

# Consumer Price Index Commonwealth of the Northern Marianas

2<sup>nd</sup> Quarter 2013



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## Secretary of Commerce Message

It gives me great pleasure to present to the people of the Commonwealth of the Northern Mariana Islands (CNMI) the 2<sup>nd</sup> Quarter 2013 Consumer Price Index (CPI) publication.

The statistical information reflected in this publication contains a wealth of information that measures quarterly changes in prices of a "basket" of goods and services, which are representative of purchases by private households in the CNMI.

To ensure representation of the basket is reflective of current purchasing pattern of households, the CPI was rebased after the 2005 Household Income and Expenditure Survey (HIES) and the base year adjusted to 4<sup>th</sup> Quarter 2008. These changes help maintain the integrity of the CPI index, providing the people of CNMI with a more reliable measure of the changes in the cost of living.

This publication also presents results for the islands of Rota and Tinian, where price collection commenced in the 1<sup>st</sup> quarter of 2010.

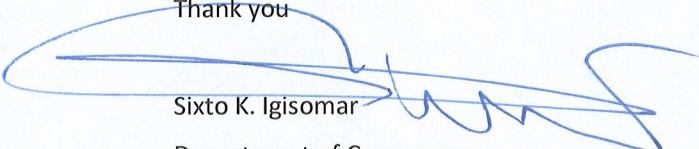
I acknowledge with great appreciation the valuable contributions of the many participating establishments for enabling us to continue the collection of prices on a quarterly basis for the selected items within the CNMI CPI. With your cooperation and assistance, we will continue to publish the CNMI CPI to account for the changes in the prices of commodities consumed by the people residing in the CNMI.

This publication is possible through the funding support by the Office of Insular Affairs, DOI. I acknowledge and express my gratitude for OIA's continued support.

I also would like to thank and acknowledge Secretariat of the Pacific Community's (SPC) Dr. Gerald Haberkorn and his staff Mr. Chris Ryan for their assistance and contributions to our CPI publication report.

Lastly, I would like to commend the staff at the Central Statistics Division in Saipan, and the Resident Commerce staff in Rota and Tinian for their hard work and dedication in publishing this product.

Thank you



Sixto K. Igisomar

Department of Commerce

# Explanatory Notes

## CPI Construction and Methodology

### Survey Overview:

Over a 3-month period from October to December 2005, the Central Statistics Division (CSD) of the Commonwealth of the Northern Mariana Islands' Department of Commerce conducted a Household Income and Expenditure Survey (HIES). 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 random sample of 1,200 households was selected for the HIES in Saipan, which is the capital and the most populated island in the CNMI and about 125 households were selected from each of the islands of Rota and Tinian. From that initial sample, 1,141 households completed the survey questionnaire. From those households, a sub-sample of 700 households was given a diary to record household purchases.

### Selection of the Item Sample:

In December of 2007, Justin H. Andrew of CSD and Dr. Michael J. Levin, from Harvard University processed the data. Assisting them in 2008 were Mr. Wil Maui of DataTalks and Mr. Brian Hannon. Mr. Hannon, an Economic Statistics International Consultant, was hired to assist the CSD in rebasing the CPI. The survey 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 Proportional to Size"; the CSD selected a new item sample. 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 161 items for Saipan, 147 for Tinian, and 129 for Rota.



**Expanding the Major Groups:**

Using the BLS Classification System as a frame of reference allowed the CSD to expand the number of groups included in the CNMI's CPI. Instead of having five (5) major groups, the revised CPI now has nine (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 Health and Recreation Group. Now, it is one of the 4 new groups. The others are: Medical Care, Education and Communication and Other Goods and Services.

**Expansion of the Outlet Sample:**

The previous CPI collected price data from 18 different outlets. In the revised CPI, the number of retail outlets has been expanded dramatically and the outlet sample now consists of roughly 170 different retail outlets in Saipan, 30 in Tinian and 60 in Rota, which are geographically dispersed throughout Saipan, Rota and Tinian. This substantially larger outlet sample will ensure that the retail price data are collected from a wide variety of outlets dispersed throughout the three locations.

**Data Collection and Price Review Manual:**

The CSD 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 4<sup>th</sup> Quarter of 2008, 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. This overlapping period was the 4<sup>th</sup> Quarter 2008. Beginning in the 1<sup>st</sup> Quarter 2009, the CSD collected price data for only the items in the revised CPI. Therefore, up to the 4<sup>th</sup> Quarter 2008, the index change is based on the old basket of goods, whereas from 1<sup>st</sup> Quarter 2009 onwards, the index change is based on the new basket.

### Changing the Base Period:

Another change in the CPI was rebasing it from the 1<sup>st</sup> Quarter 2003 = 100 to the 4<sup>th</sup> Quarter 2008 = 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 no difference in the percent changes from the old CPI from one period to another.

## Calculating the Consumer Price Index

As with most CPIs around the world, the CSD 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:

$$I_t = \frac{\sum_{i=1}^n P_t Q_0}{\sum_{i=1}^n P_0 Q_0} * 100$$

$I_t$  = The index at time point  $t$

$P_t$  = The price at time point  $t$

$P_0$  = The price at the base period

$Q_0$  = The quantity at the base period

$n$  = The number of commodities being priced

$i$  = Commodity  $i$  (where  $i$  goes from 1 to  $n$ )

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 items in the CPI are priced every 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 4<sup>th</sup> quarter 2008 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.

The CSD uses a slight variation to this formula. Each quarter, the average of the prices that are collected for each item are compared to the average of the same prices in the previous quarter – not the base period. This is only done for items which are priced in both quarters. The average of the prices of an item in the current quarter is divided by the average 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.

# Analysis - Saipan

## Section 1 – Quarterly Inflation

Table 1 below shows the quarterly inflation rate for each quarter since the 2<sup>nd</sup> quarter 2011, by group. As can be seen from this table the index decreased by 0.2 percent for the 2<sup>nd</sup> quarter, which was not as significant as the decrease in 1<sup>st</sup> quarter of 1.1 percent decrease (see Appendix 2 for more details). The trend for “All Items” can also be seen in Chart 1, illustrating the slight decrease for this quarter.

As can be seen from Chart 2, “Apparel” and “Transportation” showed the greatest decrease when compared to last quarter.

Table 1: Quarterly inflation, by group, Saipan: Qtr 2 2011 – Qtr 2 2013

Group	2nd Qtr 2011	3rd Qtr 2011	4th Qtr 2011	1st Qtr 2012	2nd Qtr 2012	3rd Qtr 2012	4th Qtr 2012	1st Qtr 2013	2nd Qtr 2013
All Items	0.8	2.8	0.1	0.5	-0.8	0.3	1.1	-1.1	-0.2
Food	2.6	1.4	-0.4	-0.1	0.2	0.0	-0.2	0.2	0.2
Alcoholic Beverages	0.0	0.4	-4.4	3.4	1.5	0.5	0.0	1.7	0.0
Housing & Utilities	0.3	1.2	0.5	0.1	-0.6	-0.8	1.7	0.3	0.1
Apparel	-0.4	0.8	1.3	-1.2	-0.6	-2.2	-1.5	-0.3	-0.9
Transportation	1.1	2.6	0.1	1.6	-3.4	1.8	2.0	-3.3	-0.7
Medical Care	0.0	13.3	0.0	-0.1	2.1	1.0	1.7	1.1	0.0
Recreation	-0.2	0.0	-0.9	2.7	0.0	-0.2	-0.1	-0.5	0.0
Education & Communication	0.0	0.4	0.6	-0.2	-1.1	0.5	0.4	-10.1	0.0
Other Goods & Services	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0

Chart 1: Quarterly inflation, Saipan: Qtr 2 2011 – Qtr 2 2013

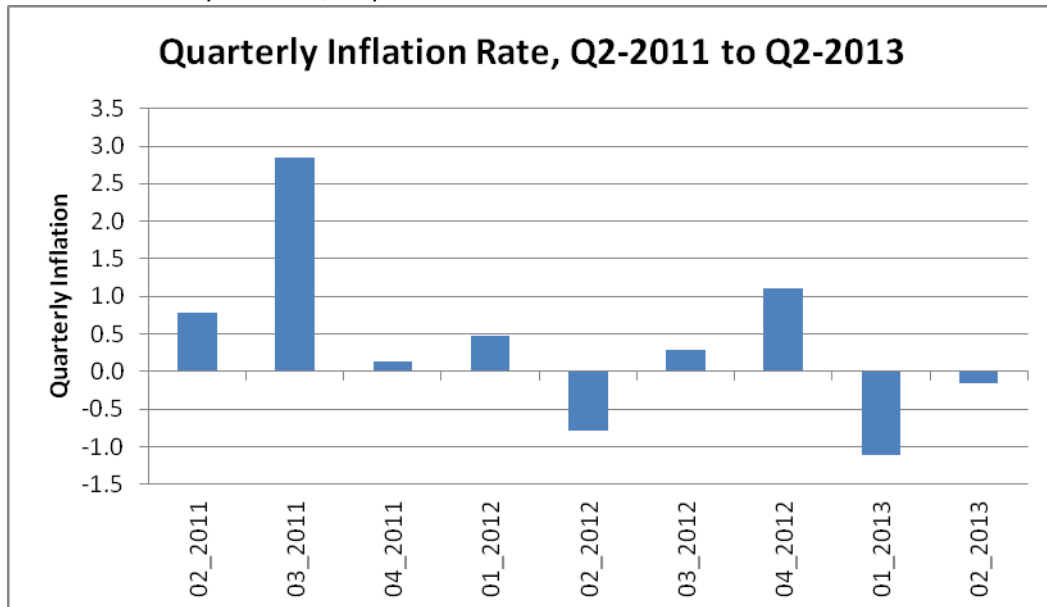
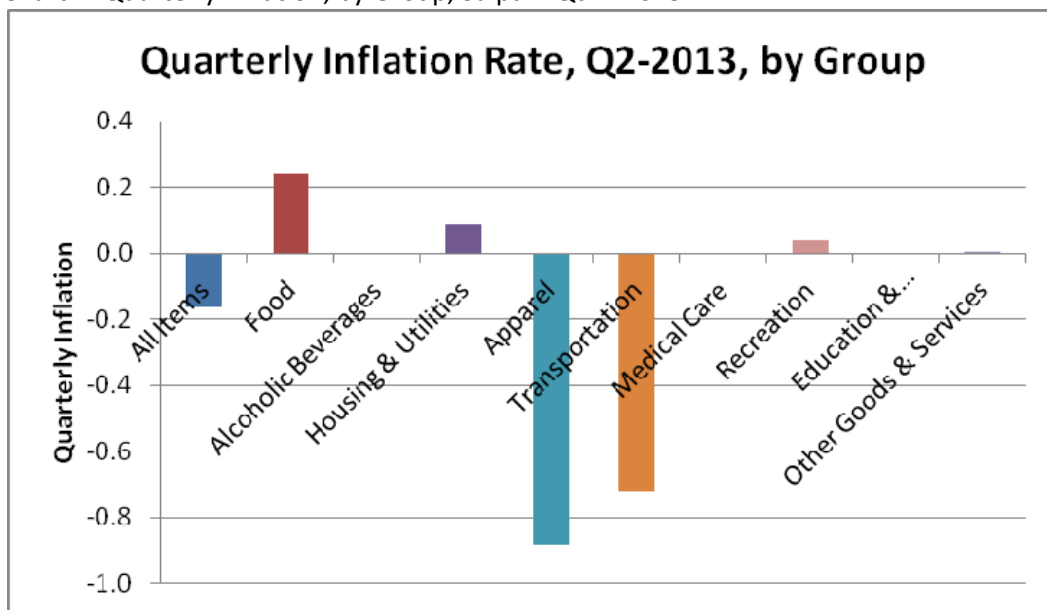


Chart 2: Quarterly inflation, by Group, Saipan: Qtr 2 2013





## Section 2 – Annual Inflation

Table 2 below shows the annual inflation rate for each year since the 2nd quarter 2004, by group. As can be seen from this table the index rose by 0.1 percent for the last year, which was a drop of 2.6 percentage points from the increase observed for the previous 12 month period. The table clearly shows the major increase in the cost of living for Saipan took place for the year ending 2<sup>nd</sup> qtr 2007 (14.6 %). The trend for “All Items” can also be seen in Chart 3, which shows the annual increase in gradually getting less since 2010.

As can be seen from Chart 4, the group which increased the most was “Medical Care”, with 3.8 percent growth, when compared to the same quarter last year. The group with the next biggest increase was “Alcoholic Beverages” which rose by 2.2 percent. The increases for these two groups were mostly caused by an increase for medicine and health insurance for the “Medical Care” group and increases in beer for the “Alcoholic Beverages” group.

Table 2: Annual inflation, by group, Saipan: Qtr 2 2004 – Qtr 2 2013

Group	2nd Qtr 2004	2nd Qtr 2005	2nd Qtr 2006	2nd Qtr 2007	2nd Qtr 2008	2nd Qtr 2009	2nd Qtr 2010	2nd Qtr 2011	2nd Qtr 2012	2nd Qtr 2013
All Items	1.0	0.7	2.4	14.6	10.9	-3.2	4.8	3.7	2.7	0.1
Food	3.8	3.5	1.2	6.3	6.1	9.5	1.0	5.7	1.1	0.3
Alcoholic Beverages	-0.5	1.6	0.9	3.9	3.4	10.6	1.3	3.3	0.8	2.2
Housing & Utilities	-2.3	0.6	5.2	47.6	24.3	-16.5	6.4	-5.4	1.3	1.3
Apparel	-0.4	-3.2	9.2	3.2	-0.7	-0.1	0.2	-0.9	0.3	-4.8
Transportation	1.2	-0.2	0.6	0.0	3.4	4.8	10.2	9.9	0.9	-0.2
Medical Care	0.0	0.0	6.3	1.1	7.1	1.6	-1.1	18.6	15.6	3.8
Recreation	2.2	-0.1	3.4	1.4	-0.8	2.7	-0.8	0.2	1.7	-0.8
Education & Communication	-0.2	-1.2	3.0	0.9	-0.1	-1.5	8.3	-0.9	-0.3	-9.3
Other Goods & Services	8.3	0.0	0.0	0.0	0.0	9.3	2.8	7.7	0.8	0.1

Chart 3: Annual inflation, Saipan: Qtr 2 2004 – Qtr 2 2013

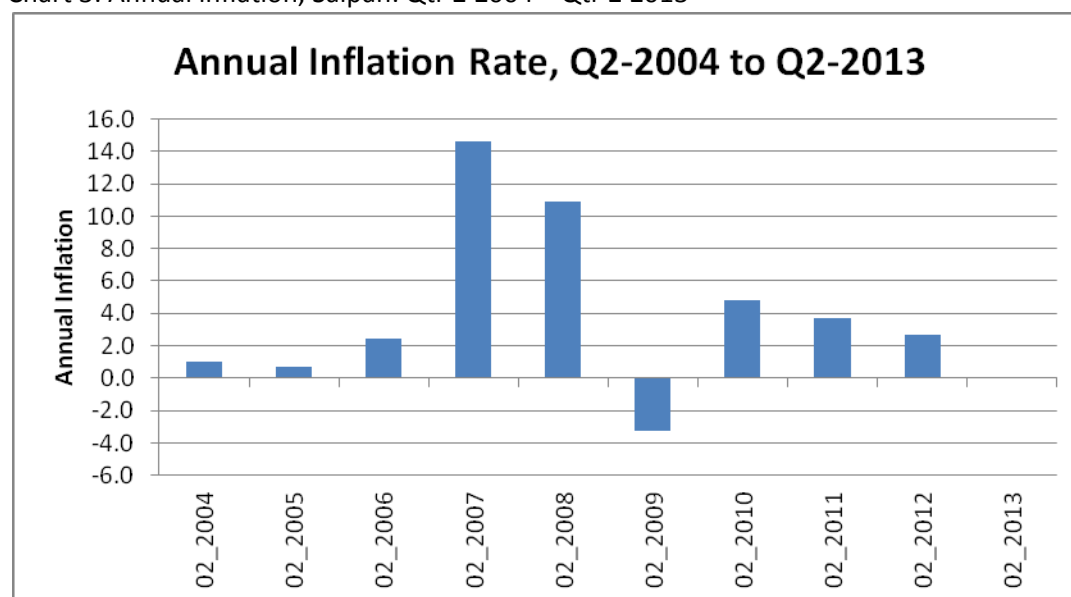
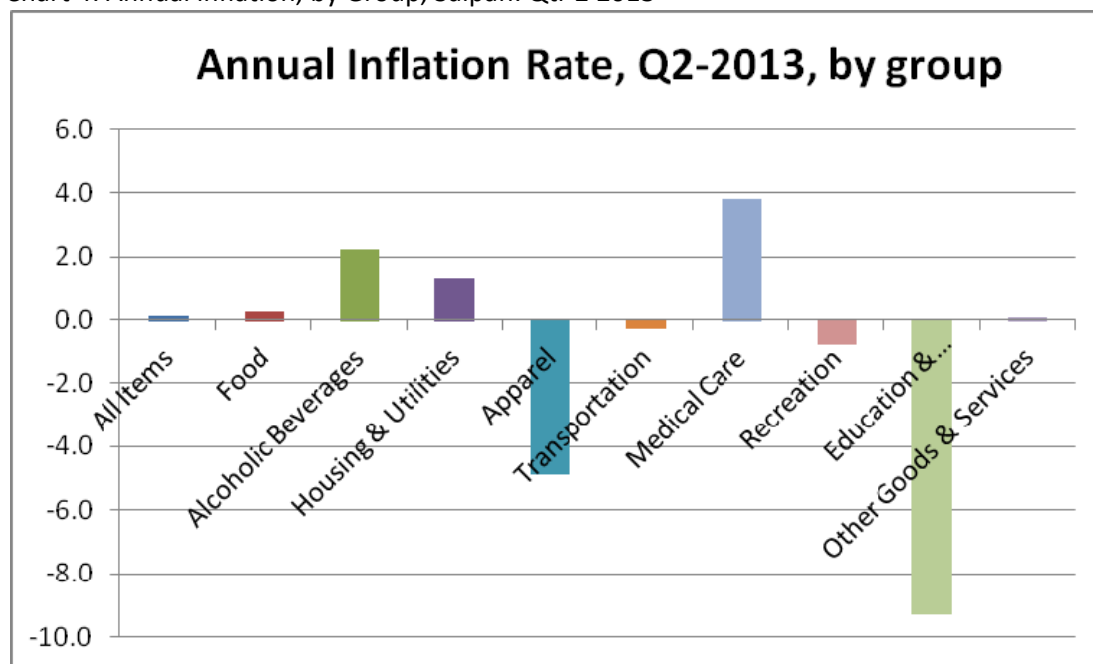


Chart 4: Annual inflation, by Group, Saipan: Qtr 2 2013



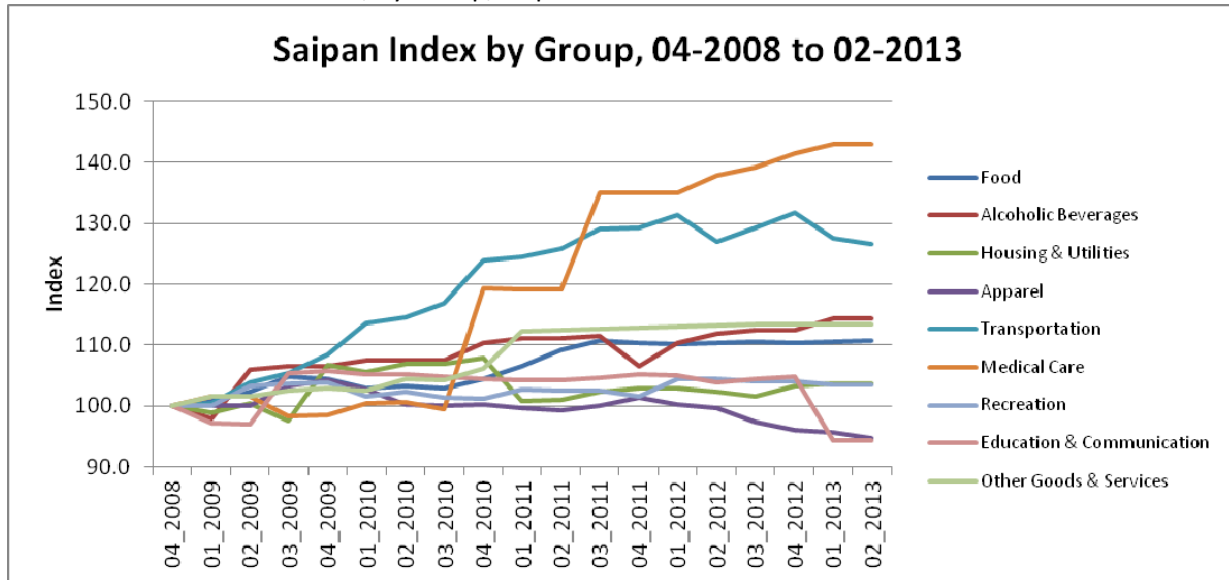
## Section 3 – Further Analysis of the Index

Table 3 and Chart 5 below show the change in the index since the re-base in the 4<sup>th</sup> Quarter 2008. The analysis shows that most groups have increased during this time, with the exceptions of “Apparel” and “Education & Communication” which both decreased by a little over 5 percent. Medical care had the greatest increase of 43 percent in this period.

Table 3: Consumer Price Index, by group, Saipan: Qtr 4 2008 – Qtr 2 2013

Group	4th Qtr 2008	1st Qtr 2009	2nd Qtr 2009	3rd Qtr 2009	4th Qtr 2009	1st Qtr 2010	2nd Qtr 2010	3rd Qtr 2010	4th Qtr 2010	1st Qtr 2011	2nd Qtr 2011	3rd Qtr 2011	4th Qtr 2011	1st Qtr 2012	2nd Qtr 2012	3rd Qtr 2012	4th Qtr 2012	1st Qtr 2013	2nd Qtr 2013
All Items	100.0	100.0	101.6	101.9	105.4	106.0	106.6	106.9	111.2	109.7	110.5	113.7	113.8	114.4	113.5	113.8	115.0	113.7	113.6
Food	100.0	100.9	102.3	104.9	104.5	102.9	103.4	103.0	104.4	106.5	109.3	110.8	110.3	110.2	110.4	110.5	110.3	110.5	110.7
Alcoholic Beverages	100.0	97.8	106.0	106.5	106.5	107.5	107.5	107.5	110.3	111.0	111.0	111.5	106.6	110.3	111.9	112.4	112.4	114.4	114.4
Housing & Utilities	100.0	98.9	100.4	97.6	106.6	105.7	106.8	106.9	108.0	100.7	101.1	102.3	102.9	103.0	102.4	101.6	103.3	103.6	103.7
Apparel	100.0	100.0	100.0	103.4	104.3	102.7	100.2	100.1	100.3	99.7	99.3	100.1	101.4	100.2	99.6	97.4	95.9	95.6	94.8
Transportation	100.0	100.5	103.9	105.3	108.4	113.7	114.5	116.9	123.9	124.5	125.8	129.1	129.3	131.4	126.9	129.3	131.9	127.6	126.6
Medical Care	100.0	101.6	101.6	98.4	98.4	100.5	100.5	99.5	119.3	119.2	119.2	135.1	135.1	135.0	137.8	139.2	141.5	143.1	143.1
Recreation	100.0	100.0	103.2	103.6	103.8	101.6	102.4	101.4	101.2	102.7	102.6	102.6	101.6	104.3	104.3	104.1	104.0	103.5	103.5
Education & Communication	100.0	97.2	97.0	105.5	105.8	105.1	105.1	104.9	104.5	104.2	104.2	104.6	105.2	105.0	103.9	104.4	104.9	94.3	94.3
Other Goods & Services	100.0	101.5	101.5	102.5	103.0	102.6	104.4	104.3	106.2	112.2	112.4	112.7	112.9	113.1	113.3	113.4	113.4	113.4	113.4

Chart 5: Consumer Price Index, by Group, Saipan: Qtr 4 2008 – Qtr 2 2013



# Analysis - Tinian

## Section 1 – Quarterly Inflation

Table 4 below shows the quarterly inflation rate for each quarter since the 2<sup>nd</sup> quarter 2010, by group. As can be seen from this table the index decreased by 0.1 percent for the 2<sup>nd</sup> quarter 2013. The trend for “All Items” can also be seen in Chart 6 on the following page, illustrating fluctuating change in the quarterly price change over the last 3 years.

Chart 7 shows that “Recreation” had the largest increase during the last quarter with a rise of 2.2 percent. “Food” also had a significant increase of 1.9 percent.

Table 4: Quarterly inflation, by group, Tinian: Qtr 2 2010 – Qtr 2 2013

Group	2nd Qtr 2010	3rd Qtr 2010	4th Qtr 2010	1st Qtr 2011	2nd Qtr 2011	3rd Qtr 2011	4th Qtr 2011	1st Qtr 2012	2nd Qtr 2012	3rd Qtr 2012	4th Qtr 2012	1st Qtr 2013	2nd Qtr 2013
All Items	1.3	-0.3	3.3	0.9	0.6	3.5	0.3	2.3	0.3	-0.3	3.0	0.4	0.1
Food	-1.1	-0.2	-1.3	-1.2	0.0	1.2	2.2	0.7	0.9	-0.2	0.4	0.2	1.9
Alcoholic Beverages	2.1	0.0	-2.0	1.9	0.0	0.1	0.1	0.1	2.9	-0.9	2.1	-0.2	0.0
Housing & Utilities	5.2	-0.9	4.9	2.1	0.0	3.8	-1.0	7.1	-0.7	-0.4	2.6	1.2	-0.4
Apparel	-4.0	0.3	-0.3	-0.9	-0.8	0.3	-0.2	-0.1	-0.9	-1.8	-1.8	-0.9	-1.8
Transportation	1.1	0.7	-0.4	3.4	8.2	1.6	-0.6	-0.6	3.1	1.6	-0.3	-0.4	0.0
Medical Care	0.0	0.0	19.5	0.0	0.0	13.0	1.4	-2.0	0.0	0.0	15.2	0.3	0.0
Recreation	-0.3	0.0	-0.4	-0.7	-0.2	7.3	0.0	3.9	-0.6	-1.1	-0.5	0.5	2.2
Education & Communication	0.5	-0.3	-0.6	0.2	-0.2	0.0	0.0	0.7	0.0	-0.3	3.3	-3.2	0.3
Other Goods & Services	1.6	0.0	1.1	2.4	0.0	0.3	0.7	-0.3	2.1	-0.5	0.6	1.7	-0.8

Chart 6: Quarterly inflation, Tinian: Qtr 2 2010 – Qtr 2 2013

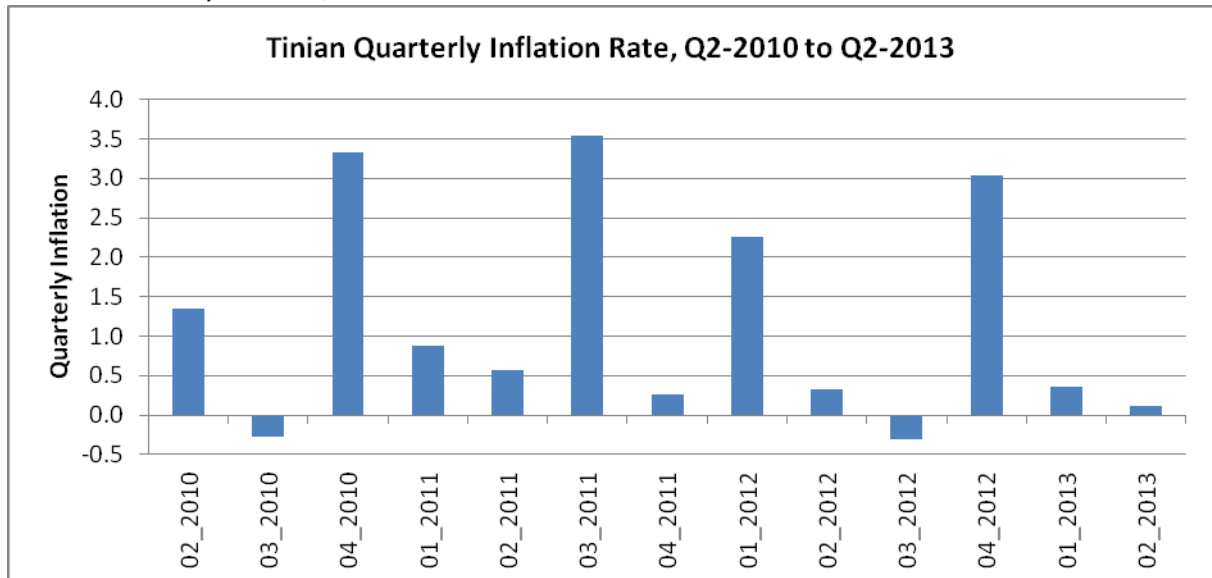
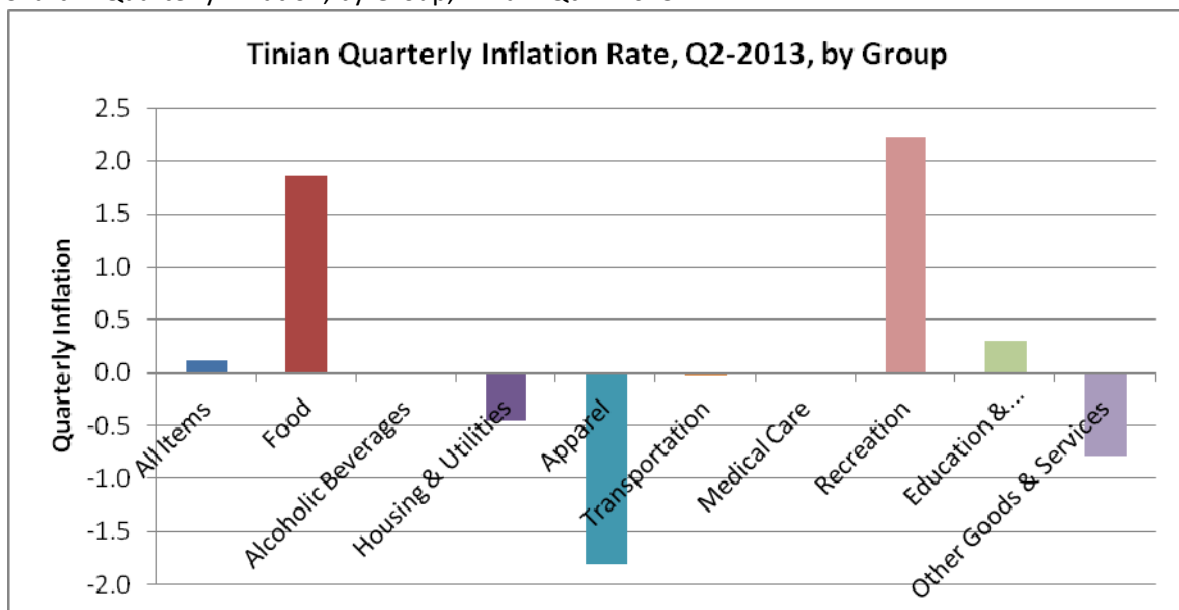


Chart 7: Quarterly inflation, by Group, Tinian: Qtr 2 2013



## Section 2 – Annual Inflation

Table 5 below shows the annual increase for Tinian for the last 3 years ending 2<sup>nd</sup> quarter, 2013. As can be seen from the table, the annual increase for Tinian for 2<sup>nd</sup> quarter 2013 was 3.2 percent which was a decrease of 3.3 percentage points for the same period the previous year.

Chart 9 shows additional annual inflation analysis by group for the 2<sup>nd</sup> quarter 2013. From this graph it can be seen that the “Medical Care” group had the highest annual increase for 2<sup>nd</sup> quarter 2013 (15.6%), followed by “Housing & Utilities” (3.0%).

Table 5: Annual inflation, by group, Tinian: Qtr 2 2011 – Qtr 2 2013

Group	2nd Qtr 2011	2nd Qtr 2012	2nd Qtr 2013
<b>All Items</b>	4.6	6.5	3.2
<b>Food</b>	-2.6	5.1	2.2
<b>Alcoholic Beverages</b>	-0.1	3.1	1.0
<b>Housing &amp; Utilities</b>	6.2	9.2	3.0
<b>Apparel</b>	-1.7	-0.9	-6.2
<b>Transportation</b>	12.3	3.5	0.8
<b>Medical Care</b>	19.5	12.3	15.6
<b>Recreation</b>	-1.4	10.8	1.2
<b>Education &amp; Communication</b>	-0.8	0.7	0.0
<b>Other Goods &amp; Services</b>	3.5	2.8	1.0

Chart 8: Annual inflation, Tinian: Qtr 2 2011 – Qtr 2 2013

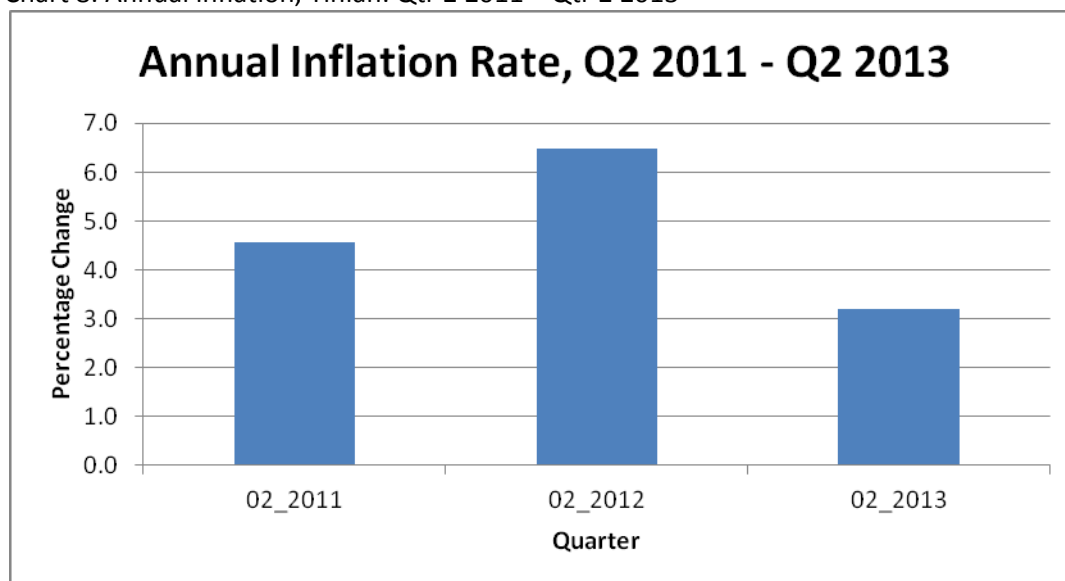
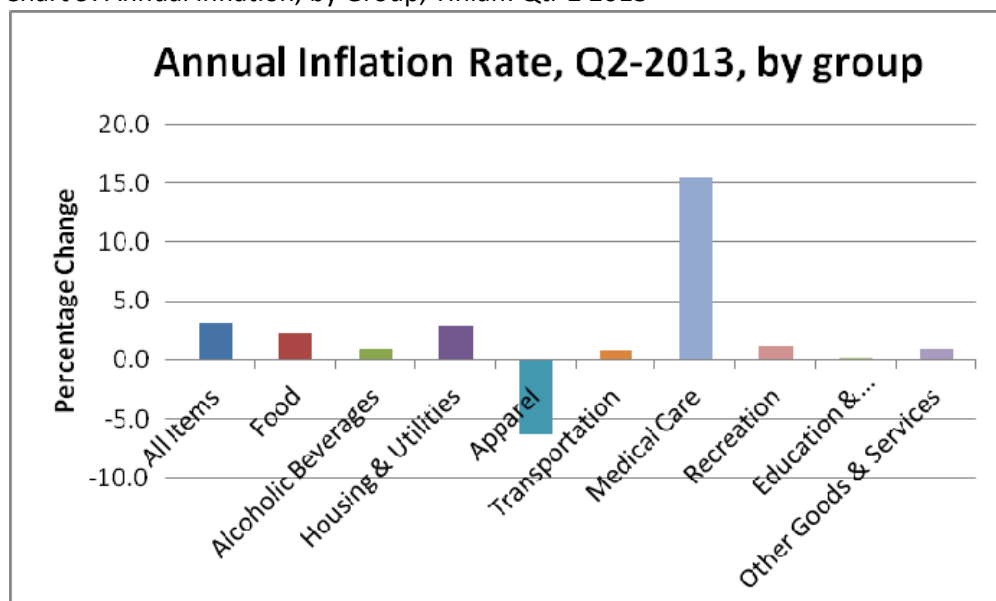




Chart 9: Annual inflation, by Group, Tinian: Qtr 2 2013



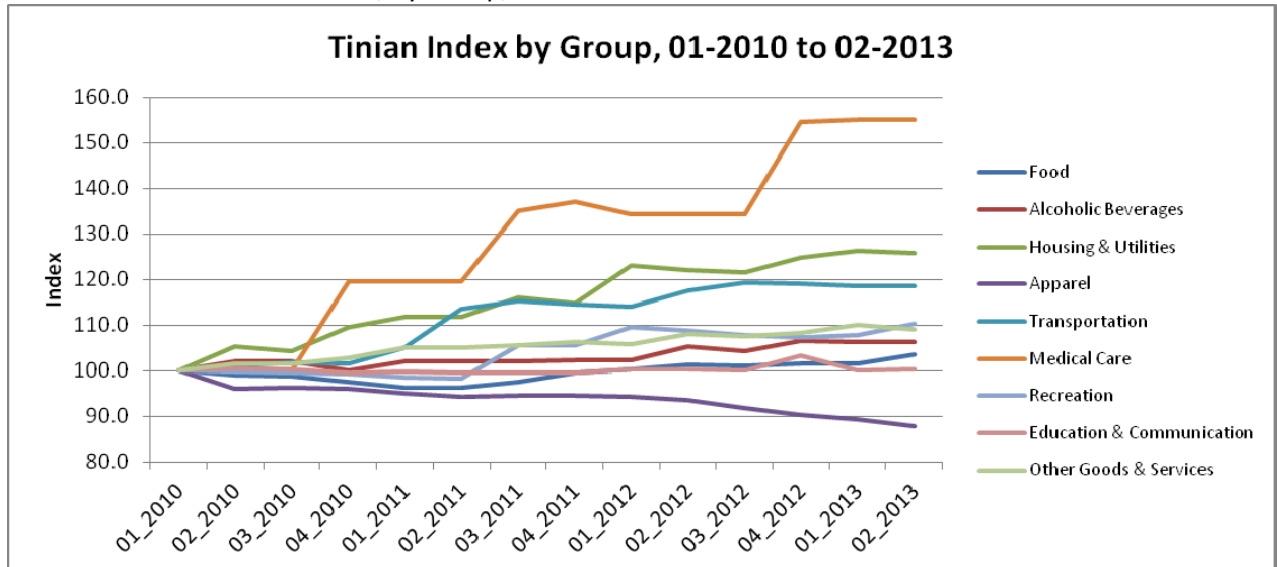
## Section 3 – Further Analysis of the Index

Table 6 and Chart 10 below show the change in the index since the CPI was established in 1<sup>st</sup> Quarter 2010. The analysis shows that "Medical Care" has had the most significant increase in this period with the index rising by 55.1 percent during this period, while "Housing & Utilities" was next largest with an increase of 25.7 percent during this time. Only "Apparel" had a decrease during this period, dropping by 12.2 percent.

Table 6: Consumer Price Index, by group, Tinian: Qtr 1 2010 – Qtr 2 2013

Group	1st Qtr 2010	2nd Qtr 2010	3rd Qtr 2010	4th Qtr 2010	1st Qtr 2011	2nd Qtr 2011	3rd Qtr 2011	4th Qtr 2011	1st Qtr 2012	2nd Qtr 2012	3rd Qtr 2012	4th Qtr 2012	1st Qtr 2013	2nd Qtr 2013
All Items	100.0	101.3	101.1	104.4	105.4	106.0	109.7	110.0	112.5	112.8	112.5	115.9	116.3	116.5
Food	100.0	98.9	98.7	97.5	96.3	96.3	97.5	99.6	100.3	101.2	101.0	101.4	101.6	103.5
Alcoholic Beverages	100.0	102.1	102.1	100.1	102.0	102.0	102.1	102.2	102.3	105.2	104.2	106.5	106.2	106.2
Housing & Utilities	100.0	105.2	104.3	109.4	111.8	111.8	116.0	114.9	123.0	122.1	121.6	124.8	126.3	125.7
Apparel	100.0	96.0	96.3	96.0	95.1	94.4	94.6	94.4	94.4	93.6	91.8	90.2	89.4	87.8
Transportation	100.0	101.1	101.8	101.5	104.9	113.5	115.3	114.6	114.0	117.5	119.3	119.0	118.4	118.4
Medical Care	100.0	100.0	100.0	119.5	119.5	119.5	135.0	137.0	134.2	134.2	134.2	154.6	155.1	155.1
Recreation	100.0	99.7	99.6	99.2	98.5	98.3	105.5	105.5	109.6	108.9	107.7	107.2	107.8	110.2
Education & Communication	100.0	100.5	100.2	99.6	99.8	99.6	99.7	99.7	100.3	100.3	100.0	103.3	100.1	100.3
Other Goods & Services	100.0	101.6	101.6	102.7	105.1	105.1	105.5	106.2	105.8	108.1	107.6	108.2	110.0	109.2

Chart 10: Consumer Price Index, by Group, Tinian: Qtr 1 2010 – Qtr 2 2013



# Analysis - Rota

## Section 1 – Quarterly Inflation

Table 7 shows the quarterly inflation rate for each quarter since the 2<sup>nd</sup> quarter 2010, by group. As can be seen from this table the index rose by 0.6 percent for the 2<sup>nd</sup> quarter 2013. The trend for “All Items” can also be seen in Chart 11 showing a slightly higher increase when compared to the previous quarter.

Chart 12 shows that “Food” had the largest increase during the last quarter with a rise of 2.2 percent. The group which had the main decrease was “Transportation” which dropped by 2.3 per cent. The other groups for Rota had minor changes over the last quarter with only small increases and decreases recorded.

Table 7: Quarterly inflation, by group, Rota: Qtr 2 2010 – Qtr 2 2013

Group	2nd Qtr 2010	3rd Qtr 2010	4th Qtr 2010	1st Qtr 2011	2nd Qtr 2011	3rd Qtr 2011	4th Qtr 2011	1st Qtr 2012	2nd Qtr 2012	3rd Qtr 2012	4th Qtr 2012	1st Qtr 2013	2nd Qtr 2013
All Items	-0.1	1.1	1.0	2.2	0.8	1.5	0.0	0.4	0.2	1.1	1.2	0.1	0.6
Food	0.0	-0.9	-0.8	0.5	-0.1	1.7	0.2	1.3	0.4	0.5	-0.1	0.0	2.2
Alcoholic Beverages	0.0	1.6	0.0	0.2	0.0	0.0	0.0	1.0	0.0	0.0	0.1	-0.1	0.0
Housing & Utilities	0.1	2.5	-1.7	3.0	0.0	0.1	0.1	0.5	0.0	2.5	1.8	0.4	0.7
Apparel	0.5	-2.9	0.3	0.0	-0.6	1.0	-0.2	-0.9	-0.2	-1.9	-3.2	-1.2	1.1
Transportation	1.6	0.9	0.9	3.9	8.3	0.4	-0.4	0.9	1.7	1.2	0.3	-0.4	-2.3
Medical Care	0.0	0.0	17.3	0.0	0.0	11.8	0.0	-0.1	0.0	0.0	4.3	0.6	1.0
Recreation	0.2	0.0	-0.3	0.6	-0.1	-0.4	-0.5	1.5	-0.5	-0.9	0.4	0.2	0.0
Education & Communication	-17.2	-0.2	-0.1	0.0	0.0	-0.8	0.0	0.0	0.0	-4.5	0.2	-0.4	0.6
Other Goods & Services	2.0	2.9	1.2	4.6	0.0	-1.2	0.0	0.0	0.0	0.5	0.7	0.0	1.1

Chart 11: Quarterly inflation, Rota: Qtr 2 2010 – Qtr 2 2013

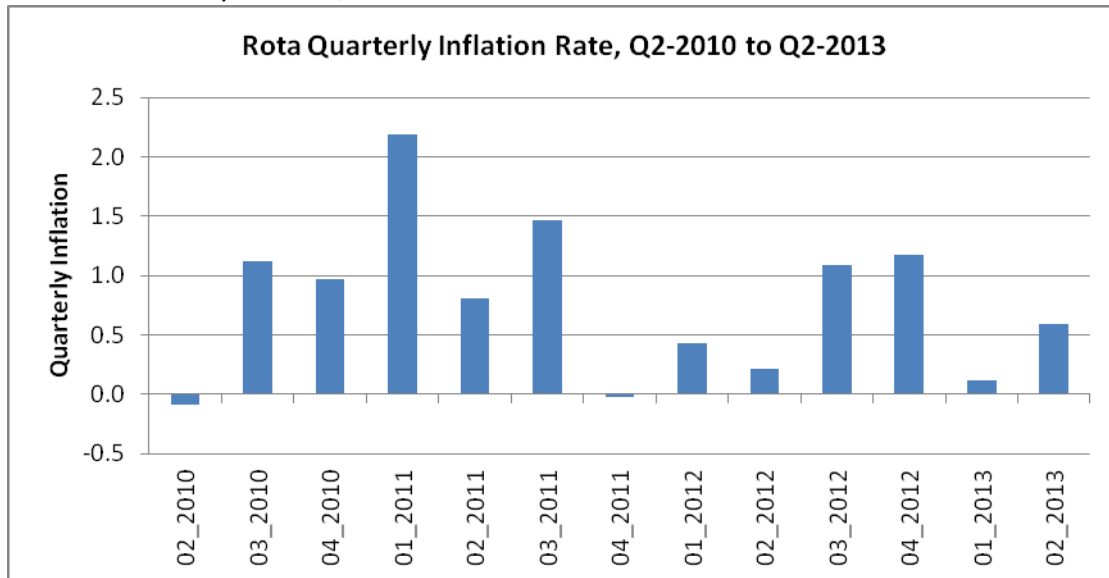
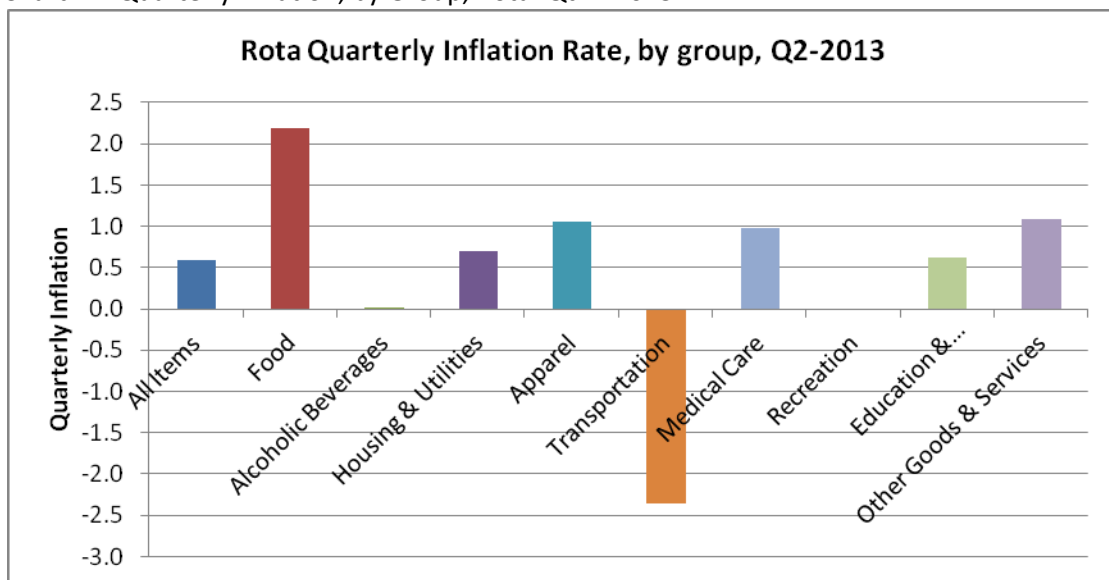


Chart 12: Quarterly inflation, by Group, Rota: Qtr 2 2013



## Section 2 – Annual Inflation

Table 8 below shows the annual increase for Rota for the last 3 years ending 2<sup>nd</sup> quarter. As can be seen from the table, the annual increase for Rota for 2<sup>nd</sup> quarter 2013 was 3.0 percent which was an increase of 0.9 percentage points for the same period the previous year.

Chart 14 shows additional annual inflation analysis by group for the 2nd quarter 2013. From this graph it can be clearly seen that the “Medical Care” group had the highest annual increase for 2<sup>nd</sup> quarter 2013 (6.0%) followed closely by “Housing & Utilities” (5.5%).

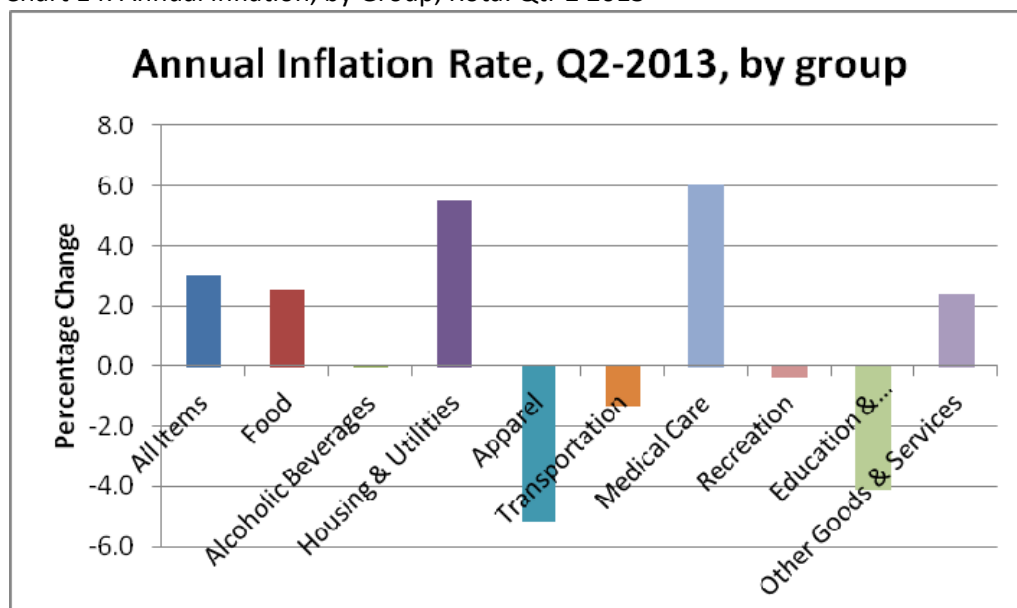
Table 8: Annual inflation, by group, Rota: Qtr 2 2011 – Qtr 2 2013

Group	2nd Qtr 2011	2nd Qtr 2012	2nd Qtr 2013
All Items	5.2	2.1	3.0
Food	-1.3	3.6	2.6
Alcoholic Beverages	1.8	1.0	0.0
Housing & Utilities	3.7	0.6	5.5
Apparel	-3.1	-0.3	-5.1
Transportation	14.6	2.6	-1.3
Medical Care	17.3	11.7	6.0
Recreation	0.2	0.0	-0.3
Education & Communication	-0.4	-0.8	-4.1
Other Goods & Services	8.9	-1.2	2.4

Chart 13: Annual inflation, Rota: Qtr 2 2011 – Qtr 2 2013



Chart 14: Annual inflation, by Group, Rota: Qtr 2 2013



## Section 3 – Further Analysis of the Index

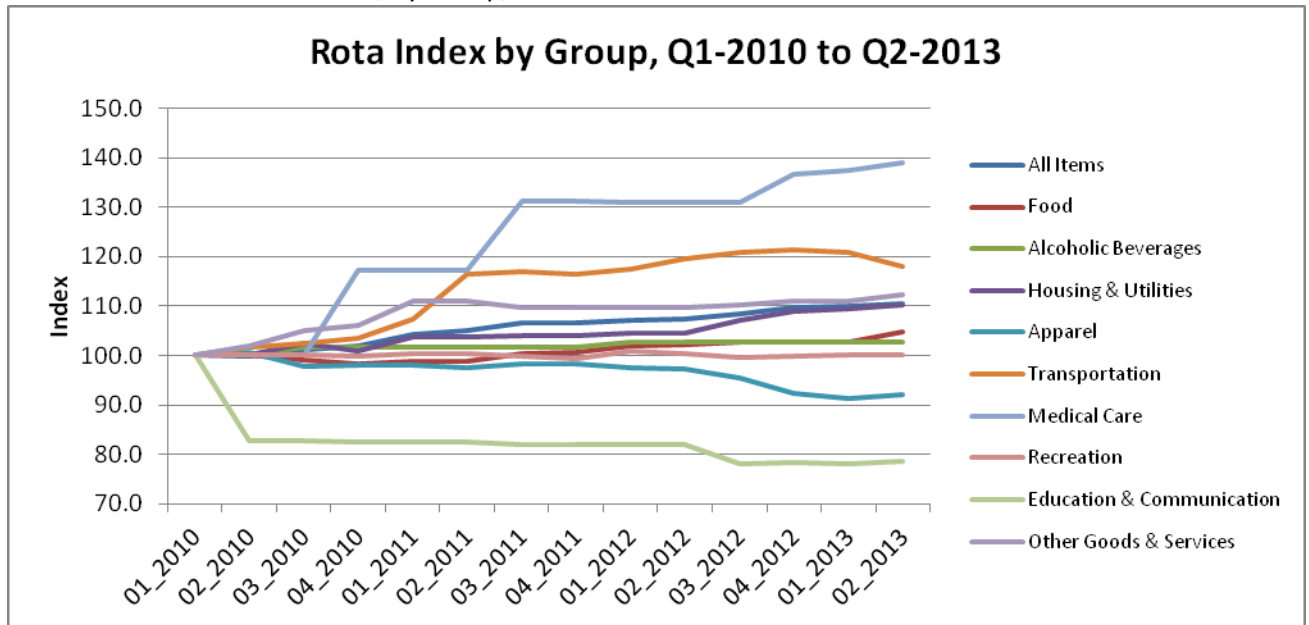
Table 9 and Chart 15 below show the change in the index since the CPI was established in 1<sup>st</sup> Quarter 2010. The analysis shows that "Medical Care" has had the most significant increase in this period with the index rising by 38.9 percent during this period, while "Transportation" followed with an increase of 18.0 percent during this time. "Apparel" and "Education & Communication" showed the largest decrease during this period, dropping by 7.8 percent and 21.5 percent respectively.

Table 9: Consumer Price Index, by group, Rota: Qtr 1 2010 – Qtr 2 2013

Group	1st Qtr 2010	2nd Qtr 2010	3rd Qtr 2010	4th Qtr 2010	1st Qtr 2011	2nd Qtr 2011	3rd Qtr 2011	4th Qtr 2011	1st Qtr 2012	2nd Qtr 2012	3rd Qtr 2012	4th Qtr 2012	1st Qtr 2013	2nd Qtr 2013
All Items	100.0	99.9	101.0	102.0	104.2	105.1	106.6	106.6	107.1	107.3	108.5	109.7	109.9	110.5
Food	100.0	100.0	99.1	98.4	98.8	98.7	100.4	100.5	101.8	102.2	102.8	102.6	102.6	104.9
Alcoholic Beverages	100.0	100.0	101.6	101.6	101.8	101.8	101.8	101.8	102.8	102.8	102.8	102.8	102.8	102.8
Housing & Utilities	100.0	100.1	102.6	100.9	103.9	103.8	103.9	104.0	104.5	104.5	107.1	109.1	109.5	110.2
Apparel	100.0	100.5	97.7	98.0	98.0	97.5	98.4	98.3	97.4	97.2	95.3	92.3	91.2	92.2
Transportation	100.0	101.6	102.5	103.5	107.5	116.4	116.9	116.5	117.5	119.5	120.9	121.3	120.8	118.0
Medical Care	100.0	100.0	100.0	117.3	117.3	117.3	131.1	131.1	131.0	131.0	131.0	136.7	137.6	138.9
Recreation	100.0	100.2	100.2	99.8	100.5	100.3	99.9	99.4	100.9	100.4	99.5	99.8	100.1	100.1
Education & Communication	100.0	82.8	82.6	82.5	82.5	82.5	81.8	81.8	81.8	81.8	78.2	78.3	78.0	78.5
Other Goods & Services	100.0	102.0	105.0	106.2	111.0	111.0	109.7	109.7	109.7	109.7	110.3	111.1	111.1	112.3



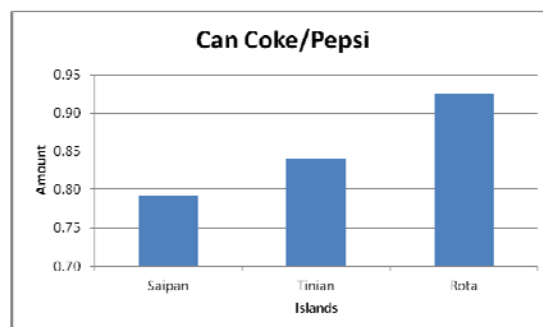
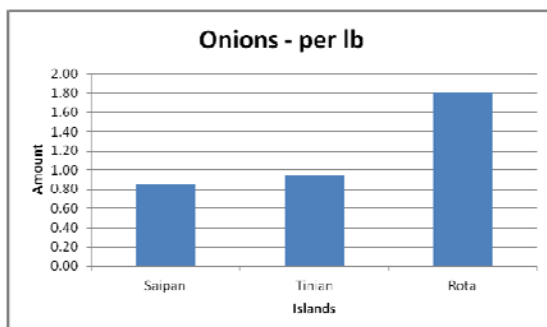
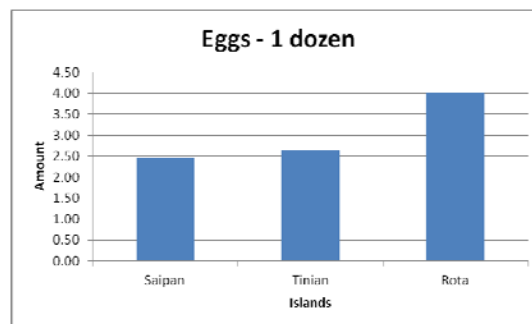
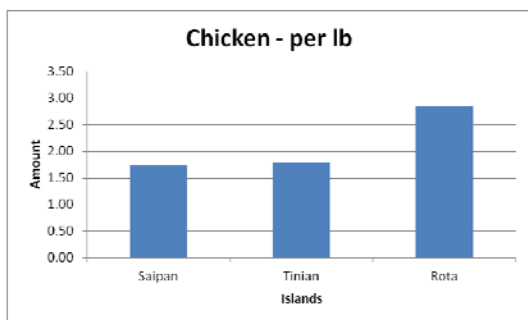
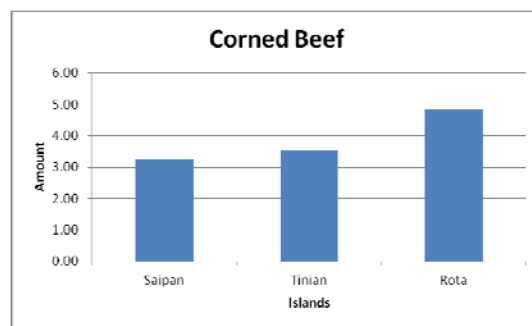
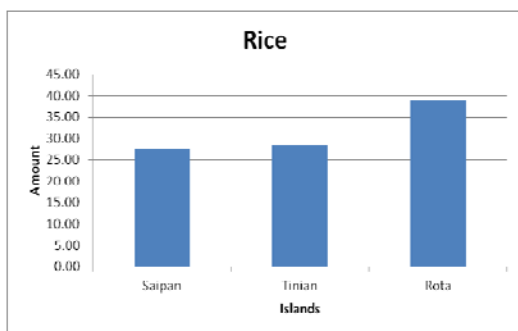
Chart 15: Consumer Price Index, by Group, Rota: Qtr 1 2010 – Qtr 2 2013

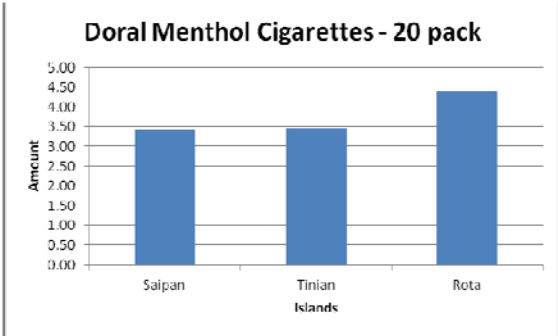
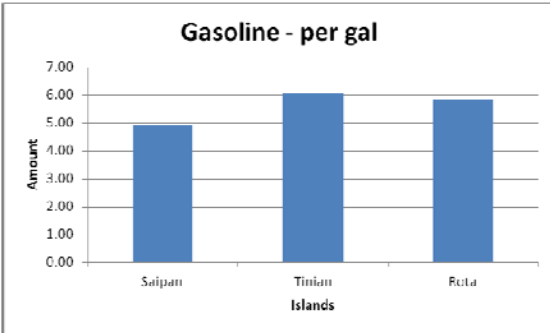
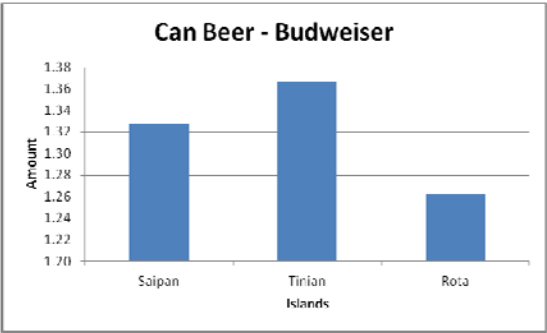


# Analysis – Comparison across Islands (selected items)

The following analysis does a comparison of average prices for selected items across the three main islands of CNMI for second quarter of 2013. The items were chosen based on their significance to household expenditure, as well as the feasibility to compare the items suitably across the three islands.

As can be seen from the analysis, Saipan has the cheapest prices in general for these selected key items, followed by Tinian, with the prices in Rota generally being the most expensive.





# Appendix 1 – Saipan Index

## (Q1-2003 to Q2-2013)

Year.Qtr	All Items	Food	Alcoholic Beverages	Housing & Utilities	Apparel	Transportation	Medical Care	Recreation	Education & Communication	Other Goods & Services
Weights	100.0	17.1	1.4	30.4	6.1	22.2	10.7	3.4	5.6	3.1
2003.01	79.4	76.0	87.3	63.3	92.6	94.7	86.8	95.2	96.4	85.7
2003.02	79.3	76.3	87.5	63.3	92.8	94.4	86.8	94.6	96.2	85.7
2003.03	79.2	76.5	87.3	62.8	93.5	94.4	86.8	94.3	96.6	85.7
2003.04	79.1	76.4	87.2	62.0	93.1	95.2	86.8	91.7	96.0	85.7
2004.01	79.6	78.4	87.2	62.3	93.4	95.2	86.8	91.0	96.0	85.7
2004.02	80.1	79.2	87.1	61.9	92.4	95.6	86.8	96.7	96.0	92.8
2004.03	79.8	80.0	87.4	61.7	88.4	94.7	86.8	94.2	95.2	92.8
2004.04	80.4	81.7	87.2	62.1	85.8	94.9	86.8	93.9	97.3	92.8
2005.01	80.4	81.3	87.3	62.2	90.8	95.3	86.8	94.1	94.5	92.8
2005.02	80.7	81.9	88.4	62.2	89.5	95.4	86.8	96.6	94.9	92.9
2005.03	80.8	82.2	88.8	62.3	86.2	95.7	86.9	96.0	96.2	92.9
2005.04	81.3	81.8	88.8	63.8	85.7	95.7	86.7	96.8	97.2	92.9
2006.01	82.4	82.8	89.2	64.8	97.2	96.0	92.3	99.3	97.8	92.9
2006.02	82.6	82.9	89.2	65.5	97.7	96.0	92.3	99.9	97.8	92.9
2006.03	91.6	83.8	89.3	90.7	98.7	96.0	92.3	102.0	97.9	92.9
2006.04	92.2	85.5	89.3	91.2	98.9	96.0	92.3	100.8	98.3	92.9
2007.01	92.7	86.9	92.7	91.5	100.5	96.0	92.3	101.2	98.7	92.9
2007.02	94.7	88.1	92.7	96.7	100.8	96.0	93.3	101.3	98.6	92.9
2007.03	94.8	88.5	92.7	96.7	101.0	96.0	93.3	101.8	98.6	92.9
2007.04	95.1	89.4	93.1	97.0	101.0	96.0	93.3	102.0	98.6	92.9
2008.01	93.8	93.1	95.1	90.6	101.2	96.0	100.0	103.6	98.5	92.9
2008.02	105.0	93.5	95.8	120.2	100.1	99.2	100.0	100.5	98.5	92.9
2008.03	103.9	97.5	99.2	116.3	99.5	95.9	97.1	100.0	99.5	100.0
2008.04	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
2009.01	100.0	100.9	97.8	98.9	100.0	100.5	101.6	100.0	97.2	101.5
2009.02	101.6	102.3	106.0	100.4	100.0	103.9	101.6	103.2	97.0	101.5
2009.03	101.9	104.9	106.5	97.6	103.4	105.3	98.4	103.6	105.5	102.5
2009.04	105.4	104.5	106.5	106.6	104.3	108.4	98.4	103.8	105.8	103.0
2010.01	106.0	102.9	107.5	105.7	102.7	113.7	100.5	101.6	105.1	102.6
2010.02	106.6	103.4	107.5	106.8	100.2	114.5	100.5	102.4	105.1	104.4
2010.03	106.9	103.0	107.5	106.9	100.1	116.9	99.5	101.4	104.9	104.3
2010.04	111.2	104.4	110.3	108.0	100.3	123.9	119.3	101.2	104.5	106.2
2011.01	109.7	106.5	111.0	100.7	99.7	124.5	119.2	102.7	104.2	112.2
2011.02	110.5	109.3	111.0	101.1	99.3	125.8	119.2	102.6	104.2	112.4
2011.03	113.7	110.8	111.5	102.3	100.1	129.1	135.1	102.6	104.6	112.7
2011.04	113.8	110.3	106.6	102.9	101.4	129.3	135.1	101.6	105.2	112.9
2012.01	114.4	110.2	110.3	103.0	100.2	131.4	135.0	104.3	105.0	113.1
2012.02	113.5	110.4	111.9	102.4	99.6	126.9	137.8	104.3	103.9	113.3
2012.03	113.8	110.5	112.4	101.6	97.4	129.3	139.2	104.1	104.4	113.4
2012.04	115.0	110.3	112.4	103.3	95.9	131.9	141.5	104.0	104.9	113.4
2013.01	113.7	110.5	114.4	103.6	95.6	127.6	143.1	103.5	94.3	113.4
2013.02	113.6	110.7	114.4	103.7	94.8	126.6	143.1	103.5	94.3	113.4

## Appendix 2 – Saipan Quarterly Increase (Q2-2003 to Q2-2013)

Year.Qtr	All Items	Food	Alcoholic Beverages	Housing & Utilities	Apparel	Transportation	Medical Care	Recreation	Education & Communication	Other Goods & Services
Weights	100.0	17.1	1.4	30.4	6.1	22.2	10.7	3.4	5.6	3.1
2003.01										
2003.02	-0.1	0.3	0.2	0.0	0.2	-0.3	0.0	-0.7	-0.2	0.0
2003.03	-0.1	0.4	-0.2	-0.8	0.8	0.0	0.0	-0.3	0.4	0.0
2003.04	-0.2	-0.1	-0.1	-1.3	-0.4	0.8	0.0	-2.8	-0.6	0.0
2004.01	0.6	2.6	0.0	0.4	0.4	0.0	0.0	-0.7	-0.1	0.0
2004.02	0.7	1.0	-0.2	-0.6	-1.1	0.4	0.0	6.2	0.1	8.3
2004.03	-0.4	1.1	0.4	-0.3	-4.3	-0.9	0.0	-2.6	-0.9	0.0
2004.04	0.7	2.1	-0.2	0.6	-3.0	0.2	0.0	-0.3	2.2	0.0
2005.01	0.1	-0.5	0.1	0.2	5.8	0.4	0.0	0.2	-2.9	0.0
2005.02	0.3	0.7	1.3	0.1	-1.4	0.1	0.0	2.7	0.4	0.0
2005.03	0.2	0.3	0.4	0.1	-3.6	0.3	0.1	-0.7	1.4	0.0
2005.04	0.6	-0.4	0.1	2.3	-0.6	0.0	-0.2	0.8	1.1	0.0
2006.01	1.3	1.1	0.5	1.6	13.4	0.3	6.5	2.6	0.6	0.0
2006.02	0.3	0.1	0.0	1.0	0.5	0.0	0.0	0.6	0.0	0.0
2006.03	10.9	1.1	0.0	38.5	1.0	0.0	0.0	2.1	0.1	0.0
2006.04	0.6	2.0	0.1	0.6	0.3	0.0	0.0	-1.1	0.5	0.0
2007.01	0.5	1.7	3.8	0.3	1.6	0.0	0.0	0.3	0.4	0.0
2007.02	2.2	1.3	0.0	5.6	0.3	0.0	1.1	0.1	-0.2	0.0
2007.03	0.1	0.4	0.0	0.1	0.2	0.0	0.0	0.4	0.0	0.0
2007.04	0.3	1.0	0.4	0.3	0.0	0.0	0.0	0.3	0.0	0.0
2008.01	-1.4	4.2	2.1	-6.7	0.1	0.0	7.1	1.5	-0.1	0.0
2008.02	11.9	0.3	0.8	32.7	-1.1	3.4	0.0	-2.9	0.0	0.0
2008.03	-1.0	4.3	3.5	-3.2	-0.6	-3.3	-2.9	-0.5	1.0	7.7
2008.04	-3.8	2.6	0.8	-14.0	0.5	4.3	3.0	0.0	0.5	0.0
2009.01	0.0	0.9	-2.2	-1.1	0.0	0.5	1.6	0.0	-2.8	1.5
2009.02	1.7	1.4	8.4	1.5	0.0	3.4	0.0	3.2	-0.1	0.0
2009.03	0.3	2.5	0.4	-2.8	3.4	1.3	-3.2	0.4	8.7	1.0
2009.04	3.4	-0.4	0.0	9.3	0.9	2.9	0.1	0.2	0.3	0.4
2010.01	0.6	-1.5	0.9	-0.9	-1.5	4.8	2.0	-2.1	-0.7	-0.4
2010.02	0.5	0.4	0.0	1.1	-2.5	0.7	0.1	0.8	0.0	1.7
2010.03	0.3	-0.4	0.0	0.1	-0.1	2.1	-1.0	-0.9	-0.2	-0.1
2010.04	4.0	1.3	2.6	1.0	0.2	6.0	19.9	-0.3	-0.4	1.9
2011.01	-1.4	2.0	0.7	-6.7	-0.6	0.4	-0.1	1.5	-0.3	5.6
2011.02	0.8	2.6	0.0	0.3	-0.4	1.1	0.0	-0.2	0.0	0.2
2011.03	2.8	1.4	0.4	1.2	0.8	2.6	13.3	0.0	0.4	0.2
2011.04	0.1	-0.4	-4.4	0.5	1.3	0.1	0.0	-0.9	0.6	0.2
2012.01	0.5	-0.1	3.4	0.1	-1.2	1.6	-0.1	2.7	-0.2	0.2
2012.02	-0.8	0.2	1.5	-0.6	-0.6	-3.4	2.1	0.0	-1.1	0.2
2012.03	0.3	0.0	0.5	-0.8	-2.2	1.8	1.0	-0.2	0.5	0.1
2012.04	1.1	-0.2	0.0	1.7	-1.5	2.0	1.7	-0.1	0.4	0.0
2013.01	-1.1	0.2	1.7	0.3	-0.3	-3.3	1.1	-0.5	-10.1	0.0
2013.02	-0.2	0.2	0.0	0.1	-0.9	-0.7	0.0	0.0	0.0	0.0

## Appendix 3 – CPI Weights for each Island

ALL GROUPS	Saipan	Tinian	Rota
<b>Food</b>	<b>17.1083</b>	<b>21.0482</b>	<b>12.9058</b>
Cereal Products	2.7052	4.6227	2.6345
Meat Products	4.0402	6.0270	3.1488
Seafood Produce	1.4994	0.8986	N/A
Dairy Produce	1.5335	2.0349	1.4826
Fruit	0.3195	0.5851	0.0762
Vegetables	1.0487	1.1897	0.9914
Non-alcoholic Beverages	1.6493	2.8072	1.5779
Confectionery	0.3072	0.2004	0.2269
Miscellaneous Food	0.5690	1.2973	0.5522
Take-away Food	3.4363	1.3853	2.2153
<b>Alcoholic Beverages</b>	<b>1.3768</b>	<b>3.1933</b>	<b>1.5890</b>
Alcoholic Beverages	1.3768	3.1933	1.5890
<b>Housing &amp; Utilities</b>	<b>30.3859</b>	<b>31.1513</b>	<b>44.6249</b>
Housing	15.1278	7.8888	13.7889
Utilities	10.0594	12.0407	14.5987
Household Goods/Furniture	1.0887	5.3456	2.0813
Household Maintenance	4.1101	5.8762	14.1559
<b>Apparel</b>	<b>6.1443</b>	<b>8.7016</b>	<b>7.8026</b>
Mens Clothng	1.7022	2.9283	1.5850
Womens Clothing	2.0195	3.0038	2.4739
Infant Clothing	0.6881	0.5074	0.7567
Footwear	1.2561	1.8681	2.5288
Accessories	0.4783	0.3942	0.4582
<b>Transportation</b>	<b>22.2282</b>	<b>7.9752</b>	<b>10.3137</b>
Vehicle Purchase	13.8896	0.4586	2.1391
Vehicle Maintenance	7.2386	5.3267	7.6918
Public Transport	1.1000	2.1900	0.4827
<b>Medical Care</b>	<b>10.6622</b>	<b>10.8923</b>	<b>9.3760</b>
Medical Supplies	1.2291	1.3909	2.3924
Medical Services	9.4330	9.5014	6.9836
<b>Recreation</b>	<b>3.3994</b>	<b>4.0032</b>	<b>2.2680</b>
Recreation	3.3994	4.0032	2.2680
<b>Education &amp; Communication</b>	<b>5.6292</b>	<b>5.7111</b>	<b>2.9257</b>
Education	0.6395	0.6188	0.4815
Communication	4.9897	5.0923	2.4442
<b>Other Goods &amp; Services</b>	<b>3.0656</b>	<b>7.3237</b>	<b>8.1944</b>
Cigarettes & BetelNut	1.7380	2.6558	4.1746
Other Goods	0.5353	0.4458	0.3478
Other Services	0.7923	4.2221	3.6719