

# ***MEXICO:***

## OVERVIEW OF TOBACCO USE, TOBACCO CONTROL LEGISLATION, AND TAXATION

World Bank Group  
Global Tobacco Control Program  
Country Brief

## **Table of contents**

Executive summary .....	3
Acknowledgments.....	5
Introduction .....	6
Tobacco control legislation .....	6
Smoke-Free Places .....	6
Tobacco Packaging and Labeling.....	6
Tobacco Advertising, Promotion and Sponsorship .....	6
Tobacco Contents and Disclosures .....	7
Sales Restrictions .....	7
Tobacco control agencies.....	7
Tobacco use in Mexico.....	7
Tobacco use among adolescents .....	8
Electronic cigarette use.....	9
Tobacco taxation in Mexico .....	9
Tobacco excise revenue .....	10
Tobacco growing.....	11
Cigarette sales.....	12
Changes in cigarette consumption in Mexico .....	13
Cigarette illicit trade.....	13
Cigarette bootlegging from Mexico to the USA .....	13
Cigarette smuggling into Mexico .....	14
Cigarettes affordability .....	17
Cigarette prices .....	18
Comparison of cigarette prices and taxes in Mexico and neighboring countries .....	19
Discussion .....	19
Conclusions and recommendations.....	20
References .....	21

# Mexico

## Overview of Tobacco Use, Tobacco Control Legislation, and Taxation

### A Country Brief

#### Executive summary

**This country brief presents an overview of current tobacco control legislation, use, and taxation policy in Mexico.** Data and information were collected from different sources. The brief is intended to serve as the context for complementary assessments on different aspects of tobacco taxation in the country to be shared with government teams and other national and international stakeholders.

**Mexico is a party of the WHO Framework Convention on Tobacco Control, and its legislation contains several effective measures aimed to curb the tobacco epidemic.** There is a growing consensus in the country about the need for the government to strengthen tobacco control to protect the population from health risks associated with tobacco use.

**The prevalence of current smoking in Mexico among adults** (aged 18-69 years old) is about 20%. The smoking prevalence among adults in Mexico decreased in 2006-2011 but was rather stable further on.

**The prevalence of current smoking among adolescents** aged 12-17 years increased in 2002-2008 to 11.5% in 2008, and then it sharply decreased to 6.5% in 2011 and slowly declined to 4.9% in 2016.

**Several tobacco tax increases in Mexico were implemented in 2007-2011. Such taxation policy made cigarettes less affordable and, in combination with other tobacco control policies, reduced tobacco consumption in the country by about 30%.** Real (inflation-adjusted) governmental tobacco excise revenue increased in 2009-2012.

**Tobacco tax rates in Mexico have not been changed since January 2011.** The main factor behind “freezing” tobacco taxes is a public perception that tobacco tax increase of January 2011 was a failure. This perception is strongly supported by the tobacco industry. As the tobacco tax rates were not changed in 2012-2018, cigarette became more affordable, and tobacco consumption increased, while the real governmental revenue did not grow.

**Cigarette smuggling into Mexico was greatly overestimated by the tobacco industry,** while cigarette smuggling out of Mexico to the USA (where cigarettes are much more expensive) was ignored in the tobacco taxation debate in Mexico.

**It is recommended to increase the tobacco excise rates in Mexico annually to ensure tobacco affordability reduction.** Priority should be given to the specific cigarette excise tax increase as it occurred to be the most effective tool for the observed reduction in tobacco consumption in Mexico.

**Tobacco use surveillance and monitoring should be further developed in Mexico,** including regular monitoring of cigarette prices and other economic indicators.

**Effective policies to counteract tobacco smuggling and other kinds of illicit tobacco sales should be implemented** in line with the provisions of the FCTC Protocol to Eliminate Illicit Trade in Tobacco Products, which is recommended to be ratified by the country. Effective collaboration with tobacco control entities

in the neighboring US states should be developed to estimate real volumes of cigarette smuggling from Mexico to the USA.

## **Acknowledgments**

This country brief was prepared by a team from the World Bank Group Global Tobacco Control Program led by Patricio V. Marquez, including Konstantin Krasovsky, and Tatiana Andreeva. Comments and suggestions were provided by Belén Sáenz de Miera Juárez, Universidad Autónoma de Baja California Sur, México.

June 12, 2019

## **Introduction**

### **Objective of the Country Brief**

This country brief presents an overview of current tobacco control legislation, use, and taxation policy in Mexico. Data and information were collected from different sources. The brief is intended to serve as the context for complementary assessments on different aspects of tobacco taxation in the country to be shared with government teams and other national and international stakeholders.

### **Tobacco control legislation**

Mexico ratified the WHO Framework Convention on Tobacco Control on May 28, 2004. The treaty entered into force on February 27, 2005.

In 2015 [1], tobacco control policies in Mexico were assessed at 26 out of 37 points.

### **Smoke-Free Places**

At the federal level, the General Tobacco Control Act (Ley General para el Control del Tabaco, LGCT) 2008, banned smoking in public places such as offices, schools, restaurants, bars and nightclubs [2]. However, the law does not require a 100% smoke-free environment for all public places, as special smoking areas are still considered. At the local level, Mexico City and some other states have passed legislation that introduced 100% smoke-free policies in public places. In April 2008, Mexico City became the first city in Mexico to enact a 100% ban on smoking in enclosed public places and workplaces. The smoking ban in Mexico City has significantly reduced smoking in public places. Smoking in restaurants decreased most dramatically, with smoking decreasing in Mexico City from 78% in 2007, before the ban, to 9% in 2008, after the ban [3]. However, then smoking exposure in Mexico City restaurants increased to 25% in 2011 and 35% in 2016 [4], so the enforcement was rather poor. In 2015, 44.8% of the Mexican population was protected from exposure to tobacco smoke in public places [5].

According to ENCODAT survey [4], the proportion of people exposed to second-hand smoke in the whole country in 2011-2016 decreased from 38% to 32% in restaurants and from 63% to 53% in bars.

### **Tobacco Packaging and Labeling**

The LGCT established new requirements regarding health warnings on all tobacco packages. Since September 2010, the new health warnings have included graphic images (pictograms) that occupy 30% of the front side of the pack, as well as other warnings that occupy 100% of the backside and 100% of one of the lateral sides. The health warnings contain information about health hazards, contents of tobacco products, and a smoking cessation quitline number. Since 2010, Mexico has implemented nine different waves of health warnings<sup>1</sup>.

For smokeless tobacco products, a text warning is required and it must cover 100 percent of one side face. The law also prohibits misleading tobacco product packaging and labeling [6].

### **Tobacco Advertising, Promotion and Sponsorship**

The law bans most forms of tobacco advertising and promotion but allows advertising and promotion aimed only at adults through adult magazines, personal communication by mail or within establishments

---

<sup>1</sup> <https://www.gob.mx/salud%7Cconadic/acciones-y-programas/advertencias-sanitarias-y-pictogramas>

exclusively for adult access. There are severe restrictions on tobacco sponsorship and the publicity of such sponsorship [6].

### Tobacco Contents and Disclosures

The law does not grant the authority to regulate the contents of tobacco products. The law requires that manufacturers and importers disclose to government authorities and the public information on the contents and emissions of their products [6].

### Sales Restrictions

The law prohibits the sale of tobacco products via vending machines, the internet, and in primary and secondary schools, as well as the sale of single cigarettes and small packets of cigarettes. The sale of tobacco products is prohibited to persons under the age of 18 [6].

### Tobacco control agencies

In terms of the governance and management, two federal agencies were created and strengthened at the federal level: The National Commission Against Addictions (CONADIC) and the State's role in regulating tobacco control through the Federal Commission for The Protection against Health Risks (COFEPRIS). Additionally, the National Office for Tobacco Control (ONCT) was created to implement the WHO-FCTC in Mexico.

### Tobacco use in Mexico

Manufactured cigarettes are the most common tobacco product smoked in the country. In 2015, only 0.6% of adults aged 15 and over smoked hand-rolled cigarettes and 0.7% smoked other tobacco products [7].

Evidence on the prevalence of smoking has been collected periodically since 1988 with the implementation of the **National Addiction Survey (Encuesta Nacional de Adicciones, ENA** in Spanish). This is a repeated cross-sectional household survey which collects information on behaviors related to the use of tobacco, alcohol, and other addictive substances (illegal drugs) amongst people aged 12-65 years. Six ENA surveys were conducted in 1988, 1993, 1998, 2002 [8], 2008 [9] and 2011 [10-12]. In 2016-2017, the Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco (ENCODAT)<sup>2</sup> was conducted and its results were comparable with ENA-2011. As surveys in the 1990s were conducted only in urban areas, we compare the results of four most recent surveys conducted nationwide in Table 1.

**Table 1. Smoking prevalence (%) in Mexico, ENA and ENCODAT surveys, people aged 18-65 years old**

	2002	2008	2011	2016-17
Current (daily + occasional) smokers, %				
Total	27.0	22.9	19.1	20.1
<b>Men</b>	<b>42.3</b>	<b>33.6</b>	<b>28.4</b>	<b>31.3</b>
<i>Women</i>	15.1	13.1	10.5	9.8
<b>Daily smokers (among men), %</b>	<b>23.7</b>	<b>16.0</b>	<b>12.5</b>	<b>12.0</b>
Ex-smokers, among all, %	19.9	19.6		17.5
Average number of cigarettes smoked per day by daily smokers	6.5	6.0	6.5	7.3

<sup>2</sup> <https://drive.google.com/file/d/1lktptvdu2nsrSpMBMT4FdqBlk8gikz7q/view>

It should be noted that a rather high proportion of occasional smokers in 2002-2008 surveys was predetermined by the used definition of a smoker as “any person who reports having smoked in the last 12 months” [13]. So a person who smoked only once a year is also considered to be a smoker. In ENCODAT 2016-2017, a smoker was defined as somebody who smoked during the last 30 days, and original results of ENA-2011 were recalculated for comparability.

The prevalence of current smoking substantially declined in 2008 and 2011, but between 2011 and 2016, it slightly increased. The prevalence of daily smoking among men decreased by 47% in 2002-2011, but in 2011-2016, the decrease was just 4%. The average number of cigarettes smoked daily did not change in 2002-2011, but increased by 2016.

Analysis [14] of another series of the **National Health Survey (ENSA, ENSANUT)** showed that the prevalence of daily smoking among individuals aged 19 years and above increased from 12.4% in 2000 to 13.3% in 2006 and then decreased to 11.8% in 2012. The number of cigarettes smoked per day by daily smokers declined from 8.2 in 2000 to 7.5 in 2006 and 6.3 in 2012. The estimated total cigarette consumption (calculated as (daily smoking prevalence) x (an average number of cigarettes smoked per day)) did not change in 2000-2006, but declined by 25% by 2012. Unfortunately, information on tobacco use from the later ENSANUT surveys was not yet released.

The **Global Adult Tobacco Survey (GATS)** was conducted in Mexico in 2009 and 2015 [7].

**Table 2. Smoking prevalence in Mexico, Global Adult Tobacco Survey, 2009 and 2015**

		2009	2015
Daily smokers, %	<b>Total</b>	<b>7,6</b>	<b>7,6</b>
	men	11,8	11,9
	women	3,7	3,6
Former daily smokers, %	<b>Total</b>	<b>4,9</b>	<b>5,8</b>
	men	7,6	8,4
	women	2,5	3,4
Occasional smokers, %	<b>Total</b>	<b>8,4</b>	<b>8,8</b>
	men	13,0	13,3
	women	4,1	4,6
Former occasional smokers,	<b>Total</b>	<b>9,8</b>	<b>11,7</b>
	men	13,5	13,6
	women	6,4	9,9
<b>Number of cigarettes smoked by daily smokers per day</b>	<b>Total</b>	<b>9,4</b>	<b>7,7</b>
	men	9,7	8,0
	women	8,4	6,8

The prevalence of both daily and occasional smoking almost did not change. However, the proportion of former daily smokers increased in 2015 both among men and women, while the percentage of former occasional smokers increased only in women. The number of cigarettes smoked by daily smokers per day decreased in 2015 by 18%.

Overall, we can conclude that the prevalence of smoking among adults in Mexico decreased in 2006-2011, but was rather stable further on.

### **Tobacco use among adolescents**

**Global Youth Tobacco Survey (GYTS)** was conducted nation-wide only in 2011 [15]. However, earlier, GYTS surveys were conducted in several Mexican cities and three times in the capital city (Table 3).



**Table 3. Prevalence of smoking (%) among adolescents, 13-15 years old, GYTS data**

		2003 Mexico city	2006 Mexico city	2011 Mexico city	2011- National
Currently smoked cigarettes	<b>Total</b>	<b>24,3</b>	<b>27,1</b>	<b>21,8</b>	<b>14,6</b>
	boys	24,4	26,3	21,4	15,8
	girls	23,2	27,1	22,8	12,9
Reported having parent(s) who smoked		54,1	50,0	41,9	32,1

In Mexico City in 2011, the prevalence of smoking among teenagers was higher than in the whole country, especially for girls. Compared to 2003 survey, the prevalence of smoking in Mexico City increased in 2006 but declined in 2011. Data on parents' smoking is an indirect indicator of the prevalence of smoking among adults, and it decreased in Mexico City in 2003-2006 and to a much greater extent by 2011.

Results of ENA and ENCODAT demonstrated that the prevalence of current smoking among adolescents aged 12-17 years increased from 9.0% in 2002 to 11.5% in 2008, then it sharply decreased to 6.5% in 2011 and continued to slowly decline to 4.9% in 2016 [4].

**Table 4. Smoking prevalence (%) among 12-17 years old adolescents, ENA and ENCODAT surveys**

		2002	2008	2011	2016-17
Currently smoked cigarettes	<b>Total</b>	9,0	11,5	6,5	4,9
	boys	14,3	16,0	10,0	6,7
	girls	3,8	7,1	2,9	3,0

### Electronic cigarette use

The importation, distribution, marketing and sales of e-cigarette are banned in Mexico [16]. Nevertheless, e-cigarette users easily acquire this product, suggesting that the enforcement of the ban is weak.

A 2012 population-based survey of adult smokers in Mexico found that 34% had heard of e-cigarettes and 4% had tried them [17]. The 2015 Global Adult Tobacco Survey [7] found that 0.6% of the population reported current e-cigarette use. Estimates were higher in a 2015 representative survey of first-year middle school students (average age = 12.5 years) in the three largest cities in Mexico, in which over half of respondents were aware of e-cigarettes (51%), and 10% had tried them [18].

In 2016-2017, 5.9% of the population (estimated 5.0 million) ever used electronic cigarettes (6.5% of adolescents and 5.8% of adults); 7.5% of former smokers (1.0 million) ever used e-cigarettes and 18.8% of current smokers (2.8 million) ever used e-cigarettes [19]. In 2016-2017, 1.1% of adolescents aged 12-17 years old (1.6% boys and 0.6% girls) were current users of e-cigarettes [4].

Female adolescents and female non-smoker adults were less likely to currently use e-cigarettes than their male counterparts (AOR = 0.51; AOR = 0.32, respectively). By contrast, female adult smokers were more likely to use e-cigarettes than adult male smokers (AOR = 1.80) [16].

### Tobacco taxation in Mexico

Since the 1980s, the tobacco products in Mexico have been taxed with an excise tax in addition to the tobacco companies' income tax and the value-added tax (VAT). This is called the Special Tax on Products

and Services (IEPS), first introduced in 1981 with an ad valorem rate of 139.3 percent (of the pre-tax price to the retailer) on filtered cigarettes. Non-filter cigarettes were treated differently (20.9 percent ad valorem rate) with the political justification that they were largely consumed by the poorest. Only in 2002, a 60 percent ad valorem tax was imposed on non-filter cigarettes –a rate that was gradually increased until it reached 110 percent in 2005. Afterwards, the special treatment disappeared, with both filter and non-filter cigarettes subjected to the same ad valorem tax rate. In 2015, a majority of manufactured cigarette smokers (98.2%) were purchasing filter cigarettes.

The IEPS ad valorem rate was gradually increased from 100% in 2000, to 105% in 2002, 107% in 2003, 110% in 2004, 140% in 2007, 150% in 2008 and 160% in 2009.

Since 2009 the ad valorem rate has not been changed. In 2016, the actual share of the ad valorem excise tax in the final retail price of the most popular cigarette brand was only 38.7%, while in 2008 it was 48.1%<sup>3</sup>.

The VAT rate was 15% of the price to the consumer, except for cities on the U.S.–Mexico border, where the VAT is 10%. In 2010, the rate was increased to 16% (11% for U.S. border cities). Mexican VAT applies to the final price, including all previous taxes, rights, quotas, interests, overprices, etc.

In January 2010, Mexico added a specific tax of 4 cents per cigarette (0.80 pesos per pack of 20 cigarettes). In April 2010, following an insufficient congressional resolution on increased tobacco taxes in 2009, WHO and BI partners and stakeholders assisted the National Office of Tobacco Control (NOTC) to develop a new tobacco tax increase proposal. In October 2010, the tax increase proposal elaborated with the WHO support was approved in both chambers of Congress [20]. In January 2011, the specific excise tax was raised to 7 pesos per pack.

In 2014, a proposal to increase taxes on certain tobacco products was rejected *“on account of the fact that Mexico's tax rates on tobacco are among the highest rates in the world”* [21].

Tobacco tax rates in Mexico have not been changed since January 2011. The main factor of “freezing” tobacco taxes is public perception that tobacco tax increase of January 2011 was a failure. This perception is strongly supported by the tobacco industry. PMI in its Annual report of 2011 declared: *“Past experience has typically shown that whenever large excise tax increases have been implemented, government revenue falls short of expectations, and border sales and illicit trade are encouraged at the expense of the tax-paid market, as was most notably the case in Mexico in 2011.”*

### **Tobacco excise revenue**

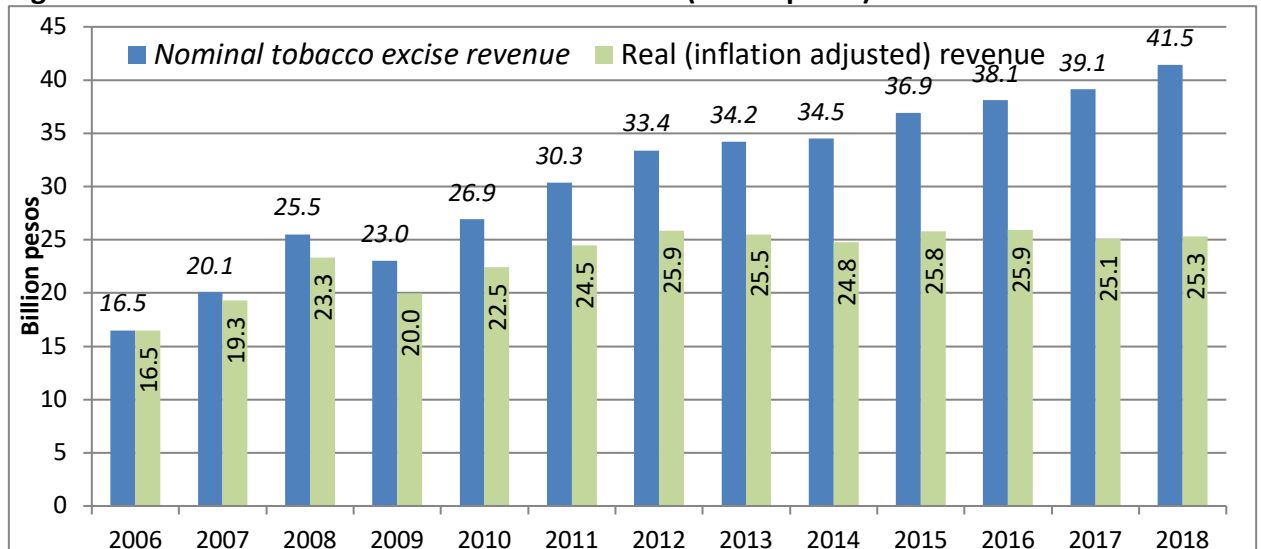
In 2018, tobacco excise revenue in Mexico exceeded 41 billion pesos<sup>4</sup>. Average nominal annual tobacco excise revenue in Mexico increased almost every year<sup>5</sup>, while the real (inflation-adjusted) revenue increased only in 2006-2008 and in 2009-2012. In 2013-2018, real revenue almost did not change (Figure 1).

---

<sup>3</sup> Table 9.1.2 from GTCR, 2017.

<sup>4</sup> <http://www.cefp.gob.mx/publicaciones/documento/2019/cefp0052019.pdf>

<sup>5</sup> <http://www.cefp.gob.mx/publicaciones/nota/2018/notacefp0042018.pdf>

**Figure 1. Annual tobacco excise revenue in Mexico (billion pesos)**

Despite tax hike of 2011, the nominal revenue increase in 2011 as compared with 2010 was only 13% (Figure 1). It was partly caused by forestalling. The Guidelines for the implementation of Article 6 of the WHO FCTC [22] state: *In anticipation of tax increases, manufacturers or importers may attempt to take advantage of the current or lower tax and increase production or stock of products (known as forestalling)*. A review of cigarette sales to retailers showed that the industry built up inventory in late 2010 to avoid paying the increased taxes in early 2011, thereby causing the reduction in expected government revenue [23]. The INEGI reported that in December 2010, 492 million cigarettes were produced, while in February-June 2011 (five months combined) the production was 480 million cigarettes. According to the PMI quarterly reports, in 2<sup>nd</sup> and 3<sup>rd</sup> quarters of 2010, cigarette market declined compared to the same quarters of the previous year, but in the 4<sup>th</sup> quarter, it sharply increased by 8.5%. Then in the 1<sup>st</sup> quarter of 2011, the market declined by 27%, whereas in the 2<sup>nd</sup> quarter, the decline was 13.2%, which was about half of the decline in the 1<sup>st</sup> quarter. So, the tax increase adopted by the Congress in October 2010 brought additional revenue in the last months of 2010 at the expense of lower revenue in 2011, as the industry increased its domestic production at the end of 2010 to avoid paying taxes as of January 2011. Despite this, according to the governmental reports, during the first half of 2011, 14.8 billion pesos were collected as the special tax on production and services (IEPS) on cigarettes, 11% more than the revenue obtained in the first half of 2010. And in the first half of 2012 the revenue further increased by 12%.

It should be noted that the increases in ad valorem rate in 2007, 2008 and 2009 also resulted in increased revenue from 16.5 billion pesos in 2006 to average annual 25 billion pesos in 2008-2010.

## Tobacco growing

According to the FAO database [24], raw tobacco production in Mexico decreased from 67,000 tons in early 1960-s to about 15,000 tons a year in 2012-2017, and the area harvested to tobacco decreased over those years from 52,000 hectares to about 7,000 hectares.

According to the Agrifood and Fisheries Information Service (SIAP), the total cultivated area of tobacco averaged 6,974 hectares in 2017; that is, 0.19 percent of the total cultivated area nationwide. Also, according to the National Institute of Statistics and Geography (INEGI), in 2017, the tobacco industry employed 2 185 people, which represented 0.06 percent of the total jobs generated by the entire manufacturing sector [25].

## **Cigarette sales**

The international tobacco companies dominate Mexico's cigarette market, holding more than 99% of the market share by volume. In 2015, Cigarros la Tabacalera Mexicana, a Philip Morris International (PMI) subsidiary, held 66% market share. It was followed by British American Tobacco (BAT) with 26.3% and Japan Tobacco with 7.4% cigarette market shares [26].

It was reported that in 2017, PMI produced in Mexico 26 billion cigarettes, and 3-4% of total production are exported to Japan and Canada<sup>6</sup>. BAT annually produces in Mexico 22 billion cigarettes, and 11,000 of them are exported to Canada<sup>7</sup>.

Since 2006, every stick of tobacco sold by British American Tobacco in Canada has been manufactured in Mexico. As a result, Mexican exports of tobacco products rocketed. It is important to note that tobacco products manufactured in Mexico can enter Canada with zero tax, due to NAFTA (the North American Free Trade Agreement) [27].

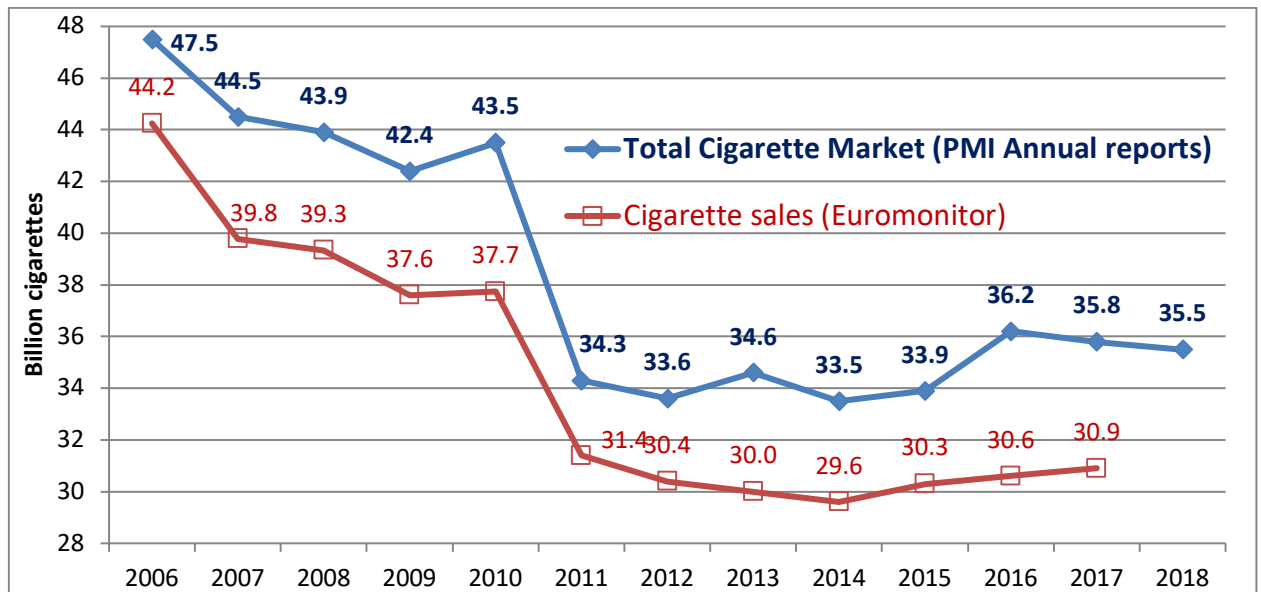
Nearly all tobacco consumption in Mexico is in the form of cigarettes. Cigarette sales (defined as national production plus net imports) in Mexico remained stable in the 1980s and 1990s, with average annual sales of 2.6 billion packs [28]. In 2005 and 2006, the average annual level of sales was 2.4 billion packs (48 billion cigarettes).

Euromonitor and PMI annual reports have some differences in the reported data on cigarette sales (Figure 2). PMI reported that annual sales in 2006-2010 decreased by about 3 billion cigarettes, then sales sharply declined in 2011, but further on in 2012-2018, sales were stable with average annual 35 billion cigarettes. Euromonitor reports [29] that cigarette sales decline in 2006-2010 was more substantial (6.5 billion cigarettes), then a sharp decline (6.3 billion cigarettes) was observed in 2011. In 2012-2017 sales were rather stable: about 30 billion cigarettes, with some increase in 2015-2017. In its Annual Reports, BAT informed that cigarette market in Mexico increased in 2016, 2017 and 2018.

---

<sup>6</sup> <https://www.altonivel.com.mx/empresas/negocios/la-fabrica-mexicana-produce-26-mil-millones-cigarros/>

<sup>7</sup> <https://www.eleconomista.com.mx/empresas/Pierde-industria-del-cigarro-17-de-su-mercado-por-pirateria-20170404-0188.html>

**Figure 2. Annual cigarette sales in Mexico**

After the tax hike of January 2011, the sales (according to the PMI annual reports) decreased by about 10 billion cigarettes or by 23% in one year. There are three factors, which could contribute to the cigarette sales reduction in 2011: (1) reduction of cigarette consumption within the country; (2) increase of cigarette smuggling into Mexico; (3) decrease of cigarette smuggling out of Mexico.

### Changes in cigarette consumption in Mexico

The GATS survey was conducted in Mexico in 2009 and 2015. The prevalence of daily smoking did not change between the two surveys (7.6% in both surveys), while the average number of cigarettes smoked per day decreased from 9.4 to 7.7, or by 18%. Estimation of cigarette consumption from the national health surveys showed that in 2012 the consumption was 25% lower than in 2006. Over those years, cigarette sales decreased by 23%, and we can assume that the decline in cigarette consumption within the country was the main factor of the sales reduction.

### Cigarette illicit trade

#### Cigarette bootlegging from Mexico to the USA

In June 2019, the average price of the most popular cigarette brand in Mexico was 50 MXN<sup>8</sup> (=2.55 USD). The price can be even lower in cities on the U.S.–Mexico border, where the VAT is 11%, while it is 16% for the rest of the country. Data on cigarette prices and taxes in the USA states<sup>9</sup> neighboring Mexico (in effect as of December 21, 2018) are presented in

Table 5.

<sup>8</sup> [https://www.numbeo.com/cost-of-living/country\\_result.jsp?country=Mexico](https://www.numbeo.com/cost-of-living/country_result.jsp?country=Mexico)

<sup>9</sup> <https://www.tobaccofreekids.org/research/factsheets/pdf/0202.pdf>

**Table 5. Cigarette prices and taxes in Mexico and the neighboring USA states (US dollars)**

	Average Retail Price Per Pack (with all taxes)	Total state and federal taxes
California	7,69	4,47
Arizona	7,06	3,38
New Mexico	6,26	3,00
Texas	6,20	2,78
<b>Mexico</b>	<b>2,55</b>	<b>1,72</b>

Cigarettes in Mexico are much cheaper than in the US states, and so, US inhabitants have obvious incentives to buy cigarettes produced and taxed in Mexico.

According to the customs regulations regarding the returning US resident travelers, those over the age of 21 may legally import 200 cigarettes<sup>10</sup>.

The Mackinac Center (which has received funding from tobacco companies since the 1990s<sup>11</sup>) has estimated that in 2014, the cigarette smuggling (as a percentage of total cigarette consumption in the recipient states) from Mexico to the US states was the following: Arizona - 18.2%; New Mexico - 22.2%; California – 18% and Texas 19%<sup>12</sup>. While the level of smuggling was probably overestimated, as it was done by the tobacco industry-funded organization, it shows the potential of cigarette smuggling from Mexico to the USA.

Connelly et al (2009) [30] estimated a demand function for cigarettes after including proxies for prices in the bordering states and simple proxies for contiguity with Mexico and Canada. They found that having a border with Mexico lowers sales in the state sizably. The share of Hispanic/Latino population in the state also lowers sales significantly. On the other hand, contiguity with Canada appears to have no significant effect. The lower sales in states bordering Mexico can be explained by cigarette smuggling from Mexico mainly to the Latino population in the USA.

Cigarette excise increase in January 2011 substantially increased cigarette prices in Mexico: for example, the price of Marlboro pack increased from 30 to 38 pesos. This reduced the incentives for cigarette bootlegging from Mexico, and so the decline of cigarette sales in Mexico in 2011 could be partly explained by the reduction of cigarette smuggling out of Mexico to the USA.

### **Cigarette smuggling into Mexico**

Tobacco industry observed a large reduction of cigarette sales in Mexico in early 2011 and decided to respond in its usual way by claiming that such reduction could be only caused by a sharp increase in smuggling into the country after the tax-driven price increase.

<sup>10</sup> [https://help.cbp.gov/app/answers/detail/a\\_id/53/~travelers-bringing-in-tobacco-products-%28cigarettes%2C-cigars%2C-bidis%29-into-the](https://help.cbp.gov/app/answers/detail/a_id/53/~travelers-bringing-in-tobacco-products-%28cigarettes%2C-cigars%2C-bidis%29-into-the)

<sup>11</sup> <https://www.tobaccofreekids.org/research/factsheets/pdf/0389.pdf>

<sup>12</sup> <https://www.mackinac.org/23172>

Already in July 2011, associations of Mexican merchants established “Alliance against Illicit Products”, which was joined by the tobacco companies Philip Morris Mexico and British American Tobacco with the aim “to strengthen legal trade and to prevent the growth of illegal product sale in the country”<sup>13</sup>.

Soon, the Alliance claimed<sup>14</sup> that the illegal cigarette trade changed from 2 to 10% of the legal product market in just one year (from 2010 to 2011). Based on the industry estimates, we can calculate the number of illicit cigarettes. In 2010, according to the PMI Annual report, legal market was 43.5 billion cigarettes, so the illicit market was:  $43.5 \times 2 / 102 = 0.85$  billion cigarettes. In 2011, it was respectively:  $34.3 \times 10 / 110 = 3.1$  billion cigarettes, so the illicit market increased by 2.25 billion cigarettes, while sales declined by 9.2 billion cigarettes, so only 25% of sales reduction can may be explained by illicit trade growth if illicit trade estimates were accurate.

In 2012, the Confederation of Industrial Chambers (Concamin) issued a report, which claimed that Illegal cigarettes smuggled into Mexico account for 16.6% of the market after representing just 2% in 2010<sup>15</sup>.

British-American Tobacco later used this estimate to claim that the illicit cigarette market reaches 17% of the market “as a result of the high increase in tobacco taxes in 2011”<sup>16</sup>. The director of British American Tobacco stressed in the media interview that “the perverse incentive for the growth of contraband in Mexico was the increase of taxes”<sup>17</sup>.

Still, in 2012, the size of illicit cigarettes market was estimated by tobacco industry allies as 17% or 340 million cigarette packs<sup>18</sup>. The same numbers (340 million packs or 17%) were used by the Federal Commission for the Protection against Health Risks (Cofepris) in July 2017<sup>19</sup>, the president of the National Council of the Tobacco Industry (CNIT) in October 2018<sup>20</sup>, and the head of the Tax Service Administration (SAT) in April 2019<sup>21</sup>. However, in its Annual report of 2013, BAT claimed that “illicit trade volume reduced”. In its Annual reports issued in both 2015 and 2016, Philip Morris wrote about “lower prevalence of illicit trade”.

In May 2015, KPMG agency issued a report called “Project Frost” [31] funded by British American Tobacco (BAT). The purpose and scope of this study were established through an agreement with the BAT. The study had to consider the smuggling and the counterfeit segments of the tobacco market in 16 Latin American markets (including Mexico) and Canada (with a focus on Ontario). According to this agreement, KPMG had to show the country-specific preliminary results for each of the markets included in the study to the BAT administration teams in order to obtain feedback and comments before finalizing the results. Most data for the study (sales, prices, taxes) were provided by the BAT. The estimates of illicit sales were based on so-called empty pack surveys (EPS). The results of EPS were provided to KPMG by the BAT. According to the EPS results shown in the 'Project Frost' report [31], contraband cigarettes accounted for

---

<sup>13</sup> <http://ntrzacatecas.com/2011/07/14/integran-alianza-contracomercio-y-productos-ilegales/>

<sup>14</sup> <http://eleconomista.com.mx/industrias/2011/10/10/minoristas-conforman-alianza-frenar-venta-productos-ilegales>

<sup>15</sup> <http://www.thecre.com/cc/?p=2651>

<sup>16</sup> [http://www.batmexico.com.mx/group/sites/BAT\\_9YAAD9.nsf/vwPagesWebLive/DO9YAEV4?opendocument](http://www.batmexico.com.mx/group/sites/BAT_9YAAD9.nsf/vwPagesWebLive/DO9YAEV4?opendocument)

<sup>17</sup> <http://www.excelsior.com.mx/nacional/2013/11/20/929617>

<sup>18</sup> <http://www.excelsior.com.mx/nacional/2013/11/20/929617>

<sup>19</sup> <http://www.alianzacontraproductosilegales.mx/alianza/index.php/tabaco/301-en-mexico-se-venden-340-millones-de-paquetes-de-cigarros-de-contrabando-cada-ano-cofepris>

<sup>20</sup> <https://www.eleconomista.com.mx/empresas/Codigo-de-seguridad-evitara-venta-de-cigarros-pirata-SAT-20181010-0065.htm>

<sup>21</sup> <https://www.eleconomista.com.mx/economia/Fisco-pierde-25.5-millones-por-la-venta-de-cigarros-ilegales-20190408-0107.html>

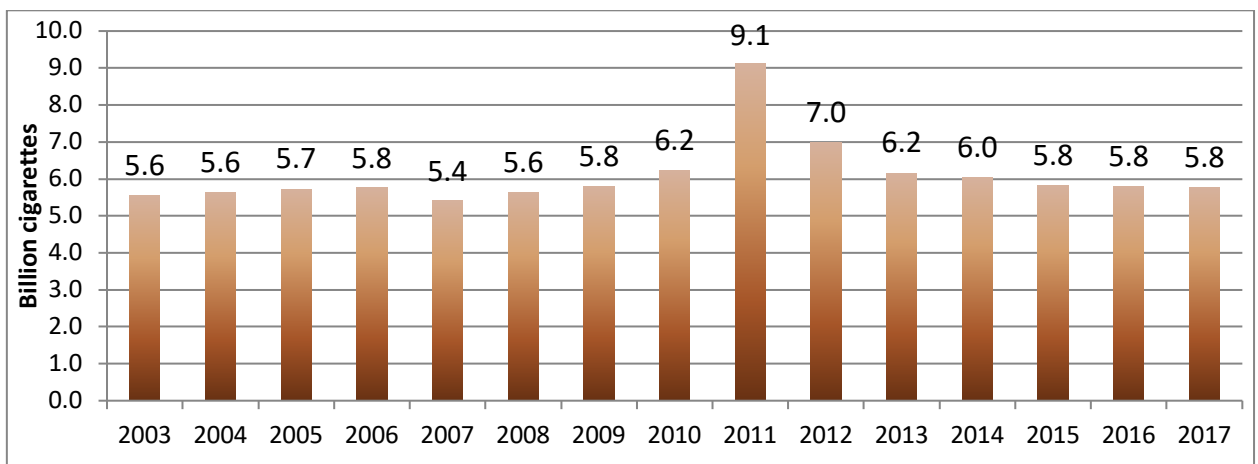
14% of cigarettes consumed in Mexico in 2014. Smuggled cigarette brands from India, China, Paraguay, Canada and the USA were found in Mexico. While average cigarette price in Mexico was much higher than in neighboring Guatemala (3.05USD vs. 2.04USD), no cigarette smuggling from Guatemala to Mexico was reported. No counterfeit packs were identified in the EPS.

Tobacco industry organizations tend to overestimate cigarette smuggling into any country (and underestimate or better ignore smuggling out of the country). They also manipulate their own data. For example, a thorough analysis of Euromonitor reports [32] showed that in the 2011 report, the illicit market in Mexico was stated to be increasing slowly from 3.5% in 1997 to 6.1% in 2010. The 2012 report shows the illicit market starting at 9.1% in 1997 (nearly three times the magnitude of the previous estimate) and increasing to 21.8% of the total market in 2011. Then in report issued in July 2017, the estimate increased even further to 22.5% [33].

But even with such manipulated data on illicit sales, Euromonitor has to admit that consumption of legally traded cigarettes in Mexico decreased by 35% between 2005 and 2013, and after including the contraband market estimates, total cigarette consumption would have declined by 30%<sup>22</sup>. Euromonitor reported “in 2016, cigarettes posted 1% retail volume growth favored by a reduction of illicit trade” [26].

According to Euromonitor data, in 2003-2010, cigarette smuggling into Mexico was stable: about 6 billion sticks a year. Smuggling increased to 9.1 billion cigarettes in 2011, but in 2012 it decreased to 7 billion cigarettes, and in 2013-2017, annual volumes of smuggling were again at the level about 6 billion cigarettes (Figure 3). However, as the legal sales substantially declined over those years, the share of illicit sales increased from 10.5% to 15.7% in 2003-2017, while reported volume of smuggled cigarettes was almost the same: 5.57 billion in 2003 and 5.77 billion cigarettes in 2017. It is a popular misleading math trick used by the tobacco industry to exaggerate the scope of the illicit cigarette trade problem showing illicit cigarette market share rather than the absolute number of illicit cigarettes [34]. Actually, Euromonitor data demonstrate that the increase in cigarette smuggling volumes into Mexico after the taxation reform of 2010 was very short-term, and then the volumes returned to the pre-reform level.

**Figure 3. Estimates of cigarette smuggling volumes into Mexico, Euromonitor International**



However, Euromonitor and other tobacco industry sources systematically overestimate cigarette smuggling into the country. Recent review of tobacco industry reports on illicit tobacco trade shows that such reports routinely overestimate illicit trade, feature substantial methodological problems and fail to meet the standards of accuracy and transparency that are set by high-quality research publications. The

<sup>22</sup> <http://eleconomista.com.mx/industrias/2015/05/29/negocio-cigarro-se-consume-mexico>



primary purpose of tobacco industry-funded estimates on illicit tobacco trade is likely to create a platform for the industry's lobbying and public relations strategies [35].

Independent studies report much lower levels of illicit tobacco trade in Mexico. A longitudinal study of adult smokers from the ITC Mexico Survey [36] measured percentage of smokers who reported having bought contraband brands at their last purchase: n=8 of 1644 (0.5%) in 2008, n=12 of 1572 (0.8%) in 2010, and n=33 of 1505 (2.2 %) in 2011. So while some increase of illicit trade did take place in 2011, the real share of illicit cigarettes was much lower than the tobacco industry claimed.

According to a recent report [37], the proportion of illicit packs (defined as those which did not have a Mexican tax stamp at the time of purchase) was only 1.5% in 2013.

Self-reported information from GATS surveys indicates that illicit cigarette consumption increased from 0.5% to 2.7% between 2009 and 2015 [38].

### Cigarettes affordability

In the current analysis, a modified tobacco affordability index (TAI) [39] is used to estimate the changes in tobacco affordability in 2006–2018. For prices we used Consumer Price Indices (CPI) for all items and cigarettes from the INEGI database<sup>23</sup>. As income proxy, we used the World Bank indicator “Annual percentage growth rate of GDP per capita based on constant local currency”<sup>24</sup>. As the GDP change is expressed in constant (adjusted for the effects of price inflation) local currency, the price indicator is also expressed in real (inflation-adjusted) terms. The TAI is calculated as GDP annual change divided by (inflation-adjusted) tobacco price increase minus 100:  $(\text{GDP growth} * \text{CPI}_{\text{all\_items}} / \text{CPI}_{\text{tobacco}} - 100)$ . A negative TAI value means that tobacco became less affordable, and tobacco consumption is expected to decrease.

**Table 6. Cigarette affordability in Mexico**

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CPI general, December to December previous year	104,1	103,8	106,5	103,6	104,4	103,8	103,6	104,0	104,1	102,1	103,4	106,8	104,8
CPI cigarettes, December to December previous year	101,4	117,2	112,5	108,5	112,3	119,0	105,3	104,8	106,5	104,2	103,1	104,5	106,9
Income (GDP) (previous year =100)	103	100,7	99,5	93,2	103,5	102,1	102,2	99,9	100,9	101,9	101,0	101,6	100,8
TAI	5,7	-10,9	-5,8	-11,0	-3,8	-10,9	0,5	-0,9	-1,4	-0,2	1,3	3,7	-1,2

In 2007-2011, cigarette affordability in Mexico greatly declined partly due to the increase of ad valorem excise rate from 110% to 160% in 2006-2009 and the introduction of specific tax in 2010, which was substantially increased in 2011. Economic recession, which caused the GDP decline in 2008 and 2009, also contributed to the cigarette affordability reduction over those years. However, in 2012-2018, cigarette affordability almost did not change, and this could encourage their consumption.

<sup>23</sup> <https://www.inegi.org.mx/programas/inpc/2018/default.html#Tabulados>

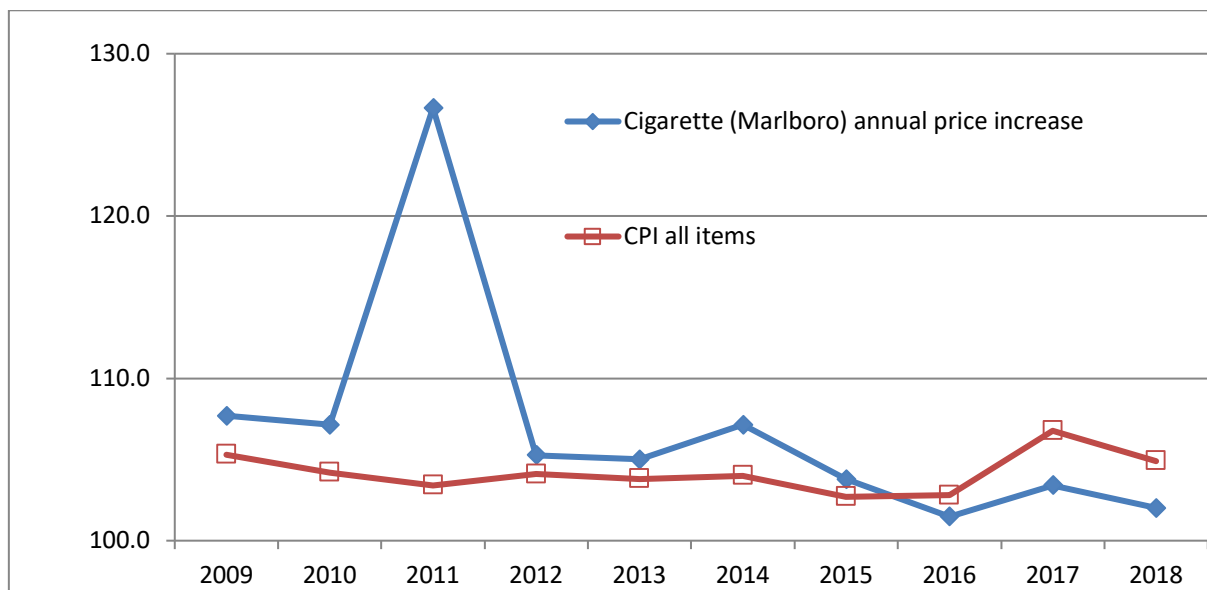
<sup>24</sup> <http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG>

## Cigarette prices

To estimate the cigarette price trends, we used prices for Marlboro, which is the most popular brand. According to GATS-2015 report [7], 52.6% of smokers purchased Marlboro or Marlboro Light. According to the ENCODAT report [4], the share of Marlboro in 2011-2016 increased from 49.6% to 53.2%. We used the data on prices for the most popular cigarette brand (Marlboro) for 2008-2016 from the bi-annual WHO Global Tobacco Reports, for 2006—from Saenz-de-Miera et al. [40] and for 2017 and 2018 from<sup>25</sup>.

We used data on inflation (consumer price index - CPI) in Mexico from the World Bank database<sup>26</sup> to compare the changes of Marlboro cigarette price against the inflation (Figure 4).

**Figure 4. Marlboro cigarette prices and inflation in Mexico**



The increase in cigarette price exceeded inflation in all years (except 2016-2018) while the difference was high only in 2011 after the sharp excise increase.

According to the ITC surveys [36], after cigarette excise taxes were increased in Mexico, prices went up by 14.0% between 2008 and 2010 and by 20.1% in 2011. However, from 2008 to 2011, the average price of premium/international brands increased each year; but the price for discount/national brands increased only from 2010 to 2011. In response to the low tax increases of 2009 and 2010, the tobacco industry kept prices of cheaper national brands low, while setting higher prices for consumers of relatively higher-priced international brands. It was not until 2011 when the specific tax was significantly increased, that the price of national brands was increased by a higher proportion than the price of international brands.

Since 2011, cigarette tax rates have not been changed, but the industry continued to increase its prices above inflation (see Table 6 and Figure 4). Pricing policy of the tobacco industry increased their profits on the declining cigarette market, but it also ensured some growth of the governmental revenue, an ad valorem excise and VAT have rather high share in the total cigarette tax.

<sup>25</sup> [https://www.numbeo.com/cost-of-living/country\\_result.jsp?country=Mexico](https://www.numbeo.com/cost-of-living/country_result.jsp?country=Mexico)

<sup>26</sup> <https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2017&locations=MX&start=2004>

## Comparison of cigarette prices and taxes in Mexico and neighboring countries

The WHO Global Tobacco Report, 2017 has information on cigarette prices and taxes in Mexico and other countries of the WHO Americas Region (AMRO) in 2016 [41] (Table 7).

**Table 7. Cigarette prices and taxes in Mexico and some neighboring countries in 2016, WHO report data [41]**

COUNTRY	Price of a 20-cigarette pack of the most sold brand			Taxes as a % of price of the most sold brand						% of GDP per capita required to purchase 2000 cigarettes of the most popular brand
	In reported currency	Currency reported	In US\$ at official exchange rates	Specific excise	Ad valorem excise	Total excise	Value added tax/sales tax	Total tax	Total tax, US\$	
Belize	5.00	BZD	<b>2.50</b>	26.0%	0.0%	26.0%	11.1%	37.1%	<b>0.93</b>	5.4%
Canada	10.29	CAD	<b>7.89</b>	57.2%	0.0%	57.2%	9.0%	66.2%	<b>5.22</b>	1.8%
Costa Rica	1 700	CRC	<b>3.09</b>	26.6%	31.2%	57.9%	11.5%	69.4%	<b>2.14</b>	2.7%
El Salvador	2.00	USD	<b>2.00</b>	22.5%	18.5%	41.0%	11.5%	52.5%	<b>1.05</b>	4.6%
Guatemala	16.50	GTQ	<b>2.18</b>	0.0%	38.3%	38.3%	10.7%	49.0%	<b>1.07</b>	5.2%
Honduras	44.00	HNL	<b>1.92</b>	19.1%	0.0%	19.1%	15.3%	34.3%	<b>0.66</b>	7.3%
<b>Mexico</b>	<b>47.39</b>	<b>MXN</b>	<b>2.51</b>	<b>14.8%</b>	<b>38.7%</b>	<b>53.5%</b>	<b>13.8%</b>	<b>67.3%</b>	<b>1.69</b>	<b>3.0%</b>
Nicaragua	50.00	NIO	<b>1.74</b>	22.1%	0.0%	22.1%	13.0%	35.1%	<b>0.61</b>	8.2%
Panama	4.25	PAB	<b>4.25</b>	0.0%	43.5%	43.5%	13.0%	56.5%	<b>2.40</b>	3.1%
United States of America	6.43	USD	<b>6.43</b>	37.8%	0.0%	37.8%	5.2%	43.0%	<b>2.77</b>	1.1%

While Mexico had the second highest (after Costa Rica) total tax share in the cigarette price (67.3%), cigarette prices and taxes (in monetary terms) in Mexico are lower than in Costa Rica, Panama, USA, and Canada. In terms of affordability, cigarettes are more affordable in Mexico than in Belize, El Salvador, Honduras, Guatemala, Panama, and Nicaragua.

## Discussion

Tobacco tax increases in Mexico were implemented in 2007-2011: ad valorem excise rate was increased from 110% in 2006 to 160% in 2009 and specific tax was introduced in 2010 and sharply increased in 2011. Such taxation policy gradually reduced tobacco consumption in the country as cigarettes became less affordable. The affordability reduction was reinforced by the economic recession of 2009-2011.

However, the tobacco industry managed to promote the perception that the observed decline in cigarette sales in Mexico was only caused by the sharp increase in cigarette smuggling into the country *as a result of the high increase in tobacco taxes in 2011*.

Cigarette smuggling into Mexico was actually greatly overestimated by the tobacco industry, while cigarette smuggling out of Mexico to the USA (where cigarettes are much more expensive) was ignored in the tobacco taxation debate in Mexico (though it was promoted by the tobacco industry in the US debates).

*Overall, the Mexican tobacco tax reform of 2007-2011 was a great success:*

- Tobacco excise annual revenue increased from 16 billion pesos in 2006 to 34 billion pesos in 2012-2014. In real (inflation-adjusted) terms, the revenue increased by 57% in 2006-2012.
- Annual legal cigarette sales declined from 48 billion cigarettes in 2006 to 34 billion cigarettes in 2012-2015 (PMI estimates) or from about 44 billion cigarettes in 2006 to about 30 billion cigarettes (EMI estimates) or by 14 billion cigarettes.
- Even by EMI estimates, cigarette smuggling into Mexico in 2011 increased only by about 3 billion cigarettes, while already in 2013 it returned to previous levels (about 6 billion smuggled cigarettes annually). According to independent estimates, cigarette smuggling into Mexico is much lower.
- The prevalence of smoking among adults substantially declined in 2008-2011.
- Smoking prevalence among young people declined from 2008.

Despite such positive trends, the tobacco tax rates in Mexico have not been changed since 2011. Such taxation policy eventually made cigarettes more affordable, and in 2016, cigarette sales (and apparently tobacco consumption) increased. Some increase in the prevalence of smoking was observed between 2011 and 2016. Such taxation policy contradicts the provision of the FCTC Article 6, which states that each Party should implement tax policies and price policies on tobacco products so as to contribute to the health objectives aimed at reducing tobacco consumption.

Tobacco taxation policy in Mexico in 2012-2018 was not effective in either health terms or fiscal terms as the inflation-adjusted tobacco excise revenue did not increase.

## **Conclusions and recommendations**

1. In 2007-2011, tobacco taxation policy in Mexico was very effective as the increase in excise rates both reduced tobacco consumption and increased the real government revenue.
2. Estimates of cigarette smuggling into Mexico demonstrate that if smuggling was measured in number of smuggled cigarettes, there was a rather small increase in smuggling after the taxation reform of 2010-2011, and then smuggling returned to the pre-reform level.
3. In 2012-2018, the tobacco tax rates were not changed, and it increase cigarette affordability and tobacco consumption, while the real governmental revenue did not increase.
4. Specific cigarette excise tax in Mexico should be further increased as it occurred to be the most effective tool for the observed reduction in tobacco consumption in Mexico since 2011.
5. The increase of ad valorem rates in 2007-2009 was also effective, and the rate could be further increased. The change of the base to calculate ad valorem excise tax should be considered; this needs to be done because the tobacco industry can manipulate its ex-factory prices to reduce tax payments.
6. Tobacco excise rates should be annually increased to ensure tobacco affordability reduction.
7. Some effective anti-forestalling measures should be introduced to ensure that the authorities receive extra revenue from tax increases.
8. Tobacco use surveillance and monitoring should be further developed in Mexico, including a regular collection of information on various cigarette brands prices and other economic indicators.
9. Some collaboration with tobacco control entities in the neighboring US states should be developed to estimate real volumes of cigarette smuggling from Mexico to the USA.
10. Effective policies to counteract tobacco smuggling and other kinds of illicit tobacco sales should be implemented in line with the provisions of the FCTC Protocol to Eliminate Illicit Trade in Tobacco Products, which is recommended to be ratified by the country.

11. As the ban of electronic cigarettes is not enforced, it is worth considering the introduction of e-cigarette sale regulations, including their taxation in line with the recent World Bank recommendations [42].

## References

1. Heydari, G., et al., *Comparison of Tobacco Control Programs Worldwide: A Quantitative Analysis of the 2015 World Health Organization MPOWER Report*. Int J Prev Med, 2016. **7**: p. 127.
2. *Ley General para el Control del Tabaco*. Diario Oficial de la Federación. 30/04/2008. México, DF: Congreso General, 2008. 2008.
3. The International Tobacco Control Policy Evaluation Project. *ITC Mexico Summary*. 2009; Available from: [https://itcproject.org/files/Report\\_Publications/National\\_Summary/itcmexico4pager.pdf](https://itcproject.org/files/Report_Publications/National_Summary/itcmexico4pager.pdf).
4. *Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016-2017. Reporte de Tabaco*. 2017; Available from: <https://drive.google.com/file/d/1lktptvdu2nsrSpMBMT4FdqBlk8gikz7q/view>.
5. CODICE, *Leyes locales de ambientes 100% libres de humo de tabaco*. Available from: <https://codicesc.org/control-del-tabaco-en-11-estados/>.
6. Tobacco Control Laws. *Country Details For Mexico*. 2018; Available from: <http://www.tobaccocontrollaws.org/legislation/country/mexico/summary>.
7. Pan American Health Organization and Instituto Nacional de Salud Pública. *Mexico 2015 Global Adult Tobacco Survey report*. 2017; Available from: [http://media.controltabaco.mx/content/productos/2017/GATS\\_2015-INGLES\\_\(electr%C3%B3nico\)\\_5\\_julio7.pdf](http://media.controltabaco.mx/content/productos/2017/GATS_2015-INGLES_(electr%C3%B3nico)_5_julio7.pdf).
8. *Encuesta Nacional de Adicciones 2002*. Aguascalientes, Aguascalientes, Ags. México 2004.
9. Oropeza Abúndez, C., G. Nagore-Cázares, and S. De Voghel Gutiérrez. *Encuesta Nacional de Adicciones 2008*. Instituto Nacional de Salud Pública: Cuernavaca, Morelos, México 2008; Available from: [https://www.insp.mx/images/stories/Produccion/pdf/100722\\_cp8.pdf](https://www.insp.mx/images/stories/Produccion/pdf/100722_cp8.pdf).
10. Franco-Marina, F. and E. Lazcano-Ponce, *Tendencias del tabaquismo en adultos en México entre 1988 y 2008*. Salud Pública de México, 2010. **52**: p. S108-S119.
11. Lazcano-Ponce, E., et al. *Encuesta Nacional de Adicciones 2011: tabaco*. Cuernavaca, México: Instituto Nacional de Salud Pública 2013; Available from: [https://www.insp.mx/images/stories/Produccion/pdf/130911\\_ENAtabaco.pdf](https://www.insp.mx/images/stories/Produccion/pdf/130911_ENAtabaco.pdf).
12. *Consumo de tabaco, exposición al humo de tabaco ambiental y estrategias de control en México*. 2011; Available from: [http://www.uade.inpsiquiatria.edu.mx/pagina\\_contenidos/ENA%202011/factsheet/factsheet%20tabacoENA22oct%20\(2\).pdf](http://www.uade.inpsiquiatria.edu.mx/pagina_contenidos/ENA%202011/factsheet/factsheet%20tabacoENA22oct%20(2).pdf).
13. Ornelas-Almaraz, G., *Patterns of tobacco consumption in Mexico—current perspective*. 2012, University of East Anglia.
14. Guerrero-López, C.M., et al., *Consumo de tabaco, mortalidad y política fiscal en México*. salud pública de México, 2013. **55**: p. S276-S281.
15. *Mexico 2011 Global Youth Tobacco Survey (GYTS) Fact Sheet*. 2011; Available from: [http://www.paho.org/hq/index.php?option=com\\_docman&task=doc\\_view&gid=41147&Itemid=270&lang=en](http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=41147&Itemid=270&lang=en).
16. Zavala-Arciniega, L., et al., *Patterns of awareness and use of electronic cigarettes in Mexico, a middle-income country that bans them: Results from a 2016 national survey*. Prev Med, 2018. **116**: p. 211-218.
17. Gravely, S., et al., *Awareness, trial, and current use of electronic cigarettes in 10 countries: Findings from the ITC project*. Int J Environ Res Public Health, 2014. **11**(11): p. 11691-704.
18. Thrasher, J.F., et al., *Prevalence and Correlates of E-Cigarette Perceptions and Trial Among Early Adolescents in Mexico*. J Adolesc Health, 2016. **58**(3): p. 358-65.
19. *Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016-2017*. 2017; Available from: [https://www.gob.mx/cms/uploads/attachment/file/246059/fact\\_transversal\\_final\\_01\\_0417\\_V6.pdf](https://www.gob.mx/cms/uploads/attachment/file/246059/fact_transversal_final_01_0417_V6.pdf).

20. Tobacco Free Initiative. *Tobacco control in Mexico*. 2015; Available from: <http://www.who.int/tobacco/about/partners/bloomberg/mex/en/>.
21. Godfrey, M., *Mexico Rejects Tobacco Tax Increase*, in *Tax News*. 2014.
22. *Guidelines for implementation of Article 6 of the WHO Framework Convention on Tobacco Control*. 2014; Available from: [http://www.who.int/fctc/guidelines/adopted/Guidelines\\_article\\_6.pdf](http://www.who.int/fctc/guidelines/adopted/Guidelines_article_6.pdf).
23. Campaign for Tobacco-Free Kids. *Tobacco tax success story: Mexico*. 2012; Available from: [www.fctc.org/images/stories/success\\_Mexico\\_en.pdf](http://www.fctc.org/images/stories/success_Mexico_en.pdf).
24. Food and Agriculture Organization of the United Nations. *FAOSTAT*. 2017; Available from: <http://www.fao.org/faostat/en/#data/QC>.
25. Centro de Estudios de las Finanzas Públicas. *El Tabaquismo y su efecto en las Finanzas Públicas: 2007-2017*. 2018; Available from: <http://www.cefp.gob.mx/publicaciones/nota/2018/notacefp0042018.pdf>.
26. Euromonitor International. *Cigarettes in Mexico*. 2016.
27. Euromonitor International. *Tobacco in Mexico*. 2017.
28. Waters, H., et al. *The economics of tobacco and tobacco taxation in Mexico*. Paris: International Union Against Tuberculosis and Lung Disease 2010; Available from: [https://global.tobaccofreekids.org/assets/global/pdfs/en/Mexico\\_tobacco\\_taxes\\_report\\_en.pdf](https://global.tobaccofreekids.org/assets/global/pdfs/en/Mexico_tobacco_taxes_report_en.pdf).
29. Euromonitor International. *Cigarettes in Mexico*. 2018.
30. Connelly, R.T., R.K. Goel, and R. Ram, *Demand for cigarettes in the United States: effects of prices in bordering states and contiguity with Mexico and Canada*. *Applied Economics*, 2009. **41**(18): p. 2255-2260.
31. KPMG LLP. *Proyecto Frost*. 2015; Available from: [https://cigarroilicito.weebly.com/uploads/1/0/9/4/109477265/project\\_frost\\_final\\_spanish\\_26\\_06\\_2015.pdf](https://cigarroilicito.weebly.com/uploads/1/0/9/4/109477265/project_frost_final_spanish_26_06_2015.pdf).
32. Blecher, E., et al., *Euromonitor data on the illicit trade in cigarettes*. *Tob Control*, 2015. **24**(1): p. 100-1.
33. Euromonitor International. *Cigarettes in Mexico*. 2017.
34. Stoklosa, M., *Is the illicit cigarette market really growing? The tobacco industry's misleading math trick*. *Tob Control*, 2016. **25**(3): p. 360-1.
35. Gallagher, A.W.A., et al., *Tobacco industry data on illicit tobacco trade: a systematic review of existing assessments*. *Tob Control*, 2019. **28**(3): p. 334-345.
36. Saenz de Miera Juarez, B., et al., *Tax, price and cigarette brand preferences: a longitudinal study of adult smokers from the ITC Mexico Survey*. *Tob Control*, 2014. **23 Suppl 1**: p. i80-5.
37. Brown, J., et al., *An analysis of purchase price of legal and illicit cigarettes in urban retail environments in 14 low- and middle-income countries*. *Addiction*, 2017: p. n/a-n/a.
38. Saenz de Miera Juarez, B., M.A. Rodriguez, and L.M. Reynales, *Measuring illicit cigarette consumption with tobacco surveillance data: evidence from the Global Adult Tobacco Survey for Mexico*. *Tobacco Induced Diseases*, 2018. **16**(1).
39. Krasovsky, K., *Tobacco taxation policy in three Baltic countries after the EU accession*. *Tobacco Control and Public Health in Eastern Europe*, 2012. **2**(2): p. 81-98.
40. Saenz-de-Miera, B., et al., *Self-reported price of cigarettes, consumption and compensatory behaviours in a cohort of Mexican smokers before and after a cigarette tax increase*. *Tob Control*, 2010. **19**(6): p. 481-7.
41. World Health Organization. *WHO report on the global tobacco epidemic 2017. Monitoring tobacco use and prevention policies*. 2017; Available from: [http://www.who.int/tobacco/global\\_report/en/](http://www.who.int/tobacco/global_report/en/).
42. WBG Global Tobacco Control Program Team. *E-cigarettes: use and taxation*. 2019; Available from: <http://documents.worldbank.org/curated/en/356561555100066200/pdf/E-Cigarettes-Use-and-Taxation.pdf>.

