)	Area 44	MOGOBANE(22)
Area 31	WERDA(21)	Area 38	ARTESIA(18)	Area 45	SEKOMA(19)
Area 32	SEHITHWA(18)	Area 39	MOPIPI(24)	Area 46	SIKWANE(21)
Area 33	TSETSEBJWE(29)	Area 40	MANYANA(21)	Area 47	LENTSWELETAU(24)
Area 34	CHARLES HILL(38)	Area 41	PITSANE(26)	Area 48	TSAU(9)
Area 35	MABUTSANE(22)	Area 42	SERULE(24)	Area 49	KHAKHEA(16)

APPENDIX C : CONSUMER PRICE INDEX (September 2016 =100.0)

		Food	Alcohol & Tobacco	Clothing & Footwear	Housing	Furniture etc	Health	Transport	Communi-cation	Rec. & Culture	Education	Rest. & Hotels	Miscella-neous
Weights		**16.51**	**7.83**	**6.27**	**14.90**	**6.39**	**3.62**	**20.65**	**4.27**	**2.92**	**3.34**	**2.76**	**10.55**
2016	Jan	97.6	98.6	96.8	97.1	98.2	97.6	100.5	100.0	98.9	99.9	97.9	93.6
	Feb	98.2	98.7	97.4	96.9	98.3	97.7	99.1	100.0	99.5	99.9	98.2	93.3
	Mar	98.5	98.8	98.0	98.2	98.5	97.8	99.2	100.0	99.6	99.9	98.4	93.5
	Apr	99.3	99.3	98.5	98.2	98.7	98.0	99.5	100.0	99.6	100.0	98.7	99.6
	May	99.4	99.4	98.9	98.2	98.8	99.9	99.5	100.0	99.7	100.0	98.9	99.6
	June	99.1	99.6	99.4	99.0	99.3	100.0	99.8	100.0	99.6	100.0	99.2	99.9
	July	99.3	99.9	99.6	99.0	99.4	100.0	99.9	100.0	99.7	100.0	99.3	100.0
	Aug	99.7	100.0	99.9	99.0	99.5	100.0	100.0	100.0	99.8	100.0	99.6	100.0
	Sep	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Oct	100.4	100.7	100.2	100.0	100.2	100.0	100.0	100.0	100.2	100.0	100.2	100.4
	Nov	100.9	101.2	100.6	100.1	100.6	100.2	100.1	100.0	100.2	100.0	100.5	100.5
	Dec	101.0	101.3	100.7	100.2	100.8	100.3	100.2	100.0	100.3	100.0	100.6	100.5
2017	Jan	101.9	102.3	101.2	100.4	101.2	100.8	99.7	100.1	100.7	104.0	101.4	100.7
	Feb	102.3	103.0	101.4	100.6	101.7	100.9	99.8	100.1	101.1	104.1	101.7	101.0
	Mar	102.8	103.6	101.7	101.0	102.1	101.1	100.9	100.1	101.3	104.1	102.0	101.4
	Apr	103.1	104.1	101.9	104.8	102.3	101.2	101.0	100.1	102.0	104.1	102.2	101.5
	May	103.4	104.7	102.1	104.9	102.4	101.2	101.1	100.2	102.0	104.1	102.5	101.6
	June	103.3	104.7	102.2	105.0	102.7	101.8	101.4	100.3	102.1	104.1	102.8	102.6
	July	103.6	104.8	102.6	105.1	102.8	102.0	101.4	100.3	102.2	104.2	103.3	102.6
	Aug	103.5	104.9	102.8	105.2	102.9	102.0	101.6	100.3	102.3	104.2	103.5	102.7
	Sep	102.8	105.0	103.0	105.8	103.1	102.0	101.7	101.3	102.2	104.2	103.7	102.8
	Oct	102.8	104.8	103.1	105.7	103.3	102.1	101.7	101.3	102.3	104.2	104.0	102.8
	Nov	102.6	104.6	103.1	105.7	103.4	102.2	102.7	101.3	102.2	104.2	104.0	102.9
	Dec	102.1	104.7	103.2	106.1	103.2	102.2	104.3	101.2	102.4	104.2	104.6	103.4
2018	Jan	102.3	104.8	103.3	106.2	103.4	102.3	104.7	101.2	102.6	109.8	104.9	103.7
	Feb	102.7	104.9	103.5	106.4	103.7	102.4	105.0	101.3	102.9	109.8	105.3	104.3
	Mar	102.8	105.0	103.7	106.7	104.4	102.5	104.9	101.3	103.4	109.8	105.4	104.5
	Apr	102.9	104.9	104.0	108.3	104.5	102.5	107.4	101.4	104.0	109.8	105.9	110.1
	May	102.9	105.2	104.2	108.4	104.6	102.6	107.4	101.4	104.1	109.8	106.2	110.2
	June	102.6	105.4	104.4	108.8	104.8	102.7	109.0	92.0	104.1	109.8	106.6	110.3
	July	102.4	105.6	104.6	108.9	104.9	102.8	109.2	92.0	104.2	109.8	107.0	110.5
	Aug	102.1	105.8	104.6	109.0	104.9	102.8	109.2	92.0	104.2	109.8	107.2	110.4
	Sep	101.8	105.9	104.6	109.4	105.4	103.0	109.1	92.1	104.2	109.8	107.3	110.3
	Oct	101.7	105.9	104.5	109.4	105.4	103.1	112.9	92.1	103.8	109.8	107.3	109.8
	Nov	101.8	105.9	104.6	109.6	105.5	103.2	114.6	92.1	103.9	109.8	107.4	109.9
	Dec	101.9	105.7	104.8	109.8	105.4	103.3	114.8	91.9	104.0	109.8	107.7	110.1

APPENDIX C : CONSUMER PRICE INDEX (September 2016 =100.0) Continued

		All Items Index	National Inflation Rate	Monthly Change	Towns & Cities Index	Urban Village Index	Rural Villages Index	Annual Inflation		
								Towns & Cities	Urban Villages	Rural Villages
		100.0	%	%	0.42	0.34	0.24	%	%	%
2016	Jan	97.9	2.7	0.4	97.9	98.1	97.7	2.7	2.6	2.8
	Feb	97.9	3.0	(0.0)	97.7	98.2	97.9	2.9	3.2	3.1
	Mar	98.2	3.0	0.3	98.1	98.6	98.0	3.1	3.2	2.7
	Apr	99.1	2.8	0.9	99.0	99.4	98.7	2.6	3.2	2.7
	May	99.2	2.8	0.1	99.1	99.5	98.9	2.7	3.1	2.5
	Jun	99.4	2.7	0.2	99.4	99.7	99.1	2.5	2.8	2.6
	Jul	99.6	2.7	0.1	99.5	99.7	99.6	2.5	2.7	3.0
	Aug	99.7	2.6	0.2	99.6	99.9	99.8	2.6	2.6	2.9
	Sept	100.0	2.8	0.3	100.0	100.0	100.0	2.8	2.7	2.9
	Oct	100.2	2.7	0.2	100.2	100.2	100.2	2.5	2.7	3.1
	Nov	100.4	2.9	0.3	100.3	100.4	100.7	2.7	2.9	3.5
	Dec	100.5	3.0	0.1	100.5	100.4	100.8	2.8	3.0	3.5
2017	Jan	101.0	3.1	0.4	100.9	100.8	101.3	3.1	2.8	3.6
	Feb	101.2	3.4	0.2	101.1	101.1	101.6	3.5	2.9	3.8
	Mar	101.7	3.5	0.5	101.6	101.6	102.1	3.6	3.0	4.2
	Apr	102.5	3.4	0.7	102.3	102.4	102.8	3.3	3.0	4.2
	May	102.7	3.5	0.2	102.5	102.6	103.0	3.4	3.1	4.1
	Jun	102.9	3.5	0.2	102.8	102.9	103.0	3.4	3.3	3.9
	Jul	103.0	3.4	0.1	102.9	102.9	103.3	3.5	3.2	3.7
	Aug	103.1	3.4	0.1	103.0	103.0	103.4	3.4	3.2	3.6
	Sept	103.2	3.2	0.1	103.2	103.0	103.4	3.2	3.0	3.4
	Oct	103.2	3.0	0.0	103.2	102.9	103.5	3.0	2.7	3.3
	Nov	103.4	2.9	0.2	103.4	103.0	103.7	3.1	2.6	3.0
	Dec	103.7	3.2	0.4	104.0	103.3	103.9	3.6	2.9	3.1
2018	Jan	104.1	3.1	0.4	104.5	103.7	104.1	3.6	2.9	2.8
	Feb	104.4	3.2	0.3	104.7	104.1	104.4	3.6	2.9	2.7
	Mar	104.6	2.8	0.1	104.9	104.2	104.5	3.3	2.6	2.3
	Apr	106.0	3.4	1.3	106.6	105.6	105.5	4.2	3.1	2.7
	May	106.1	3.3	0.1	106.7	105.7	105.5	4.1	3.0	2.5
	Jun	106.1	3.1	0.0	106.8	105.7	105.4	4.0	2.7	2.3
	July	106.2	3.1	0.1	106.9	105.7	105.5	3.9	2.7	2.1
	Aug	106.2	3.0	(0.0)	106.9	105.7	105.5	3.8	2.6	2.0
	Sep	106.2	2.9	0.0	106.9	105.8	105.5	3.6	2.7	2.0
	Oct	106.9	3.6	0.7	107.8	106.4	106.1	4.4	3.4	2.5
	Nov	107.3	3.8	0.4	108.3	106.7	106.4	4.7	3.6	2.6
	Dec	107.4	3.5	0.1	108.4	106.9	106.4	4.2	3.5	2.5

APPENDIX D: CONSUMER PRICE INDEX (December 2018 =100.0)

		Food	Alcohol & Tobacco	Clothing & Footwear	Housing	Furniture etc	Health	Transport	Communi-cation	Rec. & Culture	Education	Rest. & Hotels	Miscella-neous
Weights		**13.55**	**4.34**	**5.95**	**17.45**	**4.85**	**3.38**	**23.43**	**6.94**	**2.82**	**4.60**	**3.66**	**9.01**
2016	Jan	95.8	93.2	92.4	88.4	93.2	94.5	87.6	108.8	95.1	91.0	90.9	85.0
	Feb	96.3	93.4	93.0	88.3	93.3	94.6	86.4	108.8	95.6	91.0	91.2	84.7
	Mar	96.6	93.4	93.5	89.5	93.5	94.6	86.5	108.8	95.7	91.0	91.4	84.9
	Apr	97.4	93.9	94.0	89.5	93.6	94.9	86.6	108.8	95.8	91.0	91.7	90.4
	May	97.5	94.1	94.4	89.4	93.7	96.7	86.7	108.8	95.8	91.0	91.8	90.4
	June	97.2	94.2	94.9	90.2	94.2	96.8	87.0	108.8	95.8	91.0	92.2	90.7
	July	97.5	94.5	95.1	90.1	94.3	96.8	87.1	108.8	95.9	91.0	92.2	90.8
	Aug	97.8	94.6	95.3	90.2	94.5	96.8	87.1	108.8	96.0	91.0	92.5	90.8
	Sep	98.1	94.6	95.4	91.1	94.9	96.8	87.1	108.8	96.2	91.0	92.9	90.8
	Oct	98.5	95.2	95.6	91.1	95.0	96.8	87.1	108.8	96.3	91.0	93.1	91.2
	Nov	99.0	95.8	96.0	91.2	95.5	97.0	87.2	108.8	96.4	91.0	93.4	91.3
	Dec	99.1	95.8	96.1	91.3	95.7	97.1	87.3	108.8	96.4	91.0	93.5	91.3
2017	Jan	100.0	96.8	96.5	91.5	96.1	97.6	86.8	108.9	96.8	94.7	94.2	91.5
	Feb	100.4	97.4	96.8	91.6	96.5	97.7	87.0	108.9	97.2	94.7	94.4	91.7
	Mar	100.9	97.9	97.0	92.0	96.9	97.8	87.9	108.9	97.4	94.7	94.8	92.0
	Apr	101.1	98.5	97.2	95.5	97.0	97.9	88.0	108.9	98.1	94.7	95.0	92.2
	May	101.5	99.0	97.4	95.5	97.2	98.0	88.1	109.0	98.1	94.7	95.3	92.3
	June	101.4	99.0	97.5	95.7	97.4	98.6	88.3	109.2	98.2	94.8	95.5	93.2
	July	101.6	99.1	97.9	95.8	97.6	98.7	88.3	109.2	98.3	94.8	95.9	93.2
	Aug	101.5	99.2	98.1	95.8	97.7	98.8	88.5	109.2	98.4	94.8	96.2	93.2
	Sep	100.9	99.3	98.3	96.4	97.9	98.8	88.6	110.3	98.3	94.8	96.4	93.3
	Oct	100.8	99.1	98.4	96.3	98.0	98.8	88.6	110.3	98.4	94.9	96.6	93.4
	Nov	100.7	99.0	98.4	96.3	98.1	98.9	89.4	110.3	98.3	94.9	96.6	93.4
	Dec	100.2	99.1	98.5	96.7	97.9	98.9	90.9	110.1	98.5	94.9	97.1	93.9
2018	Jan	100.4	99.1	98.6	96.8	98.1	99.0	91.2	110.2	98.7	99.9	97.4	94.2
	Feb	100.8	99.2	98.7	96.9	98.4	99.1	91.5	110.2	99.0	99.9	97.8	94.7
	Mar	100.9	99.3	98.9	97.2	99.0	99.2	91.4	110.3	99.4	100.0	97.9	94.9
	Apr	101.0	99.2	99.3	98.6	99.1	99.2	93.5	110.3	100.0	100.0	98.4	100.0
	May	100.9	99.5	99.5	98.7	99.2	99.4	93.6	110.3	100.1	100.0	98.6	100.1
	June	100.7	99.7	99.6	99.2	99.5	99.4	95.0	100.2	100.1	100.0	99.0	100.2
	July	100.5	99.9	99.9	99.2	99.6	99.5	95.1	100.2	100.2	100.0	99.4	100.3
	Aug	100.2	100.1	99.8	99.3	99.6	99.5	95.2	100.2	100.2	100.0	99.5	100.3
	Sep	99.9	100.1	99.8	99.7	100.0	99.7	95.0	100.2	100.2	100.0	99.7	100.2
	Oct	99.8	100.2	99.7	99.7	100.0	99.8	98.4	100.2	99.8	100.0	99.7	99.8
	Nov	99.9	100.2	99.8	99.9	100.1	99.9	99.8	100.2	99.9	100.0	99.7	99.8
	Dec	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2019	Jan	100.4	99.8	100.2	100.1	100.2	100.1	100.3	100.0	100.1	103.0	100.0	100.3
	Feb	100.6	99.6	100.2	100.1	100.4	100.2	100.6	100.0	100.1	103.1	100.1	100.6
	Mar	101.0	99.9	100.3	100.3	100.6	100.3	100.5	100.0	100.4	103.1	100.6	100.4
	Apr	101.4	101.2	100.4	100.3	100.7	100.3	100.7	100.0	100.2	103.1	100.8	104.9
	May	102.0	102.4	100.5	100.4	100.8	100.4	100.8	100.0	100.2	103.1	101.1	104.9
	June	102.0	103.2	100.7	100.9	101.6	100.5	100.6	100.1	100.2	103.1	101.3	105.0

		All Items Index	National Inflation Rate	Monthly Change	Towns & Cities Index	Urban Village Index	Rural Villages Index	Annual Inflation		
								Towns & Cities	Urban Villages	Rural Villages
		100.0	%	%	0.38	0.41	0.21	%	%	%
2016	Jan	91.2	2.7	0.4	90.3	91.8	91.8	2.7	2.6	2.8
	Feb	91.2	3.0	(0.0)	90.1	91.9	92.0	2.9	3.2	3.1
	Mar	91.5	3.0	0.3	90.5	92.2	92.1	3.1	3.2	2.7
	Apr	92.3	2.8	0.9	91.4	93.0	92.7	2.6	3.2	2.7
	May	92.4	2.8	0.1	91.5	93.1	92.9	2.7	3.1	2.5
	Jun	92.6	2.7	0.2	91.7	93.2	93.1	2.5	2.8	2.6
	Jul	92.7	2.7	0.1	91.8	93.3	93.6	2.5	2.7	3.0
	Aug	92.9	2.6	0.2	92.0	93.4	93.7	2.6	2.6	2.9
	Sept	93.1	2.8	0.3	92.3	93.5	93.9	2.8	2.7	2.9
	Oct	93.3	2.7	0.2	92.4	93.7	94.2	2.5	2.7	3.1
	Nov	93.5	2.9	0.3	92.6	93.9	94.6	2.7	2.9	3.5
	Dec	93.6	3.0	0.1	92.7	93.9	94.7	2.8	3.0	3.5
2017	Jan	94.0	3.1	0.4	93.1	94.3	95.1	3.1	2.8	3.6
	Feb	94.2	3.4	0.2	93.3	94.6	95.5	3.5	2.9	3.8
	Mar	94.7	3.5	0.5	93.8	95.0	95.9	3.6	3.0	4.2
	Apr	95.4	3.4	0.7	94.4	95.8	96.5	3.3	3.0	4.2
	May	95.6	3.5	0.2	94.6	96.0	96.8	3.4	3.1	4.1
	Jun	95.8	3.5	0.2	94.8	96.2	96.8	3.4	3.3	3.9
	Jul	95.9	3.4	0.1	95.0	96.3	97.0	3.5	3.2	3.7
	Aug	96.0	3.4	0.1	95.0	96.4	97.1	3.4	3.2	3.6
	Sep	96.1	3.2	0.1	95.2	96.3	97.2	3.2	3.0	3.4
	Oct	96.1	3.0	0.0	95.2	96.2	97.3	3.0	2.7	3.3
	Nov	96.2	2.9	0.2	95.5	96.4	97.4	3.1	2.6	3.0
	Dec	96.6	3.2	0.4	96.0	96.6	97.6	3.6	2.9	3.1
2018	Jan	97.0	3.1	0.4	96.4	97.0	97.8	3.6	2.9	2.8
	Feb	97.2	3.2	0.3	96.7	97.3	98.1	3.6	2.9	2.7
	Mar	97.4	2.8	0.1	96.8	97.5	98.1	3.3	2.6	2.3
	Apr	98.7	3.4	1.3	98.4	98.7	99.1	4.2	3.1	2.7
	May	98.7	3.3	0.1	98.5	98.8	99.1	4.1	3.0	2.5
	Jun	98.8	3.1	0.0	98.6	98.8	99.0	4.0	2.7	2.3
	Jul	98.8	3.1	0.1	98.7	98.9	99.1	3.9	2.7	2.1
	Aug	98.8	3.0	(0.0)	98.6	98.9	99.1	3.8	2.6	2.0
	Sept	98.9	2.9	0.0	98.7	98.9	99.1	3.6	2.7	2.0
	Oct	99.5	3.6	0.7	99.5	99.5	99.7	4.4	3.4	2.5
	Nov	99.9	3.8	0.4	99.9	99.8	100.0	4.7	3.6	2.6
	Dec	100.0	3.5	0.1	100.0	100.0	100.0	4.2	3.5	2.5
2019	Jan	100.3	3.5	0.3	100.4	100.3	100.2	4.1	3.4	2.4
	Feb	100.5	3.3	0.1	100.6	100.5	100.3	4.0	3.2	2.3
	Mar	100.6	3.3	0.1	100.6	100.6	100.3	3.9	3.2	2.2
	Apr	101.2	2.5	0.6	101.2	101.3	100.8	2.9	2.6	1.7
	May	101.3	2.6	0.2	101.4	101.5	100.9	2.9	2.7	1.8
	June	101.5	2.8	0.2	101.6	101.6	101.1	3.0	2.9	2.1

APPENDIX E: CONSUMER PRICE INDEX BY TRADEABILITY (December 2018 = 100.0)

		All Items		Non-Tradeables		Domestic Tradeables		Imported Tradeables		All Tradeables	
		Index	Inflation	Index	Inflation	Index	Inflation	Index	Inflation	Index	Inflation
Weights		100.00		42.29		15.46		42.26		57.71	
2016	Jan	91.2	2.7	89.3	7.3	94.7	2.6	91.0	-0.3	92.0	0.8
	Feb	91.2	3.0	89.3	7.0	95.1	2.5	90.7	0.7	92.0	1.4
	Mar	91.5	3.0	89.8	7.3	95.3	2.1	91.0	0.8	92.2	1.3
	Apr	92.3	2.8	91.5	6.1	95.9	2.3	91.3	0.9	92.6	1.4
	May	92.4	2.8	91.7	6.0	96.1	2.5	91.4	0.8	92.7	1.4
	Jun	92.6	2.7	92.1	5.4	96.0	2.5	91.5	0.9	92.8	1.5
	Jul	92.7	2.7	92.2	5.4	96.2	2.8	91.6	0.7	93.0	1.5
	Aug	92.9	2.6	92.2	5.3	96.6	3.0	91.7	0.6	93.2	1.5
	Sept	93.1	2.8	92.7	4.9	96.7	3.5	91.9	0.9	93.3	1.9
	Oct	93.3	2.7	92.8	4.9	97.0	3.1	92.1	0.9	93.5	1.9
	Nov	93.5	2.9	92.8	4.9	97.4	3.4	92.4	1.2	93.9	2.1
	Dec	93.6	3.0	92.8	4.3	97.6	3.6	92.4	1.8	94.0	2.5
2017	Jan	94.0	3.1	93.1	4.3	98.8	4.3	92.6	1.7	94.5	2.6
	Feb	94.2	3.4	93.2	4.3	99.3	4.3	92.9	2.4	94.8	3.1
	Mar	94.7	3.5	93.4	3.9	99.7	4.6	93.6	2.9	95.4	3.5
	Apr	95.4	3.4	94.9	3.8	100.0	4.3	93.8	2.7	95.7	3.3
	May	95.6	3.5	95.0	3.7	100.2	4.3	94.0	2.9	95.9	3.4
	Jun	95.8	3.5	95.4	3.6	100.1	4.2	94.2	2.9	96.0	3.4
	Jul	95.9	3.4	95.6	3.7	99.9	3.8	94.4	3.0	96.1	3.3
	Aug	96.0	3.4	95.6	3.7	99.8	3.4	94.6	3.1	96.2	3.2
	Sept	96.1	3.2	95.9	3.5	99.2	2.6	94.7	3.1	96.1	3.0
	Oct	96.1	3.0	96.0	3.4	99.1	2.2	94.8	3.0	96.1	2.8
	Nov	96.2	2.9	95.9	3.4	98.9	1.6	95.2	3.1	96.4	2.7
	Dec	96.6	3.2	96.3	3.7	98.9	1.3	95.8	3.7	96.8	3.0
2018	Jan	97.0	3.1	96.7	3.9	99.3	0.5	96.1	3.8	97.1	2.8
	Feb	97.2	3.2	96.9	4.0	99.6	0.3	96.4	3.8	97.4	2.8
	Mar	97.4	2.8	97.1	4.0	99.8	0.1	96.5	3.1	97.5	2.2
	Apr	98.7	3.4	100.4	5.8	99.9	-0.1	96.7	3.1	97.7	2.1
	May	98.7	3.3	100.5	5.7	100.0	-0.2	96.8	3.0	97.7	2.0
	Jun	98.8	3.1	99.7	4.4	99.9	-0.2	97.5	3.6	98.2	2.4
	Jul	98.8	3.1	99.8	4.4	99.9	-0.1	97.6	3.4	98.3	2.3
	Aug	98.8	3.0	99.8	4.4	99.8	0.0	97.6	3.2	98.3	2.2
	Sept	98.9	2.9	100.0	4.3	99.8	0.6	97.5	2.9	98.2	2.1
	Oct	99.5	3.6	99.9	4.1	99.7	0.7	99.1	4.5	99.3	3.3
	Nov	99.9	3.8	99.9	4.2	99.9	1.0	99.9	4.9	99.9	3.7
	Dec	100.0	3.5	100.0	3.9	100.0	1.1	100.0	4.4	100.0	3.4
2019	Jan	100.3	3.5	100.2	3.6	100.8	1.5	100.3	4.4	100.4	3.4
	Feb	100.5	3.3	100.2	3.5	100.9	1.4	100.5	4.2	100.6	3.3
	Mar	100.6	3.3	100.3	3.3	101.3	1.5	100.6	4.2	100.7	3.3
	Apr	101.2	2.5	101.3	0.9	101.8	1.9	100.8	4.3	101.1	3.5
	May	101.3	2.6	101.3	0.8	102.3	2.4	101.0	4.4	101.4	3.7

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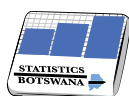7. The Canadian Consumer Price Index Reference Paper, December 2015

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