



Analysis of Tax and Non-Tax Revenue Policy for Alcoholic Beverages in Mexico at Federal, State and Municipal Levels, with a special focus on Public Health

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Table of contents

I.	INTRODUCTION.....	3
II.	A HOLISTIC APPROACH: FISCAL POLICY AND PUBLIC POLICIES FROM A PUBLIC HEALTH PERSPECTIVE.....	6
III.	THE MEXICAN EXCEPTIONALITY.....	8
IV.	MEXICO: LOW CONSUMPTION OF ALCOHOLIC BEVERAGES WITH HIGH MORTALITY AND THE SUBNATIONAL CONUNDRUM.....	11
V.	CONSUMPTION AND ABUSE OF ALCOHOLIC BEVERAGES: DIFFERENTIATED ECONOMIC BONANZA AND FISCAL STALEMENT.....	15
VI.	ALCOHOLIC BEVERAGES FOR THE RICH AND THE POOR	23
VII.	NATIONAL ISSUE AND SUBNATIONAL IRRESPONSIBILITY: REGULATORY FRAMEWORK AND NON-TAX REVENUE POLICIES.....	29
VIII.	REGULATORY FAIL, A LACK GOVERNMENT.....	33
VII.	FISCAL PROTRACTION AND AN ABSENT TREASURY	39
X.	FISCAL PERFORMANCE OF ALCOHOLIC BEVERAGES IN MEXICO.....	42
XI.	FINDINGS & POLICY RECOMMENDATIONS.....	48
XIII.	SOURCES AND REFERENCES.....	50
XIII.	APPENDIXES.....	55

I. Introduction

“In [the State of] Hidalgo there was a high *pulque*¹ production and consumption. *Pulque* was cheap as it came from traditional good-quality homemade producers. However, given the invasion of advertisement and supply, several people have chosen to go out to drink beer, thus putting pressure on their incomes due to a new expense.”²

It is not an overstatement to claim that alcoholic beverages are part of the Mexican millenary culture. Before the Colonial Era (1510-1810), ancient Mexicans consumed different types of alcoholic beverages. Ever since, the government has developed specific policies for their regulation, since it had meant the rise of “social issues” with negative consequences for both the individual and their surroundings for centuries. The fact that regulation and even fiscal-type schemes have accompanied consumption of these beverages since the dawn of human civilization is not by chance (Nolla Hernández, 2017).

The environment of contemporary Mexico is radically different from that experienced before the Colonial Era. The Independence process and Mexico’s evolution throughout the XX Century, specially since the Revolution, made alcoholic beverages consumption an increasingly complex public issue which required a multilevel, albeit multifunctional response from the government. Like in other sectors, those policies have been exceeded by a reality which has evolved faster than the public sector’s efforts to keep up. Even today, many communities continue to prepare their own home-made beverages. However, this kind of production in rural and indigenous areas has been gradually sidelined, given that advertising, high availability of industrial beverages, and the appeal of going out to drink, is changing ancestral cultural patterns (Mexican Community on Public Management for Results, 2018c).

In the XXI Century, Mexico faces huge challenges to its pattern of alcoholic beverages consumption as well as prevention, treatment, and impact in the loss of human lives and economic productivity. As one of the interviewees claimed for this study, there is a tacit agreement that recognizes a problem in Mexico regarding excessive consumption of these sort of beverages. Experts frequently quote the study *Global Burden of Disease*, which indicates that the alcoholic beverages consumption is the nation’s 3rd factor of health deterioration (Gómez-Dantes, Fullman, & Lamadrid-Figueroa, 2016). There is a growing concern as consumption in both youngsters and women increases (Mexican Community on Public Management for Results, 2018a).

Consumption affects the younger population the most, and within this group, women are affected even more. Alcoholic beverages abuse has stopped being exclusively an adult issue to become an issue concerning under-age and youngsters more often. For instance, most recent statistics show that there are

1 Alcoholic beverage made from the fermented sap of the maguey (agave) plant.

2 A statement from one of the interviewees for this study.

cases of acute intoxication by these beverages in children aged less than one year, and that this condition was experienced by 580 children younger than 14 years old, including conditions such as alcoholic liver cirrhosis and alcoholic liver disease.³

This phenomenon can no longer be perceived as a “national” or “federal” issue, but as a list of problems that equally affects localities, municipalities, states, and regions. It has not only expanded in terms of population, age and gender, but also in magnitude and extent throughout the national territory. This is a local, daily, recurring issue.

Alcoholic beverages consumption causes 60 different diseases and is a risk factor for accidents and injuries. Although Mexico is not a big consumer (5.7 liters per capita vs OECD average, 9.5 lpc)⁴, the main problem lies in its consumption pattern. Mexicans like to consume huge quantities of alcoholic beverages in short periods of time, what is called explosive consumption.⁵ This type of behavior is related to different health issues and increases social, economic and attention costs. In addition, consumption in youngsters is increasing and the age when consumption begins has been decreasing.

For example, according to the National Population Council (Consejo Nacional de Población), in 2013 cerebrovascular diseases (CVD), liver cirrhosis, and hypertension were among the 10 main causes of death in our country in the 29 to 60 year-old population, while in 15-29 year-old youngsters, traffic accidents and self-injuries, all of them related to alcoholic beverages consumption and abuse, were found. In addition to the above, the study of Global Burden of Disease indicated that for that same year, within the main causes of death were liver cirrhosis, traffic injuries, cirrhosis by HCV (hepatitis C), and interpersonal violence.⁶ It is important to point out that levels of violence have also been identified as a negative effect of higher availability, consumption and abuse of these beverages (World Health Organization, 2009). Finally, as detailed below, there is a high availability of high alcohol content beverages at low prices for youngsters and access for economically vulnerable groups in Mexico.

The present *White Paper* has been developed by The Mexican Community on Public Management for Results, an organization focused on proposing measures that enable more productive and efficient government public management practices to increase economic and social welfare. The main objectives are to deepen the analysis and propose measures that have the potential to improve the fiscal and regulatory framework, and to create effective feedback tools of the health approaches with regards to alcoholic beverages abuse. The Mexican Community pretends to affect the debate and eventually propose measures to improve the current applicable fiscal model, based on the context of international good

3 For further details see, Table 20 in this document: Distribution of new disease cases per age groups, Estados Unidos Mexicanos 2016, General Population, shown later.

4 Total alcoholic beverages consumption in adult population (raw liters of alcoholic beverages), per gender, in Mexico (2008-2010 term) in women and men is 2.6 and 12.4 liters (maximum, Grenada = 7.8 and 17.9 / minimum Guatemala = 0.5 y 5, respectively). (Pan-American Health Organization & Salud, 2015). P. 9.

5 Episodes of excessive alcoholic beverages consumption within youngsters, per genders, in Mexico (2010) is the lowest in Latin America (n=35) in women (3.6% of 15-19-year-old consumers where the highest is 39.5%) and in men is 39.5%, lowest 18.3% and highest 72.9%). (Pan-American Health Organization & Health, 2015) p. 17.

6 National diagnosis of the Normative Framework for Control of Alcoholic Beverages, 2016, SS, CONADIC, DG Técnico Normativa.

practices in terms of fiscal and public health, and by analyzing and measuring the performance and impact of tax and non-tax fiscal measures which try to model and influence its consumption and abuse, as well as identifying public policy options. This effort stems from a series of meetings, conferences, interviews and bilateral consultations, with both national and international experts, from diverse specialized approaches in public health and fiscal policy.

II. A Holistic Approach: Fiscal Policy and Public Policies from a Public Health Perspective

“The overview in broad strokes is that population has had, in some areas, a growing tolerance to consumption, due to both family and society...”⁷

The experts participating in a Focus Group and bilateral interviews for drafting this study, have all concluded that, in order to generate better results, fiscal policies need to be accompanied by other measures. The main recommendations which stand out include: integral policies attending alcohol supply and demand; support to the alcoholic’s family; education and research; and regulation especially with regards to marketing.⁸ Together with these recommendations, examples of subnational policies for treating harmful alcoholic beverages consumption and some official exercises for estimating the negative cost of alcoholic beverages were also mentioned (Mexican Community on Public Management, 2018a, 2018b, 2018c, 2018d, 2018h, 2018i; Scottish Government, 2018).

As mentioned before, public policies and particularly fiscal policies for dealing with harmful consumption of alcoholic beverages, for both individuals and their surroundings, have existed for centuries. Contemporary Mexico has a set in all three government levels (federal, state, and local) to reduce the negative impact of alcohol consumption. Within these options, fiscal tools play a central role, not only because they model or channel the behavior of individuals and groups towards an ultimate goal (to decrease consumption or to promote more responsibility), but because they also simultaneously generate an appeal power which, by its globalizing features, link economic, fiscal and behavioral, and even health and social development strategies. However, as mentioned by several interviewees, all these must operate in holistic surroundings, which consider multiple factors. For example, how these give feedback to each other or not, and how policies observe a sequence of proper strategies and actions. I.e., the response must be multiple and coordinated from horizontal and vertical collaboration and cooperation.

Sin taxes are fiscal tools used in today’s Mexico. These are Special Production and Service Taxes, known globally as Excise Taxes (Impuestos Especiales de Producción y Servicios (IEPS)), imposed for the individual to internalize the negative externalities expressed from a specific social cost. Such taxes are intended to model or modify the behavior of individuals by increasing the cost or the price of desired inputs so far as to decrease or to wholly discourage their consumption. That is to say, IEPS, and particularly IEPS on alcoholic beverages, intends to decrease consumption and abuse by increasing the price to levels

⁷ A statement of one of the interviewees for this study.

⁸ During one of the interviews carried out, the example of France as the strictest regulatory framework for promoting liquors (Mexican Community on Public Management, 2018b)

where consumption is not affordable by the available income, or they can be substituted by other inputs. According to the Mexican Tax Administration System (SAT), those taxes have the extra fiscal goal of “discouraging alcoholic beverages consumption and obtaining resources to grant medical services to people with diseases produced by consuming these beverages, as these are the most harmful ones” (Centro de Estudios de Finanzas Públicas, 2018: 3).

In a mere market rationality, marginal propensity to consumption, namely the increase of consumption while increasing its income after taxes, cannot properly explain alcoholic beverages consumption. The increase of this income, or greater availability to pay, does not explain the magnitude of an increase or its greater consumption. In other words, the behavior of individuals consuming these beverages is not restricted by income levels.

Income explains partly, but not all, of the reasons for alcoholic beverages consumption and abuse in Mexico. Access and availability for consumption is too high. In the first case, access is regulated by a set of governmental policies which hinder or limit access of people to consume these goods. Regarding availability, it is about a reality -rather than a policy stemmed from a deliberate action of the public sector, where such products are easy to buy thanks to the price. Rich and poor people can all equally buy alcoholic beverages with relative ease, regardless of age gap or access level by income level.

In Mexico there are literally alcoholic beverages for all. In the legal market, a liter of 40° alcohol per volume content beverage may be purchased from 6.57 up to 781.43 pesos.⁹ This means that even a liter of high content alcohol may cost, before taxes, equal to, or even less than, a liter of pure water. This is unacceptable. For a poor or a rich person, whether they are consumers or not, alcohol is very accessible because it is cheap. This is even more dramatic because, despite the increase in prices -through another tax or inflation- in many other articles, alcoholic beverages have not undergone an increase in their prices in real terms. In other words, their prices and specially, low-priced beverages, have not been affected by inflation, which was particularly high in 2017 (6.77% yearly).¹⁰

⁹ See Table of average, maximum, and minimum prices nationwide per type of beverage (MXN pesos), 2011-2018, year 2013 “other liquors”.

¹⁰ See table 3: Average of increase of beverage price in real terms 2011-2018.

III. The Mexican Exceptionality

“If you have a crisis caused by an excessive alcohol intake, the most you can expect from the public healthcare system is to be sobered up, rehydrated and then go to a private doctor”¹¹

In a report published by the World Health Organization (WHO, 2014), a historical series from 1960 to 2010 shows that alcoholic beverages consumption per capita in people above 15-years-old hasn't change practically in Mexico. If anything, after 1980 it increases and levels off to average of 5 liters per year (where beer and liquors all have an almost absolute participation).¹² The case of Mexico contrasts with most of the countries which are monitored and followed-up by WHO.

Surprisingly, in international comparison, Mexico does not have high per capita consumption patterns. Mexico ranks 16th in Latin America out of 35 considered countries¹³ and it is only above Indonesia, Turkey, India, and Israel, considering OECD health statistics, out of a list of 40 countries.¹⁴ In addition, when considering type of beverage (beer, table wine, liquors, other alcoholic, and unregistered beverages), Mexico is ranked 18, 39, 33, 19, and 13, respectively. If all these categories are considered, Mexico is ranked 34.¹⁵ The only thing to be highlighted in these comparisons is that Mexico is ranked second in alcoholic beverages considered as illegal (unregistered), only after Turkey.¹⁶ As stated in one of the interviews, even if there are positive patterns, such as high abstinence levels when compared to developed countries, and a lower than expected increase in consumption, it still increases. A particularity to be highlighted in the Mexican case, is the failure to explain the extremely high abstention level, which is mainly associated to youngsters and women. There is also a greater acceptance and normalization of alcoholic beverages consumption (Mexican Community of Public Management for Results, 2018c).

Despite the fact that statistical and analytical sources do not put Mexico as a country known by its high consumption, even a high amount of abstainers, as stated in the interviews, Mexico is ranked 6th within a set of 40 countries considered by OECD in terms of deaths caused by alcoholic beverages consumption in population groups of all ages. Moreover, it is far above the general average

11 A statement of one of the interviewees for this study

12 Mexico Country Profile, WHO, 2014, Global Status Report on Alcoholic Beverages and Health.

13 World Health Organization, Global Information System on Alcoholic Beverages and Health, World Health Statistics, 2017.

14 See Table Alcoholic Beverages Consumption between adults OCDE Health Statistics 2014. Source: Drinking Lives Away, 2015 with data from OECD Health Statistics 2014.

15 See Table Consumption Levels per type of Alcoholic Beverages and Consumption Score by Country

16 See Figure Unregistered Alcoholic Beverages Consumption in OECD countries. OECD uses description of “unregistered alcoholic beverages” to identify the one which comes from homemade production, black market or alcoholic beverages whose destiny is not human consumption. In this document, however, the word “illegal” is used instead, to provide a concept easier to understand.

(4,8%), with 6,8%, surpassed only by Russia, Estonia, Slovenia, Czech Republic, Korea, and Poland. Finally, we have to point out that all countries surpassing Mexico have more than twice the liter per capita consumption than Mexico.

Table 1. Mortality and consumption by country.

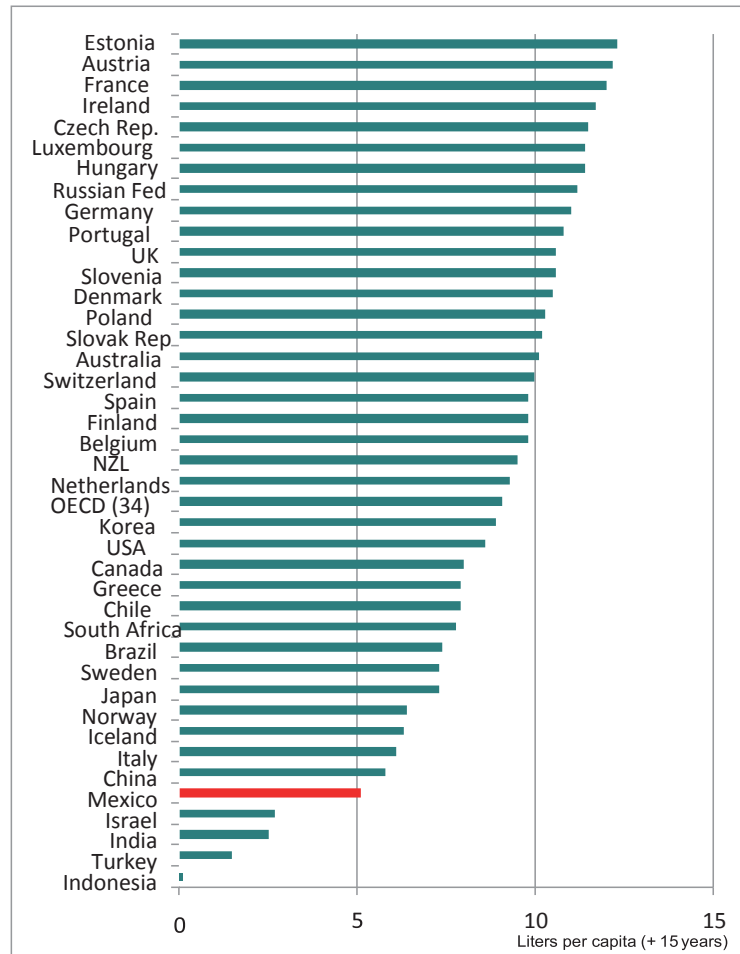
Deaths (% of total of deaths)		Consumption (liters)	
Israel	1,1	Indonesia	0,10
Turkey	1,3	Turkey	1,40
Italy	1,6	Israel	2,70
Indonesia	2,1	India	3,10
Norway	2,1	Mexico	5,30
Iceland	2,1	China	5,80
New Zealand	2,2	Norway	6,20
Australia	2,5	Iceland	6,80
Netherlands	2,7	Chile	7,20
Japan	3,2	Brazil	7,20
United States	3,2	Sweden	7,30
Sweden	3,3	South Africa	7,30
Canada	3,4	Japan	7,40
United Kingdom	3,4	Italy	7,40
Spain	3,6	Greece	7,50
Switzerland	3,6	Canada	8,20
Austria	3,8	Netherlands	8,70
Greece	3,9	Korea	8,70
Germany	4,4	United States	8,80
Belgium	4,5	Finland	9,10
Denmark	4,8	New Zealand	9,20
Luxembourg	4,9	Spain	9,30
Ireland	5,0	United Kingdom	9,40
France	5,3	Denmark	9,40
India	5,4	Slovenia	9,50
Portugal	5,8	Australia	9,70
Czech Republic	5,8	Switzerland	9,90
China	6,3	Slovak Republic	9,90
Chile	6,3	Portugal	10,00
Brazil	6,4	Russian Federation	10,60
Finland	6,4	Ireland	10,60
South Africa	6,5	Hungary	10,60
Hungary	6,7	Poland	10,80
Mexico	6,8	Germany	10,90
Poland	7,0	Luxembourg	11,00
Korea	7,6	Czech Republic	11,50
Slovak Republic	7,7	France	11,60
Slovenia	7,9	Belgium	11,80
Russian Federation	10,0	Austria	11,80
Estonia	10,0	Estonia	11,90

Source: Compilation with data from the World Health Organization (2014), Global Status Report on Alcoholic Beverages and Health 2014, WHO, Geneva. OECD Health Database, 2018.

The caused death toll per 100,000 inhabitants suffering from cirrhosis in Mexico, in the period 1990-2016 has marginally increased (from 9,5% to 12%). In fact, a plentiful source set indicates that alcoholic beverages consumption of the population in general (adults, men, and women) is neither high comparatively with regions, nor with other countries (for example, Canada and United States). The following figure indicates that Mexico is among the last places, in comparative

terms within an important universe of similarly developed countries, with high consumption rates.

Figure 1: Alcoholic Beverages Consumption in adults, 2012.



Source: OCDE Health Statistics 2014. Source: Drinking Lives Away, 2015 with data from OECD Health Statistics 2014.

IV. Mexico: Low Consumption of Alcoholic Beverages with High Mortality and the Subnational Conundrum.

“In Russia, it seems that something that has worked out well is changing social perception around what drinking is. It is very difficult to change a habit that is not socially penalized and is even celebrated between teenagers”¹⁷

As well as the “explosive” alcoholic beverages consumption and abuse patterns, according to results of genomic research, the DNA of the Mexican population has a greater exposure, and is more prone to be affected by consumption of such beverages, developing mortal diseases earlier in life and with greater mortality linked to its consumption.¹⁸ These factors, at least non-evident in international comparisons and in analysis with fiscal or economic approach, must be considered for any future fiscal or public policy design.

Apparent disconnection between consumption and deaths can be also explained by subnational logics. Although there are not enough concluding studies at a subnational level, this is an area ripe for research. States with more consumption in 2007 were Jalisco (63.7%), Aguascalientes (58.8%), Nayarit (57.2%), Colima (53.7%), Mexico City (53.4%). As far as customary consumption is concerned,¹⁹ Nuevo León, Coahuila, Jalisco, Chihuahua, and Durango top the list. The diversity of consumption, fiscal and regulatory policies and, of course, incidence toll of diseases linked directly or indirectly to alcoholic beverages consumption and abuse does not seem to be coherent at a subnational level.

17 A statement of one of the interviewees for this study.

18 Roman, S., Zepeda-Carrillo, E., Moreno-Luna, L.E. y Panduro, A., Alcoholic Beverages and Liver Disease in Mexico: Genetic and environmental factors, World J. Gastroenterol, 2013 Nov 28, 19 (44), 7972-7982

19 Customary consumption refers to that where at least once per week, five or more glasses for men, or four or more glasses, for women are consumed in only one occasion.

Figure 2. Top 10 States with Greater Customary Alcoholic Beverages Consumption* (12-65 years).



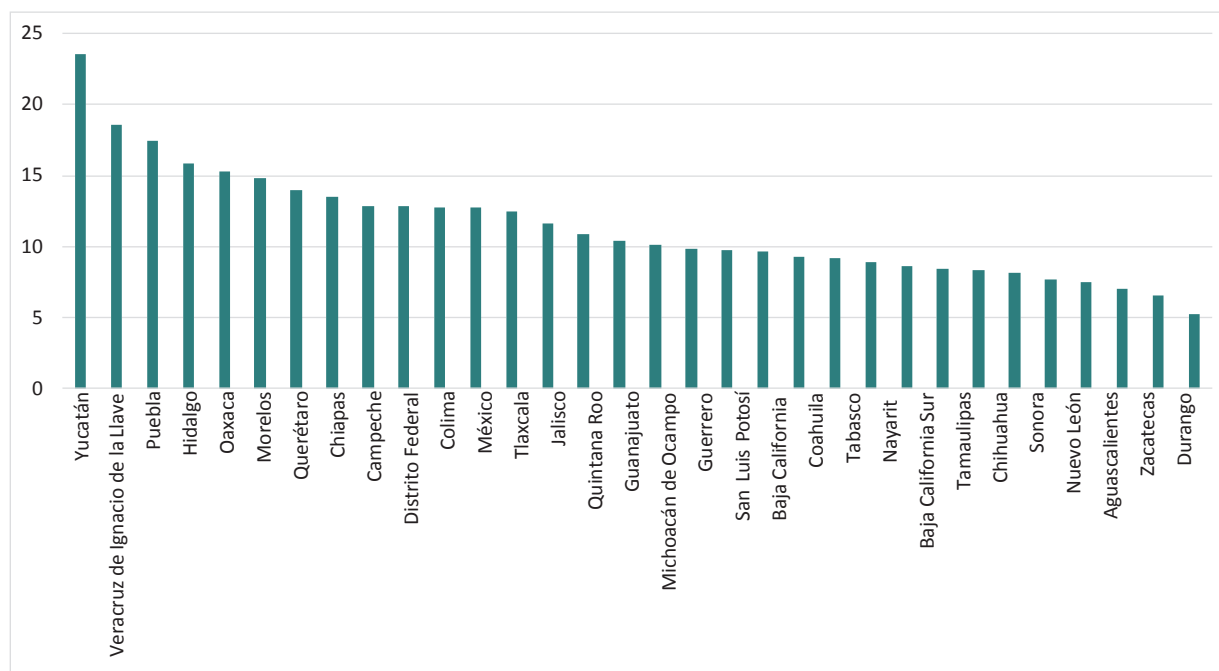
Source: OECD.

* Customary consumption refers to that where at least once per week five or more glasses for men, or four or more glasses for women are consumed in only one occasion.

The states display an important diversity that cannot be addressed with a merely national approach. For example, states with a greater number of cases of acute intoxication by alcoholic beverages are Yucatán, Jalisco, Mexico City, Guanajuato, and the State of Mexico. However, this does not evolve into alcohol related liver diseases, as it occurs in the State of Mexico, Chihuahua, Hidalgo, Veracruz, and Jalisco, the states with the highest numbers of cases. Besides, the highest number of cases of alcoholic liver cirrhosis are in Jalisco, Veracruz, Ciudad de México, Puebla, and Oaxaca. Finally, deaths caused by cirrhosis due to consumption per 100,000 inhabitants present the highest tolls in Yucatán, Veracruz, Puebla, Hidalgo y Oaxaca.²⁰

²⁰ See Figure Deaths Caused by Cirrhosis due to Alcoholic Beverages Consumption, toll per 100,000 inhabitants.

Figure 3. Deaths caused by cirrhosis and other liver diseases due to alcoholic beverages consumption, deaths per 100,000 inhabitants.



Source: WHO.

Arguably, there is a link between consumption and mortality levels that can only be distinguished, at least from descriptive statistics, at a subnational level. However, the distribution of new cases of diseases and conditions referable to alcoholic beverages consumption also has an important population distribution. The group concentrating the highest number of cases is the 25 to 44 year-old population group (acute intoxication), which apparently evolves within the 50 to 59 year-old group, into a greater number of cases of cirrhosis and liver disorders.

Table 2. Distribution of new cases of disease by age groups, Estados Unidos Mexicanos 2016, General population.

Condition	Total	Age groups											
		Incidence* < 1	1 -- 4	5 -- 9	10 -- 14	15-19	20-24	25-44	45-49	50-59	60-64	65 y+	
Alcoholic liver cirrhosis	8.191	6,70	0	2	2	4	8	54	1.366	1.049	2.541	1.128	2.017
Liver alcoholic disease	8.052	6,59	0	0	15	61	144	309	2.035	1.122	2.076	945	1.328
Acute intoxication by alcohol	44.101	36,07	1	6	33	456	4.660	7.156	19.373	4.444	4.860	1.465	1.581
Total	60.344		1	8	50	521	4.812	7.519	22.774	6.615	9.477	3.538	4.926

* Toll per 100,000 inhabitants

SOURCE: SUIVE/DGE/Secretaría de Salud/Estados Unidos Mexicanos 2016.

NOTE: Tolls are calculated with projections of Mexican population 1990-2030. Census 2010. CONAPO.

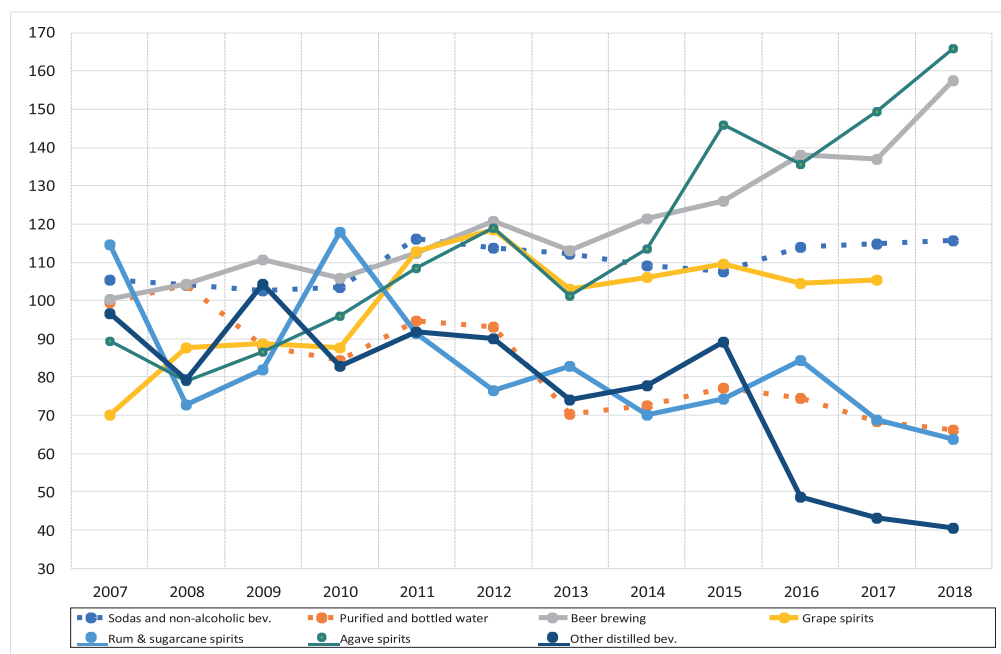
According to a survey conducted in March 2017, alcoholic beverages consumption reportedly decreases as the age of people increases. For example, in the 18 to 25 year age gap, incidence was 67%, while for people older than 45 years, the percentage was 54%.²¹ This is the reason why there is a need for more analysis helping to link the effects of harmful consumption with local consumption patterns and consequences.

²¹ Public opinion poll, Alcohol Beverage Consumption in Mexico, Grupo Imagen Multimedia, March 2017, p.3

V. Consumption and Abuse of Alcoholic Beverages: Differentiated Economic Bonanza and Fiscal Stalement

In the last 10 years, the alcoholic beverages industry has noticed an important transformation. From 2012, a differentiated behavior in the index of physical volume production has been observed. Three main trajectories can be identified. While rum and other sugarcane spirits and other distilled beverages have all noticed an important decrease, agave spirits and beer have all grown very dramatically. Finally, grape spirits have remained stable in the period.

Figure 4. Physical volume of production (Index).

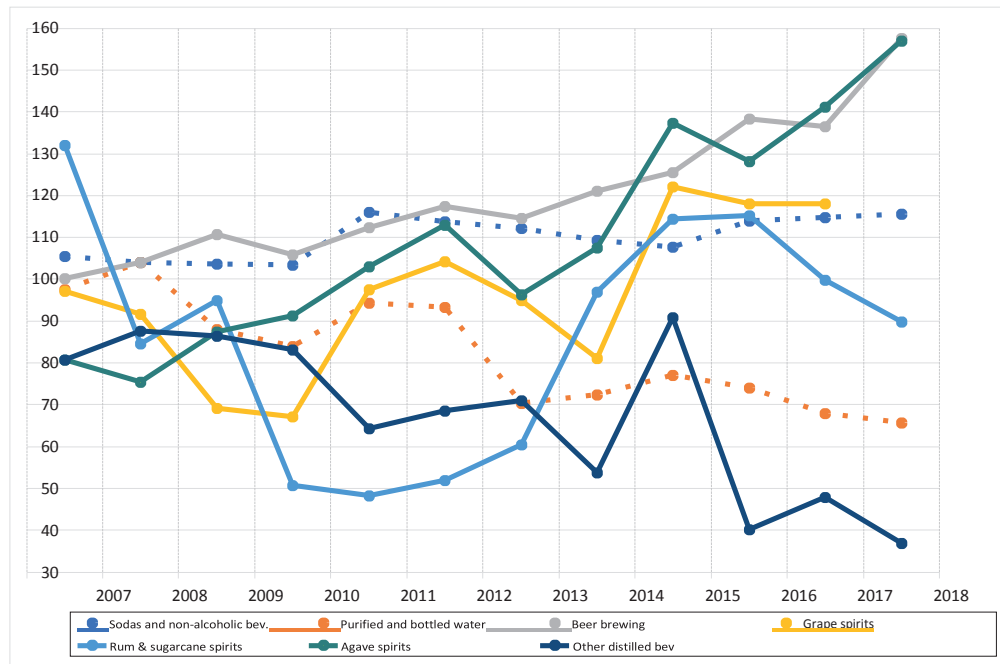


Source: INEGI / EMIM / SCIAN. Monthly data. 2007-2018. Corrected figures: 2007-2015. Definite figures: 2016. Revised figures: January-July 2017. Preliminary figures: from August 2017. Monthly Poll of Manufacturing Industry.

Production normally has a similar pattern to that of the indexes of physical sales volume. In the case of alcoholic beverages, this principle is partially confirmed, as

both agave spirits and beer brewing have grown by far more than the rest of the considered sample. However, the contrast with the production trajectory mainly falls on the behavior of grape spirits, rum and sugarcane spirits, which are similar in trajectory and proximity to agave spirits and beer. The only clearly decreasing trajectories are other distilled beverages.

Figure 5. Physical volume of sales (Index).



Source: INEGI / EMIM / SCIAN. Monthly data. 2007-2018. Corrected figures: 2007-2015. Definite figures: 2016. Revised figures: January-July 2017. Preliminary figures: from August 2017. Monthly Poll of Manufacturing Industry.

Although, like all economic sectors, companies producing and importing alcoholic beverages pay Income Tax (ISR) and consumers pay Value Aggregated Tax (IVA), the specific tax applicable here is Special Production and Service Taxes (IEPS). Despite the dynamic components described before, in the case of production and sales value, IEPS raise has remained constant, with no relevant increases, since 1994.²² In 2010, there was an increase from 50 to 53% on the sales value of the product in IEPS applicable to beverages with an alcohol level greater than 20%. This could be the reason for the increase in real terms of that year, although it should be mentioned that it would take the total raise of the aforementioned to 1999 levels. Finally, it should be pointed out that in the last three years, raise in real terms has practically stagnated. In terms of the rate of IEPS for alcoholic beverages has been 14% out of total IEPS (before IEPS to oil) and 0.6% of income taxes.

²² See Figure 6, on the next page.

Figure 6. Revenue of IEPS Alcoholic Beverages 1994-2017.²³

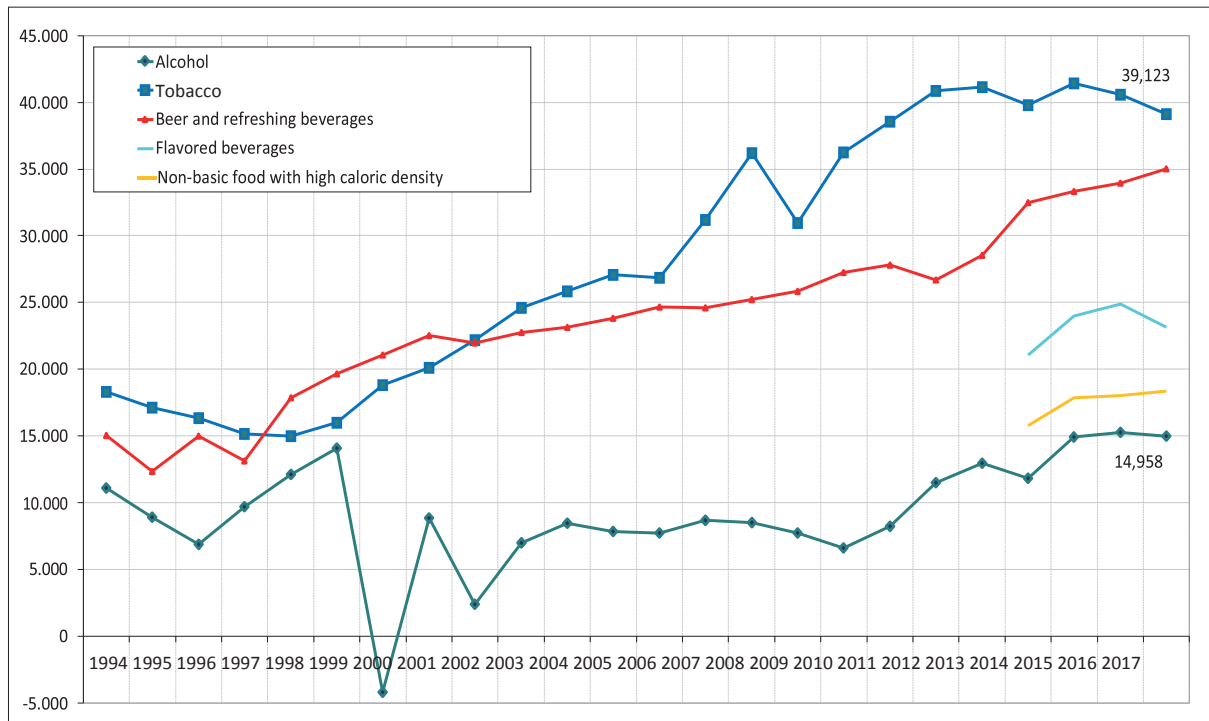


Source: Collected with data from SHCP, Estadísticas Oportunas de Finanzas Públicas. Considering beverages more than 20°. Figures in constant millions of pesos, base 2017.

While observing the long-term trajectory of IEPS, and particularly those from alcoholic beverages, tobacco, beer, flavored beverages (sodas) and non-basic food with high caloric density, alcoholic beverages stand out thanks to the magnitude and behavior in time. As may be seen in the next figure, revenue by these beverages is the lowest of all, falling well below tobacco and beer. This expresses the nature and magnitude of the Mexican consumer, as there is a preference for these two articles rather than the other ones included in the next figure. It is interesting to see that from 2003 to 2011, raise from IEPS alcoholic beverages practically stagnated, while its upward behavior seems to be in line with a general trend, observing the behavior of the other taxes.

²³ According to the Law of the current IEPS, alcoholic beverages are defined as those which at the temperature of 15°C have an alcoholic level of more than 3°G.L to 55°G.L., including spirits and alcoholic beverages concentrates, even when the last ones have a greater alcoholic level.

Figure 7. Raise IEPS by product from 1994 to 2017.



Source: Collected. Estadísticas Oportunas de Finanzas Públicas. SHCP Figures in constant millions of pesos, base 2017

One possible explanation is that the tax has a higher evasion rate. A study published months before, points out that the alcoholic beverages evasion level seems to have reduced from 26.5 to 17.5%.²⁴

If we summed up raw evasion (2016=3,032 mp), raise could increase, and evasion could decrease into 0; however, considering the trend of the sample, it can be deducted that, while percentages of evasion have been considerably reduced, raise in real terms has not been increased particularly in the last three years. In short, even with a significant reduction of evasion, the trend of growth in raise, at least since 2005, would not be different. This could even be added to the explanation for the increase in raise since 2010, as it can be noticed that on the level of the increase in the tax, it is evident that since 2012, the evasion rate is reduced by additionally encouraging growth in real terms.

²⁴ San Martín Reyna, Ángeles Sánchez, Juárez Alonso, & Díaz Martín del Campo, 2017.

Table 3. Estimate of evasion rate by sales of alcoholic beverages with a level greater than 20 GL (MP).

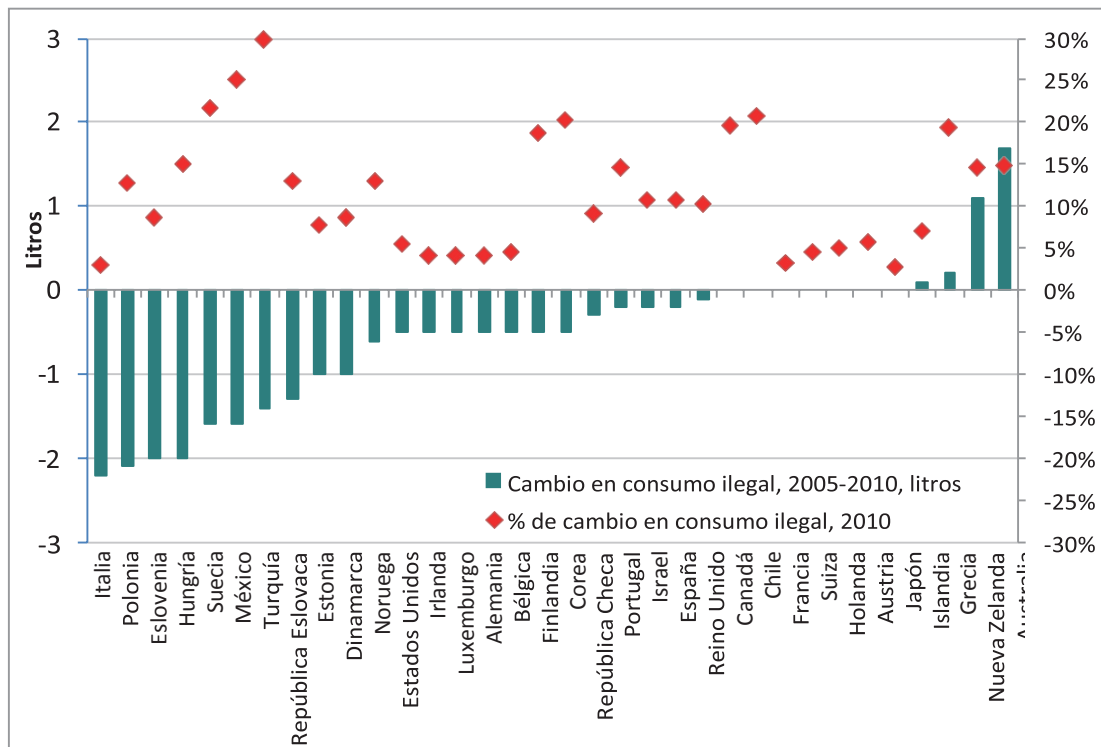
Year	IEPS rate	Potential PS alcoholic beverages	PS revenue alcoholic beverages	Evasion	Evasion rate
H	I	J=G*I	K	L=J-K	M=L/J
2005	50.0%	5,963.3	4,384.3	1,579.0	26.5%
2006	50.0%	6,478.9	4,898.6	1,580.4	24.4%
2007	50.0%	6,979.8	5,473.2	1,506.6	21.6%
2008	50.0%	7,660.9	6,115.2	1,545.7	20.2%
2009	50.0%	8,653.5	6,832.6	1,821.0	21.0%
2010	53.0%	10,069.7	7,634.1	2,435.7	24.2%
2011	53.0%	11,115.8	8,529.6	2,586.2	23.3%
2012	53.0%	12,218.6	9,530.1	2,688.5	22.0%
2013	53.0%	13,206.8	10,648.1	2,558.7	19.4%
2014	53.0%	14,415.5	11,897.1	2,518.4	17.5%
2015	53.0%	15,812.4	13,292.7	2,519.7	15.9%
2016	53.0%	17,347.1	14,315.0	3,032.1	17.5%

Source: INEGI, EMIM, SHCP and authors' calculation. Note: For this case, import of alcoholic beverages with levels greater than 80 was also added to obtain the total of production and import of beverages with a level greater than 20, thus to calculate Potential IEPS.

What is the market price of alcoholic beverages distilled in Mexico? From an analysis by Euromonitor International, it was 45,749 million pesos in 2015 (Euromonitor International, 2016). Informal consumption of adulterated or "spiked" beverages represents an informal market of 19,430 mp (Euromonitor International, 2016). This means that, considering that the official figure is 13,019 mp less than that calculated for evasion in 2016, the raise potential and fiscal evasion might be greater, increasing to slightly more than 1/3 to 24,246 mp or to almost 41%. If we add the value of the informal market to the aforementioned using the reference value for the study of evasion (32,730 mp), the informal market has a value of almost 60% out of the total sales value (imports included), or 43% if using the values proposed by Euromonitor International (according to the calculation of such study, it is 36%). Finally, fiscal loss is calculated to be 6,000 mp (2015). In addition, it is important to emphasize that informal market in 9L boxes accounts for 56% of the formal market, 42% in value, and 53% in terms of raise. This would lead us to state that if the informal market disappeared, raise would double. While the formal market increased regardless of the indicator used (value, boxes, raise), the informal one dramatically decreased from 20.7 million 9L boxes in 2013 to 16.9 million 9L boxes in 2015 (-18.5% considering all forms of informality: production, import, and smuggling) (Euromonitor International, 2016: 7).

This seems to be consistent with illegal consumption, as the data in the next figure shows that Mexico has the most upward change, only after Turkey.

Figure 8. Consumption of illegal alcoholic beverages in OECD countries.²⁵



Source: WHO Global Information System on Alcoholic Beverages and Health (GISAH); includes unrecorded consumption from home production, illegal production or import.

According to a recent study, the degree of informality of the alcoholic beverages industry in Mexico is very high. From a comparative perspective, where 15 case studies in Latin America were included, Mexico has the largest proportion of illicit alcoholic beverages in relation to the total (see next table). This confirms the evidence that demonstrates that the illegal/informal alcoholic beverages market is considerably big, and has a corresponding impact on the tax office, economics, state of law, and, of course, health.

²⁵ OECD uses the description of “non-taxed alcoholic beverages” or unregistered to identify the one coming from homemade preparation, black market or alcoholic beverages whose destiny is not human consumption. In this document, the word “illegal” is rather used, to provide an easier concept to understand.

Table 4. International Comparison of Size of informal market.

Proportion of illicit alcoholic beverages in relation with total

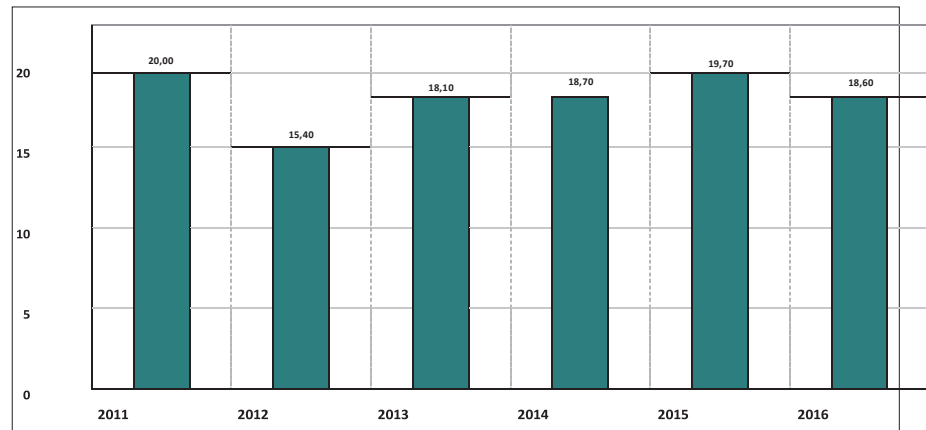
	Percentage	Reference year
Mexico	34.0	2013
Dominican Republic	29.0	2016
Brazil	28.0	2011
Ecuador	27.0	2015
Peru	27.0	2015
Bolivia	23.4	2013
Colombia	22.0	2015
El Salvador	22.0	2015
Honduras	20.0	2015
Costa Rica	19.0	2014
Paraguay	16.5	2012
Venezuela	16.0	2011
Trinidad & Tobago	5.0	2013
Nicaragua	4.6	2011
Argentina	4.5	2013
Panama	2.0	2015

Source: Collection with data from International Alliance for Responsible Drinking, 2018. p.4p.4

A non-economic method for measuring the presence of an illegal market of alcoholic beverages sales is through survey data. Since 2011, the percentage of witnessing of illegal sales of these beverages has remained at approximately 20%. In the case of the percentage of witnessing their consumption, there is a downward trend.²⁶ This point is relevant, because it gives evidence of the existence of a non-taxed parallel market.

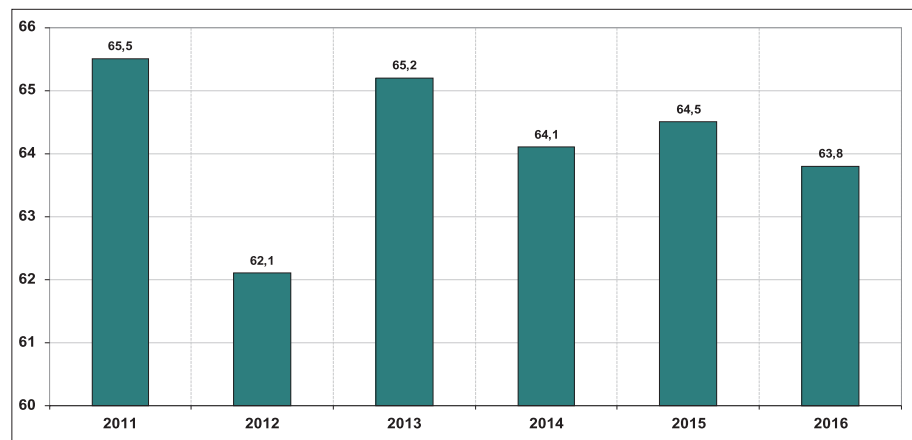
²⁶ Inegi. (2017) Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública 2011-2017

Figure 9. Percentage of witnessing of illegal sales of alcoholic beverages.



Source: Authors' collection. Instituto Nacional de Estadística y Geografía (INEGI). Encuestas Nacionales de Victimización y Percepción sobre Seguridad Pública 2011-2017. Percentage is calculated dividing the occurrence of illegal sales of alcoholic beverages between population aged 18 or more and then multiplied by 100.

Figure 10. Percentage of witnessing of illegal consumption of alcoholic beverages on the street.



Source: Same previous source.

VI. Alcoholic Beverages for the Rich and the Poor

“The least advantaged people tend to be more sensitive to price. The benefits of stopping drinking are higher for them as well”.²⁷

The indicators from both the activity from the market (physical volume of production and sales, sales market value, etc.) and from the public sector (raise), cannot be properly contextualized if neither the price range and structure, nor the evolution within the Mexican market, are considered.

According to a review for recent years, from 2011 to 2018, price differences between the different types of beverages through the period, in real terms and considering minimum and maximum prices, have had a practically zero change. As can be seen in the following table, the minimum price growth average of all considered beverages has been practically zero and it has even decreased, as the case of tequila (the only exception would be the category “other liquors” which is not representative because of its heterogeneity).

Table 5. Price increase average in real terms, 2011-2018

Beverage	Price increase average (real terms)	
Brandy	Average price	-1%
	Minimum price	2%
	Maximum price	8%
Beer	Average price	3%
	Minimum price	0%
	Maximum price	14%
Other liquors	Average price	0%
	Minimum price	21%
	Maximum price	1%
Rum	Average price	0%
	Minimum price	3%
	Maximum price	20%
Tequila	Average price	1%
	Minimum price	-3%
	Maximum price	-2%
Table wine	Average price	1%
	Minimum price	-4%
	Maximum price	-1%

Source: Authors’ collection with data from INEGI.

²⁷ A statement of one of the interviewees for this study.

Both minimum and average values indicate a minimum growth. This means that beverages in general, and particularly the cheapest ones, have not kept their value in real terms, but have even experienced a reduction and with that, they have kept or increased its accessibility at least in price.

The following table shows even further details about the price structure of both the most popular beverages like beer or tequila or beverages from agave and the other ones. In general, it is possible to purchase a bottle of tequila at the same price in pesos during the 2011-2018 period, the same as for table wine. Brandy and, in a lesser degree, rum have become more expensive with time but they are still relatively cheap. During 2017 it was possible to buy a 950-mL bottle of an alcoholic beverage with a level greater than 40 GL made out of sugarcane at 26 pesos, of mezcal at 22 pesos, or of potato vodka-type at 42 pesos.

Table 6. Average, minimum, and maximum prices nationwide by type of beverage (MXN pesos), 2011-2018.

Year	Beverage	Minimum price per liter	Maximum price per liter	% difference between Minimum and maximum
2018	Brandy	62,77	1214,8	1835%
2017		61,38	1236	1914%
2016		60,1	970,65	1515%
2015		47,2	855,73	1713%
2014		47,52	556,58	1071%
2013		43,2	380	780%
2012		43,2	392,86	809%
2011		40,8	787,86	1831%
2018	Beer	20,65	141,21	584%
2017		18,54	142	666%
2016		19,67	248,59	1164%
2015		18,03	166,2	822%
2014		18,54	52	180%
2013		17,84	62,37	250%
2012		17,5	202,82	1059%
2011		15,96	217,65	1264%
2018	Other liquors	22,66	1005,31	4336%
2017		21,88	1005,31	4495%
2016		21,88	899,84	4013%
2015		25	851,15	3305%
2014		21,88	821,78	3656%
2013		6,57	781,43	11794%
2012		19,79	779,98	3841%
2011		17,71	705,33	3883%
2018	Rum	66	1172	1676%
2017		60,55	1060,67	1652%
2016		41	421,21	927%
2015		37	396,19	971%
2014		37	393,32	963%
2013		60	377,32	529%
2012		54,32	363,99	570%
2011		49,21	350,63	613%
2018	Tequila	70	674,65	864%
2017		80	674,65	743%
2016		75,84	545,32	619%
2015		81,91	665,3	712%
2014		70,5	595,33	744%
2013		67,63	575	750%
2012		73,68	600	714%
2011		69,47	625,33	800%
2018	Table wine	36,3	651,98	1696%
2017		40,38	578,64	1333%
2016		40	574,12	1335%
2015		38	540	1321%
2014		37,8	532	1307%
2013		35,19	532	1412%
2012		33,5	513,33	1432%
2011		36	513,33	1326%
Averages		42	592	1704%

Source: Authors' collection with data from INEGI.

The information available not only helps to identify the price of alcoholic beverages, but also the point of sale. This is highly useful, as prices and other regulatory factors could be used to associate not only consumption, but also mortality rates, and even by type of condition. The following table, shows only those beverages comparable by portion size and alcoholic level in prices lower than 50 pesos.

Table 7. Types of beverage and average price by locality.

Year	Point of sale	Type of beverage	Size	Average price
2011	Mexico City Metropolitan Area	Brandy	1 lt.	40,80
2012	Mexico City Metropolitan Area	Brandy	1 lt.	43,20
2013	Mexico City Metropolitan Area	Brandy	1 lt.	43,20
2014	Mexico City Metropolitan Area	Brandy	1 lt.	47,20
2015	Mexico City Metropolitan Area	Brandy	1 lt.	47,20
2012	Chihuahua, Chih.	Brandy	940 ml.	50,00
2011	Colima, Col.	Jerez	1 lt.	43,50
2012	Colima, Col.	Jerez	1 lt.	45,50
2013	Colima, Col.	Jerez	1 lt.	45,00
2014	Colima, Col.	Jerez	1 lt.	45,00
2016	Colima, Col.	Sugarcane spirt	950 ml.	22,10
2017	Colima, Col.	Sugarcane spirt	950 ml.	26,32
2018	Colima, Col.	Sugarcane spirt	950 ml.	26,32
2011	Córdoba, Ver.	Vodka	1 lt.	42,40
2012	Córdoba, Ver.	Vodka	1 lt.	44,50
2013	Córdoba, Ver.	Vodka	1 lt.	42,50
2014	Córdoba, Ver.	Vodka	1 lt.	42,50
2015	Córdoba, Ver.	Vodka	1 lt.	42,50
2016	Córdoba, Ver.	Vodka	1 lt.	42,50
2013	Cuernavaca, Mor.	Vodka	1.75 lt.	6,57
2011	Iguala, Gro.	Vodka	1 lt.	47,20
2011	Jiménez, Chih.	Mezcal	960 ml.	17,71
2012	Jiménez, Chih.	Mezcal	960 ml.	19,79
2013	Jiménez, Chih.	Mezcal	960 ml.	19,79
2014	Jiménez, Chih.	Mezcal	960 ml.	21,88
2015	Jiménez, Chih.	Mezcal	960 ml.	25,00
2016	Jiménez, Chih.	Mezcal	960 ml.	21,88
2017	Jiménez, Chih.	Mezcal	960 ml.	21,88
2018	Jiménez, Chih.	Mezcal	960 ml.	22,66
2011	Mérida, Yuc.	Rum	750 ml.	49,21
2014	Mérida, Yuc.	Rum	1 lt.	37,00
2015	Mérida, Yuc.	Rum	1 lt.	37,00
2016	Mérida, Yuc.	Rum	1 lt.	41,00
2011	Querétaro, Qro.	Jerez	1 lt.	42,13
2012	Querétaro, Qro.	Jerez	1 lt.	47,25
2011	San Luis Potosí, S.L.P.	Jerez	1 lt.	39,38
2012	San Luis Potosí, S.L.P.	Jerez	1 lt.	41,50
2013	San Luis Potosí, S.L.P.	Jerez	1 lt.	45,00
2014	San Luis Potosí, S.L.P.	Jerez	1 lt.	48,48
2011	Toluca, State of Mexico	Jerez	1 lt.	40,75
2012	Toluca, State of Mexico	Jerez	1 lt.	39,00
2013	Toluca, State of Mexico	Jerez	1 lt.	45,00
2014	Toluca, State of Mexico	Jerez	2 1L bottles	45,75
2011	Veracruz, Ver.	Spirit	325 ml.	40,00
2012	Veracruz, Ver.	Spirit	325 ml.	40,00
2013	Veracruz, Ver.	Spirit	325 ml.	40,00
2014	Veracruz, Ver.	Spirit	325 ml.	43,08
2015	Veracruz, Ver.	Spirit	325 ml.	44,61
2016	Veracruz, Ver.	Spirit	325 ml.	46,15
2017	Veracruz, Ver.	Spirit	325 ml.	46,15
2018	Veracruz, Ver.	Spirit	325 ml.	49,23

Source: Authors' collection with data from INEGI.

It is relatively easy to identify place and type of beverage consumed at low cost, marginal increase with time is zero and inflation of the other types of increases in the structure of production costs. This opens up a big chance to focus even more on the efforts orientated to decrease the abuse in the alcoholic beverages consumption, regardless of whether they are considered fiscal or extra fiscal goals or tools.

Which population segment spends more in alcoholic beverages? It is evident that based on the analysis of the contribution to IEPS alcoholic beverages per decile

of income, those families and people with higher incomes contribute more to IEPS. Beer has a more “democratic” participation, because contribution to IEPS distributes more horizontally in all deciles of income. The higher the income or wealth is, the larger the contribution to IEPS from both is. From this point of view, this is a progressive tax. However, it is not an indicator enough to make sure that consumption is low in minor deciles. Low contribution to IEPS may indicate that price is directly proportional to income levels, which could hide a bias in this type of calculations.

Table 8. Percentual contribution to non-oil IEPS raise by tax, deciles ordered by income per capita.

Income decile		Beer	Alcoholic beverages	Tobacco	Public telecommunications	Food with high caloric content-network	Flavored beverages	Energetic beverages	Fossil fuel	Total
Householdings	I	1.9	0.6	1.6	1.5	3.3	3.4	1.3	1.9	2.2
	II	2.3	1.0	3.4	3.2	5.9	5.9	2.0	2.5	4.0
	III	2.2	0.6	4.8	4.4	7.6	8.1	3.4	3.7	5.3
	IV	8.4	3.7	5.9	6.1	8.4	9.6	3.4	4.6	7.0
	V	4.4	2.5	6.7	7.4	9.2	10.9	4.1	6.0	7.6
	VI	7.0	0.2	10.1	9.0	10.8	12.5	7.0	7.9	9.6
	VII	11.9	4.7	10.8	11.4	11.5	13.6	7.0	10.0	11.3
	VIII	13.9	11.4	14.2	13.6	12.5	12.9	10.6	13.3	13.3
	IX	17.0	10.1	18.4	17.8	14.2	12.7	22.8	19.4	16.3
	X	30.9	65.2	24.2	25.6	16.5	10.5	38.5	30.7	23.5
Total ^{1/}		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Population	I	1.7	0.5	1.5	1.3	2.8	2.8	0.7	1.6	1.9
	II	1.5	0.8	1.8	2.4	4.6	4.7	2.2	2.0	2.9
	III	2.3	0.8	4.3	3.5	6.2	6.4	2.7	2.7	4.4
	IV	6.0	3.2	5.1	4.9	7.4	7.9	2.1	3.9	5.8
	V	5.4	1.9	5.5	6.0	7.7	9.2	4.1	4.8	6.4
	VI	5.0	1.3	8.3	7.8	9.7	11.2	5.6	6.4	8.2
	VII	7.6	2.8	9.8	9.7	11.3	12.8	5.9	8.6	10.0
	VIII	14.1	7.8	13.5	12.8	12.4	14.3	9.5	11.6	12.9
	IX	18.8	11.0	18.1	18.1	15.3	14.7	18.1	18.8	16.9
	X	37.6	70.0	32.0	33.5	22.6	15.8	49.0	39.5	30.6
Total ^{1/}		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

^{1/} Total may not sum due to rounding

Source: Calculations based on the ENIGH 2016. SHCP, distribution of tax payment and reception of public expenses by deciles of households and people. Results for year 2016, p. 39

In a recent report, the Center of Studies about Public Finances (Centro de Estudios de Finanzas Públicas, CEFP) of the Chamber of Deputies points out that between 2014 and 2016, percentual contribution to IEPS raise in beer and alcoholic beverages increased in the deciles with the lowest income (I and II in beer: 0.8 to 1.9 and 1.4 to 2.3, respectively). As far as alcoholic beverages are concerned, proportion in the decile II triples, going from 0.3 to 1.0 with important increases in other deciles like IV, V, VII and VIII (Centro de Estudios de Finanzas Públicas, 2018: 9).

To the apparent progressiveness of the tax, the calculations and available elasticity studies are added. When using the elasticity calculations of short and

long term, price or the income of addictive goods such as beer, wines and liquors, it is noted that price elasticity is negative and elasticity on income is positive, increasing with time. In short, income seems to be a determinant of alcoholic beverages consumption rather than price.

Table 9. Price and income elasticities in short and long terms in Mexico.

Addictive good	Price elasticity		Income elasticity	
	Short	Long	Short	Long
Beer	-0,25	-1,23	0,61	3,04
Wines and	-0,58	-1,48	1,08	2,75

Source: Catalán, Horacio y Emmanuel Moreno, "Consumo De Bebidas Alcohólicas En México. Un Enfoque De Adicción Racional." *Economía Informa*, no. 399 (August 2016 2006): 16-33.

In the previous table it can be appreciated that beer has a smaller income elasticity (0.61) than that of wines and liquors (1.08), at least in the 1990-2011 term. Therefore if there is a higher income available, then people increase the consumption of more expensive goods, such as alcoholic beverages, but they keep consumption of less expensive ones, like beer, stable. It is thus inferred, as noted in the recent study by CEFP (July 2018), "that the tax is not well orientated, as 75.8% of the population consumes beer, with a lower tax rate, in relation to other alcoholic beverages, where liquors and wines, representing 23.7% of total consumption are charged with a higher rate. This contradicts the original goal from OPS in the implementation of taxes as an inhibiting measure of consumption by minors and low-income people" (Centro de Estudios de Finanzas Públicas, 2018: 10).

According to the interviews carried out, economists tend to support the general rule that low-income people are more sensitive to changes in prices, because they have less money. Different studies also show that reducing the alcoholic beverages consumption tends to benefit them proportionally more, simply because they are more likely to be affected by health issues related to this consumption. In this sense, a tax discouraging consumption of these beverages would be more beneficial, in terms of health, for least advantaged people (Mexican Community of Public Management for Results, 2018b).

VII. National Issue, Subnational Irresponsibility: Regulatory Framework and Non-Tax Revenue Policies

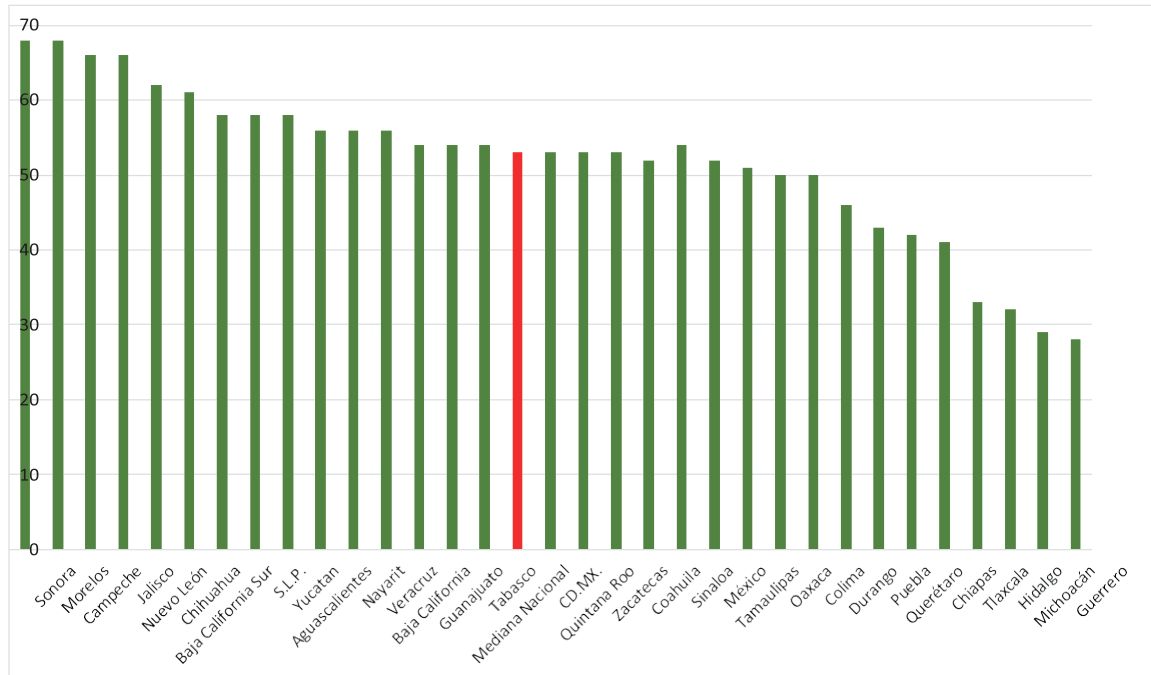
“First the consumption patterns in Mexico should be mapped. There is still a need to know how people drink to know where to punish most”²⁸

As mentioned before, consumption rates and deaths caused by alcoholic beverages can both be explained more at state and local levels rather than national. Based on a descriptive analysis, there is no doubt that the fiscal and regulatory framework at subnational level presents important weaknesses as exposed below.

There are states in the Mexican Republic presenting important regulation failures. The matrix shown below is built selecting 10 of the public policies with the least presence in the 32 states. In the OECD framework and other comparative studies, Mexico is the only country where the criterium to determine whether a person exceeds alcoholic beverages consumption is found at subnational level (Organization for Economic Co-operation and Development, 2015: 2016). That is to say, states have the faculty to determine alcoholic level allowed in blood. In addition to these attributes, states have the authority to formulate diverse fiscal and extra fiscal policies to cope with alcoholic beverages consumption and abuse. As can be noticed in the following figure, normative framework from each and every state presents important differences.

²⁸ A statement of one of the interviewees for this study

Figure 11. Evaluation of the National Normative Framework for controlling alcoholic beverages 2016.



Source: Collection based on the National Diagnosis for Controlling Alcoholic Beverages, SSA, CONADIC, Dirección General Técnico Normativa, 2016.

In the case of deaths by consumption and price of beverages, there is a great dispersion and contrast in normative and regulatory frameworks applied to states for alcoholic beverages consumption and abuse. In the following table, only 10 components out of a total of 50 are analyzed. As can be noticed at the end of the table in the line called "total", percentage of instrument presence is generally low, meaning that few states have appropriate levels of regulation. What particularly stands out is an absence of promotional actions to intervene in specific populations such as women and pregnant women in particular. This sectors which, as mentioned and reported by different sources from the health sector, both at a national and international level, have alarming issues due to the level of recent incidence.

Table 10. Actions of public policy at state level.

	Promotion of actions to intervene in specific populations:					Penalties due to exceeding alcoholaemia levels:	Alcohol Consumption Deceitful crimes is:	Programs for establishments (avoiding, identifying and drunk driving)	Obligation	Transporting drunk people: state tax to alcoholic beverages	Total x State
	Definition of alcoholism	Women	Pregnant women	Older adults	Handicapped people	Community service	Extenuating Circumstance				
Aguascalientes	0	0	0	0	0	0	0	0	0	0	0
Baja California	0	0	0	0	0	0	0	1	1	1	3
Baja California Sur	1	1	1	0	0	0	0	0	0	0	3
Campeche	0	0	0	0	0	0	0	0	1	1	2
Mexico City	0	1	0	0	0	0	0	0	0	0	1
Coahuila	1	0	0	0	0	0	0	0	0	0	1
Colima	0	0	0	0	0	0	0	0	0	0	0
Chiapas	0	0	0	0	0	1	0	0	0	0	1
Chihuahua	0	1	0	0	0	1	0	1	0	1	4
Durango	0	0	0	0	0	0	0	0	0	0	0
Guanajuato	0	0	0	0	1	0	0	1	0	0	2
Guerrero	0	0	0	0	1	0	0	0	0	1	2
Hidalgo	0	0	0	0	0	0	0	0	0	0	0
Jalisco	0	0	0	0	0	1	0	0	0	0	1
México	0	0	0	1	0	0	0	0	0	0	1
Michoacán	0	0	0	0	0	0	1	0	0	0	1
Morelos	0	0	1	0	0	1	0	0	0	0	2
Nayarit	0	0	0	0	0	0	0	0	0	1	1
Nuevo León	0	0	1	0	0	0	0	1	0	0	2
Oaxaca	0	0	0	0	0	0	1	0	0	1	2
Puebla	0	0	0	0	0	0	0	0	0	0	0
Querétaro	0	0	0	0	0	0	0	0	0	0	0
Quintana Roo	0	0	0	0	1	1	0	0	0	0	2
San Luis Potosí	1	0	0	0	0	0	0	0	1	0	2
Sinaloa	0	0	0	0	0	0	0	0	0	0	0
Sonora	1	0	0	0	0	0	0	0	0	1	2
Tabasco	0	0	0	0	0	0	0	0	0	1	1
Tamaulipas	0	0	0	0	0	0	1	0	0	0	1
Tlaxcala	0	0	0	0	0	0	0	0	0	0	0
Veracruz	0	1	0	1	0	0	0	0	0	0	2
Yucatán	0	1	1	0	0	1	0	0	1	0	4
Zacatecas	0	0	0	0	1	0	0	0	1	0	2
Average	12,50%	15,63%	12,50%	6,25%	12,50%	18,75%	9,38%	12,50%	15,63%	25,00%	

Source: Author's collection based on National Diagnosis of the Normative Framework for Controlling Alcoholic Beverages, SSA, CONADIC, Dirección General Técnico Normativa, 2016.

Cases from Aguascalientes, Colima, Durango, Hidalgo, Querétaro, Sinaloa y Tlaxcala are highlighted in the previous table, where besides lacking the instruments considered in the table. In some cases they correspond to states where alcoholic beverages of important ethylic content are sold at a very cheap price, and where there is a high incidence of conditions linked to the abuse of such beverages. Finally, this is related to states considered as middle-low or low income, with great social deprivations and other factors that frequently puts them in development levels inferior to the national average. Finally, although the comparative matrix registers the presence of a tax to these beverages, a further research reveals that only 4 out of 32 states have a tax in force upon sales prices before IEPS and federal VAT, except for beer.²⁹

²⁹ For the case of the State of Chihuahua, applicable taxes and rates are very specific, so they were not included on the table, as well as the other taxes, since they are very particular and different to the cases included.

Table 11. Tax to alcoholic beverages by state.

State	Details tax to alcohol
Aguascalientes	
Baja California	4.5% on sales price before IEPS and Federal VAT (except beer)
Baja California Sur	
Campeche	4.5% on sales price before IEPS and Federal VAT (except beer)
CD.MX.	
Coahuila	
Colima	
Chiapas	
Chihuahua	Wine production \$0.10 per liter, Spirit and alcoholic beverages production \$ 0.20 per liter, Mixing and adding wines, spirits and any other alcoholic beverages \$0.30 per liter.
Durango	
Guanajuato	
Guerrero	Not exercised in 2018
Hidalgo	
Jalisco	
México	4.5% on sales price before IEPS and Federal VAT (except beer)
Michoacán	
Morelos	
Nayarit	3% on sales price before IEPS and Federal VAT (except beer)
Nuevo León	
Oaxaca	
Puebla	
Queretaro	
Quintana Roo	
San Luis Potosí	
Sinaloa	
Sonora	Not exercised in 2018
Tabasco	Not exercised in 2018
Tamaulipas	
Tlaxcala	
Veracruz	
Yucatán	
Zacatecas	

Source: Authors' collection based on portals of income and treasury areas of the states from Mexican Republic (consulted June 2018).

According to the study by the Global Burden of Disease, in the Mexican case there is a lot of variance in local policies, and in turn, there is a lot of variance in the threat that alcoholic beverages represent to the states. One of the interviews pointed out that some of the more positive results would coincide with better policies in topics like license management. Nuevo León, San Luis Potosí, and Mexico City would be good case studies to analyze their local policies (Mexican Community on Public Management for Results, 2018a).

VIII. Regulatory Fail, a Lack Government

“In the United Kingdom, subnational governments cannot modify national sales taxes, but they have found clever ways to avoid the sale of excessively cheap beverages from sales licenses. In other countries there are examples of local taxes and Minimum Price Units”³⁰

The failure of government action cannot be identified only with features of the applicable normative framework or regulations derived from this. Regulation instruments like licenses or permits for various processes of the alcoholic beverages value chain can also be implemented. The tables, the variety of tools and associated costs equally presented with an apparent lack of systemization or standard criteria to formulate and to implement public policies will follow.

³⁰ A statement of one of the interviewees for this study.

Table 12. License cost for alcoholic beverages sales and line of business by state.

State / City	Line of business	Cost in MXN pesos
Chiapas	Groceries with sales of beer, wines and liquors	3.800
Aguascalientes	Groceries with beer (per closed bottle)	7.603
Cuernavaca	Groceries with sales of alcoholic beverages, including beer, in takeaway closed bottle	8.060
Chihuahua	Groceries	21.095
Aguascalientes	Groceries, wines and liquors (per closed bottle)	21.174
Veracruz	Groceries with sales of beer, wines and liquors	46.345
San Luis Potosí	Groceries, shops, small stores and small shops (content larger than 6° of alcohol volume)	48.809
Tijuana	Groceries	130.266
Tabasco	Groceries	141.050
Pachuca	Groceries	166.568
Sonora	Groceries	487.838
State / City	Line of business	Cost in MXN pesos
Puebla	Beer deposit	30.748
Guadalajara	Deposit of wines and liquors	17.887
Aguascalientes	Deposit of beer and/or fortified and table wine (per closed bottle)	19.770
Chihuahua	Deposit of beer, wine and liquor, wholesale and detail	162.267
State / City	Line of business	Cost in MXN pesos
Campeche	Issuance of licenses	203.273
Chiapas	Issuance or annual revalidation of functioning licenses by alcoholic beverages sales	1.500
Nuevo León	Issuance of licenses	70.525
Durango	Issuance of licenses	362.700
Querétaro	Issuance of licenses	\$1,007.5-\$151,125
Tamaulipas	Issuance of licenses	\$16,120-\$32,240
Tlaxcala	Issuance of licenses	\$5,239-\$56,420
Oaxaca	Issuance of licenses	\$10,961.6-\$132,990
Quintana Roo	Issuance of licenses	643-1588
State / City	Line of business	Cost in MXN pesos
Saltillo	Store place	368.550
Mérida	Store place of wines, liquors and closed bottled beer	6.045
Guanajuato	Store place of closed bottled potable alcohol	51.716
Tabasco	Store place	161.200
State / City	Line of business	Cost in MXN pesos
Sinaloa	Liquor store	47.554
Chihuahua	Liquor store of shop counter	97.360
San Luis Potosí	Liquor stores and wineries	97.569
State / City	Line of business	Cost in MXN pesos
Guadalajara	Mini supermarket	21.053
Mérida	Mini supermarket	12.090
Chiapas	Mini supermarket, deposits of beers, wines, and liquors, supermarkets, self-service stores and malls	14.000
Tabasco	Mini supermarket	241.800
State / City	Line of business	Cost in MXN pesos
Ciudad de México	M2 exceeding 50M2 and up to 100M2 of construction, including accesses, except parking lots	352
Ciudad de México	M2 exceeding 100M2 and up to 300M2 of construction, including accesses, except parking lots	705
Ciudad de México	First 50 M2 of construction, including all its accessories, except parking lot	17.612
State / City	Line of business	Cost in MXN pesos
Saltillo	Supermarket	491.725
Mérida	Supermarket	16.120
Tabasco	Supermarket	322.400
State / City	Line of business	Cost in MXN pesos
Cuernavaca	Self-service store with sales floor surfaces up to 1,000 square meters with alcoholic beverages sales, including beer in closed bottle	32.240
Tijuana	Self-service store and liquor store	5.384
Guanajuato	Self-service store, groceries, tendajones and similar	154.942
Tabasco	Convenience store	322.400
Sonora	Self-service store	487.838
Saltillo	Convenience store	491.725
State / City	Line of business	Cost in MXN pesos
Morelia	Winery	8.302
Puebla	Retail winery Winery	31.662
Pachuca		166.568

Source: Websites from State and Municipality Government, Section Procedures and Services, State Laws of Treasury, State and Municipality Laws of Incomes.

Evaluating the costs of diverse licenses and permits for alcoholic beverages production and sales in states and municipalities reveals that there is clearly a lack of rationalizing and an apparent planning and coordination not only with neighboring states and municipalities, but also with the federal government.

It is effective to compare other cases, where state and local governments present considerable autonomy and dynamism to determine public policies addressed to regulate alcoholic beverages consumption and abuse.

Mexican states can decide or not to add another tax to alcohol with the exception of beer because of a deceitful tax system. Just like Mexico, in the United States, each state has the ability on legal authenticity of fixating taxes to diverse types of alcoholic beverages: liquors, wine, and beer. A more detailed table showing the characteristics of taxes by type of alcoholic beverages in the US is presented below. Amounts have been converted into Mexican pesos so that the magnitude is easily comparable to Mexico. As can be seen, US heterogeneity contrasts with that of Mexico, as the former has similar taxes in only four states, they are furthermore the same (3% in one, and 4.5% in the other two). It is worth highlighting that in the US, taxes are placed on the liter of distilled spirits and not on the price

Table 13: Tax to alcoholic beverages per liter of distilled by US federative entity

State	Equivalent IEPS (pesos per liter)	state IEPS (pesos per liter)	state IEPS (pesos per liter)
Washington	4,57	176,37	1,37
Oregon	3,52	119,58	0,42
Virginia	7,94	104,43	1,37
Alabama	8,94	95,97	5,52
Alaska	13,15	67,31	5,63
Utah	0,00	67,05	2,16
Iowa	9,20	65,84	1,00
North Carolina	5,26	65,63	3,26
Michigan	2,68	62,79	1,05
Idaho	2,37	57,53	0,79
Ohio	1,68	51,85	0,95
Montana	5,57	51,38	0,74
Minnesota	6,20	45,59	2,47
Illinois	7,31	44,96	1,21
Mississippi	0,00	40,70	2,26
Vermont	2,89	40,54	1,42
Kentucky	17,35	39,65	4,42
Pennsylvania	0,00	38,02	0,42
Arkansas	7,10	36,18	1,84
Florida	11,83	34,18	2,52
New York	1,58	33,86	0,74
New Mexico	8,94	31,87	2,16
Hawaii	7,26	31,45	4,89
Maine	3,16	30,60	1,84
Oklahoma	3,79	29,24	2,10
New Jersey	4,63	28,92	0,63
South Carolina	5,68	28,50	4,05
Rhode Island	7,36	28,40	0,63
Connecticut	3,79	28,40	1,21
North Dakota	5,57	24,50	2,05
Maryland	7,10	24,40	2,58
South Dakota	6,68	24,35	1,42
Tennessee	6,68	23,45	6,78
Massachusetts	2,89	21,30	0,58
Georgia	7,94	19,93	5,31
Delaware	5,10	19,72	0,84
Nebraska	5,00	19,72	1,63
Nevada	3,68	18,93	0,84
California	1,05	17,35	1,05
Wisconsin	1,31	17,09	0,32
Arizona	4,42	15,78	0,84
Indiana	2,47	14,09	0,63
Kansas	1,58	13,15	0,95
Louisiana	0,58	13,15	1,68
Texas	1,05	12,62	1,05
Colorado	1,68	11,99	0,42
West Virginia	5,26	11,10	0,95
Missouri	2,21	10,52	0,32
New Hampshire	0,00	0,00	1,58
Wyoming	0,00	0,00	0,11

Source: Authors' collection.

Scale of tax rate level for tax to beer		
	Very high	
	High	
	Medium	
	Low	
	Very low	
Scale of tax rate level for tax to liquors		
	Very high	
	High	
	Medium	
	Low	
	Very low	
Scale of tax rate level for tax to wine		
	Very high	
	High	
	Medium	
	Low	
	Very low	

Source: Authors' collection.

Although in the next table Mexico is not included, the table shows the variety of taxes to alcoholic beverages offered by subnational authorities. This confirms that idiosyncratic variables may be the strongest determinants for the magnitude and features of the tax and therefore, measures and examples from other countries must be taken carefully into account while trying to be replicated. Countries have very different preferences to implement their local taxes. Each one can tax alcoholic beverages with lower alcoholic content than others and vice versa.

Table 14: Levels of Indirect Taxes (IEPS) in OECD countries.³¹

	Beer	Wine	Spirits
Australia		-	
Austria			
Belgium			
Canada			
Czech Republic			
Denmark			
Estonia			
Finland			
France			
Germany			
Greece			
Hungary			
Iceland			
Ireland			
Israel			-
Italy			
Japan			
Luxembourg			
Netherlands			
New Zealand			
Norway			
Poland			
Portugal			
Slovak Republic			
Slovenia			
Spain			
Sweden			
Switzerland			
Turkey	-		
United Kingdom			
United States			

Source: OECD, Consumption Tax Trends 2014 y VAT/GST and Excise Rates, Trends and Policy Issues, OECD.

31 Note: Lighter-shaded cells identify the first (lower) tertile of taxation; darker-shaded cells identify the third (higher) tertile of taxation; and, intermediate-shaded cells identify the second tertile. It was not possible to rank Australia for wine taxation, Israel for spirits taxation, and Turkey for beer taxation. In Canada, provincial and territorial governments also impose minimum mark-ups and charge levies on alcoholic beverages, which generally exceed rates at the federal level. Source: OECD (2014), Consumption Tax Trends 2014: VAT/GST and Excise Rates, Trends and Policy Issues, OECD Publishing, Paris, <http://dx.doi.org/10.1787/ctt-2014-en>.

VII. Fiscal Protraction and an Absent Treasury

“In 2003, quite a complex exercise was carried out in England to add up the cost of alcohol externalities. The model is complicated to replicate, but it is a good approach to estimate how much could be raised. There are studies that average the cost in countries of median income and the average is estimated to be between 2-3% of the GNP”³²

As already stated at the beginning of the present report, IEPS or excise taxes are also called sin taxes. These are imposed to try to discourage behaviors representing a cost to society altogether. However, there is a frequent confusion inasmuch as it is precisely about containing, controlling or preventing an individual to consume a certain type of goods that have a social cost and it is intended to be internalized. Yet the truth is that, as every tax and tributary income, it does not have the purpose of financing or using part of those resources to address the problem. That is to say, nothing is to be expected in return, at least from the government.

The link between an income and a tax outcome or an expense, and especially that derived from a tributary income, such as a tax, be it direct or indirect like IEPS, does not force, and is not, theoretically, designed to fund public policies that can prevent or treat the health issue, like in the case of alcoholic beverages at issue. As a result of the interviews, it might seem that the main criticism to IEPS-like taxes is precisely that it is regarded as a strategy from governments to obtain more resources. However, there are legitimate doubts from some experts about the fact that this tax is not a tool for supporting the health approach, both due to its design and the use of resources raised. (Mexican Community of Public Management for Results, 2018a).

Generally, taxes are intended to generate income from individuals or companies according to the tax constitutional principles: proportionality, equity, and legality. But this does not mean that each tax, nor that the whole or part of them, must be assigned or tagged to a specific purpose. Generally, taxes must be awarded to the Ministry of Finance and then come to form part of a “general exchange”, where the areas with attributions of expenses can exert it. In the narrative part, any IEPS can be justified under an extra fiscal goal, although its purpose is precisely or even exclusively fiscal. That is to say, IEPS acts as a source of additional incomes that can indirectly help the government to cope with the ills which it intends to counter, but not in the same magnitude and not publicly or explicitly

In the economic theory, an IEPS should correspond to the social cost of the sum of individual actions turning alcoholic beverages consumption and abuse into a public issue. Deaths and incapacities stemmed directly or indirectly from such consumption and abuse, must be doubtlessly a base to calculate the rate of

³² A statement of one of the interviewees for this study.

the tax level where it would discourage or prevent individuals from consuming or abusing a noxious good when they consume it, and for society in all. In this sense, there are at least three ulterior purposes in the application of an IEPS, regardless of its object. The fiscal one, as the government needs resources to deal with the public issue; the economic one, as the government affects the price to theoretically affect the demand of the good, or, finally, to monetize the social cost represented by such problem. In synthesis, an IEPS may serve or not to have more public resources, to modify the behavior of consumers, or to regain part of the social cost.

Once the previous considerations are made, it can be affirmed that any IEPS would need to have at least one of the following goals:

- 1.To raise resources where there is a high rentability which cannot be absorbed through the existing tributary or non-tributary structure.
- 2.To regain the social cost modelling the behavior of consumers to limit consumption of the noxious good.
- 3.To finance the expenses in which the public sector incurs, directly or indirectly associated to the social issue.

None of the three goals are being met in Mexico. On one hand, raise of the alcoholism has no relation or proportion with the size of the market and the evolution of general inflation, underlying or non-underlying. That is to say, the goal of raising has lost dynamism in an industry which, through supply and demand, has important increases.

For the second goal, regaining the social cost, it is not possible to affirm that the public sector is doing so, since there are no studies monetizing this impact, but there are elements to affirm that the social cost has increased, not only because of the evolution of deaths and conditions associated to alcoholic beverages consumption and abuse, but also because phenomena associated to it, such as violence, family disintegration, productive impact in sources of employment, etc., have not decreased.

An alternative method, considering the figure of the public cost of addiction to alcoholic beverages, 12 bp, and comparing them with the total of raise from alcoholic beverages at all levels, i.e., considering raise by beer (28.33 bp, 2011), raised for 2017 was practically 50 bp (49.966 bp), by applying the same proportion, the cost would be approximately 21 bp for 2107. In conclusion, whatever the method used to calculate alcoholic beverages consumption and abuse, a good principle is to determine the public cost of that is the cost incurred by governments at the three levels in preventing and treating such addiction. However, this figure is not at hand, nor are there studies detailing and monetizing any actions taken, even outside the health sector.

Recently, CEFP has calculated that the cost for attending patients with cirrhosis A (early detection) and C (advanced detection) for 2018 was 28,994 y 348,938 pesos per person, respectively. If patients that stated to have an excessive alcohol consumption and were affiliated to IMSS (2,298,140) are considered, the conclusion is that, assuming that they were early detection, their cost would be 63.733 bp per year (Centro de Estudios de Finanzas Públicas, 2018: 13). If projecting, all were to be cases of advanced cirrhosis, the cost would be 801.908

bp yearly, slightly more than 3.5 GDP points.³³ That is to say, the gap of attention cost would vary between 0.5 and 3.5 GDP points.

Meanwhile, considering the population of 15 to 65 year-old people, who declared to have an excessive alcoholic beverages consumption in 2017 and were attended by the open healthcare system (3,892,795 people) or the public social healthcare system, IMSS and ISSSTE (3,572,441 people), it would total 7,465,236 people. Taking as a base to calculate an early and advanced condition, the figure of total cost expanding the scope of existent healthcare systems would oscillate between 1 and 11.5 GDP points.³⁴ In addition to simple projections of costs associated to alcoholic beverages consumption, during interviews, it emerged that poor action from the public sector in preventing and treating alcoholism, was being outplacated by the attention in other public issues, such as drug consumption. This has resulted in a lack of free government in-residential treatment centers for excessive consumers and there are few resources for ambulatory treatment, enhancing the proliferation of treatment centers with a very high cost for patients.

While it is true that Alcoholics Anonymous groups have covered some vacuums left by the State in terms of treatment, their work has not been enough to counter the effects of alcoholism. (Mexican Community on Public Management for results, 2018c).

³³ Base to calculate is 22,513,581 billion for GDP in current value (1 GDP point = 225,135 mp). INEGI, Producto Interno Bruto a Precios Corrientes, Indicadores económicos de coyuntura, 1er Trimestre de 2018, May 23, 2018.

³⁴ Calculation from the use of figures provided by the study form CEFP of July 2018. In its final consideration, it is stated that the total cost of this condition would represent 233.911 bp per year.

X. Fiscal Performance of Alcoholic Beverages in Mexico

Most of the OECD member countries apply a tax per volume of pure alcohol, which makes the tax to be in function of alcoholic level of the beverage consumed. In Mexico, fiscal policy in terms of taxes is focused in an Ad Valorem model, which is in function of price and alcohol content levels.

There is a general agreement that fiscal measures tend to have an effect on alcoholic beverages consumption. Nevertheless, there has been an extensive debate about how big this impact is and about which is the best way to tax such beverages. In an interview conducted, it was emphasized how there is still a debate about whether the tax must be about alcoholic content or not. Some countries and subnational governments support a tiered tax adjusted according to the alcohol content level. This might enhance beverages with less alcohol content to be produced, reducing their impact on health, as well as discouraging consumption (Mexican Community on Public Management for Results, 2018b).

As can be observed in the next table, modifications to both IEPS features and rates to alcoholic beverages have slightly varied. Apart from the period from 1980 to 1989, the tax policy has remained still. There have been minimum changes in rates of three liquor grade levels considered from the start by Law, even by being modified downwardly and upwardly in recent periods. At least from the point of view of descriptive statistics and considering the aforementioned in terms of fiscal and economics, these tributary changes would seem not to have had a significant effect in the behavior of raise, regardless of the considered rubrics.

Table 15. IEPS to alcoholic beverages, 1980-2018.³⁵

% of alcoholic beverages 1981		1986-1987 1989 2010-2012 2013 2014-2018				
<14°	18%+\$.23 cents per liter	25%	25%	26.5%	26%	26.50%
14°-20°	19%	19%	25%	25%	25%	30%
>20°	50%	50%	50%	53%	52%	53%

Source: Ley del Impuesto Especial sobre Producción y Servicios (LIEPS), different years.

It can be affirmed that the ad valorem prevalent tax with differentiated rates by alcohol content is progressive. Those households and the people having higher incomes pay more expensive beverages and contribute more to raise. Even if there are no updated studies available, the same can be argued from the point of expenses, that the proportion of expenses in alcoholic beverages is similar with respect to total by household and person, regardless of their economic level. In the case of elasticity, although there are variations between beer and alcoholic beverages with larger alcoholic density, this tends to match in the long term (see Table 8).

³⁵ (Salud, 2016)

Mexico stands out in international comparative studies in the topic of the Ad Valorem tax, because although it handles the type of beverages differently (see Table 14). The rate only applies on price rather than alcoholic content or quantity. Most of the countries have hybrid taxes, or combine the Ad Valorem and the Ad Quantum. In these former ones, tax is applied per unit of product (for example, 1 peso per liter), but it requires an accurate definition of the nature and features of taxable base on which to impose the rate, for example according to alcoholic content. Ad valorem tax is a rate applied on the value of the product.

The price increases presented by the product rather than on its “dangerousness” or toxicity to health, both in the short term (affecting behavior and increasing risks to oneself and surrounding people) and the long term (prevention, treatment, morbidity). This leads us to consider that the tax is failing or at least is not exploiting the potential, by its nature, of an IEPS. If, as commented, extra fiscal goals like reducing/discouraging consumption are desired (ad valorem IEPS), it is clear from the evidence, that even with more alcoholic content and regardless of its harmful potential, a great quantity of alcohol is still being consumed and especially in unfavored social groups. Current fiscal measures are clearly poor, as they do not discourage beverage consumption by neither low- or high-income people, age, etc. In conclusion, whether cheap or expensive alcoholic beverages are consumed, social cost (and the treatment to such condition) is the same. There must therefore be a variable or tool dealing with this issue.

Should a hybrid ad valorem and ad quantum tax approach be instrumented and, more specifically, include taxes considering volume or amount of product (liter, hectoliter, etc.), alcohol content (in alcohol level, but also as a proportion of other beverages), and the value of such product, the fiscal policy would better meet its extra fiscal goal, even without sacrificing or affecting the merely fiscal element, or raising.

In Mexico there is no definition of standard shot or drink (Organization for Economic Co-operation and Development, 2015: 208). However, there is a Mexican Official Standard (Norma Oficial Mexicana), NOM, specifying the relationship between ethanol level in blood and intoxication level derived from symptoms. From different sources where a standard drink is defined, a number of BE was calculated which can be obtained from beer and distilled alcohols.

Table 16. Comparison of standard drinks, BE (milliliters and number).

Equivalences of a standard beverage (BE)						
	ml. (OMS STEPS)	ml. (OPS OMS CIJ)	ml. (NOM 142)	# BE per liter (OMS STEPS)	# BE per liter (OMS OMS)	# BE per liter (NOM 142)
Beer	285	330	355	3.5	3.0	1.1
Distilled	30	40	16.6	33.3	25.0	22.9

Source: Authors’ calculation with information by (Nolla Hernández, 2017).

As can be noticed, quantities in milliliters of a BE are relatively similar, although the main difference is the case of NOM (C), where it practically represents half of the other international bases to calculate (A y B). If considering the base of a BE per liter, the Mexican base to calculate (C) is practically one third in the case of beer, though it is the lowest of the three in the case of distilled spirits, even considering

that it is the one which considers more milliliters (355). In synthesis, slightly more than 33 BE of distilled alcohols according to the method from column A and almost 23 BE according to the method from column C can be obtained. However, as far as beer is concerned, the gap ranges from 3.5 to slightly more than 1, respectively. This means that, regardless of the differences in calculation, it is correct to apply different tax policies to beer and distilled alcohols, as from only one liter very different quantities of BE can be obtained.³⁶

The current IEPS does not produce all distilled spirits to be expensive and thus their consumption to be discouraged, but price of production or value before taxes is only amplified. If a tax per liter, per alcohol volume or even per amount of BE obtained by them, was considered, a fiscal criterium aligned to the achievement of an extra fiscal goal would be established. However, given the magnitude of the price differential exposed already (see especially Tables 6 & 7 from this document) there should be a proper design, as even by applying an Ad Quantum tax might not meet discouragement in the proper proportion without affecting other groups in an apparent situation of “no risk”.

The way of increasing the price of alcoholic beverages, regardless of their nature, and making them unaffordable to sectors of the low income population (by the decile where they belong to or to a certain population group, for example, minor or older adults) and for heavy drinkers, is instrumenting policies that impede selling low-priced products but with the same or even greater toxicity level (i.e. cheap vs expensive distilled spirits). One of these methods is setting a policy of minimum prices or minimum sale prices (PMV).

PMV is a relatively new model and there are proofs about its effectivity, even if the number of countries or state governments or equivalents (provinces) where it has been applied is small. There is considerable evidence that the consumers respond to changes in alcoholic beverage prices and the way those changes affect the health of people. PMV simply takes the available evidence and calculates the impacts of different prices on consumption and therefore on the health of people.

In Scotland it has been recently set up and works as follows: a minimum price of half pound per alcohol unit is set. It is calculated by multiplying PMV per alcohol level and volume in liters. Studies have shown that a .10% raise in PMV prevents 166 acute cases by alcoholic beverages consumption in the first year and 275 admissions of chronic patients two years later (Zhao et al., 2013).

With reference to taxable base and act of causation, the PMV model implies that vendors retain the amount of the price raise and therefore their incomes would increase. Of course depending on the market power they have, it is possible for producers and suppliers to be able to increase sales prices and margins as well. If this might be a problem, part of those atypical or seasonal incomes would be raised through specific taxes. The supplementary Scottish model, which was imposed to those selling tobacco and alcohol, may be an alternative (Hellowell, Smith, & Wright, 2016).

There are other measures to impede alcoholic beverages to be sold at low prices like banning their sales below the sum of VAT and IEPS. Some variations of these type of policies are active in Poland, France, Spain, Italy, Belgium, and

³⁶ In Mexico, a tequila shot would have 43.57 ml, and a beer mug, 394.28 ml (both equivalent to 13 grams of ethanol). See Nolla Hernández, E., *The Standard Drink in Mexico: A tool for the prevention of harmful use of alcohol*, 2017, p. 73

Luxembourg (Organization for Economic Co-operation and Development, 2015: 94). Other policies are those applied in some American states, or those directed to assure minimum profit or return margins.

Unlike raise impact and magnitude, behavior of the sector in terms of sales value both before (raw) and after taxes (net) has had a relevant dynamism. It is import to point out that the figure revealed by Euromonitor International about the market value of alcoholic beverages in Mexico is about the estimation in net terms with information by EMIM (54.5 billion current pesos).

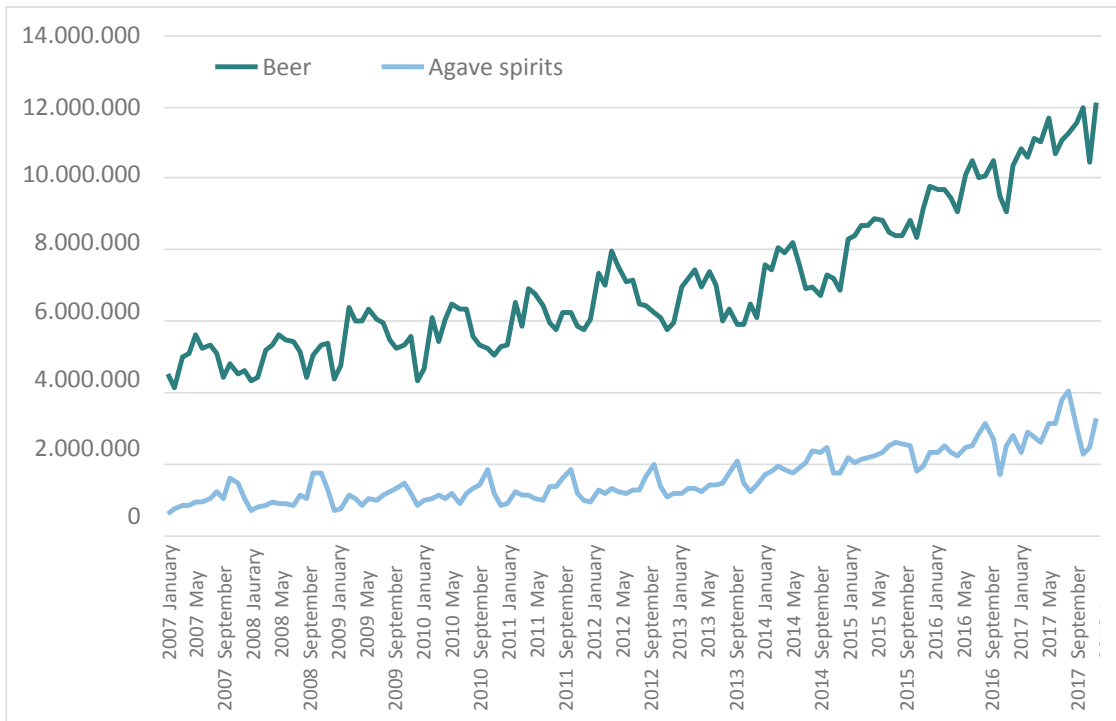
Table 17. Sales value (mp), 2017.

Sales value (mp)	Raw	Net
Beer	128.779.681	33.482.717
Grape spirits	34.905.984	18.500.172
Rum and sugarcane spirits	2.805.967	1.487.163
Distilled agave beverages	1.751.810	928.459
Other distilled beverages	171.040	90.651
Total	168.414.482	54.489.162

Source: EMIM. Main features, monthly data. 2007-2018. Per Variable, Type of data, Código SCIAN (2007), Year and Month.

As shown by the following two figures, behaviors of the different segments of sales value of alcoholic beverages are varied and of very different magnitude. While sales value of beer is by far the highest one together with distilled agave, tequila among them, the economic weight of the other items (figure immediately following the next one), is even smaller.

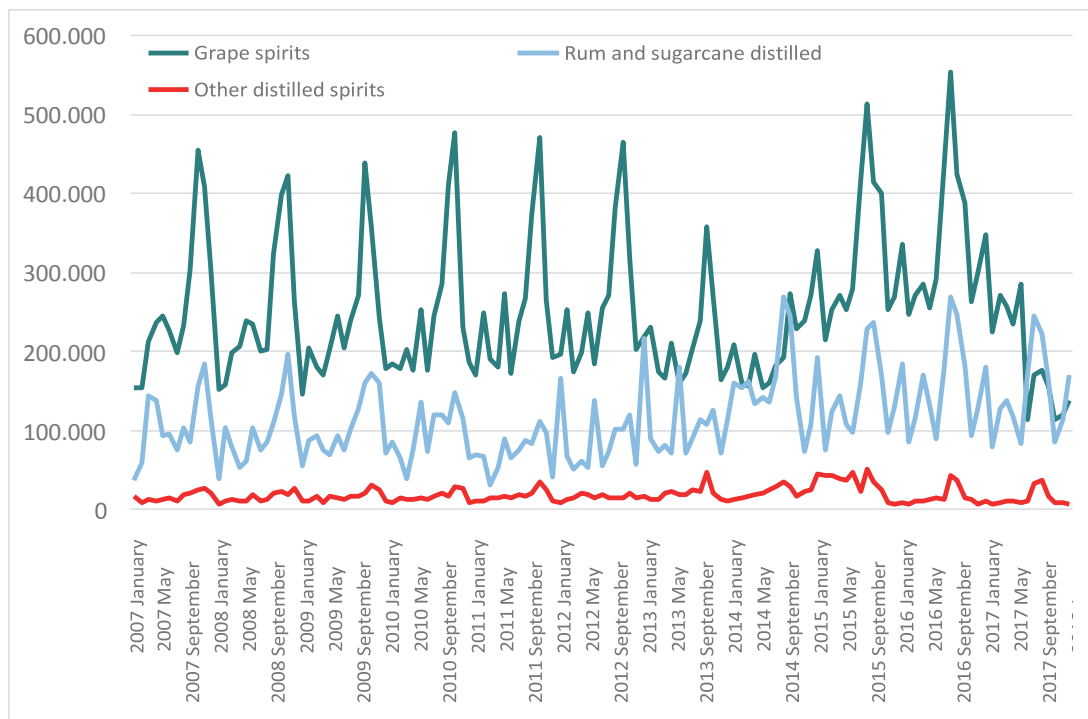
Figure 12. Sales value beer and agave spirits, current mp.



Source: EMIM. Main features, monthly data. 2007-2018. Per Variable, Type of data, Código SCIAN (2007), Year and Month.

We should remember that one of the most important findings from these studies is precisely that those beverages with high alcoholic content are found highly available in terms of prices and preferences by the Mexican consumer. With regards to preferences, the agave spirits are identified, and among the low-priced are grape spirits, rum and other sugarcane spirits, and other distilled alcohols, whose trajectory in terms of sales is presented in the following figure. It has to be clear that the first two have had an upward behavior. Even rum and other sugarcane spirits have exceeded the sales level of grape spirits.

Figure 13. Sales value beverages of grape spirits, rum and sugarcane spirits, and other distilled (billion pesos).



Source: EMIM. Main features, monthly data. 2007-2018. Per Variable, Type of data, Código SCIAN (2007), Year and Month.

In this context, arguments for a tax linked to alcohol content tend to have more support than arguments for a tax on beverage quantity. This is because when the liter of beverage is taxed, the more alcohol content the beverage has, the less the liter of alcohol in it costs. A good example is the case of cider and wine in the United Kingdom. In that case, cider and wine producers have incentives to produce beverages with a lot of alcoholic content, as their customers pay less tax for alcoholic beverages and they can get more drunk (Mexican Community of Public Management for Results, 2018b).

Both academics and some governments, share a growing agreement that taxes linked to alcoholic content, and particularly the minimum price unit must be supported as good practices. Academics and civil servants, among them especially those from the health sector, all consider that the establishment of minimum price unit, as exemplified by the case in Scotland, will positively impact in the country and in general this measure would generate positive effects in other countries (Comunidad Mexicana de Gestión Pública para Resultados, 2018b; Scottish Government, 2018; The Economist, 2018; Zhao et al., 2013).

XI. Findings & Policy Recommendations

“The situation Mexico has, where there are very strong low-priced liquors, could be prevented with minimum price units. Linking the tax with alcohol content is what makes more sense to me”.³⁷

In the light of the evidence presented and findings identified, the following proposals are stemmed.

Finding n° 1. There is a regulatory failure at a federal level which is confirmed when looking at the fact that the price of some alcoholic beverages with high alcohol level, and thereby more potential to harm, have a very reduced price. This not only boosts the effect on drinkers regarded as “hard”, but on the population with lower economic resources. In addition to this, the existent fiscal policy does not achieve fiscal or extra fiscal goals. On one hand, the raise impact does not express the dynamism of the industry, it does not fall near the social cost, and it cannot fund the healthcare system when treating the condition. In a comprehensive manner, it can be said that the current fiscal scheme does not drive up the cost of alcoholic beverages for economically disadvantaged sectors, explosive or compulsive drinkers, and it enhances informality, particularly in the sector of more expensive products, whilst profits of introducing products out of the fiscal, legal framework are very attractive.

Policy Recommendations:

- 1.1 To consider setting minimum price units to reduce availability of alcoholic beverages or measures producing minimum sales prices.
- 1.2. While insisting on the importance of incorporating hybrid modalities where quantity factor or ad quantum plays a central role, the tax linked to alcohol content must take precedence over those based on beverage quantity, as when taxing the liter of beverage, the more alcoholic content the beverage has, the less is charged per liter of ethanol in it.
- 1.3. To adjust the IEPS per inflation and the increase of income in order to prevent alcoholic beverages to be, over the time, more affordable. That is to say, to make this tax progressive with time.

Finding n° 2. It is relatively cheap to obtain subnational licenses / permits to sell alcoholic beverages and there is a great variation in requirements and costs with no apparent relation to the diverse indicators of consumption, economic activity and impact on health.

³⁷ A statement of one of the interviewees for this study.

Policy Recommendations:

2.1 Instrumentation of a national and subnational legal framework, validating methodologies, concepts, criteria, requirements and ways of public policies.

2.2 The legal and procedural framework requires substantial changes to validate criteria and to replicate better practices and public policies at a subnational level, especially in the requirements and ways to obtain permits.

Finding n° 3. There are neither methodologies nor conditions to determine the social cost and the cost of public policies linked to prevent, detect and treat, both at a personal and a social level, alcoholic beverages consumption and abuse in all three levels of government.

Policy Recommendations:

3.1 It is essential to have the fiscal cost at all three levels of government for alcoholic beverages consumption and of the social cost of such activity. This information must be explicit, public, updated and trustworthy.

3.2 Efforts from English and Scottish governments to determine the cost of negative externalities in studies from 2003 add the cost of medical assistance, crime related to alcoholic beverages and costs in productivity. It is urgent and imperative to produce this type of studies for Mexico.

Finding n° 4. Experts agree that fiscal policies need to come with other measures to generate better results.

Policy Recommendations:

4.1 Integral policies attending supply and demand, accompaniment to family, education, research and regulation in marketing. Together with those recommendations, examples of subnational policies to cope with harmful alcoholic beverages consumption and some official exercises to estimate the negative cost of such beverages were also mentioned.

4.2 It is necessary to continue and amplify measures like the breathalyzer. On the other hand, it is worth trying to replicate the early detection that there is in first medical attention clinics in Europe

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XIII. Appendixes

APPENDIX I. Definition Law of IEPS

Article 3. For the effects of this law, the following concepts are defined as:

I. Beverages with alcoholic content, alcoholic beverages, and refreshing drinks, as follows:

a) Alcoholic beverages, those which at the temperature of 15°C have an alcoholic level of more than 3-55 °GL, including spirits and alcoholic beverages concentrates, even when the last ones have a greater alcoholic level.

b) Refreshing beverages, those prepared with a minimum of 50% base of table wine, product of natural fruit fermentation, so that water, carbon dioxide or carbonated water, fruit juice, fruit extract, essential oils, citric acid, benzoic acid or sorbic acid or their salts as preservatives, as well as those elaborated from distilled spirits different from those already mentioned.

II. Beer, fermented beverage, prepared with barley malt, hop, yeast, and water or with infusions from any farinaceous seeds from grass or legumes, starchy roots or fruits or sugars as malt adjuncts, with addition of hop or substitutes.

Sales value of alcoholic beverages with a levels greater than 20 (thousand pesos).

Year	Cane-distilled spirit	White rum	Other rum	Agave-distilled beverages	Import of Alcoholic Beverages with content greater	Total Alcoholic Beverages than 80
A	B	C	D	E	F	G=B+C+D+E+F
2005	86,893.1	516,648.1	434,520.5	10,334,800.9	553,654.6	11,926,517.1
2006	86,963.0	549,013.7	442,553.0	11,372,135.3	507,182.5	12,957,847.5
2007	87,033.0	583,407.0	450,734.0	12,513,590.0	324,850.0	13,959,614.0
2008	87,103.1	619,954.8	459,066.2	13,769,615.9	386,056.7	15,321,796.7
2009	87,173.2	658,792.2	467,552.5	15,151,712.7	941,802.6	17,307,033.3
2010	87,243.3	700,062.6	476,195.7	16,672,534.7	1,063,454.8	18,999,491.2
2011	87,313.5	743,918.4	484,998.6	18,346,006.1	1,310,968.7	20,973,205.4
2012	87,383.8	790,521.6	493,964.3	20,187,448.7	1,494,696.5	23,054,014.9
2013	87,454.2	840,044.2	503,095.7	22,213,722.4	1,274,131.3	24,918,447.7
2014	87,524.6	892,669.3	512,395.9	24,443,379.1	1,263,105.2	27,199,074.0
2015	87,595.0	948,591.0	521,868.0	26,896,833.0	1,379,869.2	29,834,756.2
2016	87,665.5	1,008,016.0	531,515.2	29,596,547.3	1,506,552.7	32,730,296.7

Source: INEGI, EMIM, SHCP and authors' calculation. UNIVERSIDAD DE LAS AMÉRICAS PUEBLA

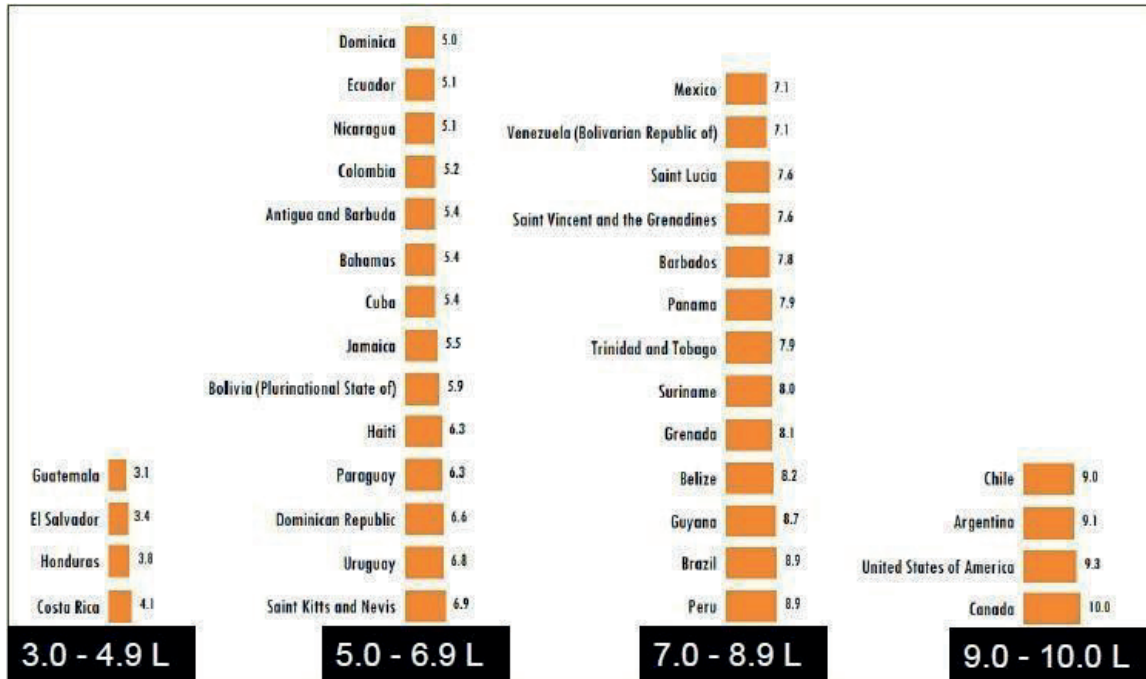
Santa Catarina Mártir, Cholula, Puebla. Evasión Global 2017 Authors: Dr. Juan Manuel San Martín Reyna Mtro. Héctor Enrique Ángeles Sánchez Dr. Carlos Alberto Juárez Alonso C.P.C. Jaime Díaz Martín del Campo.

Overview of selected policies related to alcoholic beverages consumption and abuse in OECD countries and similar economies.

	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand	Norway	Poland	Portugal
National legal minimum age for off-premise sales										
Beer	18	20	19	16	18	18	18	18	18	16
Wine	18	20	19	16	18	18	18	18	18	16
Spirits	18	20	19	16	18	18	18	20	18	18
National legal minimum age for on-premise sales										
Beer	18	20	19	16	18	18	18	18	18	16
Wine	18	20	19	16	18	18	18	18	18	16
Spirits	18	20	19	16	18	18	18	20	18	18
Restrictions for on-/off-premise sales of alcoholic beverages										
Time (hours/day)	Y/N	N/N	N/N	Y/N	Y/N	N/N	Y/Y	Y/Y	N/N	Y/N
Location (place/density)	Y/N	N/N	N/N	N/Y	Y/N	Y/N	Y/N	N/N	Y/N	Y/N
Specific events	Y	N	N	N	Y	Y	N	N	Y	Y
Intoxicated persons	Y	N	N	Y	Y	Y	Y	Y	Y	Y
Petrol stations	Y	N	N	N	N	Y	Y	Y	N	Y
National maximum legal blood alcohol concentration (%)										
General	0.05	0.03	0.05	0.05	subn	0.05	0.05	0.02	0.02	0.05
Young	0	0.03	0.05	0.02	subn	0.02	0	0.02	0.02	0.02
Professional	0	0.03	0.05	0.02	subn	0.05	0.05	0.02	0.02	0.02
Legally binding regulations										
Advertisement	Y	N	Y	N	Y	Y	Y	Y	Y	Y
Product placement	N	N	N	N	Y	N	N	Y	Y	Y
Sponsorship	Y	N	N	N	Y	N	N	Y	Y	Y
Sales promotion	Y	N	N	N	Y	N	Y	Y	Y	Y
Health warnings (advert/containers)	N/N	N/N	N/Y	N/N	Y/Y	N/N	N/N	N/N	Y/N	N/N

Fuente: OCDE.

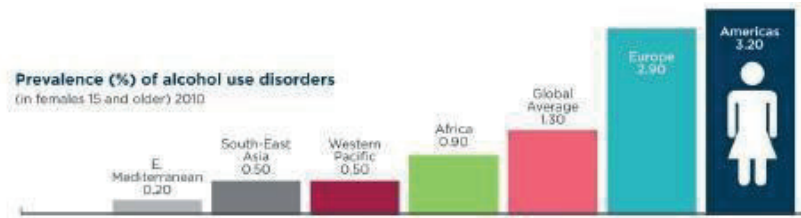
Total adult alcoholic beverages per capita consumption (liters of pure alcoholic beverages), projected estimates, 2016.



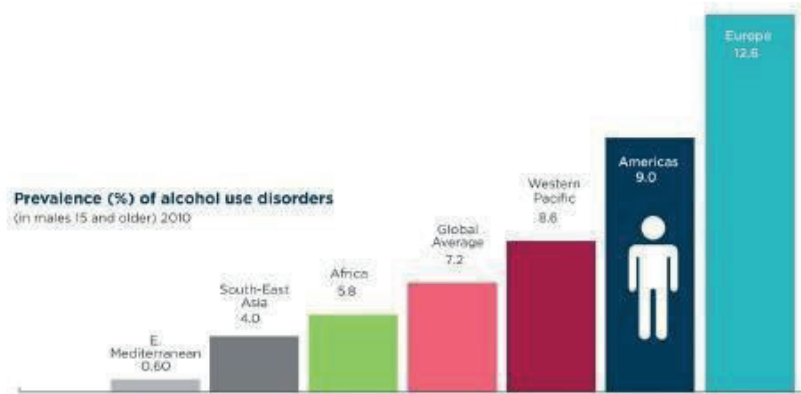
Source: World Health Organization. Global Information System on Bebidas alcohólicas and Health. Adapted from World Health Statistics, 2017

Women in the Americas have higher rates of alcoholic beverages use disorders* than women in any other WHO region.

FEMALES

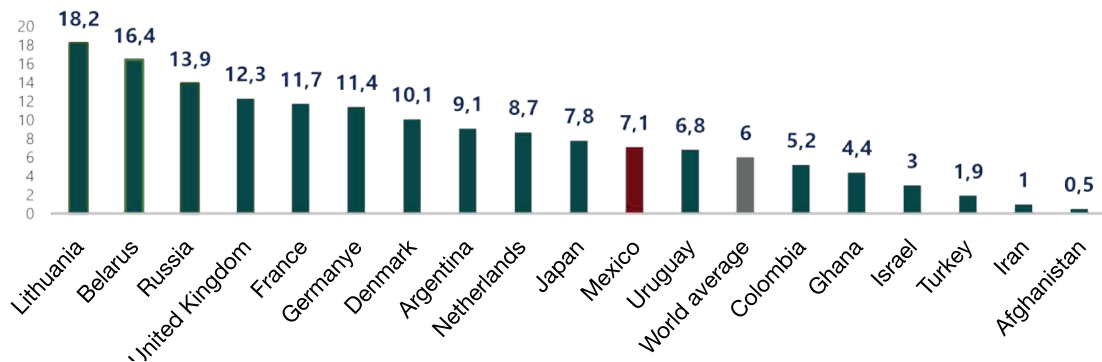


MALES



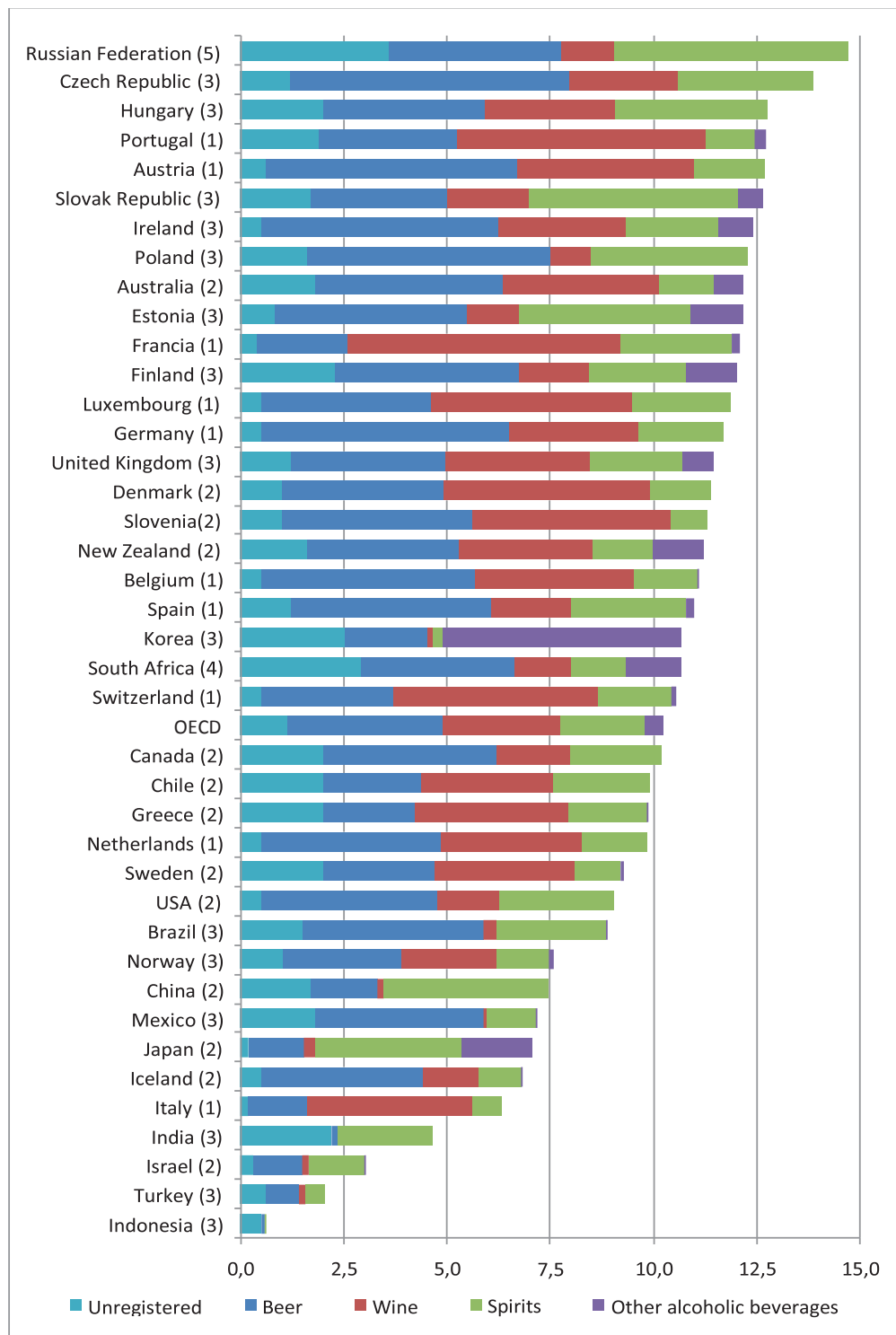
Source: World Health Organization. Global status report on alcoholic beverages and health 2014.

Alcoholic beverages consumption in liters per capita, 2016



Source: OECD.

Consumption levels by type of alcoholic beverages and consumption score by country



Source: WHO GISAH database, 2014. Note: The drinking score is defined as 1 least risky, 2 somewhat risky, 3 medium risky, 4 very risky, 5 most risky.

Consumption levels by type of alcoholic beverages and consumption score by country

Country	Beer	Wine	Liquor	Other alcoholic beverages	Unregistered	Total
Indonesia (3)	0.06	0.00	0.01	0.00	0.50	0.57
Turkey (3)	0.82	0.13	0.49	0.00	0.60	2.04
Israel (2)	1.18	0.17	1.33	0.01	0.30	2.99
India (3)	0.17	0.00	2.29	0.00	2.20	4.66
Italy (1)	1.40	4.00	0.70	0.00	0.20	6.30
Iceland (2)	3.91	1.34	1.04	0.03	0.50	6.82
Japan (2)	1.32	0.28	3.58	1.70	0.20	7.08
Mexico (3)	4.07	0.08	1.19	0.03	1.80	7.17
China (2)	1.60	0.17	3.98	0.00	1.70	7.45
Norway (3)	2.91	2.29	1.25	0.14	1.00	7.59
Brazil (3)	4.40	0.29	2.68	0.01	1.50	8.88
USA (2)	4.28	1.48	2.80	0.00	0.50	9.06
Sweden (2)	2.70	3.40	1.10	0.10	2.00	9.30
Netherlands (1)	4.36	3.39	1.58	0.00	0.50	9.83
Greece (2)	2.22	3.73	1.91	0.03	2.00	9.89
Chile (2)	2.37	3.23	2.33	0.00	2.00	9.93
Canada (2)	4.20	1.80	2.20	0.00	2.00	10.20
OECD	3.77	2.83	2.05	0.45	1.14	10.25
Switzerland (1)	3.19	4.96	1.77	0.12	0.50	10.54
South Africa (4)	3.74	1.38	1.29	1.35	2.90	10.66
Korea (3)	2.04	0.13	0.24	5.76	2.50	10.67
Spain (1)	4.87	1.97	2.76	0.18	1.20	10.98

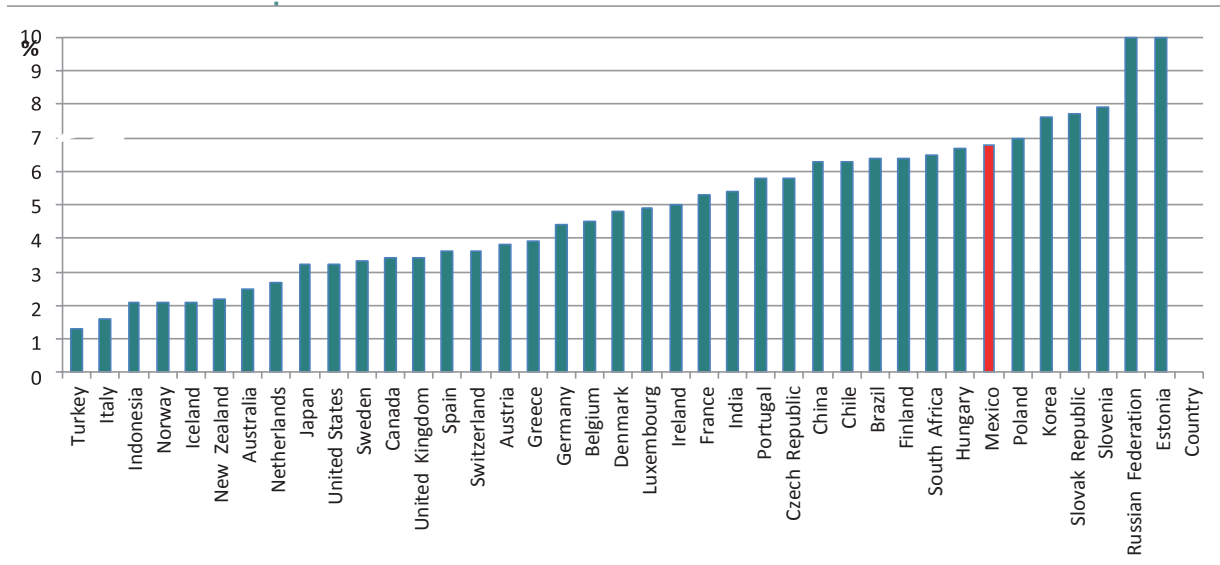
Belgium (1)	5.19	3.84	1.52	0.01	0.50	11.06
New Zealand (2)	3.67	3.26	1.46	1.22	1.60	11.21
Slovenia (2)	4.59	4.84	0.89	0.00	1.00	11.32
Denmark (2)	3.92	5.02	1.46	0.00	1.00	11.40
United Kingdom (3)	3.79	3.47	2.24	0.77	1.20	11.47
Germany (1)	6.01	3.12	2.08	0.00	0.50	11.71
Luxembourg (1)	4.11	4.86	2.39	0.00	0.50	11.86
Finland (3)	4.47	1.70	2.33	1.22	2.30	12.02
France (1)	2.20	6.60	2.70	0.20	0.40	12.10
Estonia (3)	4.68	1.26	4.18	1.24	0.80	12.16
Australia (2)	4.56	3.81	1.30	0.70	1.80	12.17
Poland (3)	5.90	1.00	3.80	0.00	1.60	12.30
Ireland (3)	5.73	3.11	2.23	0.85	0.50	12.42
Slovak Republic (3)	3.30	2.00	5.06	0.60	1.70	12.66
Austria (1)	6.10	4.30	1.70	0.00	0.60	12.70
Portugal (1)	3.34	6.02	1.18	0.30	1.90	12.74
Hungary (3)	3.91	3.17	3.70	0.00	2.00	12.78
Czech Republic (3)	6.79	2.60	3.30	0.00	1.20	13.89
Russian Federation (5)	4.18	1.27	5.67	0.00	3.60	14.72

Source: WHO GISAH database, 2014.

Note: The drinking score is defined as 1 least risky, 2 somewhat risky, 3 medium risky, 4 very risky, 5 most risky.

Attributable classification fractions to alcoholic beverages, all death causes, 2012

Percentages, all ages.



Source: World Health Organization (2014), Global Status Report on Alcoholic Beverages and Health 2014, WHO, Geneva.

Cases for non-communicable diseases by federative entity / Cases for non-communicable diseases by federative entity

Federative entity	Acute intoxication by alcoholic beverages CIE-10 th Rev. F10.0				Alcoholic liver disease CIE-10 th Rev. K70 except K70-3				Alcoholic liver cirrhosis CIE-10 th Rev. K70.3			
	2017			2016	2017			2016	2017			2016
	Sem.	Accum.		Accum.	Sem.	Accum.		Accum.	Sem.	Accum.		Accum.
		M	F			M	F			M	F	
Aguascalientes	13	886	173	1,190	2	31	11	66	1	109	31	71
Baja California	-	222	88	394	-	151	37	206	-	367	97	429
Baja California Sur	2	123	58	195	1	46	22	99	-	34	10	62
Campeche	4	161	37	297	-	27	21	48	1	21	42	41
Coahuila	8	486	144	998	-	57	20	119	2	173	26	85
Colima	9	271	107	501	1	55	18	71	1	75	14	79
Chiapas	22	455	126	709	2	103	66	290	2	180	101	433
Chihuahua	24	564	181	918	6	255	77	655	13	227	64	240
Mexico City	27	2,496	547	3,459	2	268	84	450	4	428	209	470
Durango	12	318	79	691	-	130	20	169	1	112	11	141
Guanajuato	71	2,183	424	3,204	4	123	43	246	2	144	28	136
Guerrero	6	525	135	795	-	76	82	246	1	162	58	240
Hidalgo	17	861	199	845	5	311	233	667	1	238	192	387
Jalisco	72	2,666	755	4,144	10	277	70	493	13	568	100	846
México	57	1,869	594	2,691	17	469	232	979	3	287	80	393
Michoacán	14	814	231	1,101	2	75	81	200	5	219	64	276
Morelos	3	348	61	509	-	65	61	166	5	101	29	208
Nayarit	6	336	92	518	-	33	18	81	1	32	12	165
Nuevo León	19	774	249	1,047	1	78	50	152	3	197	45	226
Oaxaca	2	375	136	682	-	131	58	188	2	238	133	442

	4	565	252	967	-	62	25	127	-	126	23	
	2	394	124	468	3	36	36	100	1	31	10	
	8	716	266	995	24	144	127	177	5	289	71	
	1	274	55	375	-	39	36	131	-	23	-	
	16	707	192	998	5	279	185	586	7	502	166	
	234	7,905	1,146	9,200	3	80	51	157	1	153	53	
	20	898	232	1,196	2	124	19	193	-	46	8	
Puebla	26	1,030	261	1,406	5	224	170	413	12	343	171	444
Querétaro	7	44,7	110	742	9	68	43	129	-	33	10	48
Quintana Roo	8	207	35	346	1	54	10	111	2	111	11	144
San Luis Potosí	15	455	79	671	-	57	31	115	2	110	57	185
Sinaloa	15	284	227	907	-	76	32	151	4	249	28	326

Sonora 153

Tabasco 73

Tamaulipas 409

Tlaxcala 24

Veracruz 552

Yucatán 248

Zacatecas 83

Total 744 30,585 7,394 43,159 105 4,001 2,059 7,961 95 5,965 1,918 8,083

Source: SINAVE/DGE/Health 2017. Preliminary information, including probable cases. Epidemiologic vigilance Week 52, 2017

Tax per hectoliter of pure alcoholic beverages.

	Duty per hectoliter of pure alcoholic		VAT rate	Rate for smaller
	USD	MXN	%	Distillery
Australia*	6089	1137	10	No
Austria*	1332	249	20	Yes
Belgium	3322	620	21	No
			5.0, 13.0,	
Canada*	915	171	14.0 or 15.0	No
Chile*	-	-	19	No
Czech Republic*	1159	216	21	No
Denmark*	2230	416	25	No
Estonia	2411	450	20	No
Finland*	5055	944	24	No
France*	1928	360	20	No
Germany*	1446	270	19	Yes
Grecia*	2719	508	23	No
Hungary*	1194	223	27	Yes
Iceland*	10463	1953	11	No
Ireland	4725	882	23	No
Israel*	-	-	17	No
Italy*	1149	215	22	No
Japan*	-	-	8	No
Korea*	-	-	10	No
Latvia*	1509	282	21	No
Luxembourg	1156	216	17	No
Mexico*	-	-	16	No
Netherlands*	1871	349	6.0 or 21.0	No
New Zealand*	-	-	15	No
Norway	9065	1692	25	No
Poland	1513	282	23	No
Portugal*	1474	275	23	Yes
Slovak Republic	1199	224	20	No
Slovenia*	1465	274	22	No
Spain*	1014	189	21	Yes
Sweden	6068	1133	25	No
Switzerland*	3015	563	8	Yes
Turkey*	5535	1033	18	No
United Kingdom*	4229	790	20	No

Source: Consumption Tax Trends 2016, VAT/GST and excise rates, trends and policy issues, OECD

National delegates, updated to January 1st, 2016. Amount in pesos expresses the amount of duty per liter.



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