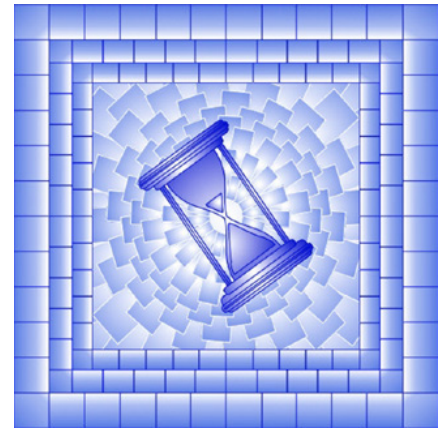


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Technical Supplement for the March 2021 Consumer Price Index



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Technical Supplement for the March 2021 Consumer Price Index

Beginning in April 2020, the collection and compilation of the Consumer Price Index (CPI) have been impacted by measures designed to limit the spread of COVID-19, as in-person field collection was conducted remotely, and imputation strategies were required to address an increased number of temporary business closures and out-of-stock products. These strategies were implemented according to international guidelines, and following consultation with other national statistical organizations.

Where outlets remained temporarily closed, items were out of stock at a higher rate than usual or products and services remained unavailable for consumption, the imputation treatments for the March CPI were the same as those used since the onset of the pandemic.¹

Tables reflecting product and outlet availability (Table 1), imputation donors for unavailable products and services (Table 2) and CPI sub-components with an out-of-stock rate above 30% (Table 3) have been updated to reflect March data.

Table 1

Consumer Price Index product and outlet availability, field, scanner and web scraped data collection modes, March 2021 and March 2020

	Basket weight at link month	Average rate of out of stock product offerings		Average rate of temporarily closed outlets		Average rate of prices received as scheduled	
		March					
		2021	2020	2021	2020	2021	2020
		percent					
Total	100.00	9.0	5.1	1.1	0.1	90.0	94.8
Food and non-alcoholic beverages	16.48	7.7	3.5	0.5	0.0	91.9	96.5
Shelter	27.36	7.8	1.9	0.3	0.0	91.9	98.1
Household operations, furnishings and equipment	12.80	11.0	6.2	0.4	0.0	88.5	93.8
Clothing and footwear	5.17	10.4	11.0	2.4	0.3	87.2	88.7
Transportation	19.95	0.0	0.0	0.8	0.0	99.2	100.0
Health and personal care	4.79	15.5	8.6	3.3	0.0	81.1	91.4
Recreation, education and reading	10.24	8.2	6.5	0.9	0.3	90.9	93.2
Alcoholic beverages, tobacco products and recreational cannabis	3.21	10.5	4.7	2.9	0.3	86.6	95.0

Source: Consumer Prices program.

1. Imputation treatments for the CPI in a given reference month are outlined in the technical supplements available through the [Prices Analytical Series](#).

Table 2
Imputation donors for select products and services unavailable, or partially unavailable for consumption in January, February and March 2021¹

		Affected sub-component basket weight at link month (%)	Imputation donor	Affected geography
January 2021				
Transportation	Air transportation	0.35	Affected sub-components imputed from parent, air transportation	All
Health and personal care	Personal care services	0.60	All-items	Que., Ont., Man.
Recreation, education and reading	Recreational services	0.13	All-items	All
	Travel tours	1.21	All-items	All
	Spectator entertainment (excluding video and audio subscription services)	0.35	All-items	All
	Use of recreational facilities and services	0.25	All items	Que., Ont., Man., Alta.
Alcoholic beverages, tobacco products and recreational cannabis	Beer served in licensed establishments	0.26	Beer purchased from stores	Que., Ont., Man., Alta.
	Wine served in licensed establishments	0.10	Wine purchased from stores	Que., Ont., Man., Alta.
	Liquor served in licensed establishments	0.14	Liquor purchased from stores	Que., Ont., Man., Alta.
February 2021				
Transportation	Air transportation	0.35	Affected sub-components imputed from parent, air transportation	All
Health and personal care	Personal care services	0.36	All-items	Ont.
Recreation, education and reading	Recreational services	0.13	All-items	All
	Travel tours	1.21	All-items	All
	Spectator entertainment (excluding video and audio subscription services)	0.35	All-items	All
	Use of recreational facilities and services	0.24	All items	Que., Ont., Alta.
Alcoholic beverages, tobacco products and recreational cannabis	Beer served in licensed establishments	0.20	Beer purchased from stores	Que., Ont.
	Wine served in licensed establishments	0.08	Wine purchased from stores	Que., Ont.
	Liquor served in licensed establishments	0.10	Liquor purchased from stores	Que., Ont.

Table 2
Imputation donors for select products and services unavailable, or partially unavailable for consumption in January, February and March 2021¹

		Affected sub-component basket weight at link month (%)	Imputation donor	Affected geography
March 2021				
Transportation	Air transportation	0.35	Affected sub-components imputed from parent, air transportation	All
Health and personal care	Personal care services	0.20	All-items	N.L., Parts of Ontario, including Toronto and Northern Ontario
Recreation, education and reading	Recreational services	0.13	All-items	All
	Travel tours	1.21	All-items	All
	Spectator entertainment (excluding video and audio subscription services)	0.31	All-items	All
	Use of recreational facilities and services	0.09	All items	N.L., Parts of Quebec, including Montréal, Parts of Ontario, including Toronto and Northern Ontario, Alta.
Alcoholic beverages, tobacco products and recreational cannabis	Beer served in licensed establishments	0.10	Beer purchased from stores	N.L., Parts of Quebec, including Montréal, Parts of Ontario, including Toronto and Northern Ontario
	Wine served in licensed establishments	0.04	Wine purchased from stores	N.L., Parts of Quebec, including Montréal, Parts of Ontario, including Toronto and Northern Ontario
	Liquor served in licensed establishments	0.06	Liquor purchased from stores	N.L., Parts of Quebec, including Montréal, Parts of Ontario, including Toronto and Northern Ontario

1. Imputation treatments for the CPI in a given reference month are outlined in the technical supplements available through the [Prices Analytical Series](#).

Source: Consumer Prices program.

Adjustments for imputed classes following the resumption of their availability to consumers

Products that are not available for consumption in a region for one or more months are imputed as described in Table 2. When a product becomes available for consumption again, an adjustment factor is calculated to ensure the index reflects only observed price movements. The price relative in the month when availability resumes will be the ratio between the current observed price over the last observed price adjusted for the impact of imputations. As a result, the impact of the imputed price movements is limited only to the months when the product was not available for consumption.

For example, for a given product / geography, if,

- in March 2020, it was **available** for consumption and prices were observable
- in April 2020, it was **unavailable** for consumption and prices were not observable
- in May 2020, it was **unavailable** for consumption and prices were not observable
- in June 2020, it was **available** for consumption again and prices were observable,

then

- in April 2020, the price index between March 2020 and April 2020, $I_{202003:202004}^{202003:202004}$, was imputed.
- in May 2020, the price index between April 2020 and May 2020, $I_{202004:202005}^{202004:202005}$, was imputed.

in June 2020,

- ▶ the price index between March 2020 and June 2020, $I^{202003:202006}$, is calculated using prices observed in March 2020 and June 2020,
- ▶ the price index based on observed prices is adjusted by the sequence of imputations, so that the final price index between May 2020 and June 2020 is calculated as

$$I^{202005:202006} = I^{202003:202006} / (I^{202003:202004} * I^{202004:202005}).$$

This treatment corresponds to the approach used for the re-introduction of seasonal products in the CPI in the first month of their in-season period.² For products/services that have not been available for consumption for many consecutive months, and are seasonal in nature, alternative treatments may be required.

Table 3
CPI sub-components with an out-of-stock rate above 30%, March 2021

Sub-component	Basket weight at link month (%)
Other fresh or frozen poultry meat	0.11
Recreational cannabis	0.53

Source: Consumer Prices program.

Additional questions about how the CPI accounts for outlets remaining temporarily closed, items out of stock at a higher rate than usual, or products and services remaining unavailable for consumption due to COVID-19, or the MICI enhancement can be directed to statcan.cpdisseminationunit-dpcunitedediffusion.statcan@canada.ca.

2. *Consumer Price Index Manual: Concepts and Methods 2020*. [Chapter 11.19](#): "An additional recommendation is that the method applied to deal with seasonal products, should ideally be "self-correcting". For example, if the item after the out-of-season period reappears at the same price as it left the market, then the method should ensure that this will take the index back to 100; similarly, if the price reappears 10 percent higher, it should take the index to 110."