



Government of Antigua & Barbuda



Technical Note on the Impact of COVID-19 on April 2020 Consumer Price Index

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Background

The Government of Antigua and Barbuda declared a state of emergency on March 28, 2020 as a result of COVID-19. All businesses were ordered closed except for essential services including supermarkets, pharmacies and petrol stations. Therefore, the collection and compilation of the April 2020 Consumer Price Index was impacted by the closure of businesses and restriction of the movement of price collectors. Price collection is done primarily in-person as the use of alternative price collection methods was not possible for most items. Due to these factors April's price collection was conducted during the last week of April 2020 instead of the first two weeks of the month.

The Consumer Price Index (CPI) is a statistical indicator of the changes in the general level of prices of a fixed basket of consumer goods and services purchased by private households. The CPI provides an estimate of the price change between any two periods.

General approach

The CPI follows the prices of a basket of items in various categories of consumer spending. The quantity and quality of the goods and services in the basket remain the same through the life of the basket. Changes in the cost of the basket over time are not due to changes in the quantity and/or quality of the goods and services; they are due purely to movements in price.

At the onset of the COVID-19 pandemic, price statisticians around the world faced similar realities and co-operated to share their insights and strategies for dealing with the extraordinary operational challenges. In consultation with international price experts from organisations such as the ILO, CARTAC, UNECLAC and CARICOM Secretariat Regional Statistical Programme, the Statistics Division applied the following treatments to compile the CPI.

1. Where an item was not available for collection or consumption the movement were imputed using the average relative for the same item from other outlets.
2. Where an item or service is not volatile and was not available for collection, the carry forward method was applied.
3. Where prices of airline fares were not collected due to the suspension of flights into V.C Bird International Airport, the use of historical index change was applied to the air transportation index.

Table 1 provides a description of a number of goods and services in the CPI basket that were not available for collection. These products and services represent 31.4% of the CPI basket.

Table 1: Percentage and Number of Observations with Missing Prices for April 2020

| Consumer Price Index Categories | Basket Weight (%) | Number of Observations | Number of Observations with Missing Prices | Percentage of Observations with Missing Prices |
|--|-------------------|------------------------|--|--|
| Total¹ | 100.00 | 1638 | 515 | 31.4 |
| Food and Non-Alcoholic Beverages | 17.94 | 989 | 176 | 17.8 |
| Alcoholic Beverages, Tobacco and Narcotics | 2.02 | 84 | 13 | 15.5 |
| Clothing and Footwear | 3.60 | 154 | 154 | 100.0 |
| Housing, Water, Electricity, Gas and Other Fuels | 28.06 | 32 | 30 | 93.8 |
| Furnishings, Household Equipment and Routine Household | 6.84 | 182 | 49 | 26.9 |
| Health | 1.37 | 21 | 10 | 47.6 |
| Transport | 15.11 | 35 | 33 | 94.3 |
| Communication | 8.70 | 13 | 0 | 0.0 |
| Recreation and Culture | 3.23 | 14 | 10 | 71.4 |
| Education | 1.44 | 22 | 0 | 0.0 |
| Restaurants and Hotels | 4.15 | 13 | 10 | 76.9 |
| Miscellaneous Goods and Services | 7.53 | 79 | 30 | 38.0 |

Source: Statistics Division, Ministry of Finance and Corporate Governance

Treatment of observations with missing prices

The COVID-19 pandemic created several challenges for the collection of prices and compilation of the Consumer Price Index. The treatments outlined were implemented to ensure the CPI remains reflective of prices faced by consumers. If prices for these goods and services were available for collection, they would represent actual movement in the CPI.

Of the twelve major categories, *Clothing and Footwear* was the most affected by the pandemic because of all store closures. Four other categories were also impacted by the closure, *Transport*, *Housing, Water, Electricity, Gas and Other Fuels*, *Restaurant and Hotels* and *Recreation and Culture*. 94.3% of the observations in *Transport* were missing as well as 93.8% of the observations in *Housing, Water, Electricity, Gas and Other Fuels*. In *Restaurants and Hotels*, 76.9% were missing while 71.4% were missing in *Recreation and Culture*. Within *Communication* the prices were not physically collected but were obtained via the internet. The category *Education* was the least affected since school fees and private lessons are collected annually.

¹ Total Basket Weight percentage may not add up due to rounding

Table 2 below indicates the categories where no prices were collected, and the imputations methods implemented in April 2020 Consumer Price Index.

Table 2: Consumer Price Index Missing Observations and Imputation Treatments for April 2020

| Consumer Price Index Categories | Categories with Missing Prices | Imputation Treatment |
|--|---|--|
| Food and Non-Alcoholic Beverages | Vegetables, Fruits, Meat and Meat Products, Fish, Dairy Products, Sugars | Imputation from same item at different outlets |
| Alcoholic Beverages, Tobacco and Narcotics | Beers, Spirits, Import Rum, Import Liquors | Imputation from same item at different outlets |
| Clothing and Footwear | Clothing Materials, Garments, Footwear | Carry Forward |
| Housing, Water, Electricity, Gas and Other Fuels | Rental for Housing, Water Supply, Electricity, Gas, | Carry Forward |
| Furnishings, Household Equipment and Routine Household | Household Appliances, Goods and Services for routine Household Maintenance, Glassware, Tableware and Household Utensils | Imputation from same item at different outlets |
| Health | Medical Products, Medical Appliances, Medical Equipment | Carry forward and imputation from same item at different outlets |
| Transport | Transport Services, Operations of Personal Transport Equipment | Carry forward method was applied except for airlines. Historical index change was used to adjust airline fares |
| Communication | Telephone Purchases and Rates, Internet Fees and Rates | Carry Forward |
| Recreation and Culture | Admission to Cinema, Night Clubs, Sporting Events, Televisions, Stereos, Computers | Imputation from same item at different outlets |
| Education | School Fees, Private Lessons | Carry Forward |
| Restaurants and Hotels | Meal Lunches, Hamburger, Pizzas, Fried Chicken and Chips, Accommodation Abroad | Carry Forward |
| Miscellaneous Goods and Services | Barbershop, Hair Salon and Beauty Supplies, Toiletries, | Carry Forward and imputation from same item at different outlets |

Source: Statistics Division, Ministry of Finance and Corporate Governance

Conclusion

The COVID-19 pandemic presented several challenges to the collection and compilation of the Consumer Price Index for April 2020. The unavailability of items and the temporary closure of businesses made it difficult for the price collectors. With the challenges encountered, imputation methods were required and implemented to ensure the Consumer Price Index remains reflective of prices changes in Antigua and Barbuda. The methodology was implemented according to international guidelines and following consultations with other statistical organisations.