



ONLINE PRICE NOWCASTING BULLETIN

DECEMBER 2018

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I. Data Coverage

We collect the data on a daily basis, starting from April 2018. Each observation includes the item's name, its posted price – before and after reduction, categorization of the item according to the website section naming and the date in which data is collected. Information about the seller's name, selling location and other information are also collected if available. Unified information that can be used to identify the same goods across different websites (e.g. barcodes) are not available on most websites, so we generalize the data into groups of similar products in our statistics. Our data are classified according to the official Consumer Price Index basket structure, provided by the General Statistics Office of Vietnam, which in turn are built based on the United Nations' Classification of Individual Consumption According to Purpose (COICOP) with 10 main groups and over 650 smaller specifications.

For the calculations of the December 2018 Online Price Index, we subset for the data of 11 websites that provide the largest data coverage.

1. Data coverage, by subcategories

Category	Number of goods	Percentage
Household equipment and appliances	3123290	39.03%
Garment, hats and footwear	1765237	22.06%
Culture, entertainment and tourism	853480	10.67%
Food, foodstuffs and services	463680	5.79%
Transportation and communication	250264	3.13%
Education	237012	2.96%
Housing, electricity, water, fuels and building materials	74816	0.94%
Medicine and health-care services	66049	0.83%
Beverage and tobacco	13952	0.17%
Other goods and services	950741	11.88%
Not classified	201935	2.52%
Total	8000456	100%

Of the data collected, approximately 39% are categorized as *Household equipment and appliances*. The two groups *Garments, hats and footwear* and *Culture, entertainment and tourism* also account for a large proportion of the data collected (22.06% and 10.67%, respectively). Only 2.52% of the goods collected cannot be classified and are omitted from our statistics.

2. Data coverage, by websites

No.	Websites	Number of goods	Percentage
1	adayroi	6912264	86.39%
2	tiki	594866	7.44%
3	sieuthibachhoaonline	134987	1.69%
4	nongsanbanbuon	119555	1.49%
5	dienmayxanh	81208	1.02%
6	gcaeco	58605	0.73%
7	hoanghamobile	53630	0.67%
8	dichonhanh	20515	0.26%
9	123wow	9711	0.12%
10	thegioididong	8140	0.10%
11	fptshop	6975	0.09%
	Total	8000456	100%

Across 11 websites used in our calculation of statistics, *adayroi.com* accounts for the most number of items (almost 7 billions items). *Tiki.vn* has the second most number of items (594,866 items).

II. Online Price Index

1. Calculation

The Online Price Index (OPI) use a variation of the geometrics mean Laspeyres formula as follow:

$$I^t = \sum_{i=1}^n W_i \times dp_i^t$$

And for each category i that contains s types of items:

$$dp_i^t = \left(\prod_{j=1}^s \frac{p_j^t}{p_j^{t-1}} \right)^{\frac{1}{s}}$$

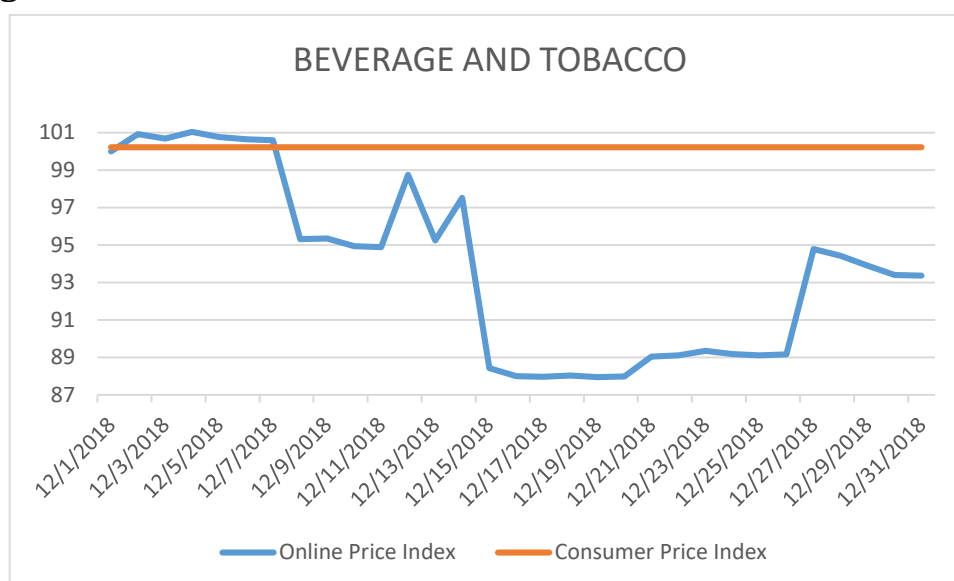
2. Online Price Index for December 2018

We calculated the Online Price Index for December 2018 on a daily basis for 11 main categories in the Consumer Price Index basket structure, where the price for December 1st is set as 100. In the previous data bulletin, due to the sheer number of data (7 months of daily data), we had to aggregate our price index on a weekly basis. From this bulletin onwards, we will be computing our indexes on a daily basis. This provides us with much more insights for the price than the CPI index. For comparison, the official Consumer Price Index for December is as follow:

Category	CPI December 2018*
Beverage and tobacco	100.22
Culture, entertainment and tourism	100.02
Education	100.00
Foodstuff and services	100.05
Garment, hats and footwear	100.43
Household equipment and appliances	99.11
Housing, electricity, water, fuels and building materials	100.16
Medicine and health-care services	105.76
Transportation	95.12
Communication	100.02
Other goods and services	100.24

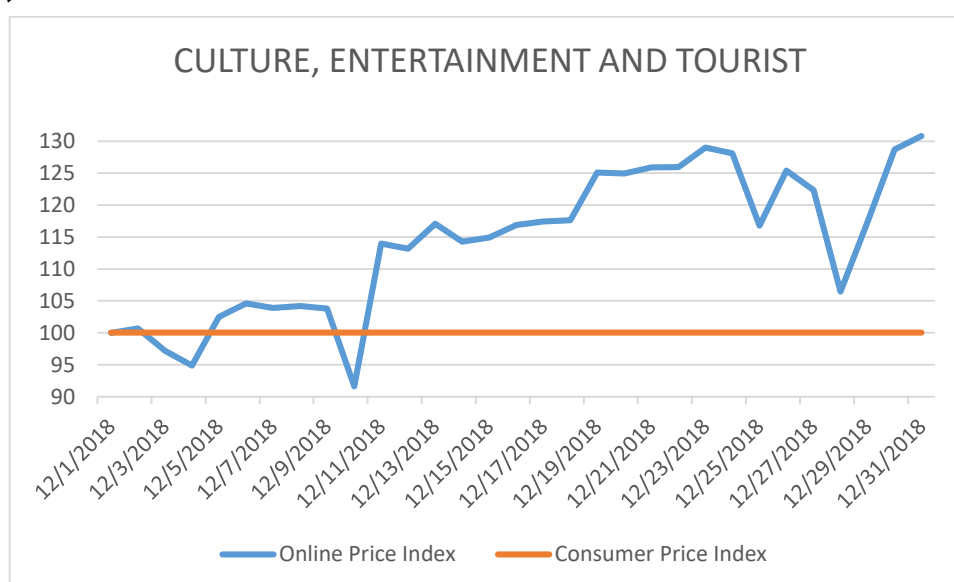
*Value in comparison to November 2018, which is set at 100

Beverage and tobacco



While the CPI reports a slight increase of 0.22% of the price, the Online Price Index of *Beverage and tobacco* shows a decrease of approximately 7% during December. During the first week (From December 1st to December 5th), online prices in this group rose marginally then decreased drastically 12% during the next two week (until December 15th). The online prices remain at this level until increased partially after Christmas Day (December 26th).

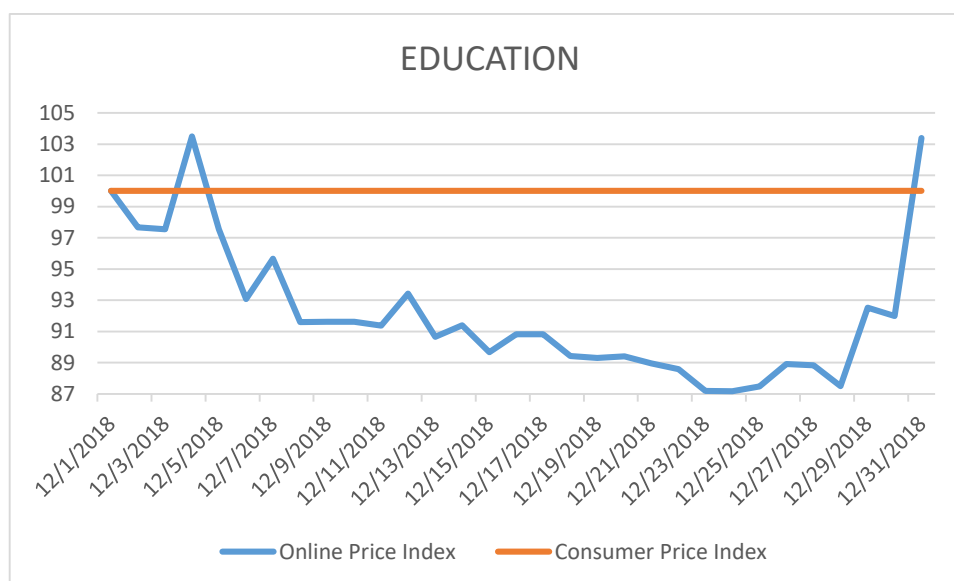
Culture, entertainment and tourism



Although CPI shows almost no change in prices to the group of *Culture, entertainment, and tourism*, the corresponding OPI documented a notable increase of approximately 30% in the month of December. Prices fluctuated for the first ten days of December than started to rise continuously in the next two weeks. After Christmas day

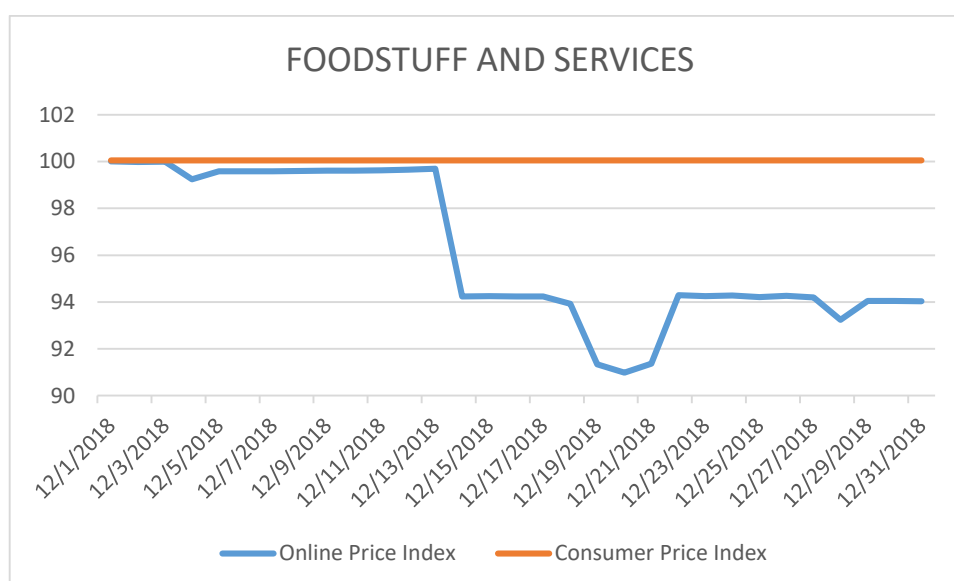
(from December 26th), prices almost decreased to the original level, but then rose back up again in the last three days of the year.

Education



Online prices in the subcategory of *Education* decreased slowly throughout December after fluctuated in the first few days of the month (until December 4th). Prices hit the lowest level in the time period of December 23rd – 25th, where the cumulated Online Price Index is at approximate 87 points. In the last few days of the year (from December 28th), prices started to increase back to its original level, ending at 103 points on December 31st.

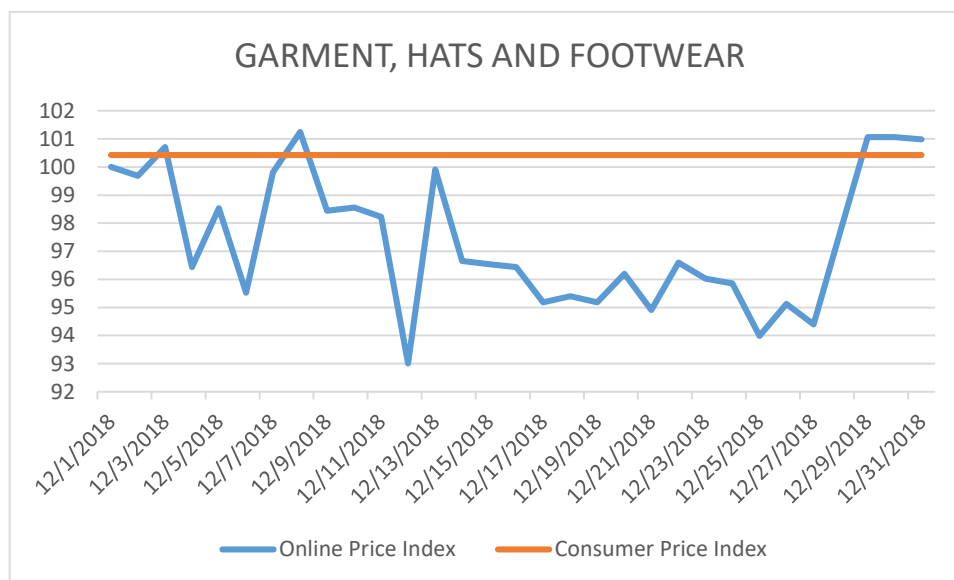
Foodstuff and services



Foodstuff and related services online prices remained stable for the first half of the month, then started to decrease for approximately 6% during the three days of from

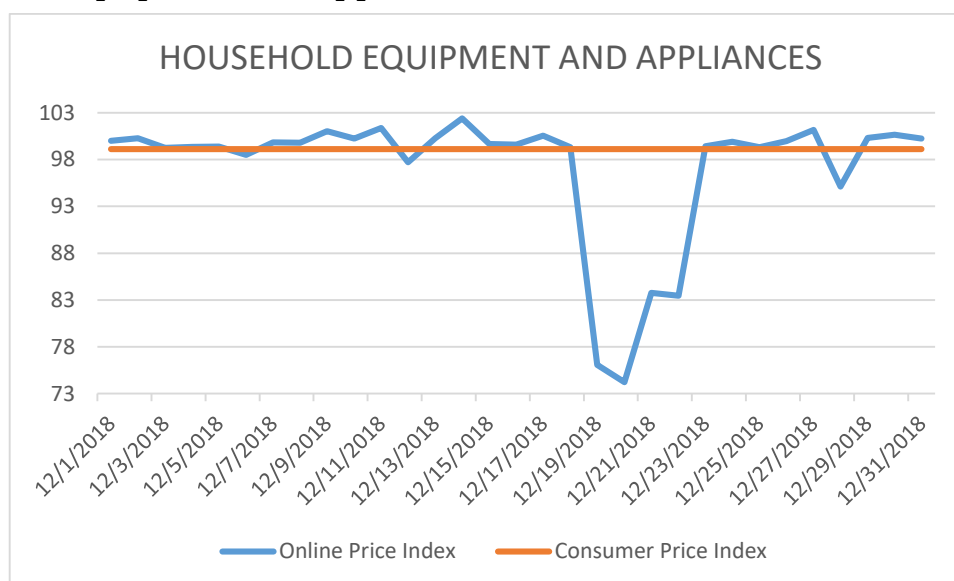
December 13th to December 15th. The price decreased for another 3 points on the 19th but only to increase back for the same amount on December 22nd and remained at this level until the end of the month.

Garment, hats and footwear



The online price for *Garment, hats, and footwear* fluctuated heavily in December, but overall showed a decrease in price during the month. The prices stayed at around 95 points from December 17th to December 28th, then quickly increase back to 101 points in the two days of 28th and 29th. On the other hand, the CPI index for this subcategory only documented a rise of 0.43% in price throughout December.

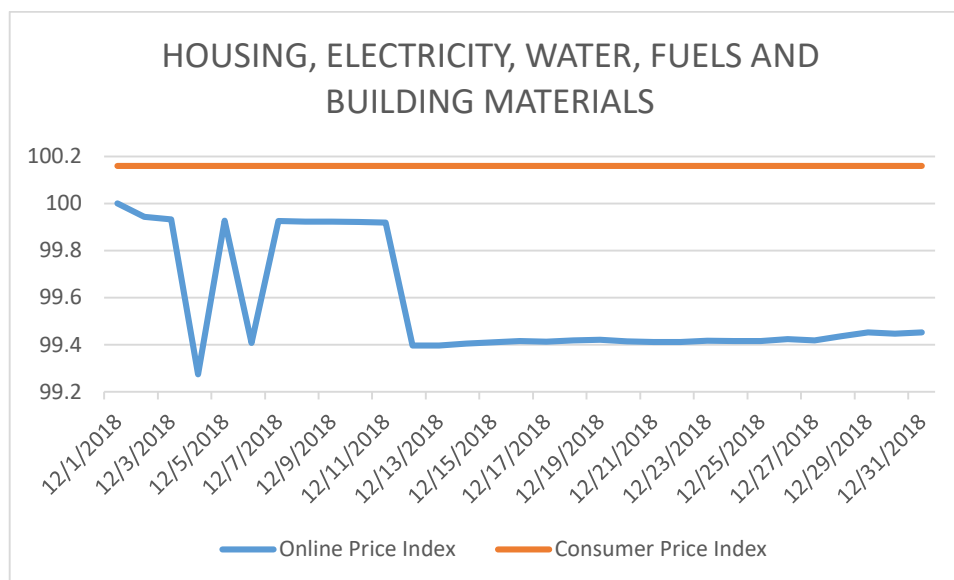
Household equipment and appliances



For most of December, *Household equipment and appliances* prices remained stable, as reported by both the CPI and OPI. However, we documented a big downturn in

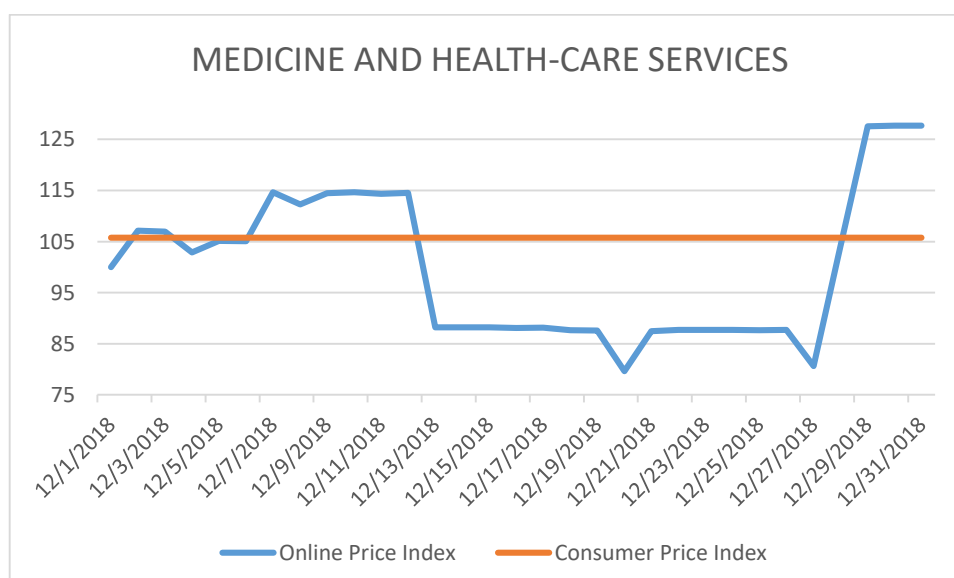
online prices, where it decreased by almost 27% in the days of December 18th – 19th. The prices increased back again to the original level on December 25th. This may be caused by simultaneous sales of some of the big seller before Christmas.

Housing, electricity, water, fuels and building materials



The CPI reported a slight increase of 0.16% increase in price in *Housing, electricity, water, fuel, and building materials*. On the other hand, the OPI of the same subcategory fluctuated for the first half of the month and then stayed at around 99.4 points for the rest of the month (from December 13th).

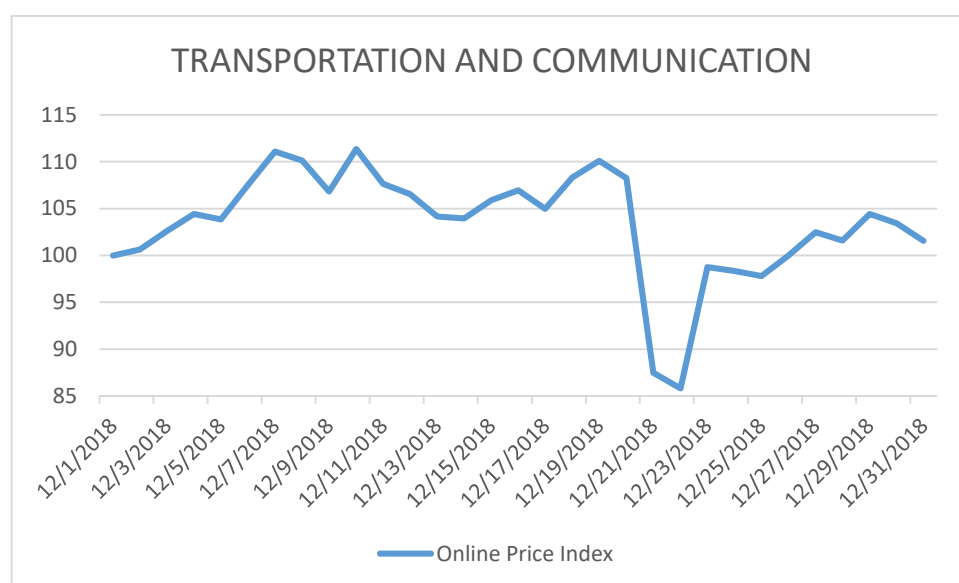
Medicine and health-care services



The Online Price Index for *Medicine and health-care services* increased for 5 points on December 7th but decreased to 88 points on December 13th. It remained at this price level for about two weeks before drastically increased to 127 points on December

29th. The corresponding CPI also documented a 5% increase during the month of December.

Transportation and Communication



We aggregated *Transportation* and *Communication* into one group of the subcategory. The Online Price Index for this group peaked on above 110 points on the days of December 7th, 10th, and 19th. Afterward, it decreased heavily and hit the bottom at 85 points on December 22nd before slowly rose back up. At the end of the month, the OPI ended at approximately 101.5 points, only increased slightly compared to the beginning of the month.



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CONTACT US

Viet Nam Institute for Economic and Policy Research

University of Economics and Business, Viet Nam National University, Ha Noi

Address: Room 707, E4 Building
144 Xuan Thuy str, Cau Giay dist
Ha Noi, Viet Nam

Tel: (84-24) 3 754 7506 - 704/714

Fax: (84-24) 3 754 9921

Email: info@vepr.org.vn

Website: www.vepr.org.vn

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