

REPUBLIC OF THE MARSHALL ISLANDS

CONSUMER PRICE INDEX



Economic Policy, Planning and Statistics Office
Office of the President

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4th Quarter
Majuro, RMI

CPI Construction and Methodology

Survey Overview:

Over a 2-month period from April to May 2002, the Office of Planning and Statistics, which was renamed the Economic Policy, Planning and Statistics Office (EPPSO), of the Republic of the Marshall Islands (RMI), conducted a Household Income and Expenditure Survey (HIES) from April 1 until mid-May. The staff selected four sample areas of Majuro, Ebeye, Jaluit and Likiep. The selection of these sample areas was judgmental and was based on choosing the largest population centers (Majuro and Ebeye) and then two other areas that were logistically feasible to reach in conducting the survey and were in the middle of the islands that were ranked by population.

This survey used two types of survey methods to gather data. For the more expensive and less frequently purchased items, such as major appliances, electronic goods, new and used vehicles, etc., a pre-printed, survey questionnaire was completed by an interviewer. For those items, which are more frequently purchased, such as food, tobacco, drinks, etc., the household respondent was given a diary to record all purchases during a one-week period.

Household Sample:

A total sample size of 700 in all four areas was used for the questionnaire portion of the survey. Remarkably, a total of 657 households agreed to participate. For any country getting such a high participation rate is an enviable achievement. For the diary portion of the survey, 355 households participated.

Selection of the Item Sample:

In the summer of 2002, staff members of the U.S. Bureau of the Census International Program's Center processed the RMI's HIES data. These items and expenditures were arrayed using the U.S. Bureau of Labor Statistics CPI classification system as a frame of reference. Then, using a statistical technique called "Probability Proportionate to Size", a new item sample was selected. Using the PPS technique to select the item sample ensured that those items with the highest monthly household expenditures were selected in the sample. The sample included a total of 61 items compared in the revised CPI.

Expanding the Major Groups:

Using the BLS Classification System as a frame of reference allowed the EPPSO to expand the number of groups included in the RMI's CPI. Instead of having four major groups, the revised CPI now has 9 major groups. Having more groups allows the users to understand better which groups are responsible for the increases/decreases of the CPI. In the previous CPI, for example, alcoholic beverages were a part of the Food Group. Now,

it is one of the 5 new groups. The others are: Housing, Utilities and Appliances, Medical Care, Education and Communication and Other Goods and Services.

Expansion of the Outlet Sample:

The previous CPI collected price data from 4 different outlets. In the revised CPI, the number of retail outlets has been expanded by more than ten-fold and the outlet sample now consists of 46 different retail outlets. These are more diversified and geographically dispersed throughout Majuro. This substantially larger outlet sample ensures that the EPPSO collects retail price data from a wide variety of outlets.

Data Collection and Price Review Manual:

The EPPSO has made another enhancement to the CPI by increasing the data collection training and by formalizing this vital aspect of price collection by developing a Data Collection Manual. This new manual covers virtually all aspects of price collection ranging from initiating the retail outlet to the rules for selecting a retail item and re-pricing. This new manual will improve data collection quality because it will provide guidance to the data collectors in handling almost any type of re-pricing situation.

Linking the Old and New CPIs:

In the 1st Quarter of 2003, data collectors collected price data for both the old and revised CPIs and the two indexes were “spliced” together at that point. In order for two indexes to be linked together, there must be at least one period where prices are collected for both the old and the new indexes. Beginning in the 2nd Quarter 2003, the EPPSO collected price data for only the items in the revised CPI. From the 4th Quarter 2002 to the 1st Quarter 2003, the price change was based on the previous CPI; from the 1st to the 2nd Quarters 2003, the price movement reflected the change in prices for revised CPI.

Changing the Base Period:

Another change in the CPI was rebasing it from 1882 = 100 to the 1st Quarter 2003 = 100. This is a mathematical change in the CPI but the more recent base period will make the CPI easier for users to understand. There is virtually no difference in the percent changes from the old CPI from one period to another and the same indexes on the base period.

Calculating the Consumer Price Index

As with most CPIs around the world, the EPPSO will continue to use the Laspeyres method to calculate the CPI. This is the most widely used and internationally accepted method of calculating price change for a CPI. The Laspeyres formula is shown below:

Laspeyres Formula:

$$I_n = \left(\frac{\sum_{i=1}^n p_i q_0}{\sum_{i=1}^n p_0 q_0} \right) \times 100$$

where,

I_n = Price Index in period n

$\sum_{i=1}^n p_i q_0$ = the costs of a market basket of goods and services in period n

$\sum_{i=1}^n p_0 q_0$ = the costs of a market basket of goods and services in the base period

p = price of the good or service

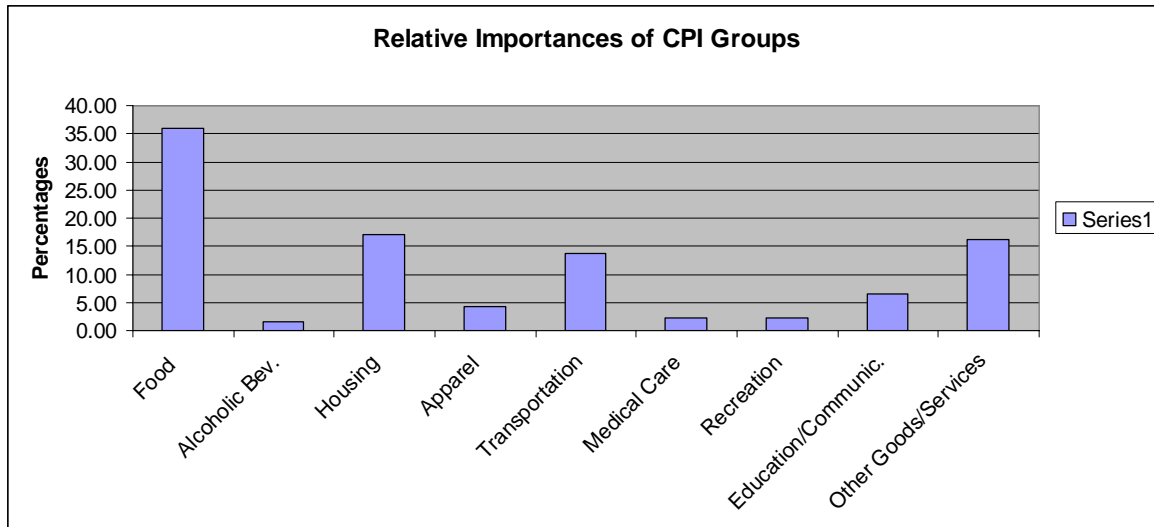
q = quantity of the good or service

i = index for the good or service (where i goes from 1, ...,n)

This method of index computation uses the quantities of commodities purchased in the base period as the basis for computing the value of the “market basket.” First, there are n number of items in the market basket with each having a base quantity. Each of these items has a base price, p_0 and current price, p_i . Multiplying p_0 with q_0 gives the total expenditure for a particular commodity for the base period. Current expenditure for an item is obtained by multiplying p_i with q_0 . The sum of current expenditures for all items in the market basket is expressed as $\sum p_i q_0$, while the sum $\sum p_0 q_0$ is the total market basket expenditures in the base period. Notice that in both summations the term q_0 remains constant, which means by using the same quantities only price changes are reflected in two pricing periods.

For those unfamiliar with statistical notation, trying to read and understand the above explanation can be an intimidating experience. In layman’s terms, the above simply means that all of the 61 items in the CPI are priced every pricing quarter and the prices for each item in the current quarter are compared to the same prices in the base period. The base period is the 1st quarter 2003 when the CPI was set equal to 100. That is when the CPIs for each of the 9 major groups and the All Items = 100.

In actuality, the EPPSO uses a slight variation to this formula. Each month, the sums of the prices that are collected for each item are compared to the sums of the same prices in the previous quarter – not the base period. The sum of the prices of an item in the current quarter is divided by the sum of the prices in the previous quarter to calculate a price relative. This price relative is multiplied by the item’s weight in the previous quarter to update the item’s weight in the current quarter. This product is then divided by the item’s weight in the base period to calculate an item’s CPI. By summing the updated weights for all of the items in a group and dividing that sum by the same weights in the base period will calculate the group’s current CPI.



CPI 4th Quarter 2004

During the 4th quarter of 2004 reporting period the Majuro CPI increased by 0.77% over the last quarter. Over the last 4 quarters (February 2004) the Majuro CPI has increased by a total of 2.01%.

The largest increase in the CPI was in the Alcohol Beverage Group, which increased by 17.59%. This is attributable to the increase in import duties passed by the Nitijela to support the Collage of the Marshall Islands. The average price for a can of beer climbed from \$1.35 to \$1.59 per can. But because of the small weighted average (1.68%) attached to this group, this large increase in price did not significantly impact the increase in the CPI this quarter. Because the price increase was due to changes in import duties, this increase should be considered as a one – off event.

The Energy group also increased by 4.64% during this last quarter. This is a reflection of the world – wide increases with petroleum products. The price of an average gallon of gasoline jumped from \$2.77 to \$3.09. There was also a slight increase in the price of an airline ticket to Honolulu from \$902 to \$920. This trend in higher prices for transportation is expected to continue into the 1st quarter of 2005.

The Other Goods and Services Group increased by 1.13% due to a slight increase in the average price for a pack of cigarettes.

The Food Group saw a very slight increase of 0.04% as the average cost of a 20lb bag of rice increased from \$7.10 to \$8.11. Because of the timing of the price survey and the recent shortage of rice on Majuro, this price increase could be only a temporary event because of supply and demand.

The Housing/Apparel/Recreation Groups all saw decreases in the last quarter. The Recreation Group decreased by 2.64% due to a large decrease in the price of radios (boom box type).

The Medical and Education Groups saw no changes in the last quarter.

Consumer Price Index by Major Group, Q4 2003 to Q4 2004					
	Q4 2003	Q1 2004	Q2 2004	Q3 2004	Q4 2004
All Groups	101.97	102.22	102.46	103.44	104.23
Food	105.72	106.30	106.64	105.79	105.83
Alcoholic Beverages	101.52	102.27	102.27	102.27	120.27
Housing, Utilities and Major Appliances	98.97	99.02	99.44	100.37	98.90
Apparel	102.75	105.73	103.71	103.60	102.43
Transportation	97.78	97.95	99.19	102.15	106.89
Medical Care	100.00	100.00	100.00	100.00	100.00
Recreation	99.08	99.62	100.93	96.74	94.18
Education and Comm.	100.00	100.00	100.00	111.08	111.08
Other Good and Services	101.69	100.82	100.36	100.98	102.13
Percent Change					
All Groups	0.97	0.25	0.23	0.96	0.77
Food	2.54	0.55	0.32	-0.81	0.04
Alcoholic Beverages	-2.19	0.74	0.00	0.00	17.59
Housing, Utilities and Major Appliances	-0.27	0.05	0.42	0.93	-1.46
Apparel	0.66	2.90	-1.91	-0.10	-1.14
Transportation	0.13	0.17	1.27	2.98	4.64
Medical Care	0.00	0.00	0.00	0.00	0.00
Recreation	-1.02	0.55	1.31	-4.15	-2.64
Education and Comm.	0.00	0.00	0.00	11.08	0.00
Other Good and Services	0.60	-0.86	-0.46	0.62	1.13

