



A GUIDE TO THE CONSUMER PRICE INDEX OF MALDIVES 2019

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CHAPTER 1: INTRODUCTION

CPI – A WIDELY USED
ECONOMIC INDICATOR
RELEASED MONTHLY

The Consumer Price Index (CPI) is one of the most important macroeconomic indicators for Maldives. It measures the overall changes in the prices paid by Maldivian households for the goods and services they purchase. The CPI is used as a general measure of inflation. It is a key input used by the government and monetary authorities to make and assess macroeconomic policy. The CPI is also used to index or adjust certain government benefits and can be used to adjust long-term building contract. With the increase in globalization further importance is given to the CPI as in input to assess economic performance and adjust trade contracts.

The CPI is compiled by the National Bureau of Statistics (NBS) on a monthly basis and is published on the last Monday of the month following the end of the reference period. For example, CPI data for January are disseminated on last Monday of February. CPI data are disseminated in the publication Consumer Price Index, Maldives. In addition, detailed CPI data are posted in English and Dhivehi on the NBS website

http://statisticsmaldives.gov.mv/cpi/.

CPI NOW COMPRISES 4 LINKED SERIES

The CPI was first compiled in 1985 with assistance from the International Monetary Fund (IMF). When weights are introduced, it is necessary to link the old and new indexes to maintain a continuous time series of data. The CPI now comprises four linked indexes. Weights were previously updated in 1995, 2004, and 2012.

THE GUIDE

The purpose of this guide is to provide a broad overview of the concepts and methods used to compile the CPI to allow users to better understand these data and how they can be used. The CPI has an index reference period of August 2019, a weight reference period of 2016, and a price reference period of 2018/2019.

ACKNOWLEDGEMENT

Improvements to the CPI are needed to reflect international best practices. We acknowledge the guidance of Mr. Brian Graf in making essential improvements in the new CPI series. His assistance was provided to NBS under the auspices of the IMF South Asia Regional Training and Technical Assistance Center (SARTTAC).

CHAPTER 2: WHAT IS THE CPI?

CPI measures price change of a fixed basket of goods

The new CPI basket consist of 295 items which are broadly representative of the expenditure of all Maldivian households. Prices are collected monthly for a fixed basket of goods and services and used to calculate the percentage increase/decrease in the prices paid over time by households for this fixed basket. Simply speaking if you were to go shopping and put important items in a basket and purchase them, you would be able to see changes in prices if you were to monitor the same basket of items from one month to the next. The CPI follows the same representative sample of items each month to provide a measure of pure price change.

CPI reference population is all private households in Maldives

The CPI measures price change for a fixed basket of goods and services selected based on the expenditure of all private households in Maldives. Prices are collected for a sample of geographic areas that include Male and four major islands. The sample of islands broadly represent price change in all islands outside of Male. It is not practical to collect prices from all areas and islands due to resource constraints and the availability of prices. For many of the goods and services included in the CPI basket, residents in the islands make purchases from Male or from

the bigger islands nearby. Under these circumstances, collecting prices from these 4 major islands and Male is considered to be a good representation of price change for all areas in Maldives.

Index reference period is 100

The CPI is expressed as an index number. Index numbers allow the measurement of change across time. In the index reference period, the index is assigned a value of 100. August 2019 is the index reference period for the Maldives CPI. For example: if the index level is 105 in September 2019, it means that compared to the index reference period (August), prices have increased 5% on average. Alternatively, if the September 2019 index is 95, it means that there is a 5% decrease in price compared to the index reference month.

CPI measures price movements

It is important to note that the CPI does not measure price levels. It measures price changes (i.e percentage changes). You cannot directly compare the index for one particular item with index for another item and conclude that one item is less or more expensive relative to the other item. Users should not interpret CPI figures as actual prices. For example, if the index for Fish is 105 and the index for clothing is 107 in a given month, you cannot conclude that the price of clothing is higher than fish in that month. Rather it means that percentage increase in the price of

clothing is higher relative to the percentage increase in clothing.

CPI is not a cost of living index

The CPI is frequently referred to as a cost-of-living index, but the CPI is not a true cost-of-living index. The CPI measures the relative changes in prices for a fixed basket of goods and services, whereas a cost-of-living index measures the change in the minimum expenditure needed to maintain a certain standard of living.

In practice, no statistical agency compiles a true cost-of-living index. In fact, a true cost-of-living index is theoretical in nature and cannot be compiled in practice. A cost-of-living index requires both price and current household consumption each period as well as an assessment of households' welfare. Household welfare depends on a variety of physical and social factors that have no connection with prices.

The CPI measures the overall change in the prices of goods and services and is often used as a proxy measure of the cost of living or purchasing power.

How is the CPI used

The CPI affects almost all Maldivians because of the many ways in which it is used. The two most common uses of the CPI are:

- As a macroeconomic indicator. The CPI, and other index series derived from CPI data, is used by the Government, central bank and businesses to monitor and evaluate levels of inflation in the Maldivian economy. Inflation and inflationary expectations play a major role in determining various aspects of Government and central banks' economic policy, and in the business and investment decisions of private firms and individuals.
- The value of many types of fixed payments such as social welfare benefits and construction contracts can be reduced over time when prices rise. The CPI may be used to adjust these payments to counter the effects of inflation. This process is referred to as 'indexation'. Indexation arrangements are also often applied to rental agreements, insurance coverage and welfare payments.

There are different price indices available

The CPI is the best known price index; but is not the ONLY one produced by National Bureau of Statistics. Examples of other price indexes include:

- Producer Price Index
- Construction Material Price Index

Having determined that a price index is required for a particular application, it is important to carefully consider the range of available indexes and select the index which best meets the specific requirement. While NBS can provide technical and statistical guidance, it does not provide advice on indexation practices and it cannot tell users which index they should use. These are matters for users to determine

CPI Basket of goods and services

CPI basket based on HIES 2016 data

The CPI basket should represent consumer spending habits. There may be substantial changes to consumer spending patterns over time due to changes in the economy and lifestyles of the population. It is essential that these changes are reflected in the CPI.

The representative goods and services included in the CPI basket are selected based on expenditure data reported by households during the Household Income Expenditure Survey (HIES). The CPI basket includes a representative sample of items and their associated weights. A sample of

goods and services were selected using data from

the HIES 2016. Index weights were developed using HIES 2016 expenditure data.

A representative CPI basket

For practical reasons, the basket cannot include every item bought by households, but it does include the most significant or representative items. It is NOT necessary to include all the items people by since many related items are subject to similar price changes. The idea is to select REPRESENTATIVE items so that the index reflects price changes for a much wider range of goods and services than is actually priced. Examples of the types of items included in the CPI basket are shown in Appendix 1.

It is important that the CPI not only reflects pure price changes rather than quantity or quality changes, but also includes all representative consumer goods and services.

The following factors are considered to ensure a broadly representative basket that measures pure price change:

Keep the representative basket of goods and services fixed;

Ensure price collectors collect price for the same representative variety each month to avoid quality and quantity changes;

Include all items that are bought by consumers with no distinction between "luxury" or "necessity" goods or services;

Include all consumer goods without giving consideration to moral or social judgement. For example betel leaves may be considered as morally unacceptable by some societies. However, betel leaves are part of everyday expenditure in Maldives and should be included; and Replace items that are evolving (mainly technological items) and goods that are permanently unavailable.

CPI Divisions

The Classification of Individual Consumption According to Purpose (COICOP) 1999 was adopted in the CPI 2012=100. However, a new version of COICOP has been endorsed and for the updated CPI, COICOP 2018 classification has been implemented. COICOP 1999 included 12 major divisions, while COICOP2018 includes the following 13 major divisions: These are:

- Food and non-alcoholic beverages
- Alcoholic beverages, tobacco and arecanut
- Clothing and footwear
- Housing, water, electricity and other fuels
- Furnishing, household equipment's, carpets and floor coverings
- Health
- Transport
- Information and communication
- Recreation, sport and culture

- Education services
- Restaurants and accommodation services
- Insurance and financial services
- Personal care, social protection and miscellaneous goods and services

These 13 divisions are further divided into 40 groups. The groups are further broken down into 80 classes and again into 136 sub-classes. See Appendix 2 for a complete hierarchy of these breakdowns with their relative importance. Indexes are computed at the sub-class level and aggregated upwards to arrive at the overall index.

In addition to the indexes for Male, Atolls, and the Republic, the NBS publishes alternative aggregations to meet data user needs. For example, the NBS compiles and disseminates each of the indices excluding fish.

The relative importance of Items in CPI basket

The overall CPI provides a measure of the average rate of prices change. To calculate an average measure of this typed recognizes that some items are more important than others in terms of expenditure. Price changes for the more important items should have a greater influence on the average rate of price change than price changes for less important items. The relative importance of the goods

and services in the CPI is determined by the relative household expenditure on each product. For example, how much more households spend on fish than on vegetables on average.

CPI weights

Measures of expenditure on each of the CPI division, groups, classes, and sub-classes are obtained primarily form the HIES; however, some adjustments are made to HIES data to account for under/over reporting, items out of scope, and any other anomalies. For example, the HIES data included expenditure abroad which was removed since Maldives follows the domestic concept in CPI compilation. Also, any expenditure for business purposes and expenditure on major renovations or construction was removed because they are out of scope for the CPI. The adjusted HIES data are used to derive a 'weight' for each sub-class. These are then aggregated upward to for weights for each class, group, and division.

The CPI weights reflect the relative expenditure of the reference population as a whole and not those of any particular type of size of household. The weights reflect the expenditure of households and not the expenditure of an 'average household'. CPI relative importance are shown in Appendix 2.

Underlying quantities are fixed

Although the weights are expressed in terms of expenditure shares, it is not the expenditure shares (where expenditure is given by the product of quantity and price) that are held constant (or fixed) from one period to the next. What are held constant are the quantities of products under pinning these expenditures such as the number of liters of petrol purchased by households during the HIES period.

Updating of weights

Expenditure weights for the CPI should be updated at least every five years with the timing linked to the availability of HIES data. The introduction of new weights resulting from these updates is released as a new CPI series. Updating the weights is a key objective of the overall CPI process.

Collecting prices for the CPI

The collection of prices in Male and the four selected islands are done by NBS staff that are trained for price collection. While the majority of prices used in the calculation of the CPI are collected by personally visiting outlets and observing prices, some prices are collected by telephone, from website, or administrative sources.

CPI covers different types of outlets

CPI covers all types of retail outlets were consumers purchase goods and services. These outlets include corner shops, markets, restaurants, educational institutions, business entities etc. Special consideration is given to allocate the sample of outlets to include different geographic areas so that the outlet sample will reflect the spending of all consumers. There is a fixed schedule to follow in price collection so that a particular outlet is visited the same time each month to ensure consistency in price collection.

The CPI is based on over a 9,500 price quotations

The frequency of price collections depends upon price volatility. Volatility refers to prices that change on a more frequent basis. Volatile prices are collected on a more frequent basis to provide a more reliable estimate of price change for the month. Most of the items in the CPI are collected on a monthly basis except for fish. The prices for fish are volatile and collected twice per week.

Representative varieties were selected within the sampled outlets. The NBS staff asked respondents to identify the most popular variety or brand when selecting items to price. This method for selecting the variety sample is the most commonly used method. By selecting varieties within the outlet, the variety sample more broadly reflects differences in tastes and preferences, as well as socioeconomic factors. Different varieties are preferred

depending upon location and this method allows for these differences to be reflected in the CPI. Maldives imports most items included in the CPI basket and same varieties may not be available from one month to the next. Therefore, it's important to develop detailed specifications to ensure we are comparing "like with like" each month. A detailed specification includes all the relevant price determining characteristics for a specific variety (e.g. brand, size, etc). Reasons are obtained in case of significant price changes, which helps verify data and provides more context in the analysis of index changes. Price quotations that are unavailable for six consecutive months are replaced and items that are permanently unavailable are replaced immediately.

For electricity and water services, a sample of representative user profiles have been developed in conjunction with respondents to survey the prices changes. The sample of different user profiles are received from the service providers and the average bill for each month is compiled using the relevant tariffs.

Rent Survey

One major improvement introduced in the updated CPI is the rental survey. A sample of approximately 340 rental units have been selected for price collection in the updated CPI. Previously, only 20 rental units were included in the sample of rental units. Rent prices are collected directly from the tenant. The sample has been divided into six, equally representative, panels of more than 50 units each. Each month, prices are collected from one panel. Given the nature of rental contracts in Maldives, it is not necessary to collect prices from all sampled units each month. Each panel is visited twice per year. The price collected is compared to the price for that unit reported six months earlier. For example, in January rent is collected from panel 1 and the collected prices are compared to those reported by the same units for July of the previous year. This results in the calculation of a six-month change, which must be converted into a one month change by taking the 6th root of the six-month change.

Price collection for the new rent survey began in September 2019. During the first round of price collection, each sampled unit was asked to report rent paid in the current month and the rent paid six months ago. For those tenants that did not occupy the unit six months earlier, the landlord or owner was contacted to collect the previous rent paid. Beginning in 2021, 20 or 25 percent of the sample will be rotated out and replaced by new rental

units. This not only contributes to minimizing respondent burden, but also allows for the sample to include new construction and new areas. On-going land reclamation and construction on the islands around Male' have increased the housing stock. A rotation policy will ensure these newly built areas are included in the rent sample in a timelier manner.

Prices collected are what people actually pay

The prices used to compile the CPI reflect the final amount paid by consumers for a good or service. The price collected is not just the posted shelf price, as these prices may not include required taxes such as GST and they may not be updated regularly. All taxes and surcharges required for a consumer to purchase a good or service are include in the price collected for the CPI. Prices collected also include any relevant reductions resulting from government subsidies. Additionally, all discounts, sales, and promotions are reflected in the CPI as long as these are widely available. Restricted discounts or promotions are not included. If an item is subject to a discount or promotion at the time of price collection, the collected reflects the discount or sale price. The actual prices paid by households are collected each month.

Quality Changes

The CPI must measure pure price changes only. All changes due to differences in quality or quantity should not be reflected in the CPI. Potential changes in quality are identified when a price determining characteristic changes. The price determining characteristics are defined in the detailed item specification. In practice, the goods and services change over time. New models are introduced with updated features or the size of chocolate bar changes from 450 grams to 400 grams for the same price. These are changes in quality, not price changes. If prices change due to changes in quality, we cannot say that it's a real price change.

Quality adjustments

The basic concept underlying CPI compilation is the matched model method. This method ensures that each period, we compare like with like. It is the basic underlying principle of a fixed basket index and guides different aspects of CPI compilation. It's important to ensure that we are comparing the price of the same item from one month to another. Detailed item specifications are developed that include all relevant price determining characteristics. Each month, data collectors review the detailed item specifications and note any changes. When a price determining characteristic changes, there is need to review the changes and determine whether there is need to make an adjustment to ensure the index reflects

only pure price change and not changes due to differences in quality. For example, a new model may have an additional feature which the old one didn't, such as surround sound or faster processing speed. We can estimate the price of the new feature and adjust the old models price with the change. This adjustment ensures we continue to compare like with like and preserve the matched models method.

Quantity changes will affect the price. In such a case we cannot compare prices directly. For example, canned tuna is priced in three consecutive periods (period 1, 2, and 3). The price of canned tuna in period 1, 2, 3 is MVR 20, MVR 21 and MVR 21 respectively. However, the weight of the canned tuna falls from 185g to 180g in period 3 (it remained the same in period 1 and 2). The price has increased from period 1 to 2 but remains the same in period 3. Nevertheless, we cannot compare the price of period 2 and 3 directly since these are not same products as there is a change in the weight. Therefore, we need to make a quality adjustment. Otherwise, if we ignore the change in quantity, the CPI does not reflect the implicit or indirect price increase which occurred as a result of the decreased size.

Determining the price of some quality changes are more straightforward, while other adjustments can be more

complicated. For example, changes in bus fares due to improved punctuality of the bus are difficult to determine. It's problematic to assign a dollar value for such changes in quality. One may even argue it's a pure price change. And some adjustments can be even complex; however, these adjustments are essential to be made to the best of knowledge.

Periodic review of the CPL

It is routine and essential to review the CPI each time new data are available from the HIES. The expenditure data will identify not only changes in spending patterns that will affect the weights, but also new goods and services previously not priced in CPI. Additionally, this routine review facilitates the introduction of methodological improvements and increase index coverage wherever possible.

How does the CPI relate to you?

The CPI does not reflect changes in the prices experienced by a single individual. Different peoples' purchasing patterns and choices are different. Thus, it's important to understand that the CPI measures the average changes in prices paid by all resident households in Maldives as a whole. You should not expect the CPI to reflect changes in prices encountered by an individual person or household. The CPI has a fixed basket broadly representative of all resident households. It's near to impossible that a

household will purchase all goods and services included in the basket in a given month. For example, some households may use purchase basmati rice and another may purchase normal rice. Both of these items are included in CPI as the basket broadly represents the expenditure patterns of the entire resident population.

Data from the HIES 2016 were used to develop weights that reflect the expenditure patterns of all households in Maldives. These data were collected over six months, excluding Ramadan, and each household was asked to recall their expenditure and consumption for the previous week for food items. Longer recalling periods for nonfood items (past 3 months, 6 months and year) were used. Aggregate expenditures of households were used to derive the CPI basket and develop the associated relative importance and weights.

The HIES 2016 sample allowed for the development of weights for Male as well as the Atolls. All households, urban and rural, were included in the HIES sample. The expenditure for Male and Atolls were combined to develop the basket and weights for the Republic. Thus, the CPI is designed in such a way that it broadly represents all households in Maldives.

The CPI cannot be used to measure or compare price levels

The CPI is not intended to measure changes in price levels. Rather it measures the relative change in prices paid by households over time. In Maldives, the price levels in the islands may differ from the price level of Male' (capital city). Also we cannot compare price levels of Male' and islands based on the CPI. For example if the index in Male' is 107.0 and in Hithadhoo is 105.0, we can't conclude prices in Male' are more expensive compared to Hithadhoo. Rather, we can say that prices have risen more in Male' than in Hithadhoo.

CHAPTER 3: USING THE CPI

Interpreting index numbers

Why use index numbers?

Deriving useful price measures for single, specific items such as yellowfin tuna is relatively straightforward. An estimate of the average price per kilogram in each period is sufficient for all applications. Price change between any two periods would simply be calculated by direct reference to the respective average prices.

However, if the requirement is for a price measure that covers a number of diverse items, the calculation of a 'true' average price is both complicated and of little real meaning. For example, consider the problem of calculating and interpreting an average price for two commodities as diverse as fish and washing machines. Because of this, price measures such as the CPI are typically presented in index form.

Description of a price index

Price indices provide a suitable and reliable way of presenting price information that overcomes problems associated with averaging across diverse items. The index number for a particular period represents the average price in that period relative to the average price in some base period for which, by convention, the average price has been set to equal 100.0.

A price index number on its own has little meaning. For example, the CPI All groups' index number of 100.2 in

October 2019 says nothing more than the average price in October 2019 was 0.2% higher than the average price in the base period September 2019 (when the index was set to 100.0). The value of index numbers stems from the fact that index numbers for any two periods can be used to directly calculate price change between the two periods.

Percentage change is different to a change in index points

Movements in indices from one period to any other period can be expressed either as changes in index points or as percentage changes. The following example illustrates these calculations for the All CPI level between the two time periods. The same procedure is applicable for any two periods.

Table 1: Computation of Change in index points and percentage change

	Index number
September 2019	100.75
Less September 2018	91.00
Change in index points	9.75
Percentage change	9.75/91.0x100=10.71%

Movements in the CPI best measured using percentage changes

For most applications, movements in price indices are best calculated and presented in terms of percentage change. Percentage change allows comparisons in movements that are independent of the level of the index. For example, a change of 2 index points when the index number is 120 is equivalent to a percentage change of 1.7%, but if the index number was 80 a change of 2 index points would be equivalent to a percentage change of 2.5% - a significantly

different rate of price change. Only when evaluating change from the base period of the index will the points change numerically identical to the percentage change.

The percentage change between any two periods must be calculated, as in the above example, by direct reference to the index numbers for the two periods. Adding the individual monthly percentage changes will not result in the correct measure of long term percentage changes. That is the percentage change between september of the previous year and the september of current year typically will not equal the sum of the 12 month percentage changes. The error becomes more noticeable the longer the period covered and the greater the rate of change in the index. This can readily be verified by starting with an index of 100 and increasing it by 10% (multiplying by 1.1) each period. After four periods, the index will equal 146.4 delivering an annual percentage change of 46.4%, not the 40% given by adding the twelve monthly changes of 1

Calculating index numbers for periods longer than months

Although the CPI is compiled and published as a series of monthly index numbers, its use is not restricted to the measurement of price change between particular months.

Because a monthly index number can be interpreted as representing the average price during the month, index numbers for periods spanning more than one month can

be calculated as the simple (arithmetic) average of the relevant monthly indices. For example, an index for the year 2019 would be calculated as the arithmetic average of the index numbers for January to December of 2019.

This characteristic of index numbers is particularly useful. It allows for comparison of average prices in one year (calendar or financial) with those in any other year. It also enables prices in say the current month compared with the average prevailing in some prior year.

Analysing the CPI

The monthly change in the Overall CPI represents the weighted price change of all the items included in the CPI. While publication of index numbers and percentage changes for components of the CPI are useful in their own right, these data are often not sufficient to enable important contributors to overall price change to be reliably identified. What is required is some measure that encapsulates both an item's price change and its relative importance in the index.

Points contribution and points contribution change

If the Overall CPI index number is thought of as being derived as the weighted average of indexes for all its component items, the index number for a component multiplied by its weight to the Overall index results in what is called its 'points contribution'. It follows that the change in a component item's points contribution from one period

to the next provides a direct measure of the contribution to the change in the Overall CPI index resulting from the change in that component's price.

Information on points contribution and points contribution change (or points change) is of immense value when analysing sources of price change and for answering 'what if' type questions.

Data rounding conventions

To ensure consistency in the data produced from the CPI, it is necessary to adopt a set of consistent rounding conventions or rules for the calculation and presentation of data. The conventions strike a balance between maximising the usefulness of the data for analytical purposes and retaining a sense of the underlying precision of the estimates. These conventions need to be taken into account when using CPI data for analytical or other special purposes.

Index numbers are always published to a reference base of 100.0. Index numbers and percentage changes are always published to two decimal places, with the percentage changes being calculated from the index numbers. Points contributions are also published to two decimal places, with points contributions change being calculated from the points contributions. Index numbers for periods longer

than a month (e.g. Annual) are calculated as the simple arithmetic average of the relevant monthly index numbers.

Some examples of using CPI data

Question 1: What would MVR200 in 2011 be worth in the September 2019?

Response 1: This question is best interpreted as asking 'How much need to be spent in September 2019 to purchase what could be purchased in 2011 for MVR 200?' As no specific commodity is mentioned, what is required is a measure comparing the general level of prices in September 2019 with the general level of prices in the year 2011. The Overall CPI would be an appropriate choice.

Because CPI index is available for the year 2011 the only step is to multiply the initial MVR amount by the ratio of the index for September 2019 to the index for 2011.

The answer is then given by:

 $MVR200 \times 92.19/72.61 = MVR 253.93$

Question 2: What would be the impact of a 10% increase in fish prices on the Overall CPI in October 2019?

Response 2: Two pieces of information are required to answer this question; the overall index number for October

2019 (100.75), and the October 2019 points contribution for fish (0.07).

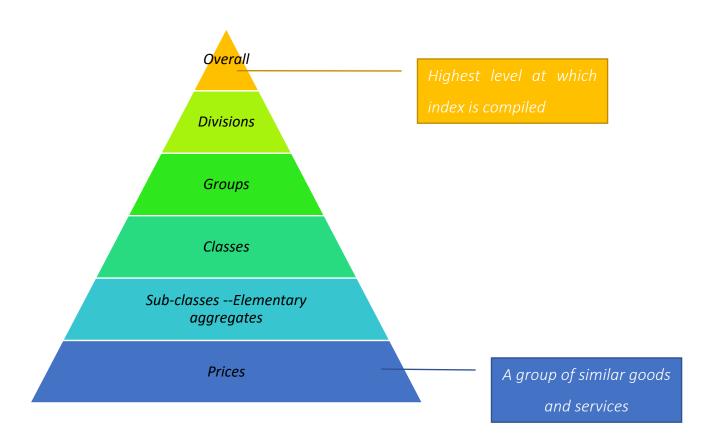
An increase in fish prices of 10% would increase fish points contribution by $0.07 \times 10/100 = 0.007$ index points which would result in an overall index number of 100.76 for October 2019, an increase of 0.007%.

Question 3: How does the CPI reflect changes in electricity prices?

Response 3: The Overall CPI measures price change for all goods and services. The example below sets out the price change for electricity compared to the overall CPI over the last 5 years. This shows that the price of electricity has increased much slower than the headline number.

Table 2: Computation of percentage change

	Overall Index	Electricity Index	
September 2014	66.6	94.77	
September 2018	91.00	95.94	
September 2019	100.75	100.00	
Percentage change – 1 year ago (overall)			
(100.75-91.00)/91.00x100 = 10.7%			
Percentage change – 1 year ago (electricity)			
(100.00-95.94)/95.	94x100 = 4.2%		
Percentage change – 5 year ago (overall)			
(100.75-66.60)/66.600x100 = 51.3%			
Percentage change – 5 year ago (electricity)			
(100.00-94.77)/94.	77x100 = 5.5%		



CHAPTER 4: CALCULATING THE CPI

Overview

The compilation of the CPI mainly comprises four stages to determine the average change in cost of the fixed basket of goods and services. These stages include:

- Dividing the total expenditures into divisions, groups, classes and sub-classes using COICOP 2018 and identifying representative varieties items to be priced below the sub-class level.
- Collection of prices for the varieties identified
- Calculating price movements
- Compiling the average change in the cost of the basket

Identifying items to price

Firstly, using COICOP 2018 the expenditures derived from the HIES 2016 was allocated to divisions, groups, classes, and sub-classes. It's not feasible or practical to price all the items identified from the HIES 2016. Therefore, a cut off sample of 5% was used to choose which different expenditure sub-classes would be included in the basket. Items with high expenditure but was problematic were not selected. For example, while expenditure on private cars had a very high expenditure, there is not readily available market or shop to collect prices.

A balance has to be kept when choosing the basket. Key considerations include availability of budgetary and staff resources, what is representative, and whether prices are available from period to period. For illustration, a stylised example for the Rice expenditure class of the CPI is shown below:

Based on information reported in the 2016 HIES, the annual expenditure on rice by all households in Male' is estimated at MVR244 thousand. Furthermore, breakdown on different types rice is obtained from HIES. The results are shown in the following table.

Table 3: Computation of market share of type of rice

Type of rice		Market Share	HIES 2016 data ¹ _/
1.	Rice, semi- or wholly milled	40	969,865
2.	Rice flakes, aveli	0	682
3.	Rice, basmati	21	509,659
4.	Rice, red	2	38,206
5.	rice, normal	38	924,321
Total Ric	ce	100	2,442,733

¹_/ after adjusting to inflation

The next stage involves determining the rice for which price samples should be collected. This is generally not simple. In reaching decisions about precisely which items to include in price samples, the prices statisticians need to strike a balance between the cost of data collection (and processing) and the accuracy of the index. Factors taken into account include the relative significance of individual items, the extent to which different items are likely to exhibit similar price behavior, and any practical problems associated with measuring prices to constant quality. In this example with rice, it is decided to price 2 types of rice, and hence 3 types of rice are left unpriced.

Generally, a reasonable outcome where selection is a must would be to decide to construct price samples for some specific items (based on their significance) and separate price samples would not be constructed for items which have relatively small market shares. Generally, price

samples would also not be constructed for items which would prove difficult to price due to constant quality differences. For example, kitchen cupboard set is an item that has a very high expenditure share. However, this item is very much customized to the needs of the buyer and not readily available to price. Therefore it was also not chosen to price as these items will be subject to constant quality changes.

Elementary aggregates must have a price sample

The lowest level with an expenditure weights is referred to as the elementary aggregate. The expenditure aggregates for the items that are not to be explicitly priced are reallocated across the elementary aggregates in such a way as to best preserve the representativeness of the price samples. In this example, 2 types of rice are selected to be priced and hence allocation is done in two stages. First, the expenditure aggregate for unselected items would be allocated to similar items. The expenditure aggregates of items which are dissimilar would be allocated, on a proportional basis, across the selected items elementary aggregates.

Table 4: Allocation of expenditure aggregates to elementary aggregates

		Expenditure Aggregates			
Type of rice		Initial	Stage 1	Stage 2	Elementary Aggregate
1.	Rice, semi- or wholly milled	969,865			
2.	Rice flakes, <u>Aveli</u>	682	682		
3.	Rice, basmati	509,659	811,042	759,073	Rice, Basmati
4.	Rice, red	38,206	38,206		
5.	Rice, normal	924,321	1,470,912	1,376,661	Long grain rice
Total Rice		2,442,733	2,320,842	2,135,734	•

The rationale for this allocation is as follows. The price behaviour for all items 2 and 4 (Rice flakes, aveli, Rice, Red) is likely to be best represented by the average price behaviour of all other rice.

Identifying outlets to price

When the items to be priced are chosen it is important to identify outlets for the basket of goods to be priced. When choosing outlets to price its important to not only to price large shops but include corner shops, markets, large shops etc. It is also important that the outlets chosen are geographically dispersed so that all consumers spending patterns can be inclusive in CPI calculations. Online shopping has grown in importance over time; however, the current outlet sample does not include online retailers and outlets. Additional data are need to identify which online retailers and outlets should be included. For the next CPI

update, the outlet sample will be expanded to include online retailers and outlets.

Collecting price data Selecting respondents

A survey is conducted by the NBS staff to identify the most popular outlets where items are available. A key goal is to select those outlets popular with households for purchases. This enables the price collectors to identify the respondents for different items. Each month the prices are collected from the same respondents for the same items. These outlets identified are representative outlets across each island.

Selecting varieties to price

From the outlets to be priced, NBS price staff identify the items to be priced. The items priced are specific to the sampled outlets. Outlets are asked to identify the most frequently sold varieties. For instance, whether a specific quantity is more sold or whether a specific brand or flavor is sold more often. This is to capture the most representative varieties purchased by consumers. This method ensures a more broadly representative sample of varieties and minimizes the number of missing prices. In Maldives, the availability of varieties differs from one outlet to the next. Selecting varieties within outlets ensures a more complete set of prices each month. For example, 1 kg of basmati rice could be most popular in one outlet while it may be possible that in another outlet a 5

kg bag of basmati rice is sold most frequently. Thus items may differ from outlet to outlet. The variety sample is reviewed frequently to ensure they continue to remain the most popular.

The detailed Structured Product Descriptions (SPDs) allow data collectors to check for any changes in the price determining characteristics. Monthly prices are compared with the previous month's price and any large changes are re-checked and explanations noted on the price collection form for confirmation.

Estimating price movements for elementary aggregates

Price samples are constructed for the sole purpose of estimating price movements for each elementary aggregate. These estimates of price movements are required to revalue the expenditure aggregates to current period prices in much the same way as illustrated in the example on using price indexes (see 3.15–3.17 above). This is achieved by applying the period to period price movement to the previous period's expenditure aggregate for each elementary aggregate. It provides an estimate of the cost of acquiring the base period quantity of the elementary aggregate in the current month.

There is no single correct method for calculating the price movement for a sample of observations. Different methods involve choices as to:

- Whether the price movement for the sample is calculated as the average of each period's prices or as the average of price movements between periods for each item;
- The type of average used.

The two commonly used forms of average are the arithmetic mean and the geometric mean. For a sample of n price observations, the arithmetic mean is the sum of the individual prices divided by the number of observations, while the geometric mean is the nth root of the product of the prices. For example, the arithmetic mean of 4 and 9 is 6.5, while the geometric mean is 6 (the geometric mean is always less than or equal to the arithmetic mean).

Geometric mean is the preferred method

The method of calculating price change at the elementary aggregate level is important to the accuracy of the price index. The arithmetic average of price relatives (APR) approach has been shown to be more prone to (upward) bias than the other two methods. In line with various overseas countries, the NBS is using the geometric mean formula for calculating elementary aggregate index numbers, for all of the elementary aggregates. The reasoning behind using geometric means is outlined below.

Geometric mean allows for substitution

At the elementary aggregate level of the index it is usually impractical to assign a specific weight to each individual price observation. The geometric mean applies implicit or indirect weights such that the expenditure shares of each observation are the same in each period. In other words the geometric mean formula implicitly assumes households buy less (more) of items that become more (less) expensive relative to the other items in the sample. The other formulas assume equal quantities in both periods, (RAP) or equal expenditures in the first period (APR), with quantities being inversely proportional to first period prices. The geometric mean therefore appears to provide a better representation of household purchasing behavior than the alternative formula in those elementary aggregates where there is likely to be high substitutability in consumption within the price sample.

Calculating the current cost of the basket

Once price movements are calculated for each elementary aggregate, they can be used to derive the expenditure aggregates that are then summed to derive the current cost of the basket. It is from the expenditure aggregates that index numbers are calculated at any level of the index. The stylized example above is continued to show the process for the rice expenditure class.

Table 5: Computation of price movement from period 1 to period 2

	Elementary	Price movement	Elementary
	aggregate		aggregate
	Period 1	Period 1 to Period 2 1_/	Period 2
Elementary aggregate			
Basmati rice	868,185	0.9929	862,060
Long grain rice	1,574,548	1.0031	1,579,408
Total Rice	2,442,733		2,441,467

¹_/ Geometric mean of price relatives

The expenditure aggregates are revalued to period 2 prices by applying the movements between period 1 and period 2. The expenditure aggregate for the expenditure class rice is the sum of the expenditure aggregates for the elementary aggregates comprising the expenditure class. Summing the elementary aggregates says that in period 2 it would cost 2,441,467 rufiyaa to buy the volume of rice in period 1 that cost 2,442,733 rufiyaa. The price change for rice between period 1 and 2 is simply the ratio of these expenditure aggregates, that is, a price decrease of -0.1% (2,441,467/2,442,733). Thus if the price index for rice was 100.0 in period 1, it would be 99.9 in period 2.

The derivation of the expenditure class movement as shown above is mathematically equivalent to a weighted average of the price movements for the individual elementary aggregates. The same formula is used at higher levels of the index.

Similar procedures are used to derive price movements at higher levels of the CPI. For example, the current period cost of purchasing items in the Bread and cereal products sub—group of the CPI is obtained by summing the current period expenditure aggregates of the expenditure classes rice, bread, pasta products,, pastry-cook products and other cereal products. The ratio of the current and previous period expenditure aggregates for this sub—group gives the price movement for the sub—group.

Points contributions are also calculated using the expenditure aggregates. The current period points contribution of a CPI component, for example the expenditure class rice, is the current period expenditure aggregate for rice relative to the expenditure aggregate for the overall CPI multiplied by the current period overall index number.

The CPI publication does not show the expenditure aggregates, but rather the index numbers derived from the expenditure aggregates. Expenditure aggregates vary considerably in size and showing them would make the publication difficult to read and interpret. The published index numbers and points contributions are a convenient presentation of the information.

APPENDIX I

CONSUMER PRICE INDEX BASKET, 2019

FOOD AND NON-ALCOHOLIC BEVERAGES (98 ITEMS)

	FOOD (88 ITEMS)
	FOOD (88 ITEMS)
1	Normal Rice
2	Basmati Rice
3	Wheat Flour
4	Whole Wheat Flour
5	Bread(sliced, loaf)
6	Buns
7	Cream crackers
8	Marie Biscuits
9	Other crackers
10	Sandwich biscuits
11	Apollo
12	Corn Flakes
13	Pasta
14	Noodles
15	Packet Cakes
16	Faaroshi, hikki banas
17	Pop Corn
18	Frozen Beef
19	Frozen Chicken
20	Sausage
21	Tuna
22	Reef Fish
23	Dried fish (Hikimas)
24	Smoked Fish
25	Canned fish
26	Rihaa Kuru

27	Masmirus
28	Thelli faiy/ Masfaiy
29	Processed liquid milk
30	Processed low fat milk
31	Milk Powder
32	Baby milk powder
33	Condensed Milk
34	Cheese
35	Cream Cheese
36	Yoghurt
<i>37</i>	Milo
38	Flavoured milk pkt
<i>39</i>	Eggs
40	Olive Oil
41	Cooking Oil
42	Butter
43	Bananas
44	Mango
45	Papaya/ Falho
46	Breadfruit
47	Young Coconut, Kurumba
48	Coconut
49	Lime
50	Oranges
51	Mandarin
52	Apples
<i>53</i>	Grapes
54	Watermelon/ Karaa
55	Dates- Dried
<i>56</i>	Fruit cocktail, canned
57	Lettuce
58	Tomato

59	Cucumber
60	Green Chilly
61	Githeyo Mirus
<i>62</i>	Pumpkin, Barabo
63	Beans, Tholhi
64	Carrot
65	Garlic
66	Onion
67	Potatoes
68	Potato chips
69	Mugu
70	Baked beans canned
71	Tomato paste
72	Sugar-White
73	Honey
74	Peanut butter
<i>75</i>	Chocolate Bars
76	Chocolate crumpy
77	Nutella
78	Ice cream
<i>79</i>	Cup Noodles
80	Baby food
81	Tomato Sauce
<i>82</i>	Chilli Sauce
83	Chill and Garlic Sauce
84	Salt
<i>85</i>	Ginger
86	Dried Chilli Packed
<i>87</i>	Curry Powder Packed
88	Chicken ring & alike
	NON-ALCOHOLIC BEVERAGES (10 ITEMS)
89	Readymade Fruit Juices

47 |

<i>90</i>	Tang Juice & alike
91	Sunquick & alike
92	Coffee
93	Coffee mix(3 in 1 & alike)
94	Coffee (Chilled ready to drink)
95	Tea bags
96	Mineral Water
97	Carbonated soft drinks
98	Energy Drinks
	NON FOOD (197 ITEMS)
	TOBACCO & ARACANUT (5 ITEMS)
99	Cigarettes
100	Tobacco Leaves
101	Raw Arecanuts
102	Supari
103	Killi
	CLOTHING (20 ITEMS)
104	Clothing materials
105	School Uniform material
106	Men's long pants
107	Men's Jeans
108	Men's shorts
109	Men's shirt
110	Men's T-Shirt
111	Men's Underwear
112	Women's pants
113	Women's Jeans
114	Women's top
115	Women's underwear
116	Women's dresses
117	Children's clothing
118	Baby clothes

110	Co outo via itama
119	Sports uniform
120	School socks
121	Scarf
122	School uniform tailoring cost
123	Tailoring fee
	FOOTWEAR (7 ITEMS)
124	Men's shoes
125	Men's slippers
126	Women's slippers
127	Women's shoes
128	School shoes
129	Baby Shoes
130	Children's' shoes
	HOUSING (17 ITEMS)
131	One bedroom
132	Two bedroom
133	Three bedroom
134	Four bedroom
135	Plywood sheets
136	Cement
137	Tiles
138	Roofing tin sheets
139	Toilet bowl
140	Sand
141	Building blocks
142	Water-based paint
143	Labor cost for repair
144	Water bill
145	Waste disposal
146	Electricity bill
147	Gas
	FURNISHINGS (34 ITEMS)

	Bed
149 V	<i>Nardrobe</i>
150 /	Mattress
151 S	Sofa set
152	Dining table set
153 E	Bed room set
154 (Curtain
155 E	Blinds
156	Bedsheets
157 7	Towel
158 F	Refrigerator
159 S	Stove
160 (Oven
161 V	Washing machine
162 A	Air condition
163 F	Rice cooker
164	Mixer
165 /	Microwave
166	Blender
167 F	-an
168 c	consumer goods repair
169 F	Plates
170	Drinking Glass
171 S	Spoon/folk
172 F	Pots and pans
173 V	Nater pump
174 L	ight Bulb
175	Detergent
176 F	Fabric Softner
177	Dish wash
	Toilet cleaner
179 S	Sheltox/ Hitspray

180	Air Freshner
181	Domestic servant (Casual and full-time)
	HEALTH (18 ITEMS)
182	Cholesterol medicine
183	Diabetic Medication
184	Blood Pressure medication
185	Heart Medication
186	Pain Killer medication
187	Cough Syrup
188	Panadol
189	Digene
190	Strepsil
191	Balm
192	Citrizen
193	Vitamin C
194	contact lense and solution
195	General Doctor outpatient
196	Specialist Doctor outpatient
197	hospital stay inpatient
198	lab diagnostics outpatient
199	Other hospital charges outpatient
	TRANSPORT (11 ITEMS)
200	Motor cycle
201	Bicycle
202	Petrol
203	Engine Oil
204	Vehicle cleaning
205	Bus Tickets
206	Taxi Fare
207	Domestic Airfare
208	International Airfare
209	Ferry Tickets

210	Other Sea Transport
	COMMUNICATION (10 ITEMS)
211	Mobile phone
212	Computer
213	Laptop
214	TV
215	Hard Disk
216	Pen drive
217	Land line bill
218	Mobile phone bill
219	Internet bill
220	Cable TV and like
	RECREATION (13 ITEMS)
221	Game software
222	Toys
223	Pets
224	Aerobics/Gym and alike
225	Cinema Ticket
226	Photography/Photo developing
227	Past paper books
228	Story books
229	Pencils
230	Pens
231	Gum bottles
232	Color box/ Color pencils
233	Note books
	EDUCATION (12 ITEMS)
234	Pre-school fees
235	Primary school fees (1-7)
236	Secondary school fees (8-10)
237	Higher secondary school fees (11-12)
238	Quran class fees

220	Dra school tuition foos
239	Pre-school tuition fees
240	Primary school tuition fees (1-7)
241	Secondary school tuition fees (8-10)
242	Higher secondary school tuition fees (11-12)
243	Tertiary educational tuition fees
244	Other course fees (cake course fee)
245	Other course fees (English course fee)
	RESTAURANTS (7 ITEMS)
246	Nasigoreng
247	Pizza
248	Coffee
249	Lunch pack
250	Breakfast
251	Shorteats Kulhi
252	Shorteats Foni
	ACCOMODATION (1 ITEM)
253	Accommodation services
	INSURANCE (2 ITEMS)
254	Health insurance
255	Vehicle insurance
	MISCELLANEOUS GOODS AND SERVICES (40 ITEMS)
256	Trimmer/ Electric shaver
257	Tooth brush
258	Razor blade
259	Shampoo
260	conditioners
261	baby shampoo
262	Soap
263	shower gel
264	baby shower gel
265	Tooth paste
266	Facial wash

267	Deodorant
268	Cologne /baby cologne
269	Perfume
270	Hair cream / gel/ moose and alike
271	Lotion
272	baby lotion
273	Hair oil
274	Facial cream
275	Lipstick
276	Diapers/ Nappy
277	Sanitary Pads
278	White powder/ pink powder
279	Body spray
280	Tissue
281	Handwash
282	Hair cut in salon
283	Barber services
284	Eyebrow threading
285	Facial cleaning
286	Hair coloring
287	Ladies Makeup
288	Manicure
289	Wrist watch
290	Handbag
291	Wallet
292	School bags
293	Interval bags
294	Printing
295	Photo copying

APPENDEIX II

DESCRIPTION		REPUBLIC	MALE'	ATOLLS
TOTAL HOUSEHOLD E	EXPENDITURE ON GOODS AND SERVICES	100.00	100.00	100.00
1. FOOD AND NON	-ALCOHOLIC BEVERAGES	21.97	18.42	26.69
FOOD		19.52	15.86	24.38
Bread ar	nd cereals	3.93	2.93	5.26
C	Cereals	1.06	0.71	1.53
F	Flour of cereals	0.54	0.33	0.82
E	Bread and bakery products	1.39	1.12	1.75
E	Breakfast cereals	0.13	0.15	0.11
	Macaroni, noodles, couscous and similar pasta	0.53	0.42	0.67
Į.	products			
C	Other cereal and grain mill products	0.28	0.21	0.37
Meat		1.08	1.05	1.11
L	ive land animals	0.00	0.00	0.00
۸	Meat, fresh, chilled or frozen	0.84	0.84	0.84
٨	Meat, dried, salted, in brine or smoked	0.00	0.00	0.00
C	Offal, blood and other parts of slaughtered	0.00	0.00	0.00
C	animals, fresh, chilled or frozen, dried, salted, in			
Ŀ	orine or smoked			
^	Meat, offal, blood and other parts of slaughtered	0.24	0.21	0.27
C	animals' preparations			
Fish		4.10	3.25	5.23
F	ish, live, fresh, chilled or frozen	1.99	1.62	2.47
F	ish, dried, salted, in brine or smoked	1.34	1.08	1.67
F	ish preparations	0.78	0.55	1.09
C	Other seafood, live, fresh, chilled or frozen	0.00	0.00	0.00
C	Other seafood, dried, salted, in brine or smoked	0.00	0.00	0.00
C	Other seafood preparations	0.00	0.00	0.00
L	ivers, roes and offal of fish and of other seafood	0.00	0.00	0.00
i	n all forms			

Milk, other dairy products and eggs	3.72	2.97	4.72
Raw and whole milk	0.19	0.21	0.16
Skimmed milk	0.09	0.11	0.08
Other milk and cream	1.72	1.19	2.42
Non-animal milk	0.00	0.00	0.00
Cheese	0.09	0.10	0.09
Yoghurt and similar products	0.28	0.25	0.31
Milk-based dessert and beverages	0.91	0.75	1.13
Eggs	0.44	0.36	0.54
Other dairy products	0.00	0.00	0.00
Oils and fats	0.64	0.37	1.01
Vegetable oils	0.56	0.29	0.92
Butter and other fats and oils derived from milk	0.08	0.07	0.09
Margarine and similar preparations	0.00	0.00	0.00
Other animal oils and fats	0.00	0.00	0.00
Fruit	1.94	1.88	2.03
Dates, figs and tropical fruits, fresh	0.84	0.82	0.86
Citrus fruits, fresh	0.47	0.42	0.54
Stone fruits and pome fruits, fresh	0.25	0.23	0.27
Berries, fresh	0.00	0.00	0.00
Other fruits, fresh	0.24	0.27	0.21
Frozen fruit	0.00	0.00	0.00
Fruit, dried and dehydrated	0.06	0.06	0.05
Nuts, in shell or shelled	0.00	0.00	0.00
Fruit and nuts ground and other preparations	0.08	0.08	0.09
Vegetables	2.08	1.71	2.58
Leafy or stem vegetables, fresh or chilled	0.06	0.08	0.02
Fruit-bearing vegetables, fresh or chilled	0.72	0.64	0.83
Green leguminous vegetables, fresh or chilled	0.08	0.07	0.09
Other vegetables, fresh or chilled	0.65	0.48	0.88
Tubers, plantains and cooking bananas	0.20	0.17	0.23

Pulses	0.07	0.05	0.09
Other vegetables, tubers, plantains and cooking	0.00	0.00	0.00
bananas, dried and dehydrated			
Vegetables, tubers, plantains and cooking	0.00	0.00	0.00
bananas, frozen			
Vegetables, tubers, plantains, cooking bananas	0.31	0.22	0.43
and pulses ground and other preparations			
Sugar, jam, honey, chocolate and confectionery	1.17	1.06	1.32
Cane and beet sugar	0.41	0.23	0.65
Other sugar and sugar substitutes	0.00	0.00	0.00
Jams, fruit jellies, marmalades, fruit purée and	0.14	0.12	0.17
pastes, honey			
Nut purée, nut butter and nut pastes	0.07	0.07	0.06
Chocolate, cocoa, and cocoa-based food products	0.37	0.46	0.25
Ice, ice cream and sorbet	0.19	0.18	0.19
Other sugar confectionery and desserts n.e.c.	0.00	0.00	0.00
Food products n.e.c	0.85	0.64	1.13
Ready-made food	0.05	0.05	0.05
Baby food	0.09	0.07	0.11
Salt, condiments and sauces	0.26	0.21	0.32
Spices, culinary herbs and seeds	0.40	0.27	0.57
Other food products n.e.c.	0.06	0.04	0.08
NON-ALCOHOLIC BEVERAGES	2.45	2.56	2.30
Fruit and vegetable juices	0.42	0.32	0.55
Fruit and vegetable juices	0.42	0.32	0.55
Coffee and coffee substitutes	0.42	0.32	0.55
Coffee and coffee substitutes	0.42	0.32	0.55
Tea, maté and other plant products for infusion	0.11	0.09	0.15
Tea, maté and other plant products for infusion	0.11	0.09	0.15
Cocoa drinks	0.00	0.00	0.00
Cocoa drinks	0.00	0.00	0.00

Water	1.15	1.57	0.60
Water	1.15	1.57	0.60
Soft drinks	0.18	0.13	0.24
Soft drinks	0.18	0.13	0.24
Other non-alcoholic beverages	0.16	0.14	0.19
Other non-alcoholic beverages	0.16	0.14	0.19
SERVICES FOR PROCESSING PRIMARY GOODS FOR FOOD AND	0.00	0.00	0.00
NON-ALCOHOLIC BEVERAGES			
Services for processing primary goods for food and non-	0.00	0.00	0.00
alcoholic beverages			
Services for processing primary goods for food	0.00	0.00	0.00
and non-alcoholic beverages			
2. TOBACCO AND NARCOTICS	1.75	1.27	2.40
TOBACCO	1.35	1.01	1.79
Tobacco	1.35	1.01	1.79
Cigarettes	1.31	1.00	1.71
Cigars	0.00	0.00	0.00
Other tobacco products	0.04	0.01	0.08
NARCOTICS	0.41	0.26	0.60
Narcotics	0.41	0.26	0.60
Narcotics	0.41	0.26	0.60
3. CLOTHING AND FOOTWEAR	4.34	3.79	5.07
CLOTHING	3.34	2.89	3.94
Clothing materials	0.50	0.39	0.65
Clothing materials	0.50	0.39	0.65
Garments	2.46	2.21	2.79
Garments for men or boys	1.24	1.09	1.44
Garments for women or girls	0.65	0.64	0.66
Garments for infants (0 to under 2 years)	0.38	0.32	0.45
School uniforms	0.19	0.16	0.24
Other articles of clothing and clothing accessories	0.16	0.12	0.21

0.12 0.0 0.00 0.00 0.00 0.00 0.00	0.00
22 0.17	
	0.28
0.00	
	0.00
2.2 0.17	0.28
0.90	1.14
0.90	1.14
36 0.35	0.36
36 0.32	0.41
29 0.23	0.37
0.00	0.00
0.00	0.00
31.89	12.13
93 23.63	1.02
93 23.63	1.02
93 23.63	1.02
0.00	0.00
0.00	0.00
0.00	0.00
73 0.50	3.37
31 0.34	2.60
0.34	2.60
0.00	0.00
0.16	0.78
12 010	0.78
0.16	0.78
	00 0.90 36 0.35 36 0.32 29 0.23 00 0.00 31.89 23.63 23 23.63 23 23.63 20 0.00 00 0.00 31 0.50 31 0.34 31 0.34 30 0.00 00 0.00

WATER SUPPLY AND MISCELLANEOUS SERVICES RELATING TO	2.12	3.43	0.39
THE DWELLING			
Water supply	1.87	3.15	0.18
Water supply through network systems	1.87	3.15	0.18
Water supply through other systems	0.00	0.00	0.00
Refuse collection	0.25	0.28	0.2
Refuse collection	0.25	0.28	0.2
Sewage collection	0.00	0.00	0.0
Sewage collection through sewer systems	0.00	0.00	0.0
Sewage collection through onsite sanitation	0.00	0.00	0.00
systems			
Other service s relating to the dwelling n.e.c.	0.00	0.00	0.0
Maintenance charges in multi-occupied buildings	0.00	0.00	0.0
Other services related to dwelling	0.00	0.00	0.0
ELECTRICITY, GAS AND OTHER FUELS	5.63	4.34	7.3
Electricity	4.71	3.75	5.9
Electricity	4.71	3.75	5.9
Gas	0.92	0.60	1.3
Natural gas through networks	0.00	0.00	0.0
Liquefied hydrocarbons	0.92	0.60	1.3
Liquid fuels	0.00	0.00	0.0
Liquid fuels	0.00	0.00	0.0
Solid fuels	0.00	0.00	0.0
Coal, coal briquettes and peat	0.00	0.00	0.0
Wood fuel, including pellets and briquettes	0.00	0.00	0.0
Charcoal	0.00	0.00	0.0
Other solid fuels	0.00	0.00	0.0
Other energy for heating and cooling	0.00	0.00	0.0
Other energy for heating and cooling	0.00	0.00	0.0
FURNISHING HOUSEHOLD EQUIPMENTS. CARPETS, AND OTHER	6.74	5.46	8.4

FURNITURE, FURNISHINGS, AND LOOSE CARPETS	1.32	1.21	1.47
Furniture, furnishings and loose carpets	1.32	1.21	1.47
Household furniture	1.32	1.21	1.47
Garden and camping furniture	0.00	0.00	0.00
Lighting equipment	0.00	0.00	0.00
Furnishings, loose carpets and rugs	0.00	0.00	0.00
Repair, installation and hire of furniture, furnishings and	0.00	0.00	0.00
loose carpets			
Repair, installation and hire of furniture,	0.00	0.00	0.00
furnishings and loose carpets			
HOUSEHOLD TEXTILES	0.44	0.37	0.52
Household textiles	0.44	0.37	0.52
Furnishing fabrics and curtains	0.09	0.08	0.10
Bed linen and bedding	0.28	0.24	0.34
Table linen and bathroom linen	0.07	0.06	0.08
Other household textiles	0.00	0.00	0.00
Repair, hire and sewing services of household textiles	0.00	0.00	0.00
Repair, hire and sewing services of household	0.00	0.00	0.00
textiles			
HOUSEHOLD APPLIANCES	2.21	1.66	2.93
Major household appliances, whether electric or not	1.39	1.01	1.90
Major kitchen appliances	0.48	0.33	0.68
Major laundry appliances	0.37	0.27	0.50
Heaters, air conditioners	0.54	0.40	0.72
Cleaning equipment	0.00	0.00	0.00
Other major household appliances	0.00	0.00	0.00
Small household appliances	0.44	0.29	0.64
Small appliances for cooking and processing of	0.31	0.21	0.44
food			
Small appliances for preparing beverages	0.00	0.00	0.00
Other small household appliances	0.13	0.08	0.19

Repair, installation and hire of household appliances	0.38	0.37	0.39
Repair, installation and hire of household	0.38	0.37	0.39
appliances			
GLASSWARE, TABLEWARE AND HOUSEHOLD UTENSILS	0.33	0.26	0.43
Glassware, tableware and household utensils	0.33	0.26	0.43
Glassware, crystal-ware, ceramic ware and	0.14	0.11	0.19
chinaware			
Cutlery, flatware and silverware	0.05	0.04	0.07
Kitchen utensils and articles	0.14	0.12	0.17
Repair and hire of glassware, tableware and	0.00	0.00	0.00
household utensils			
TOOLS AND EQUIPMENT FOR HOUSE AND GARDEN	0.34	0.14	0.61
Motorized tools and equipment	0.12	0.03	0.25
Motorized tools and equipment	0.12	0.03	0.25
Non-motorized tools and miscellaneous accessories	0.22	0.11	0.36
Non-motorized tools	0.00	0.00	0.00
Miscellaneous accessories	0.22	0.11	0.36
Repair and hire of motorized and non-motorized tools	0.00	0.00	0.00
and equipment			
Repair and hire of motorized and non-motorized	0.00	0.00	0.00
tools and equipment			
GOODS AND SERVICES FOR ROUTINE HOUSEHOLD	2.10	1.81	2.48
MAINTENANCE			
Non-durable household goods	1.21	0.86	1.67
Household cleaning and maintenance products	0.98	0.72	1.31
Other non-durable household goods	0.23	0.13	0.36
Domestic services and household services	0.89	0.95	0.81
Domestic services by paid staff	0.89	0.95	0.81
Other household services	0.00	0.00	0.00
6. HEALTH	6.63	5.19	8.54
MEDICINES AND HEALTH PRODUCTS	3.14	2.57	3.91

Medicines	2.53	2.05	3.18
Medicines, vaccines and other pharmaceutical	2.53	2.05	3.18
preparations			
Medical products	0.00	0.00	0.00
Medical diagnostic products	0.00	0.00	0.00
Prevention and protective devices	0.00	0.00	0.00
Treatment devices for personal use	0.00	0.00	0.00
Assistive products	0.61	0.52	0.73
Assistive products for vision	0.61	0.52	0.73
Assistive products for hearing and	0.00	0.00	0.00
communication			
Assistive products for mobility and daily living	0.00	0.00	0.00
Repair, rental and maintenance of medical and assistive	0.00	0.00	0.00
products			
Repair, rental and maintenance of medical and	0.00	0.00	0.00
assistive products			
OUTPATIENT CARE SERVICES	0.87	0.64	1.17
Preventive care services	0.00	0.00	0.00
Immunization services	0.00	0.00	0.00
Other preventive services	0.00	0.00	0.00
Outpatient dental services	0.00	0.00	0.00
Dental preventive services	0.00	0.00	0.00
Other outpatient dental services	0.00	0.00	0.00
Other outpatient care services	0.87	0.64	1.17
Outpatient curative and rehabilitative services	0.87	0.64	1.17
Outpatient long-term care services	0.00	0.00	0.00
INPATIENT CARE SERVICES	0.24	0.18	0.32
Inpatient curative and rehabilitative services	0.24	0.18	0.32
Inpatient curative and rehabilitative services	0.24	0.18	0.32
Inpatient long-term care services	0.00	0.00	0.00

OTHER HEALTH SERVICES	2.38	1.80	3.14
Diagnostic imaging services and medical laboratory	2.38	1.80	3.14
services			
Diagnostic imaging services and medical	2.38	1.80	3.14
laboratory services			
Patient emergency transportation services and	0.00	0.00	0.00
emergency rescue			
Patient emergency transportation services and	0.00	0.00	0.00
emergency rescue			
7. TRANSPORT	8.09	6.66	10.01
PURCHASE OF VEHICLES	3.08	3.00	3.18
Motor cars	0.00	0.00	0.00
New motor cars	0.00	0.00	0.00
Second-hand motor cars	0.00	0.00	0.00
Motorcycles	2.99	2.98	3.00
Motorcycles	2.99	2.98	3.00
Bicycles	0.09	0.02	0.19
Bicycles	0.09	0.02	0.19
Animal drawn vehicles	0.00	0.00	0.00
Animal drawn vehicles	0.00	0.00	0.00
OPERATION OF PERSONAL TRANSPORT EQUIPMENT	0.75	0.68	0.86
Parts and accessories for personal transport equipment	0.00	0.00	0.00
Tyres	0.00	0.00	0.00
Parts for personal transport equipment	0.00	0.00	0.00
Accessories for personal transport equipment	0.00	0.00	0.00
Fuels and lubricants for personal transport equipment	0.67	0.60	0.76
Diesel	0.00	0.00	0.00
Petrol	0.57	0.53	0.62
Other fuels for personal transport equipment	0.00	0.00	0.00
Lubricants	0.10	0.07	0.15

Maintenance and repair of personal transport	0.09	0.08	0.09
equipment			
Maintenance and repair of personal transport	0.09	0.08	0.09
equipment			
Other services in respect of personal transport	0.00	0.00	0.00
equipment			
Services for parking	0.00	0.00	0.00
Toll facilities	0.00	0.00	0.00
Driving lessons, tests, licences, and road	0.00	0.00	0.00
worthiness tests			
Hire of personal transport equipment without	0.00	0.00	0.00
driver			
PASSENGER TRANSPORT SERVICES	4.26	2.98	5.97
Passenger transport by railway	0.00	0.00	0.00
Passenger transport by train	0.00	0.00	0.00
Passenger transport by rapid transit and tram	0.00	0.00	0.00
Passenger transport by road	0.56	0.66	0.42
Passenger transport by bus and coach	0.05	0.05	0.04
Passenger transport by taxi and hired car with	0.51	0.61	0.39
driver			
Passenger transport for students to and from	0.00	0.00	0.00
school			
Other passenger transport by road	0.00	0.00	0.00
Passenger transport by air	2.55	1.77	3.60
Passenger transport by air, domestic	1.44	0.74	2.37
Passenger transport by air, international	1.11	1.02	1.22
Passenger transport by sea and inland waterway	1.15	0.56	1.95
Passenger transport by sea and inland waterway	1.15	0.56	1.95
Combined passenger transport	0.00	0.00	0.00
Combined passenger transport	0.00	0.00	0.00
Other purchased transport services	0.00	0.00	0.00

Other purchased transport services	0.00	0.00	0.00
TRANSPORT SERVICES OF GOODS	0.00	0.00	0.00
Postal and courier services	0.00	0.00	0.00
Letter handling services	0.00	0.00	0.00
Courier and parcel delivery services	0.00	0.00	0.00
Other transport of goods	0.00	0.00	0.00
Removal and storage services	0.00	0.00	0.00
Delivery of goods	0.00	0.00	0.00
8. INFORMATION AND COMMUNICATION	10.11	9.33	11.15
INFORMATION AND COMMUNICATION EQUIPMENT	2.23	1.89	2.68
Fixed telephone equipment	0.00	0.00	0.00
Fixed telephone equipment	0.00	0.00	0.00
Mobile telephone equipment	0.91	0.88	0.95
Mobile telephone equipment	0.91	0.88	0.95
Information processing equipment	0.53	0.43	0.66
Computers, laptops and tablets	0.53	0.43	0.66
Peripheral equipment and its consumable	0.00	0.00	0.00
components			
Equipment for the reception, recording and reproduction	0.60	0.39	0.87
of sound and vision			
Equipment for the reception, recording and	0.60	0.39	0.87
reproduction of sound and vision			
Unrecorded recording media	0.19	0.19	0.19
Unrecorded recording media	0.19	0.19	0.19
Other information and communication equipment and	0.00	0.00	0.00
accessories			
Other information and communication	0.00	0.00	0.00
equipment			
Other information and communication	0.00	0.00	0.00
accessories			
SOFTWARE EXCLUDING GAMES	0.00	0.00	0.00

Software	0.00	0.00	0.00
Software	0.00	0.00	0.00
INFORMATION AND COMMUNICATION SERVICES	7.88	7.43	8.47
Fixed communication services	0.06	0.08	0.04
Fixed communication services	0.06	0.08	0.04
Mobile communication services	5.46	4.90	6.21
Mobile communication services	5.46	4.90	6.21
Internet access provision services and net storage services	1.13	1.28	0.93
Internet access provision services and net storage	1.13	1.28	0.93
services			
Bundled telecommunication services	0.00	0.00	0.00
Bundled telecommunication services	0.00	0.00	0.00
Repair and rental of information and communication	0.00	0.00	0.00
equipment			
Repair and rental of information and	0.00	0.00	0.00
communication equipment			
Other information and communication services	1.23	1.17	1.30
TV and radio licences and fees	0.00	0.00	0.00
Subscription to audio-visual content, streaming	1.23	1.17	1.30
services and rentals of audio-visual content			
Other information and communication services	0.00	0.00	0.00
9. RECREATION, SPORT AND CULTURE	2.53	2.44	2.66
RECREATIONAL DURABLES	0.00	0.00	0.00
Photographic and cinematographic equipment and	0.00	0.00	0.00
optical instruments			
Cameras	0.00	0.00	0.00
Accessories for photographic and	0.00	0.00	0.00
cinematographic equipment			
Optical instruments	0.00	0.00	0.00
Major durables for recreation	0.00	0.00	0.00
Camper vans, caravans and trailers	0.00	0.00	0.00

Aeroplanes, microlight aircraft, gliders, hang	0.00	0.00	0.00
gliders and hot-air balloons			
Boats, yachts, outboard motors and other water	0.00	0.00	0.00
sport equipment			
Horses, ponies, camel and dromedaries and	0.00	0.00	0.00
accessories			
Other major durables for recreation	0.00	0.00	0.00
OTHER RECREATIONAL GOODS	0.42	0.42	0.41
Games, toys and hobbies	0.42	0.42	0.41
Video game computers, game consoles, game	0.06	0.09	0.02
apps and software			
Other games, toys and hobbies	0.36	0.33	0.39
Celebration articles	0.00	0.00	0.00
Equipment for sport, camping and open-air recreation	0.00	0.00	0.00
Equipment for sport	0.00	0.00	0.00
Equipment for camping and open-air recreation	0.00	0.00	0.00
GARDEN PRODUCTS AND PETS	0.08	0.06	0.10
Garden products, plants and flowers	0.00	0.00	0.00
Garden products	0.00	0.00	0.00
Plants, seeds and flowers	0.00	0.00	0.00
Pets and products for pets	0.08	0.06	0.10
Purchase of pets	0.08	0.06	0.10
Products for pets and other household animals	0.00	0.00	0.00
RECREATIONAL SERVICES	0.20	0.31	0.04
Hire and repair of photographic and cinematographic	0.00	0.00	0.00
equipment and optical instruments			
Hire and repair of photographic and	0.00	0.00	0.00
cinematographic equipment and optical			
instruments			
Hire, maintenance and repair of major durables for	0.00	0.00	0.00
recreation			

Hire, maintenance and repair of camper vans and	0.00	0.00	0.00
caravans			
Hire, maintenance and repair of other major	0.00	0.00	0.00
durables for recreation			
Hire and repair of games, toys and hobbies	0.00	0.00	0.00
Rental of game software and subscription to	0.00	0.00	0.00
online games			
Rental and repair of games, toys and hobbies	0.00	0.00	0.00
Hire and repair of equipment for sport, camping and	0.00	0.00	0.00
open-air recreation			
Hire and repair of equipment for sport, camping	0.00	0.00	0.00
and open-air recreation			
Veterinary and other services for pets	0.00	0.00	0.00
Veterinary and other services for pets	0.00	0.00	0.00
Recreational and sporting services	0.20	0.31	0.04
Recreational and leisure services	0.00	0.00	0.00
Sporting services - practice	0.20	0.31	0.04
Sporting services - attendance	0.00	0.00	0.00
CULTURAL SERVICES	0.98	1.02	0.93
Services provided by cinemas, theatres and concert	0.40	0.57	0.17
venues			
Services provided by cinemas, theatres and	0.40	0.57	0.17
concert venues			
Services provided by museums, libraries, and cultural	0.00	0.00	0.00
sites			
Services provided by museums, libraries, and	0.00	0.00	0.00
cultural sites			
Photographic services	0.59	0.46	0.76
Photographic services	0.59	0.46	0.76
Other cultural services	0.00	0.00	0.00
Other cultural services	0.00	0.00	0.00

NEWSPAPERS, BOOKS AND STATIONERY	0.86	0.63	1.17
Books	0.40	0.32	0.50
Educational and text books	0.21	0.14	0.31
Other books	0.18	0.18	0.18
Newspapers and periodicals	0.00	0.00	0.00
Newspapers	0.00	0.00	0.00
Magazines and periodicals	0.00	0.00	0.00
Miscellaneous printed matter	0.00	0.00	0.00
Miscellaneous printed matter	0.00	0.00	0.00
Stationery and drawing materials	0.47	0.31	0.68
Stationery and drawing materials	0.47	0.31	0.68
PACKAGE HOLIDAYS	0.00	0.00	0.00
Package holidays	0.00	0.00	0.00
Package holidays	0.00	0.00	0.00
10. EDUCATION SERVICES	3.93	5.15	2.30
EARLY CHILDHOOD AND PRIMARY EDUCATION	0.38	0.58	0.11
Early childhood and primary education	0.38	0.58	0.11
Early childhood education	0.08	0.09	0.07
Primary education	0.30	0.49	0.04
SECONDARY EDUCATION	0.15	0.25	0.02
Secondary education	0.15	0.25	0.02
Secondary education	0.15	0.25	0.02
POST-SECONDARY NON-TERTIARY EDUCATION	0.00	0.00	0.00
Post-secondary non-tertiary education	0.00	0.00	0.00
Post-secondary non-tertiary education	0.00	0.00	0.00
TERTIARY EDUCATION	1.11	1.52	0.56
Tertiary education	1.11	1.52	0.56
Tertiary education	1.11	1.52	0.56
EDUCATION NOT DEFINED BY LEVEL	2.29	2.80	1.61
Education not defined by level	2.29	2.80	1.61
Tutoring	2.03	2.55	1.34

Other education not defined by level	0.26	0.25	0.27
11. RESTAURANTS AND ACCOMMODATION SERVICES	4.92	5.47	4.18
FOOD AND BEVERAGE SERVING SERVICES	4.71	5.43	3.76
Restaurants, cafés and the like	4.71	5.43	3.76
Restaurants, cafés and the like - with full service	4.71	5.43	3.76
Restaurants, cafés and the like - with limited	0.00	0.00	0.00
service			
Canteens, cafeterias and refectories	0.00	0.00	0.00
Canteens, cafeterias of universities, schools, and	0.00	0.00	0.00
kindergartens			
Other canteens, cafeterias and refectories	0.00	0.00	0.00
ACCOMMODATION SERVICES	0.20	0.04	0.42
Accommodation services	0.20	0.04	0.42
Hotels, motels, inns and similar accommodation	0.20	0.04	0.42
services			
Holiday centres, camping sites, youth hostels and	0.00	0.00	0.00
similar accommodation services			
Accommodation services of boarding schools,	0.00	0.00	0.00
universities and other educational establishments			
Other accommodation services	0.00	0.00	0.00
12. INSURANCE AND FINANCIAL SERVICES	0.11	0.14	0.07
INSURANCE	0.11	0.14	0.07
Life and accident insurance	0.00	0.00	0.00
Life and accident insurance	0.00	0.00	0.00
Insurance connected with health	0.07	0.10	0.03
Insurance connected with health	0.07	0.10	0.03
Insurance connected with the dwelling	0.00	0.00	0.00
Insurance connected with the dwelling	0.00	0.00	0.00
Insurance connected with transport	0.04	0.04	0.04
Personal transport insurance	0.04	0.04	0.04
Travel insurance	0.00	0.00	0.00

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Other insurance	0.00	0.00	0.00
Other insurance	0.00	0.00	0.00
FINANCIAL SERVICES	0.00	0.00	0.00
Financial intermediation services indirectly measured	0.00	0.00	0.00
Financial intermediation services indirectly	0.00	0.00	0.00
measured			
Explicit charges by deposit-taking corporations	0.00	0.00	0.00
Explicit charges by deposit-taking corporations	0.00	0.00	0.00
Other financial services	0.00	0.00	0.00
Remittances fees	0.00	0.00	0.00
Other financial services n.e.c.	0.00	0.00	0.00
13. PERSONAL CARE, SOCIAL PROTECTION AND MISCELLANEOUS	5.46	4.79	6.36
GOODS AND SERVICES			
PERSONAL CARE	4.99	4.33	5.87
Electric appliances for personal care	0.03	0.03	0.04
Electric appliances for personal care	0.03	0.03	0.04
Repair of electric appliances for personal care	0.00	0.00	0.00
Other appliances, articles and products for personal care	4.77	4.06	5.72
Other appliances, articles and products for	4.77	4.06	5.72
personal care			
Hairdressing salons and personal grooming	0.19	0.24	0.12
establishments			
Hairdressing	0.11	0.11	0.09
Personal grooming treatments	0.08	0.13	0.02
OTHER PERSONAL EFFECTS	0.32	0.30	0.34
Jewellery and watches	0.10	0.11	0.09
Jewellery and watches	0.10	0.11	0.09
Repair and hire of jewellery, clocks and watches	0.00	0.00	0.00
Devotional articles and articles for religious and ritual	0.00	0.00	0.00
celebrations			

Devotional articles and articles for religious and ritual celebrations	0.00	0.00	0.00
Other personal effects n.e.c.	0.22	0.20	0.25
Travel goods and articles for babies and other	0.22	0.20	0.25
personal effects n.e.c.			
Repair or hire of other personal effects n.e.c.	0.00	0.00	0.00
SOCIAL PROTECTION	0.00	0.00	0.00
Social protection	0.00	0.00	0.00
Child care services	0.00	0.00	0.00
Non-medical retirement homes for elderly persons	0.00	0.00	0.00
and residences for disabled persons			
Services to maintain persons in their private homes	0.00	0.00	0.00
Other social protection services	0.00	0.00	0.00
OTHER SERVICES	0.15	0.16	0.14
Other services	0.15	0.16	0.14
Prostitution	0.00	0.00	0.00
Religious services	0.00	0.00	0.00
Other services n.e.c.	0.15	0.16	0.14