

# COVID-19 – Price trends in Nunavik during the public health crisis in the spring of 2020

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## 1. CONTEXT

In response to the rapid spread of the coronavirus COVID-19, the Government of Quebec declared a public health emergency in March 2020<sup>[2]</sup>. In the days and weeks that followed, various measures were put in place to stem the spread of the virus in Quebec, including a lockdown and the suspension of all non-essential activities. The resulting uncertainty had many implications, including concerns about its possible effects on consumer prices. In the absence of studies to monitor price movements in Nunavik, Nunivaat, in collaboration with the Kativik Regional Government and the Nunavik Regional Board of Health and Social Services, undertook an analysis to document price movements in the months prior to and following the declaration of the health emergency.

## 2. METHODOLOGY

The data for this analysis come from the Food and Other Essentials program, a measure to reduce the cost of living in Nunavik which is administered by the Kativik Regional Government. The program subsidizes a specified proportion of the in-store price of a range of common consumer products available in all Nunavik retail stores<sup>[3]</sup>. For this project, the Kativik Regional Government provided Nunivaat with sales data compiled by retailers, including dates of sale, quantities sold, unit prices, and product descriptions and identification codes for all eligible products. The different data sets obtained were consolidated so as to produce a harmonized data set that allows for price comparisons of products according to the various categories.

In order to establish these comparisons, we selected the maximum price observed every month at each store for each of the unique products in the data set; this was done in order to control for the possibility of sales or liquidations that are sometimes offered by retailers.

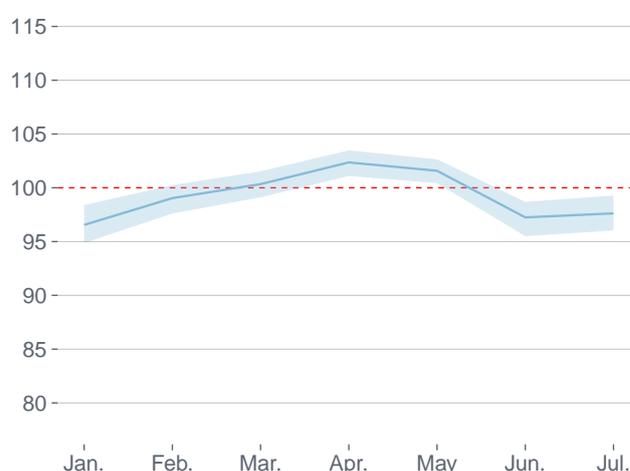
In an effort to control the effect of seasonality on the indices, we used the universal product codes to establish correspondences between monthly prices in 2020 and those in 2019. In other words, for each of the prices observed in 2020, the reference value for the calculation of the indices is the price observed the year before.

The indices of the different product categories were calculated according to the formula of the geometric Laspeyres

price index, where the sales of the reference period were used as weights<sup>[4]</sup>. All the indices are calculated using 100 as the base value, i.e. where 100 represents the value observed in the reference period.

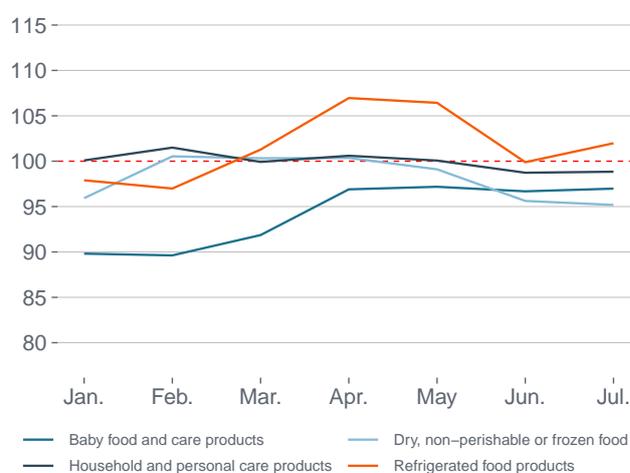
**Figure 1**

Price index, all products, 2019-2020 (100 = 2019)<sup>[5]</sup>



**Figure 2**

Price indices, major product categories, 2019-2020 (100 = 2019)



3. LIMITATIONS

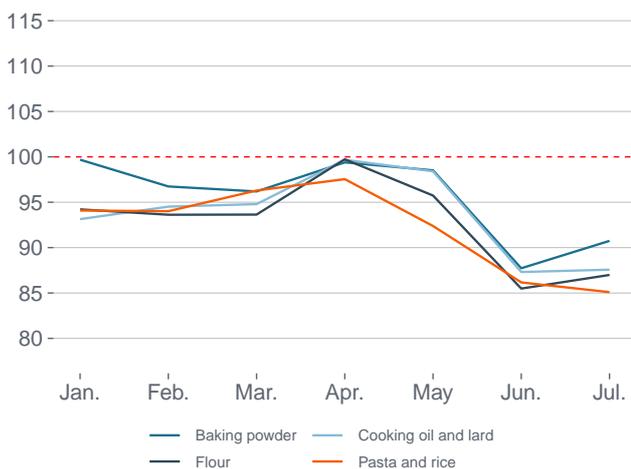
The data set does not include the prices of all products for all periods, and some products are not available in all stores. In order to ensure that the data is representative of Nunavik as a whole, for the price of a product to be included in the calculation of the monthly index, it had to be available in at least half of the stores of one of Nunavik’s two major retail chains.

Since a product must be purchased to be included in the data set, this could result in selection biases. For example, data for a product that has significantly increased in price may not be available for a given period or store if no customer purchased it.

The analysis is limited to the products covered by the program. As a result, certain products are not included in this study, most notably meat and fresh dairy products. This exploratory study is based on a limited time series, so it does not allow for the assessment of long-term price trends that could be related to events prior to the introduction of the lockdown measures; nor does it allow for the use of seasonal adjustment methods that require longer data series. Lastly, while this study describes the movement of prices when the lockdown measures were implemented, the analysis does not allow us to isolate the factors involved in the observed variations.

**Figure 3**

Price indices, selected non-perishable food products, 2019-2020 (100 = 2019)

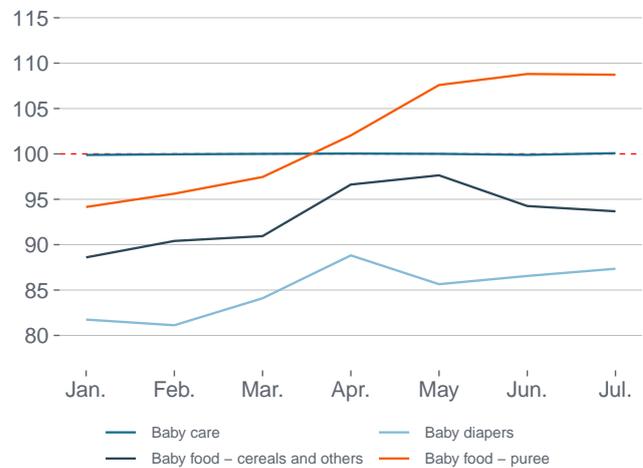


4. RESULTS

Looking at the collection of all the products on a month-by-month basis, we observe that while prices at the beginning of 2020 were slightly below their 2019 level, there was slight increase in prices from March to May

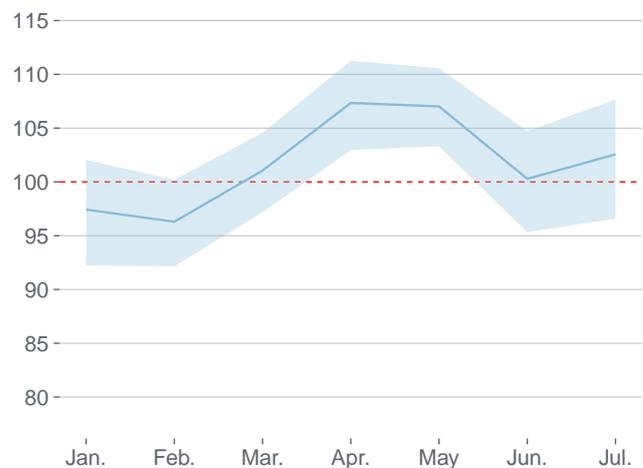
**Figure 4**

Price indices, baby products, 2019-2020 (100 = 2019)



**Figure 5**

Price index, fruit and vegetables, 2019-2020 (100 = 2019)



2020, followed by a return to their previous level around June (Figure 1).

Generally speaking, variations in prices for non-perishable food products and non-food items are rather small and do not exhibit the trends usually associated with the period when the emergency health measures were implemented (Figure 2). On the other hand, there is some fluctuation in prices for certain non-perishable food products, including baking powder, flour, cooking oil and lard, pasta and rice (Figure 3). Still, the prices of these products remained below 2019 levels and seem to have decreased as of April. We also observe some variation in the price of certain baby products beginning in March; for example, during

this period, the price of baby purees rose to a level higher than in 2019 (Figure 4). The only baby products whose price did not fluctuate during this period were for baby care products.

The largest price increases during the period in question were for refrigerated and perishable products, and more specifically the prices for fruit, vegetables and butter (Figure 5 and Figure 6).

Other products, however, do not appear to have exhibited significant trends in the months prior to the pandemic, but their prices began to decline around May (Figure 7).

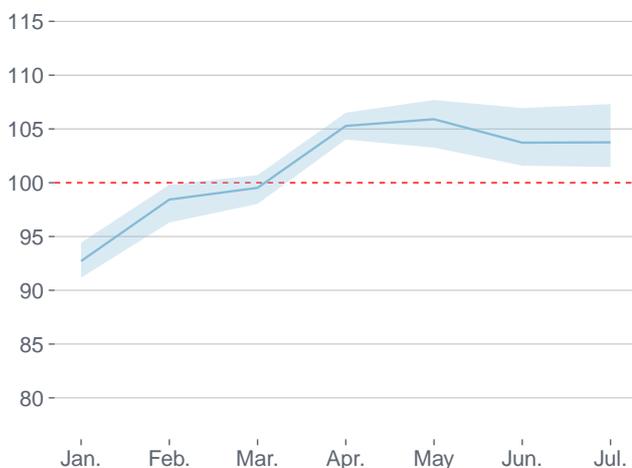
### 5. DISCUSSION

Price movements that occur in the context of emergency health measures are a complex phenomenon involving not only local demand and the various health measures implemented regionally, but also the broader dynamics of the international market. A report by the International Labour Organization highlights certain macroeconomic factors that may have affected prices during the period of interest. Initially, the lockdown measures and the associated loss of income for many workers produced a decrease in demand for various products, which contributed to a decrease in their value<sup>[6]</sup>. This was the case, inter alia, for oil, which resulted in a worldwide reduction in the growth of inflation and the other measures associated with it, including the consumer price index. However, the demand for other products increased, which drove up their prices. Thus, while consumer price indices in April and May 2020 were lower than in 2019, the price of certain foods nevertheless increased during this period<sup>[7]</sup>.

According to the results of our study, the price of

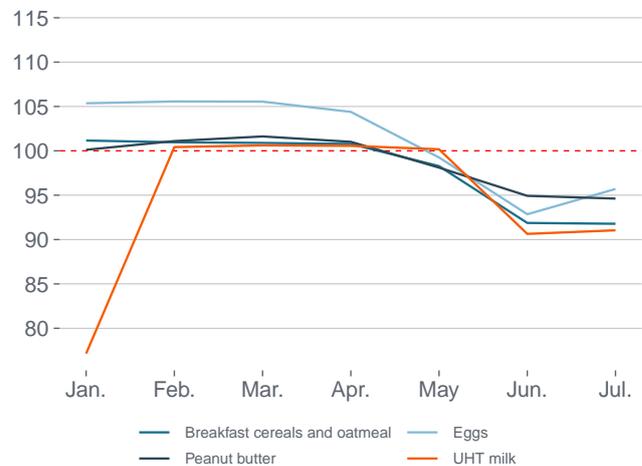
**Figure 6**

Price index, butter, 2019-2020 (100 = 2019)



**Figure 7**

Price indices, selected food products, 2019-2020 (100 = 2019)



perishable products, particularly fruit and vegetables, rose during the lockdown in the spring of 2020. In the rest of Canada, the price of fruit and vegetables also appears to have gone up during 2020<sup>[8]</sup>, but it was meat prices that increased the most in the country during this period, something our study was unable to verify in Nunavik. All the links in the food production and distribution chain were affected by the emergency health measures, but the meat industry seems to have been particularly affected by the restructuring of work made necessary by the imposed health measures, resulting in higher costs. The absence of data on meat is an important limitation of this study, and as a consequence the increase in perishable food prices in Nunavik may be underestimated here.

The price of other products, including certain non-perishable foods and baby products, did go up in Nunavik during the lockdown period, although they did not generally exceed 2019 price levels.

Nevertheless, it is important to recall that the reference period for each of the observations made here is one year earlier, the aim being to limit the potential impact of the different seasons on the indices. While price levels for some products are lower than those of 2019, an increase in prices from one month to the next may still be felt by consumers, particularly in households subject to food insecurity and whose budget may be jeopardized by any price increase.

Although price increases for some products do appear to coincide with the introduction of the lockdown, other factors may also have contributed to maintaining price levels at or below 2019 levels during this period. For example, the decline in oil prices at the beginning of the year, exacerbated in the spring by the price war between

Russia and Saudi Arabia, likely resulted in lower energy costs, which may in turn have lowered food distribution costs<sup>[8]</sup>.

However, the price movements observed in Nunavik during the spring of 2020 cannot be attributed to changes in the Food and Other Essentials subsidy program. The most recent changes to subsidy rates date back to July 2019; hence, only the last month of this time series could have been affected. On the other hand, lower prices for some products, or at least slower price growth, may be due to enhancements to the Nutrition North Canada subsidy program in response to the pandemic. As of May 2020, the federal government introduced an increase to all the subsidy rates, as well as temporarily expanding the program to include certain products that are not normally covered<sup>[9;10]</sup>.

Notwithstanding the limitations of this study, the indices presented do suggest price movements for certain products which effectively coincide with the period when the emergency health measures were implemented. By using longer time series and examining more products, future analyses will be able to provide a better understanding of the long-term trends in price levels in Nunavik and the potential impact of the pandemic on them.

## NOTES AND REFERENCES

- [1] Nunivaat analyst, research professional, Canada Research Chair on Comparative Aboriginal Condition, and corresponding author  
email: sebastien.levesque.11@ulaval.ca.
- [2] Government of Quebec. 2020. Measures adopted by Orders in Council and Ministerial Orders in the context of the COVID-19 pandemic. <https://www.quebec.ca/en/health/health-issues/a-z/2019-coronavirus/measures-orders-in-council-ministerial-orders/>.
- [3] Kativik Regional Government. 2019. Food, Clothing and Other Essentials Subsidy List, July 2019. <https://www.krg.ca/en-CA/assets/programs/nunavik-col/food-price-list-en.pdf>.
- [4] International Labour Office. 2020. *Consumer Price Index Manual: Concepts and Methods*. 775.
- [5] When it does not interfere with the reading of the graph, confidence intervals are represented by a coloured band around the data points. Calculated by the resampling method known as bootstrapping, these confidence intervals represent a range of values that have a 95% theoretical probability of containing the "true" value. In other words, this provides an estimate of the uncertainty of the measurements presented.
- [6] International Labour Organization. December 2020. COVID-19 is driving up food prices all over the world. <https://ilostat.ilo.org/covid-19-is-driving-up-food-prices-all-over-the-world/>.
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