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Understanding the Consumer Price Index (CPI)



How does it affect you?



The CPI is one of the most important statistical indicators produced by the ESO and requested by government and private users. Therefore it is important to understand what the CPI is and what it is not. This pamphlet answers the most frequently asked questions about the CPI.

1. What is the Consumer Price Index (CPI)?

The Consumer Price Index (CPI) measures the change in the average price level of consumer goods and services purchased by private households. The Cayman Islands, like many countries, use the CPI as a proxy for the general index of prices for the economy as a whole, partly because of the frequency with which it is produced.

The CPI is an index that simplifies the measurement of movements for consumer prices relative to a reference period. The index for the CPI reference or base period (September 1994 for the current Cayman Islands' CPI) is set to 100 and changes in prices are measured in relation to this figure. Using the CPI from the June 2008 CPI report as an example, an index of 155.9 means there has been a 55.9 per cent increase in the average price since the reference period September 1994.

The CPI can also be used to compare price changes between two periods other than the reference period. For example, it is common to measure the CPI movement between a quarter and the previous quarter, or the same quarter for two consecutive years.

2. What is the inflation rate?

The inflation rate refers to the percentage change in the Consumer Price Index from one period to another. Typically, this period would be a year or a quarter.

The annual inflation rate is the percentage change of the CPI in the quarter under review over the CPI of the same quarter a year ago.

**TABLE 5: AVERAGE PRICES OF SELECTED ITEMS
JUNE 2008**

ITEM	QUANTITY	AVERAGE PRICES (C\$)		
		June 2008	Mar 2008	June 2007
101-04	Whole-wheat bread (imported) 1 lb. 4 oz	2.22	2.22	2.16
107-01	Long grain rice 5 lb.	6.86	6.82	6.58
108-12	Cornflakes 24 oz	4.68	4.59	4.64
111-01	Stew beef 1 lb.	3.92	3.72	3.66
114-01	Bacon 1 lb.	6.38	6.24	6.64
125-02	Snapper fillets (frozen) 1 lb.	9.32	8.66	6.85
127-05	Canned Tuna in water 6.5 oz	1.21	1.46	1.37
130-02	Eggs (Grade A Large) 1 doz.	2.36	2.46	1.98
131-02	Anchor Butter 1 lb	3.36	3.36	2.96
133-05	Fresh milk (McArthur) 1 gal.	5.99	5.76	5.49
135-09	Evaporated milk 14.5 oz	1.11	1.11	1.10
139-19	Shortening 3 lb.	6.21	5.82	5.14
141-01	Plantains 1 lb.	0.86	0.86	0.86
142-07	Idaho potatoes 1 lb.	0.92	0.76	0.69
147-11	Lettuce Head	1.82	1.42	1.63
146-15	Sweet potatoes 1 lb.	1.56	1.26	1.12
151-01	Tomatoes 1 lb.	2.89	2.19	1.96
152-03	Ripe bananas 1 lb.	0.71	0.64	0.62
153-01	Apples (Golden Delicious) 1 lb.	1.79	1.89	1.99
155-11	Oranges each	0.72	0.71	0.62
161-01	Tea bags (Lipton) 48	3.79	3.15	3.15
163-02	Instant coffee (Maxwell House) 8 oz.	5.29	5.29	5.29
166-02	Soda 12 oz. can	0.75	0.75	0.68
171-01	White sugar 2 kg.	3.19	3.19	3.23
172-02	Strawberry Preserves 12 ozs	2.86	2.81	2.81
181-02	Canned vegetable soup 10.5 oz	1.78	1.46	1.61
182-04	Corned beef hash 15 oz	2.49	2.56	2.49
186-16	Salt 8 oz	0.82	0.79	0.74
521-01	Petrol (Full Service) 1 gallon	4.89	4.32	4.30
280-90	Electricity First 200 kWh	63.06	55.25	56.52

For example, in the June 2008 CPI report, the annual inflation rate refers to the increase of the CPI in June 2008 over the June 2007 CPI. This is also known as year-on-year inflation rate.

The quarterly inflation rate is the percentage change of the CPI in the quarter under review over the immediate previous quarter. In the June 2008 CPI report, the quarterly inflation rate refers to the increase of the CPI in June 2008 over the March 2008 CPI. This is also known as quarter-on-quarter inflation rate.

The inflation rates are also reported in the quarterly CPI reports produced by ESO. As an example, shown in Table 1 is a summary of the overall CPI index or "all items", the price indices of the eight major categories and their inflation rates (or percentage changes) for June 2008.

3. How is the inflation rate calculated?

Indices are compared to calculate the (a) quarter-on quarter inflation and (b) year-on-year inflation which are demonstrated below:

a) Quarter-on-quarter (or quarterly) inflation rate.

The price change between March 2008 and June 2008 based on actual data is calculated as follows:

$$= \frac{\text{June 08 CPI} - \text{March 08 CPI}}{\text{March 08 CPI}} \times 100$$

$$= \frac{155.9 - 150.9}{150.9} \times 100 = 3.3\%$$

The consumer price index in June 2008 is 3.3% higher than in March 2008.

b) Year-on-year price change (or annual) inflation rate.

The price change between June 2007 and June 2008 based on actual data is calculated as follows:

$$= \frac{\text{June 08 CPI} - \text{June 07 CPI}}{\text{June 07 CPI}} \times 100$$

$$= \frac{155.9 - 147.8}{147.8} \times 100 = 5.4\%$$

The consumer price index in June 2008 is 5.4% higher than in June 2007.

4. Why is it that the CPI does not seem to move as much as one's spending?

Firstly, actual increases in living expenses of families basically reflect two things – a) increases in the acquisition cost of goods and services and b) changes in lifestyle. However, the CPI assumes a fixed standard of living as represented by a fixed basket of CPI goods and services. In other words, it assumes that there are no changes in the standard of living. (In order to reflect changes in standard of living, a new CPI basket must be constructed from a new household budget survey.)

Hence, the CPI **does not** necessarily measure changes in the cost of living which may vary from period to period. For example, if one household used to travel by bus in 2007 and has since acquired a car, its expenses in 2008 is expected to increase, for the obvious reason that the cost of maintaining a car is most likely to cost more than all the bus fares the household members paid in 2007.

Secondly, the CPI is based on the average price of a number of combined items. Therefore, a rise in the price of one item may be compensated by a fall in another and its effect on the index may not be marked. For example, a housewife faced with a significant rise in the price of bread and cereals might ask why there is only a small change in the index for "FOOD". The prices of other

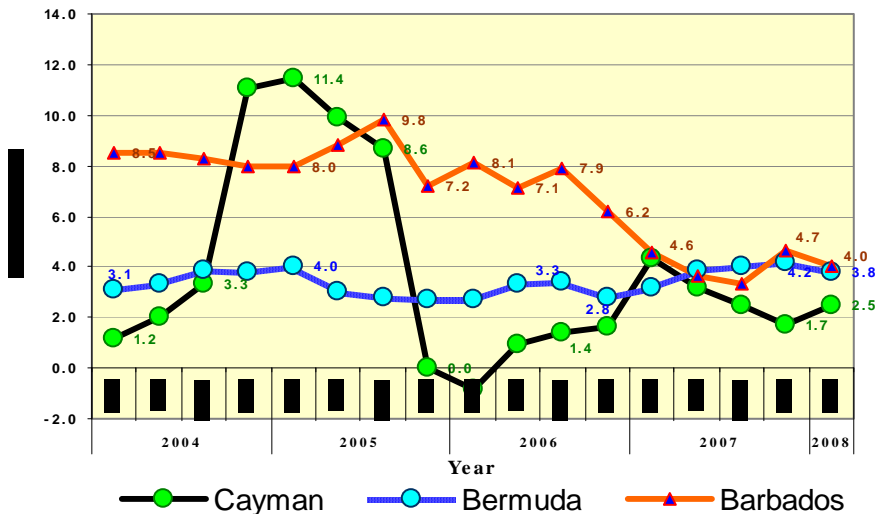
TABLE 3 : CONSUMER PRICE INDEX BY MAJOR GROUPS as of June 2008

Major Group	Weight	Index			Percentage change	
		June-08	Mar-08	June-07	3 months ago	1 year ago
01 Food	119.6	147.9	144.8	142.7	2.1	3.6
Bread and Cereal	9.6	142.0	135.9	135.7	4.5	4.6
Meat	17.3	137.5	132.9	152.2	3.5	-9.6
Fish	3.4	141.0	148.2	139.0	-4.9	1.4
Dairy Products and Eggs	8.7	161.8	155.3	149.9	4.1	7.9
Oils & Fats	1.5	179.8	147.7	142.6	21.7	26.0
Fruits and Vegetables	11.7	166.8	157.9	141.3	5.6	18.0
Drinks (non-alcoholic)	11.7	144.5	151.3	134.0	-4.5	7.8
Sugar Products	2.4	141.1	139.2	136.7	1.4	3.2
Other Foods	53.3	146.4	144.2	142.3	1.5	2.8
02 Alcohol and Tobacco	15.7	137.9	137.0	137.5	0.7	0.3
Alcoholic Drinks	13.0	132.7	134.1	134.1	-1.0	-1.0
Tobacco	2.7	163.2	151.3	153.8	7.9	6.1
03 Housing	310.8	153.9	145.6	140.9	5.7	9.2
Rent, Maintenance, Insurance etc	257.9	154.9	147.6	142.2	4.9	8.9
Utilities	52.9	148.8	135.8	134.8	9.6	10.4
04 Clothing	46.1	116.1	114.7	112.9	1.2	2.8
Men's and Women's Clothing	29.3	119.2	116.3	113.8	2.5	4.7
Boys and Girls Clothing	5.6	124.1	137.6	123.8	-9.8	0.2
Other Clothing	1.9	83.3	83.3	86.6	0.0	-3.8
Footwear	9.3	108.1	102.0	108.7	6.0	-0.6
05 Household Equipment	58.7	149.4	144.9	137.4	3.1	8.7
Furniture and Floor Coverings	22.4	162.5	152.4	151.1	6.6	7.5
Household Appliances	12.5	116.0	114.8	110.3	1.1	5.2
Other Household Equipment	23.8	154.7	153.7	138.8	0.6	11.5
06 Transport and Communications	168.5	141.8	136.5	132.9	3.9	6.8
Household Vehicles	128.3	159.9	152.9	148.5	4.6	7.7
Travel	6.8	153.8	154.4	146.1	-0.4	5.3
Communications	33.4	70.0	70.0	70.0	0.0	0.0
07 Education and Medical	64.6	284.3	278.4	272.2	2.1	4.5
Education	24.9	414.8	405.2	397.9	2.4	4.2
Medical Care	39.7	202.3	198.7	193.2	1.8	4.7
08 Personal Goods and Services	216.0	147.3	145.2	146.2	1.5	0.8
Home Entertainment	20.9	87.0	85.0	104.6	2.3	-16.8
Outside Entertainment	0.8	159.4	159.4	172.4	0.0	-7.5
Culture, Pastimes, Hobbies	29.9	130.3	123.9	126.9	5.2	2.7
Holiday Expenses	71.6	184.0	178.1	178.0	3.3	3.3
Personal Services	38.3	125.0	125.3	126.3	-0.2	-1.0
Personal Goods	15.6	132.3	144.0	135.6	-8.2	-2.4
Domestic Services	38.6	152.9	152.8	148.0	0.1	3.3
Gifts and Subscriptions	0.3	158.3	158.3	141.7	0.0	11.8
ALL ITEMS	1000.0	155.9	150.9	147.8	3.3	5.4

15. How does the inflation rate of the Cayman Islands compare with other jurisdictions in the Caribbean?

Inflation rates across countries vary depending on their CPI baskets and the movement of prices in their retail markets. Shown in Figure 2 are the inflation rates of Bermuda and Barbados along with that of the Cayman Islands.

Figure 2: Inflation Rates for Bermuda, Barbados and the Cayman Islands



items might not have changed or decreased thereby offsetting the impact of the increase in the price of bread on that particular group.

Furthermore, the “weight” of bread and cereals might not be significant to the overall expenditure on food so the effect of a huge price increase might have minimal effect on the index for food. The “weight” of an item is equivalent to its share in the total CPI basket comprising of all consumer expenses in the household. It indicates the impact that a particular price change within each group will have on the overall index. For example, a 5% rise in the price of electricity would have a much greater impact on the household budget than a 5% increase in the price of newspaper. This is due to the fact that households spend more on electricity than they do on newspapers.

5. Where does the CPI “basket” come from?

As done in other countries, the items in the Cayman Islands’ CPI “basket” are determined from information obtained from Household Income and Expenditure Surveys (HIES) or Household Budget Surveys (HBS). During a specified period, a number of households from around the country are selected based on a random sample design to provide information on their spending habits by maintaining a diary of everything bought during the specified period.

The current CPI basket that the ESO uses is based on the 1990/1991 HIES. The ESO is currently updating this based on the 2007 Survey of Living Conditions and HBS conducted in February - May 2007. The update facilitates the inclusion of new goods and services that have become recently significant in households’ budget like internet services or the exclusion of other items which have lost importance over the years. The amount spent on each item in the CPI basket is compared to the total household spending to obtain the relative importance or weight of the commodities (item) in the “basket.”

6. How many items are there in the CPI basket and how are they categorized?

Overall, prices are collected on approximately 661 items. These are further summarized into the following eight (8) broad categories:

- Food
- Alcohol and tobacco
- Housing
- Clothing
- Household equipment
- Transport and communications
- Education and medical; and
- Personal goods and services.

The above eight (8) major categories of the CPI and their relative importance (weights) are shown in Table 2.

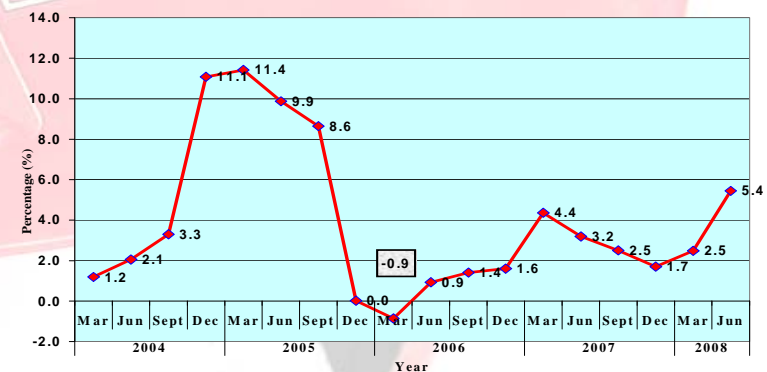
13. Why do CPI estimates for the same period sometimes change?

Starting in March 2007, ESO has been conducting an annual review of the CPI database for the previous year to ensure that the worksheet for the new year provides the latest available price data, including those received after the publication of the 2007 CPI reports. In the course of this review, therefore, the CPI database is updated and new CPI estimates are produced. For example, in the 2008 CPI Report, revisions were reported on the CPI calculations for March – December 2007 mainly due to late availability of some prices and data revisions arising from improvements in data entry and verification quality controls that were implemented in March – June 2008.

14. What else does the CPI Report include?

It is useful for researchers to have an easy reference of the updated series of CPIs. Hence, every CPI report features previous quarters' and previous years' overall CPI and the major groups. Figure 1, for example, shows the inflation rate from March 2004 to June 2008 as presented in the June 2008 CPI report.

Figure 1: Inflation Rates for the Cayman Islands as of June 2008



Another example of an easy reference is found in Table 1 which is also included in the June 2008 CPI report.

Each major category is made up of minor groups as shown in Table 3. In turn, each minor group is comprised of similar types of items, and their aggregate expenses make up the total expenditure for the minor group. For example, the expenditure on bread, buns, cakes biscuits, cereals and similar items are summed to get the total expenses for the minor group “bread and cereals.”

10. When and how are prices for the CPI collected?

Quarterly price surveys are carried out by ESO data collectors at outlets such as: grocery stores, clothing and footwear stores, furniture and appliance shops, doctors, dentists, law offices, schools, insurance companies and beauty and barber salons. Majority of the outlets are visited each quarter. However, a few outlets are contacted via the telephone or facsimile.

CPI data for the Cayman Islands are collected every March, June, September and December of each year from over 100 different shops and other outlets in Grand Cayman only. For example, each quarter ESO collects prices of petrol, engine oil and diesel oil from various service stations. The prices collected are reviewed to ensure that they refer to the correct quality and quantity of goods and services observed in the previous quarter (and the base period).

11. Are there rules or guidelines for constructing the CPI?

Official national statistics all over the world are provided with international guidelines on how to determine which set of prices must be included in the CPI, and how changes in these prices can be calculated. This set of guidelines are found in the document *Consumer Price Index Manual (Theory and Practice)* published jointly by the International Labour Office, International Monetary Fund, Organisation for Economic Co-operation and Development, Statistical Office of the European Communities, United Nations and the World Bank.

12. Where are CPI Reports made available?

The ESO releases the CPI reports on its website (www.eso.ky) 2-3 months after the end of each quarter. This medium is the ESO’s main means of data dissemination. However, printed copies are also available at the ESO.

Table 1: Consumer Price Index, Quarterly Averages

SEPTEMBER 1994 = 100

Year	Quarter Ending	INDEX	Percentage change from:	
			3 months ago	1 year ago
2001	March	123.3	0.6	1.8
	June	123.6	0.2	1.7
	September	122.7	-0.7	0.3
	December	123.5	0.7	0.7
2002	March	125.9	1.9	2.1
	June	125.9	0.0	1.9
	September	126.3	0.3	2.9
	December	127.2	0.7	3.0
2003	March	126.2	-0.8	0.2
	June	126.6	0.3	0.6
	September	127.3	0.6	0.8
	December	128.1	0.6	0.7
2004	March	127.7	-0.3	1.2
	June	129.2	1.2	2.1
	September	131.5	1.8	3.3
	December	142.3	8.2	11.1
2005	March	142.3	0.0	11.4
	June	142.0	-0.2	9.9
	September	142.9	0.6	8.6
	December	142.3	-0.4	0.0
2006	March	141.1	-0.9	-0.9
	June	143.3	1.6	0.9
	September	144.9	1.1	1.4
	December	144.6	-0.2	1.6
2007	March	147.2	1.8	4.4
	June	147.8	0.4	3.2
	September	148.5	0.5	2.5
	December	147.1	-1.0	1.7
2008	March	150.9	2.6	2.5
	June	155.9	3.3	5.4

7. How is the CPI used?

The ESO produces the CPI. However, it does not impose its use among government and private users. In other words, the use of the CPI is fully subject to the discretion of the user. It is common practice in many countries to use the CPI produced by national statistical offices for the following:

- For review and adjustment of wages and salaries by employers and other agencies.
- For indexing pensions, social security benefits and other forms of contractual payments such as legal obligations for the support of children.
- For negotiation of businesses fees or rentals where these may be linked to the CPI as a whole or to a sub-index related to some specific types of expenditures, such as the cost of housing maintenance and repairs.
- In other countries, CPI inflation is used as a proxy for the general rate of inflation, even though they measure inflation of consumption goods and services only. As such they are used by some central banks for the purposes of monetary policy.
- The price data collected in the CPI can also be used to compile other indices and indicators such as poverty line of the country or the purchasing power parity used to compare real levels of consumption in different countries.
- Finally, the CPI is also used by economists as an indicator for assessing the current performance of the economy. In the Cayman Islands, the Public Management and Financial Law mandates the calculation of the CPI and the inflation rate in the preparation of the budget document “Strategic Policy Statement.” The CPI inflation rate is an important parameter in preparing the annual budget statement of the Cayman Islands Government.

8. Does the CPI basket change every quarter?

The quality and quantity of the items in the basket are kept constant. Hence the basket is “fixed”, for example the current fixed basket used by ESO is based on the 1990/1991 HIES.

However the total cost of this “fixed basket” will vary from one period to another, as the prices of the items in the basket change. Price changes resulting from a “fixed or constant” basket are defined as “pure price” movements, which is what the CPI in essence measures. The CPI headline figure (CPI for all items) published each quarter by the ESO therefore gives in a single figure, the percentage change in the cost of purchasing the contents of the “basket” over a year.

9. How are the weights of the major categories in the CPI basket calculated?

The weights of the eight major groups of goods and services correspond to their percentage share to the total expenses of households for all groups. This can be clearly seen in Table 2.

Table 2: Expenditure and weights in the current CPI basket

Categories in current basket	Total household expenditures in 1991 (\$000)	Weight in current basket
1. Food(including food from restaurants)	46,750	119.6
2. Alcohol & tobacco	6,140	15.7
3. Clothing	18,020	46.1
4. Housing(including utilities)	121,489	310.8
5. Household equipment	22,945	58.7
6. Transport & communication	65,865	168.5
7. Education & medical	25,251	64.6
8. Personal goods & services	84,432	216.0
All categories	390,890	1000