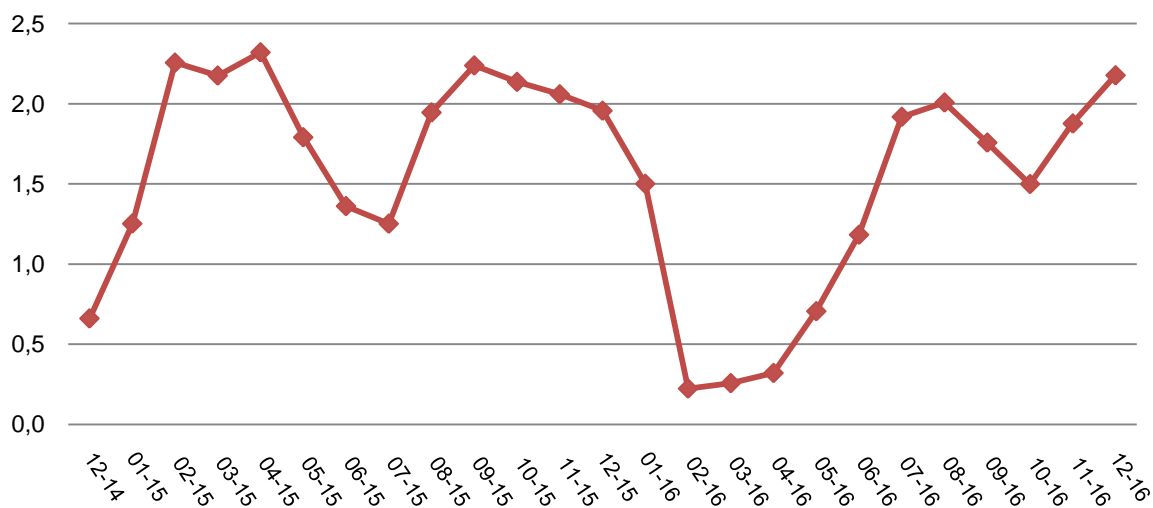


# Consumer Price Index

## December, 2016

**Tirana, on January 09, 2016:** Consumer Price Index in December 2016 arrived 102.2 considerate December 2015 as base period. In December 2016 the annual rate of consumer price is 2.2 %. A year before the annual rate was 2.0 %.

Fig. 1 Annual rate of consumer price index



Annual average growth of prices in 2016 is 1.3 % from 1.9 % that it was in 2015.

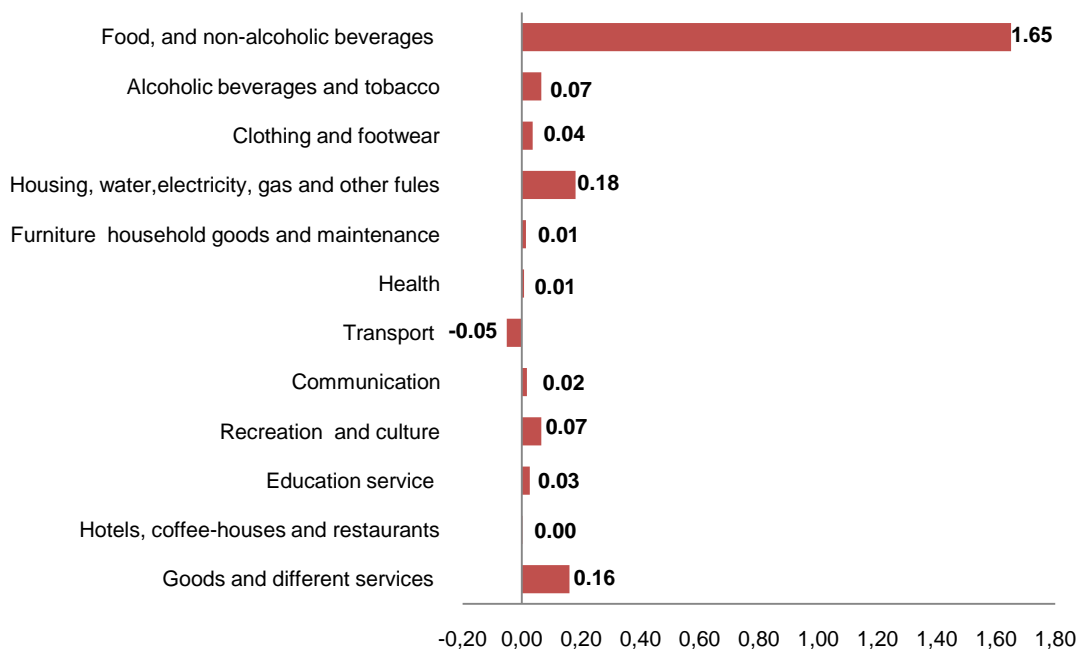
“Food and non-alcoholic beverage” group has contributed with +1.2 point percent, meanwhile

“Transport” group has contributed with -0.2 point percent. During 2016, the biggest increase was in December with 2.2 %, meanwhile the biggest decrease was in February with 0.2 %.

By main expenditure groups noticed that the biggest increase in prices occurred in August in "Food and non-alcoholic beverages" group by 4.7%, and the biggest decrease in “Transport” group by 5.3 %.

**Contribution of main groups in yearly changes of CPI:** Annual growth rate in December was pushed up mainly from “Food and non-alcoholic beverage” group by +1.65 p.p. Prices of “Housing, water, electricity and other fuel” group contributed by + 0.18 p.p.. Prices of “Different goods and service” group contributed by +0.16 p.p.. Prices of “Alcoholic beverages and tobacco” and “Recreation and culture” groups each of them contributed by +0.07 p.p.. Price of “Clothing and footwear” and “Education service” groups contributed respectively by + 0.04 and +0.03 p.p. Prices “Communication” and “Health” groups contributed respectively by + 0.02 and +0.01 p.p. Prices of “Transport” group, contributed by -0.05 p.p..

**Fig. 2 Contribute of main groups in annual rate**



**Yearly rate of main groups:** Compared to December 2015, prices increased the most in the group, “Food and non-alcoholic beverage” by 4.6 %, followed by “Different goods and services” by 3.3 %,”Recreation and culture” by 2.3 %, “Alcoholic, beverages and tobacco” by 1.3 %, and groups “Housing, water, electricity and other fuel” as well as “Clothing and footwear” groups by 0.9 % etc. Within the food group prices of “vegetables include potatoes” subgroup are increased by 18.5 %, followed by, “sugar, jam and dessert” subgroup by 6.8 %, “milk, cheese and eggs” subgroup by 4.5 %, “fish” by 3.8 %, “fruits” subgroup by 1.9 %, etc. On the other hand prices of “oil and fats” subgroup decreased by 1.4 % followed by “meat” subgroup by -0.6 %. The most decrease of the prices it was notice in the “Transport” group by 0.8 %.

**Monthly rate of consumer price is +0.9 %.** Compared to November 2016 prices decreased the most in “Food and non-alcoholic beverage” group by 2.7 %. The most decrease of the prices it was notice in “Hosing, water, electricity and other fuel” the groups by -0.6 %.

**Tab. 1 Consumer Price Index**

December 2015=100

Code	Groups	Weights	12-15	01-16	02-16	03-16	04-16	05-16	06-16	07-16	08-16	09-16	10-16	11-16	12-16
<b>Total</b>		<b>100.0</b>	<b>100.0</b>	<b>100.9</b>	<b>102.0</b>	<b>102.5</b>	<b>102.0</b>	<b>100.8</b>	<b>100.2</b>	<b>100.2</b>	<b>101.1</b>	<b>101.5</b>	<b>101.2</b>	<b>101.3</b>	<b>102.2</b>
1	Food, and non-alcoholic beverages	36.1	100.0	102.5	105.9	107.0	105.9	102.4	100.4	100.4	102.8	103.1	102.4	101.9	104.6
2	Alcoholic beverages and tobacco	5.0	100.0	100.5	100.8	101.2	100.8	100.9	101.0	101.0	100.9	100.9	101.1	100.9	101.3
3	Clothing and footwear	4.0	100.0	99.4	98.1	98.4	98.3	98.4	98.3	98.1	98.1	99.9	100.3	100.6	100.9
4	Housing, water, electricity, gas and other fuels	20.3	100.0	100.7	100.7	100.7	100.6	100.5	100.4	100.3	100.2	100.4	100.5	101.5	100.9
5	Furniture household goods and maintenance	7.4	100.0	100.3	100.3	100.0	100.3	100.3	100.3	100.5	100.5	100.2	99.6	100.2	100.2
6	Health	3.9	100.0	100.0	100.1	100.2	100.2	100.0	100.2	100.1	100.0	100.1	100.0	100.2	100.2
7	Transport	6.3	100.0	96.7	95.8	96.3	96.3	97.2	98.6	99.4	99.8	99.5	99.6	99.5	99.2
8	Communication	2.8	100.0	100.0	100.0	100.3	99.9	99.9	100.0	99.9	99.9	100.5	100.5	100.7	100.6
9	Recreation and culture	2.8	100.0	100.2	100.1	100.1	100.2	100.2	100.9	101.7	101.4	101.7	101.2	100.9	102.3
10	Education service	3.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	100.4	100.7	100.7
11	Hotels, coffee-houses and restaurants	2.6	100.0	100.0	100.0	100.0	100.1	100.1	100.1	100.1	100.1	100.1	100.1	100.0	100.1
12	Goods and different services	4.9	100.0	100.0	100.1	100.1	100.2	100.3	100.2	100.0	100.4	103.3	103.1	103.1	103.3

**Tab. 2 Annual rate of CPI**

Code	Groups	12-15/12-14	01-16/01-15	02-16/02-15	03-16/03-15	04-16/04-15	05-16/05-15	06-16/06-15	07-16/07-15	08-16/08-15	09-16/09-15	10-16/10-15	11-16/11-15	12-16/12-15
<b>Total</b>		<b>2.0</b>	<b>1.5</b>	<b>0.2</b>	<b>0.3</b>	<b>0.3</b>	<b>0.7</b>	<b>1.2</b>	<b>1.9</b>	<b>2.0</b>	<b>1.8</b>	<b>1.5</b>	<b>1.9</b>	<b>2.2</b>
1	Food, and non-alcoholic beverages	5.1	4.3	2.2	2.2	2.0	2.3	2.7	4.3	4.7	3.7	3.1	3.2	4.6
2	Alcoholic beverages and tobacco	3.3	3.3	2.6	2.6	1.7	1.6	1.4	1.7	1.4	1.4	1.6	1.5	1.3
3	Clothing and footwear	-3.2	-3.7	-3.4	-2.3	-2.3	-1.9	-1.5	-1.3	-0.4	1.4	1.0	0.8	0.9
4	Housing, water, Electricity, gas and other fuels	-2.0	-1.3	-1.3	-0.9	0.5	0.5	0.2	0.0	0.0	0.1	0.5	1.5	0.9
5	Furniture household goods and maintenance	0.6	0.9	1.1	0.7	0.8	0.7	0.9	1.0	0.8	0.8	0.3	0.7	0.2
6	Health	-0.9	-1.6	-2.2	-2.2	-2.5	-2.8	0.5	0.1	-0.1	-0.2	-0.5	0.2	0.2
7	Transport	-0.6	-2.5	-4.1	-4.5	-5.3	-4.7	-3.6	-3.3	-2.2	-1.7	-1.5	-0.5	-0.8
8	Communication	-1.1	-1.1	-1.0	-0.7	-1.1	-1.2	-1.0	-1.2	-0.1	0.5	0.5	0.7	0.6
9	Recreation and culture	1.1	1.2	0.7	0.8	0.9	0.8	1.6	2.8	2.4	1.7	1.0	0.8	2.3
10	Education service	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.4	3.8	0.4	0.7	0.7
11	Hotels, coffee-houses and restaurants	1.1	1.0	1.0	1.0	1.1	1.1	1.0	1.0	0.8	0.1	0.1	0.1	0.1
12	Goods and different services	-0.2	-0.1	0.2	0.2	-0.1	-0.1	-0.1	0.1	0.7	2.6	3.0	2.7	3.3

**Tab. 3 Monthly rate of CPI**

		%												
Code	Groups	12-15	01-16	02-16	03-16	04-16	05-16	06-16	07-15	08-16	09-16	10-16	11-16	12-16
	<b>Total</b>	<b>0.6</b>	<b>-0.2</b>	<b>0.1</b>	<b>0.4</b>	<b>-0.4</b>	<b>-1.2</b>	<b>-0.6</b>	<b>0.1</b>	<b>0.9</b>	<b>0.3</b>	<b>-0.2</b>	<b>0.1</b>	<b>0.9</b>
1	Food, and non-alcoholic beverages	1.3	-0.7	3.3	1.1	-1.1	-3.4	-1.9	0.1	2.3	0.3	-0.7	-0.5	2.7
2	Alcoholic beverages and tobacco	0.6	0.2	0.3	0.4	-0.4	0.1	0.1	0.0	-0.1	0.0	0.2	-0.3	0.4
3	Clothing and footwear	0.2	0.4	-1.3	0.4	-0.1	0.1	-0.1	-0.3	0.0	1.8	0.4	0.3	0.3
4	Housing, water, Electricity, gas and other fuels	0.0	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	0.0	0.2	0.1	1.0	-0.6
5	Furniture household goods and maintenance	0.5	-0.6	0.0	-0.3	0.2	0.0	0.0	0.2	0.0	-0.2	-0.6	0.6	0.0
6	Health	0.0	-0.2	0.1	0.1	0.1	-0.2	0.2	0.0	-0.2	0.1	-0.2	0.3	-0.1
7	Transport	0.0	0.1	-0.9	0.5	0.0	0.9	1.5	0.8	0.4	-0.3	0.1	-0.1	-0.3
8	Communication	0.0	0.0	0.0	0.3	-0.4	0.0	0.2	-0.1	0.0	0.6	0.0	0.2	0.0
9	Recreation and culture	-0.1	-0.5	-0.1	0.0	0.0	0.0	0.7	0.8	-0.3	0.3	-0.5	-0.3	1.4
10	Education service	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.5	0.3	0.0
11	Hotels, coffee-houses and restaurants	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0
12	Goods and different services	-0.4	-0.1	0.1	-0.1	0.1	0.1	0.0	-0.2	0.3	2.9	-0.1	-0.1	0.2

# Methodology

Consumer Price Index (CPI) is calculated with a new basket of product from December 2015. Weights are based on the results of the Household Budgeted Survey carried out during in INSTAT in 2014. December 2015 is considered as the base period (December 2015 = 100). Previous change of the product basket was from January 2007. where the number of the products was increased from 262 to 271 products. In the new basket the number of product is 333. The international classification ECOICOP with 12 main groups was introduced which is totally comparable with the expenditure classification used by EUROSTAT.

The new index will cover all territory of Albania (weights concept). Each product have three type of weights: the product weights at country level, product weights at region level and the geographic weights. Prices are collected in main cities of 11 prefectures were Kukës is within the prefecture of Dibër.

The Consumer Price Index of Albania is a Laspeyres type index:

$$I_{0,i}^t = \frac{\sum_i P_i^t * Q_i^0}{\sum_i P_i^0 * Q_i^0}$$

With weights ( $w = P*Q$ ) from base period this is approximated to:

$$I_{0,i}^t = \sum_i w_i * \left( \frac{P_i^t}{P_i^0} \right)$$

In more detail. a price relative is calculated for each item and region with geometrical mean on the sample of outlets:

$$PR_{t-1,ij}^t = \prod_{k=1}^n \left( \frac{P_{ijk}^t}{P_{ijk}^{Dec(t-1)}} \right)^{1/n}$$

Chaining from December of previous year gives the price relative from the base period:

$$PR_{0,ij}^t = PR_{0,ij}^1 * \dots * PR_{Dec(t-1),ij}^t$$

Regional CPI is calculated:

$$RCPII_{i,0}^t = \sum_i r_{ij} * PR_{0,ij}^t$$

The price relatives are aggregated geographically to form product indices on items for whole Albania:

$$I_{0,i}^t = \sum_j r_{ij} * PR_{0,ij}^t \quad \text{Where: } \sum_j r_{ij} = 1 \quad : \quad \forall_i \text{ (for all cases)}$$

Aggregation over items then gives the CPI of Albania:

$$CPI_0^t = \sum_i w_i * I_{0,i}^t \quad \text{Where: } \sum_i w_i = 1$$

The annual rate measures the price change between the current month and the same month of the previous year. This measure is responsive to recent changes in price levels but can be influenced by one-off effect in either month

$$\text{Yearly changes} = \left( \frac{I_{m_t}^{y_t}}{I_{m_t}^{y_{(t-1)}}} - 1 \right) * 100$$

The monthly rate measures the price change between current month and previous month. Although up-to-date it can be affected by seasonal and other effects.

$$\text{Monthly changes} = \left( \frac{I_{m_t}^{y_t}}{I_{m_{(t-1)}}^{y_t}} - 1 \right) * 100$$

The 12-month average rate compares average Consumer Price Indices ant the latest 12 month to the average of the previous 12 months.

$$\text{Yearly average changes} = \left( \frac{I_{mes}^{y_t}}{I_{mes}^{y_{(t-1)}}} - 1 \right) * 100$$

#### Acronyms

P price

PR price relative

I index

CPI Consumer Price Index

t time period t

t=0 base period

r geographical weights

w item weights

j numbering of regions

i numbering of items

$I_{m_t}^{y_t}$  monthly index of corrent year

$I_{m_t}^{y_{(t-1)}}$  monthly index of previews year

$I_{m_{(t-1)}}^{y_t}$  index of previews month of corrent year

$I_{mes}^{y_t}$  average index of current year

$I_{mes}^{y_{(t-1)}}$  average index of previews year