Box 2
INFLATIONARY IMPACT OF THE NEW TAX REFORM AND THE LIQUOR LAW

Edgar Caicedo G.
Carlos Daniel Rojas*

The new tax reform (Law 1819 passed on December 29, 2016) and the liquor law (Law 1816 of December 19, 2016) introduce changes that will affect future developments in the consumer price index (CPI). Among other measures, the new regulations include a change in the value added tax (VAT) on a number of goods and services, the creation of a national carbon tax, and changes in the levies on fuel and tobacco. In addition, the new liquor law will have an upward impact on consumer prices. The main changes implied by these reforms are outlined in this section, specifically those that might have some impact on the momentum in the CPI. The adopted methodology and quantification of the possible inflationary impact of these laws are presented as well.

1. Changes in the VAT

As a whole, the modifications in the VAT concentrate most of the adjustments that the CPI will face as a result of the new tax reform. It is effective as of January 1, 2017, but its application will be mandatory only after February 1.[1] The main changes in the VAT are described below.

The new law increases the general rate from 16% to 19% and maintains the other two rates at 0% and 5%.[2]

The value at which personal desktop computers or laptops are excluded has declined from 82 tax value units (UVT in Spanish) to 50 UVT; in other words, from COP 2,612,438 to COP 1,592,950. Similarly, smart mobile devices (tablets and cell phones) went from a maximum value of 43 UVT (COP 1,369,937) to 22 UVT (COP 700,898).[3]

The first sale of a new home valued at more than 26,800 UVT (COP 853,821,200) will begin to be taxed at the 5% rate. However, subsequent sales of that same real estate, as in the case of low income housing (LIH), both urban and rural, and housing of priority interest, will be excluded.[4]

The VAT on non-motorized bicycles valued at no more than 50 UVT (COP 1,592,950) was reduced to 5%. Previously, they were taxed at a rate of 16%.

The VAT on sanitary pads, tampons and diapers went from 16% to 5%.

Asphalt is no longer excluded. It now will be taxed a rate of 19%.

2. Tax on Consumption and Tobacco

The new reform creates a consumption tax of 4% on cellular telephony, data and mobile navigation, applicable only to amounts exceeding 1.5 UVT (COP 47,789). On the other hand, restaurant franchises will not be charged the 19% tax; they will now pay the 8% consumption tax. This modification evens out the tax treatment for all types of restaurants, thereby favoring consumers.

At the same time, the excise tax on cigarettes and manufactured tobacco products will increase from COP 701.06 in 2016 for each pack of 20 units to COP 1,400 in 2017 and COP 2,100 in 2018.[5]

---

* Mr. Caicedo is a professional leader with the Programing and Inflation Department at *Banco de la República* and Mr. Rojas is a student intern with that department. Their opinions imply no commitment on the part of *Banco de la República* or its Board of Directors.

1 When the law takes effect, establishments with goods at a retail value that was determined according to the previous rate (16% or 5%, as applicable) may continue to sell those goods until January 31, 2017. See Press Bulletin 227/ 2016 released by the National Tax Revenue and Customs Authority (DIAN).

2 It is important to remember the 0% VAT rate applies to exempt goods. This tax is intended to grant the right to deduct the amount of VAT paid. On the contrary, no VAT is levied on excluded goods and services.

3 The calculations were made with the UVT value that will apply in 2017, which is COP 31,859. For more information in this respect, see DIAN Resolution 000071/2016.

4 The sale of new homes with a promise to purchase, separation, trust agreement and real estate deed signed or entered into before December 31, 2017, as certified by a notary public, shall be excluded.

5 For the 2016 rates, see Certification 4/2015 issued by the Tax Support Office, which is part of the Ministry of Finance and Public Credit.

3. Modified Taxes on Gasoline and ACPM (Diesel oil or fuel)

The new tax reform changes the national tax rates on gasoline and (diesel oil or fuel). Accordingly, the tax on a gallon of regular gasoline will go from COP 1,213.57 [6] to COP 490. The tax on a gallon of premium gasoline will go from COP 1,754.43 to COP 930, while the tax on a gallon of ACPM will go from COP 1,213.57 to COP 469. This reduction is largely offset because the new tax law changes the levy on gasoline and ACPM, which are now subject to the general rate of 19% rather than being exempt from VAT, as was previously the case.

4. Creation of a National Carbon Tax

In an effort to protect the environment, the tax reform created a new levy on carbon emissions from all fossil fuels, including all petroleum products and all types of natural gas. The rate will be adjusted to COP 15,000 per ton of CO_2, and the values pertaining to each unit of fuel will be those outlined in Table B2.1

Table B2.1
National Carbon Tax Units and Rates
(Pesos)

Fossil fuel	Unit	Value per unit
Natural gas (Industrial)	Cubic meter	COP29
Liquefied petroleum gas	Gallon	COP95
Gasoline	Gallon	COP135
Kerosene & Jet fuel	Gallon	COP148
Diesel	Gallon	COP152
Fuel oil	Gallon	COP177

Source: Article 222, Act 1819 of December 29, 2016.

These rates will be adjusted every February 1st in line with the rate of inflation for the previous year, plus one point, until the tax is equivalent to one UVT per ton of CO_2. It is important to clarify that this new tax, in the case of gasoline and diesel, will have a rate of COP 0 in the departments of Guainía, Vaupés and Amazonas.

6 For information on the tax rates effective in 2016, see DIAN Resolution 11 of January 28, 2016. For the new tax rates, see Article 219 in Law 1819 of December 29, 2016.

5. The new Liquor Act that modifies Taxes on Alcoholic Beverages

At the end of 2016, a new liquor law was passed that changes the consumption tax rates applicable to liqueurs, wines, aperitifs and the like. Under new rule, alcoholic beverages are no longer taxed according to their alcohol content;[7] rather, they are taxed on a specific component and an ad valorem component. The first is based on the percentage of alcohol content and the rate, per unit of 750 cc, is COP 150 for wines and wine aperitifs and COP 220 for other liqueurs, aperitifs, or similar items. The ad valorem component is calculated by applying a rate of 20% on the retail price, before taxes, in the case of wines and wine aperitifs, and 25% for other liqueurs, aperitifs and the like. Under the new tax law, liqueurs, wines and aperitifs also are subject to a 5% sales tax as of January 1, 2017.

6. Impact on the CPI [8]

In principle, in order to identify the maximum direct inflationary impact of the tax reform and the liquor law, the weight structure of the CPI is modified directly according to the proportions in which the prices of the products affected by the tax changes will increase.

Therefore, an adjustment (α) in the price of an item in the CPI can be transformed into an inflationary impact by increasing the weight assigned to item X in α. The resulting price level (Px^*) is compared to the initial price (Px), verifying the percentage increase of Px^*. The adopted procedure is explained in the following algebraic expressions:

$$Px = \sum_{x=1,n} \delta_x$$

$$Px^*=\sum_{x=1,n} \delta_x (1+\alpha_x)\text{, where:}$$

Px is the initial price level for items x; δ_x is the weight of items x, with $0 < \delta < 1$; Px^* is the final price level of

7 The following rates were in force in 2016 for each unit of 750 cc: 1) for products with an alcohol content of up to 35 percent, COP 306 for each alcohol degree, and 2) for products with an alcohol content of more than 35 percent, COP 502 for each for each alcohol degree. For more information, see Certification 3/ 2015 issued by the Tax Support Office, which is part of the Ministry of Finance and Public Credit.

8 The methodology is taken from Caicedo & Tique (2012). "La nueva fórmula de la gasolina y su potencial impacto en Colombia," *Borradores de Economía*, No. 698, *Banco de la República*.

items x, and α_x is the increase in the price of item x in the CPI.

However, this methodology only quantifies the direct impact of an increase in taxes on the CPI, ignoring the indirect impact generated by possible increases in prices for input. In order to capture the maximum indirect effect, it is necessary to identify productive chains among sectors, for which an input-output matrix was used. The national accounts data from DANE was adopted for this purpose and the DANE supply-use matrix for the year 2013 was used, which is the latest one available. The impact is quantified as follows:

$VPx^* = ((I\text{-}A)^{-1})'(A_{xj}Cx)+VPx$, where:

VPx^* is the new price vector; VPx is the initial price vector; $(I\text{-}A)$ is the Leontief matrix; A_{xj} is the input requirement of branch j, and Cx is the percentage of change in the price of input x.

Then,

$IP= VPx^*\ CIPC$, where:

IP is the impact of the change in price, and *CIPC* is the correlation between the sectors of the matrix used and the weights of the *CPI*.[9]

The main results of the direct, indirect and total effects of the new tax reform and the liquor law on the CPI are summarized in Table B2.2. As illustrated, the direct impact of these reforms would raise the CPI by 0.80 percentage points (pp). Likewise, there would be an additional 0.25 pp increase the CPI through higher production costs (indirect effect). As a result, the reforms mentioned above would push the CPI up by as much as 1.05 pp.

The tradable component of the family basket would be the hardest hit by the reforms, increasing by almost 2.0%, followed by the non-tradable segment of the CPI, which would increase by 0.85 pp, and by regulated items, whose prices would rise by no more than 0.76 pp. Foods would be the least affected group of the CPI, increasing by less than 0.60 pp at the most.

Finally, it is important to bear in mind that this methodology involving weights and an input-output matrix includes no adjustment dynamic. It is only an exercise in comparative statics. Let us not forget that calculations with the input-output matrix tend to overestimate the impact on consumer prices, because the technical coefficients of production, which are fixed with this methodology, cancel out the possibility of substitution in production and ignore the response of demand to changes in prices.

9 In this respect, see Caicedo & Tique (2012), Attachment 1.

Table B2.2
Maximum Direct and Indirect Impact on the CPI
(Additional percentage points)

Group	Weighing	Direct effect	Indirect effect	Total effect
Food	28.21	0.40	0.17	0.57
Tradables excluding food and regulated items	26.00	1.86	0.11	1.97
Non-tradables excluding food and regulated items	30.52	0.37	0.49	0.85
Regulated items	15.26	0.59	0.17	0.76
Total	**100.00**	**0.80**	**0.25**	**1.05**

Source: Ministry of Finance and Public Credit; calculations by *Banco de la República*