DEFINITION OF THE GUAM CONSUMER PRICE INDEX

The CONSUMER PRICE INDEX (CPI) is a measure of the average change in prices over time of goods and services purchased by households. The Guam 2008 CPI is based on the concept of a representative "market basket", a sample of all goods and services that consumers purchase, as determined by the 20005 Household Income and Expenditure Survey funded by the US Department of the Interior to the US Census Bureau. The 2008 CPI is measured from a total of 165 items from 8 major groups, and indices are computed at two levels of aggregation. More than 1,071 price quotations are collected during the mid-month of each quarter either by phone or on-site survey by qualified price enumerators. There are approximately 230 business outlets included in the construction of the CPI, ranging from grocery, department and hardware stores to a variety of other service establishments. This report provides average price changes for all items, groups, subgroups and special indexes from successive quarters to one year earlier. An annual average and annualized inflation rate are also reported.

HOW TO INTERPRET INDEX CHANGES

A price change can be expressed as a percentage change between two periods. It can express as a difference in index points between a given period and a base period assigned an index of 100.0. Thus, an index of 110.7 for a given period means the price level has increased by 10.7% from the fixed based period. It does not mean a 10.7% change from the immediately preceding period as shown in Example 1:

Example I:

Period:	1st Qtr. (base period)	2nd Qtr.	3rd Qtr.
Index:	100.0	108.4	110.7
	-----8.4% change-----	----- 2.1% change----	
	---------- 10.7% change ----------		

Any period, such as the 2nd Quarter in the next example, can be converted to a base period by dividing all indices individually by the periods' index, then multiplying the results by 100.

Example II:

Period:	1st Qtr. (base period)	2nd Qtr.	3rd Qtr.
Index:	100.0	108.4	110.7
Period:		2nd Qtr. (base period)	3rd Qtr.
Index:		100.0	102.1
		---------- 2% change ----------	

In example II, we dealt with a change in price index from a given quarter to the quarter immediately succeeding it – a 2.1% change from the second to the third quarter. However, many economic statistics, such as personal income, government revenues, and expenditure, are reported on an annual basis. The equivalent annual rate is used to determine what the index would be if a price change during a three-month period continues at the same rate for four quarters, a twelve-month period. The annual rate is often used to achieve uniformity in statistical expression.

Thus, a quarterly change of 1.0% is equivalent to an annual rate of 4.1%. If prices were to increase 1.0% each quarter for four quarters, the annual increase would be 4.1%. Derivation of this figure is shown in the Example III.

Example III: $P_n = P_o(1+i)^n$ where

P_n	= equivalent annual rate
P_o	= base index (100.0)
i	= current rate (1.0%)
n	= number of periods (4)
Thus, 104.1	= $100.0\ (1 + .01)^4$

However, the equivalent annual rate should not be interpreted as a projection or price forecast. It is only a standard form for showing price changes that have occurred. The CPI only reports what has happened, while annual projections must be based on factors which determine future price changes.

Please see http://www.bsp.guam.gov for historical CPI data and other state data resources.

GUAM CONSUMER PRICE INDEX

1. Number of commodity items:

GROUP	*GROUP WEIGHTS	NO. OF ITEMS ALLOCATED
Food and Beverages	15.60	69
Housing	32.11	42
Apparel & Upkeep	7.61	23
Transportation	8.60	4
Medical Care	20.42	5
Recreation	2.97	5
Education & Communication	2.77	6
Other Goods & Services	9.92	11
	100.0	165

* Based on the 2005 Household Income and Expenditure Survey (HIES) results.

2. Base period: 4th Quarter 2007 = 100.0

3. Formula:

The index is computed by using base-weighted arithmetic average of prices. The formula used is either in the weighted aggregated form,

$$I_{oi} = \frac{\sum p_i q_o}{\sum p_o q_o} \times 100$$

or its equivalent, the weighted average of price relatives,

$$I_{oi} = \frac{\sum p_o q_o \left(\frac{P_i}{P_o}\right)}{\sum p_o q_o} \times 100$$

where p_I = the price of the commodity in the reporting period.
p_o = the price of the commodity in the base period, and
q_o = the quantity of commodity sold in the base period.

4. Weights:

Based on the 2005 Household Income and Expenditure Survey (HIES), funded by the U.S. Department of Interior Office of Insular Affairs

Source: Bureau of Statistics and Plans, Business and Economic Statistics Program, Government of Guam