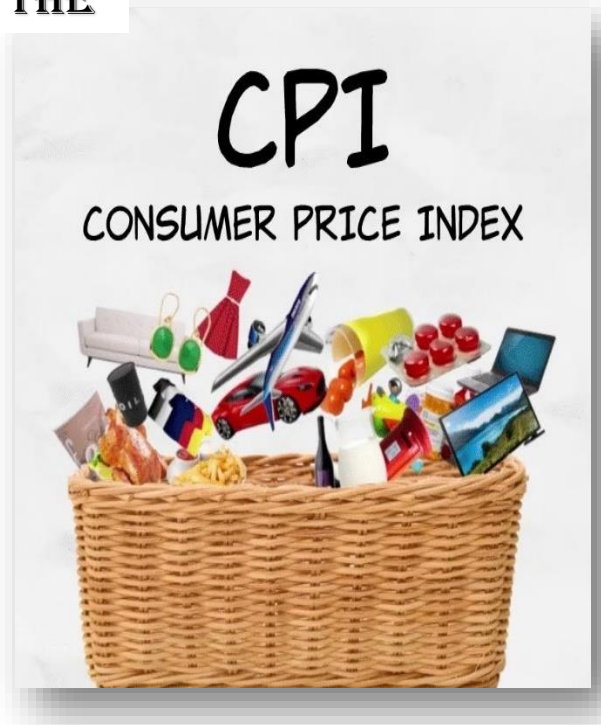


# UNDERSTANDING THE



## ? Answers to Questions ?

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**Produced by:**  
**The Statistics Department**  
**Ministry of Sustainable Development**  
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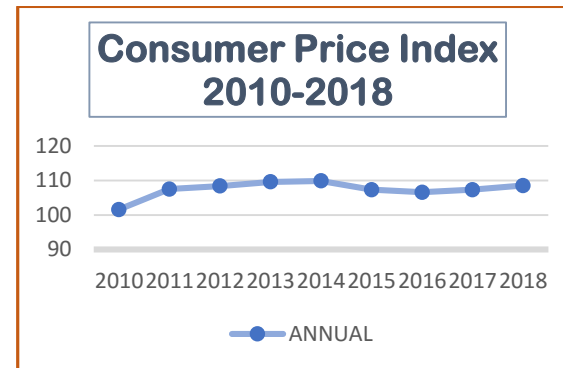
## INTRODUCTION

The Index of Consumer Price is a very important economic indicator in many countries, and St. Kitts and Nevis are no exception. In the global economy, prices are constantly changing, and market adjustments must be made at both the international and local levels. The Consumer Price Index (CPI) is one of the most popular economic indicators used worldwide to measure changes in consumer prices. As such, the CPI is used extensively by key players in government and the private sector as a tool for assessing the performance of the economy and formulating economic policies and strategies.

All residents of the Federation are affected in some way by the movements of the Consumer Price Index. Whether we participate in the economy as consumers or investors, price is one of the key regulating factors of economic activity and therefore is a major determinant of the amount and type of goods and services that can be produced and consumed over a given period. The CPI is a very powerful tool that is used extensively in collective bargaining by labour unions and employers. These groups rely heavily on the CPI to inform critical decisions regarding adjustment of wages and salaries and for negotiation of contracts. Additionally, many other price-setting arrangements such as rental agreements and insurance are often tied to movements in the CPI.

This booklet is intended to provide basic information about the CPI to the General Public. The information in this booklet serves to give users of the CPI a better understanding of the index so that it can be used more effectively for day-to-day practical applications.

## WHAT IS THE CONSUMER PRICE INDEX?



The Consumer Price Index (CPI) is a measure of the rate of change in price over time on a constant basket of goods and services. A simplistic way of understanding this is to think of a large shopping basket consisting of different kinds of goods and services purchased by a household. As the price of individual items in the basket change, the total cost of the basket will vary. The CPI is therefore a measure of change in the total cost of this basket of goods from period to period.

## BACKGROUND ON THE CPI



The CPI previously referred to as the Retail Price Index (RPI) was introduced in 1978. The pattern of expenditure that is reflected in that index was derived from a Budgetary Survey conducted in 1976. Until the new survey was conducted in 1998, the structure of the CPI was based on patterns of expenditure on goods and services of 1976, which have obviously become outmoded today. Several items in the basket had to be replaced as they were no longer available, product lines were discontinued by some

manufacturers and consumer tastes and preferences had changed over time. It was on this basis that a Household Income and Expenditure Survey was conducted in 1998, a prerequisite to the construction of a new price index.

The Household Income and Expenditure Survey is a specialized family or household living study in which data is collected on households' expenditure for goods and services used in day to day to live. In the 1998 Survey the entire population was not enumerated, rather a sample of households was randomly selected on St. Kitts and Nevis. Now, the most recent Budgetary Survey was in 2007/2008 as the Survey of living Conditions/ Household Budget Survey.

The information collected from the survey provided the foundation for the construction of the consumer price index.















## CONTENTS AND STRUCTURE OF THE CPI



The CPI comprises groups, sections and items. Items in the basket are classified by section and group. A wide variety of goods and services were included in the index to reflect the type of items purchased and utilized by many consumers within the Federation. Items chosen were in popular demand, but at the same time care had to be taken that they were not "fads" or functions of temporary or irrational demand. Based on the information collected from the 2007/2008 Survey, the goods and services in the CPI is divided into twelve (12) categories and covered approximately 420 items that households spent their income on.

The categories are as follows:

- ❖ **All Items**
- ✓ Food and Non- Alcoholic Beverages 
- ✓ Alcohol Beverages, Tobacco and Narcotics 
- ✓ Clothing and Footwear 
- ✓ Housing, Water, Electricity, Gas, and Other Fuels 
- ✓ Furnishing, Household Equipment and Routine Household Maintenance 
- ✓ Health 
- ✓ Transport 
- ✓ Communication 
- ✓ Recreation and Culture 
- ✓ Education 
- ✓ Restaurants and Hotels 
- ✓ Miscellaneous Goods and Services 

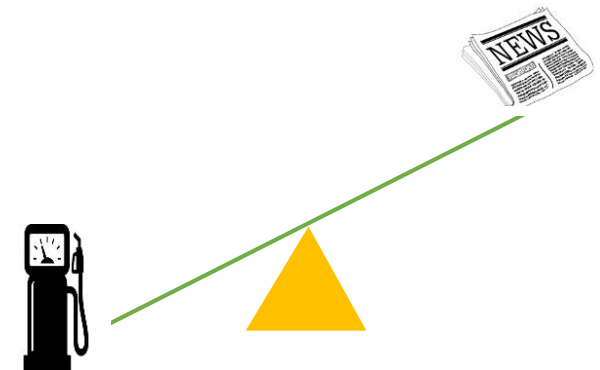
Started in October 2001 both the old Consumer Price Index and the new Consumer Price Index were run parallel for some time. It is however impossible to see a mirror image of change in the indices, since the weighting structure is different, and many more new items have been added.

## Relative Importance of Items in the Basket



The amount spent on each item of the CPI 'basket' is compared to total household spending to obtain the relative importance or 'weight' of the commodities in the 'basket'. The '12' major sections in the CPI, each have representative 'group weights'. These weights establish the impact that a price change within each section will have on the overall index.

For example, a 5% rise in the cost of petrol will have a greater impact on the household budget than a 5% increase in the price of a newspaper. This is because households spend more money on petrol (hence a higher weight) than they do on newspapers.



The following table shows the number of items in each section of the basket and the section's assigned weight. The weight associated with each section is calculated by taking the ratio of the expenditure in each section to total expenditure and multiplying by 100.

TABLE 1-Items and Weight in sections of the Basket

Sections	No. of Items	Weight
FOOD AND NON-ALCOHOLIC BEVERAGES	131	0.1758
ALCOHOL BEVERAGES, TOBACCO AND NARCOTICS	16	0.0266
CLOTHING AND FOOTWEAR	70	0.0412
HOUSING, WATER, ELECTRICITY, GAS, AND OTHER FUELS	30	0.2703
FURNISHING, HOUSEHOLD EQUIPMENT AND ROUTINE HOUSEHOLD MAINTENANCE	48	0.0598
HEALTH	09	0.0234
TRANSPORT	28	0.1583
COMMUNICATION	20	0.0831
RECREATION AND CULTURE	14	0.0286
EDUCATION	10	0.0236
RESTAURANTS AND HOTELS	13	0.0550
MISCELLANEOUS GOODS AND SERVICES	31	0.0543



## How Are Prices Collected?



Each month officers from the Statistics Department visit retail stores and service establishments to obtain price information on the items used to track and measure price change in the CPI. During each visit the officers collect prices of specific goods and services. If an item is available, the officer records its price. If the selected item is no longer available, or there have been changes in the quality or quantity of the good or service since the last time prices were collected, the officer substitutes a similar item or records the quality change in the item. In total over 1500 individual price quotations are collected and reviewed monthly to compile the Consumer Price Index.

## How is the CPI Calculated?



Data collected in the survey enabled the Statistics Department to construct a basket of goods and services and to assign to each item in the basket a weight or importance based on total family expenditure. Once the prices have been collected, they are checked for accuracy and consistency and the necessary corrections or adjustments are made.

After review of an item or service, its average price or current price is calculated. The CPI is compiled at two levels (i) elementary level -an **equally weighted geometric mean (Jevon)** and (ii) higher level -a **geometric aggregate (Cobb-Douglas) index**, the index of any item will be its current month's cost divided by its base period cost.

The base cost refers to the price of the item at a time previously specified and fixed. Once index numbers have been derived for each group of the index, the numbers are then linked together to obtain an aggregate index for each of the sections. They are in turn weighted to give an average price movement representing all goods and services in the basket. This movement or average change is identified as the '**All Items Index**'.

**To derive a price relative for the sub-group 'cereals and bakery products' for example, the following steps are taken**

### Step 1

The officers collect prices of different types of cereals and baked goods such as rice, cornflakes, bread, rolls, cake and biscuits each month from various grocery stores. The prices collected are reviewed to ensure that they refer to the same quality and quantity of cereals and baked goods observed in the previous month.

### Step 2

The average price for each item is calculated as illustrated below. For example, the price for rice.

Grocery Store	Product- Rice (2lb)
A	\$6.99
B	\$4.95
C	\$4.75
D	\$5.00
E	\$5.25
<b>Average Price</b>	<b>\$5.39</b>

### Prices collected for Rice in February 2018

The average price for rice is \$5.39



### Step 3

A price relative is computed by taking the ratio of the current month's average price and the base month's average price for rice. For example, if the average price paid for rice in February was \$5.39 and the base period cost was \$4.10, the price relative for February is calculated as:

$$\frac{\text{Average price paid in February}}{\text{Base period cost}} = \frac{\$5.39}{\$4.10}$$

**Price Relative = 1.315**

- Base year= 2010

### Step 4

Since the CPI for each item is calculated using equally weighted geometric mean (Jevon), the weight of the rice in the base period is required.

Assume ∴ base weight = 22.1

The weighted price relative can then be calculated by multiplying the price relative by the base weight of the item.

$$\begin{aligned} \text{Weighted price relative} &= \text{base weight} \times \text{price relative} \\ &= 22.1 \times 1.315 \\ &= \mathbf{29.0615} \end{aligned}$$

The process is repeated for all the items.

### Step 5

Once the item indexes are calculated the higher-level indexes for categories are compiled. So, the index for the subgroup is then calculated by dividing the total weighted price relative by the total weight of the sub-group then multiplying the result by 100.

**Assume that the sub-group:**  
 Total weighted price relative = 474.6922  
 Total weight = 185.3

$$\begin{aligned} \text{Index for Cereals and Bakery products} &= \frac{474.6922}{185.3} \times 100 \\ &= 256.2 \end{aligned}$$

If the base period was 2010 and the index number was being calculated for the current period 2017 then this index number (256.2) would suggest that in 2017 it would cost \$256.2 to purchase the same quantity of cereals and baked goods that would have cost \$100 in 2010.

### Step 6

Price indices are computed for each sub-group in all categories in the same manner. These index numbers are then linked together to obtain an aggregate index for each of the sections. This movement or average change in price is identified as the "All Items CPI" and provides a measure of the rate of inflation/deflation.



## USING THE CONSUMER PRICE INDEX

The following calculations are presented to show some of the everyday computations requested by users. The index numbers used are actual figures taken from the Consumer Price Index and are displayed in Table 2 below:

**Table 2 -St. Kitts CPI 'All Items Index' for each month-(based January 2010=100)**

MONTH	2013	2014	2015	2016	2017	2018
<b>January</b>	110.56	111.21	110.70	107.51	108.90	108.18
<b>February</b>	110.36	110.98	109.99	107.61	108.75	108.23
<b>March</b>	110.32	110.78	109.68	107.55	108.89	108.50
<b>April</b>	110.85	110.75	108.91	107.89	109.26	108.64
<b>May</b>	110.97	113.81	108.73	108.24	109.55	108.58
<b>June</b>	110.53	111.60	108.76	107.87	109.36	108.25
<b>July</b>	110.89	111.64	108.60	106.26	109.44	108.62
<b>August</b>	111.33	111.50	108.61	109.41	110.86	108.89
<b>September</b>	111.73	112.16	108.10	109.27	110.88	107.86
<b>October</b>	111.64	112.55	107.58	108.89	109.93	107.93
<b>November</b>	111.51	112.64	107.81	108.42	111.32	109.06
<b>December</b>	111.37	111.05	107.80	108.82	109.66	109.97
<b>Average</b>	<b>111.01</b>	<b>111.72</b>	<b>108.77</b>	<b>108.15</b>	<b>109.73</b>	<b>108.56</b>
<b>Inflation</b>	<b>0.99</b>	<b>0.65</b>	<b>-2.63</b>	<b>-0.56</b>	<b>1.47</b>	<b>-1.07</b>



## Determining the price change between specified periods

The CPI is an important indicator in that it is used primarily to measure the rate at which the average price of goods and services change over time or, in other words, *the rate of inflation*.

### (a) Measuring a month to month price change

The price change between **February** and **March** 2015 is calculated as follows:

$$\begin{aligned} & \frac{\text{March 2015 index} - \text{February 2015 index}}{\text{February 2015 index}} \times 100 \\ &= \frac{108.22 - 108.36}{108.36} \times 100 \\ &= -0.00129 \times 100 \\ &= \mathbf{-0.13\%} \end{aligned}$$

*All prices have decreased by -0.13% from February 2015 to March 2015.*



### (b) Measuring a year to year price change

The price change between January **2016** and January **2017** is calculated as follows:

$$\begin{aligned} & \frac{\text{January 2017 index} - \text{January 2016 index}}{\text{January 2016 index}} \times 100 \\ &= \frac{06.81 - 106.02}{106.02} \times 100 \\ &= 0.00745 \times 100 \\ &= \mathbf{0.75\%} \end{aligned}$$

*The 0.75% represents the rate of price change or the rate of inflation for the period between January 2016 and January 2017.*



## USING THE CPI AS AN ECONOMIC TOOL



In many practical situations the CPI is used as a deflation tool or an escalation tool.

### a) An Escalation Tool

One of the most common uses of the CPI is as an escalation tool in wage contracts. These contracts are generally known as collective bargaining agreements and are negotiated between employers and labour unions. The escalation rule is called a cost of living adjustment clause that is written into the contract such that the wage paid in the future is adjusted automatically by changes in the CPI. An example of this clause is as follows:



*“Effective 1<sup>st</sup> January 2001, the contract will provide an increase in basic wages equal to the percentage increase in the Consumer Price Index from January 1999 to January 2000.”*

### (b) As an Economic Indicator

The Consumer Price Index is currently the single most widely used measure of inflation and as a result it is often used as an indicator of the effectiveness of government’s economic policy. Also, members of the various Government ministries use trends in the CPI to aid in formulating fiscal and monetary policies.

### (c.) Determining the Purchasing Power of Money

The purchasing power of the Eastern Caribbean Dollar changes over time as the prices of goods and services change. The CPI is widely used to determine the amount of money that would be needed in the present to have the same purchasing power as an amount that was specified in the past.

With globalization and the implied rapid changes in technology and social and economic factors, it is important to monitor closely the effectiveness of the index. The content of the CPI basket must be reviewed and updated periodically to ensure that it represents households spending patterns. This will require more frequent Household Income and Expenditure Surveys.

### How Can I Get More CPI Information?



CPI information is readily available at the Statistics Department of the Ministry of Sustainable Development. This information is available on a monthly, quarterly and yearly basis.

Thanks, are being extended to the many business places that offered the price information willingly as this information is vital to the credibility of the index

For further information about the Consumer Price Index (CPI) contact us at:

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