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Proposed tax redesign for alcoholic beverages

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I. Background

In 1980, the Mexican government implemented ad valorem taxes to alcoholic beverages that increase with alcohol content, which translated into lower taxes for beverages with lower pure alcohol content. No generalized tax reform has been implemented in Mexico since then, yet, recent alcohol consumption (consumption of at least one standard drink in the past 30 days) increased from 35% in 2011 to 39% in 2016 and recent binge drinking (drinking more than 4 drinks for women, 5 for men on at least one occasion in the past 30 days) increased from 12.3% in 2011 to 19.3% in 2016.¹ Evidence of the negative externalities caused by the consumption of alcohol is needed to support any tax reform.

The objective of this report is to propose a tax redesign including the impact on prices, consumption and revenues, considering the current fiscal policy and the evidence on the impact of alcoholic taxes on consumption.

2. Description of the fiscal policy in Mexico, products covered, tax system, fiscal revenues

Fiscal policy

Excise ad valorem taxes to alcoholic beverages were implemented in Mexico in 1980² and had some amendments over time (Supplemental Table S1). Tax rates vary based on a combination of type of beverage and alcohol content. Since 2014, no reforms have been implemented.³ The current ad valorem taxes are as follows: beverages with a gradation of up to 14° GL have a tax rate of 26.5%, those between 14 and 20 have a 30% tax and beverages with more than 20° GL went from 50 to 53% (Table 1). The tax base is the ex factory price.

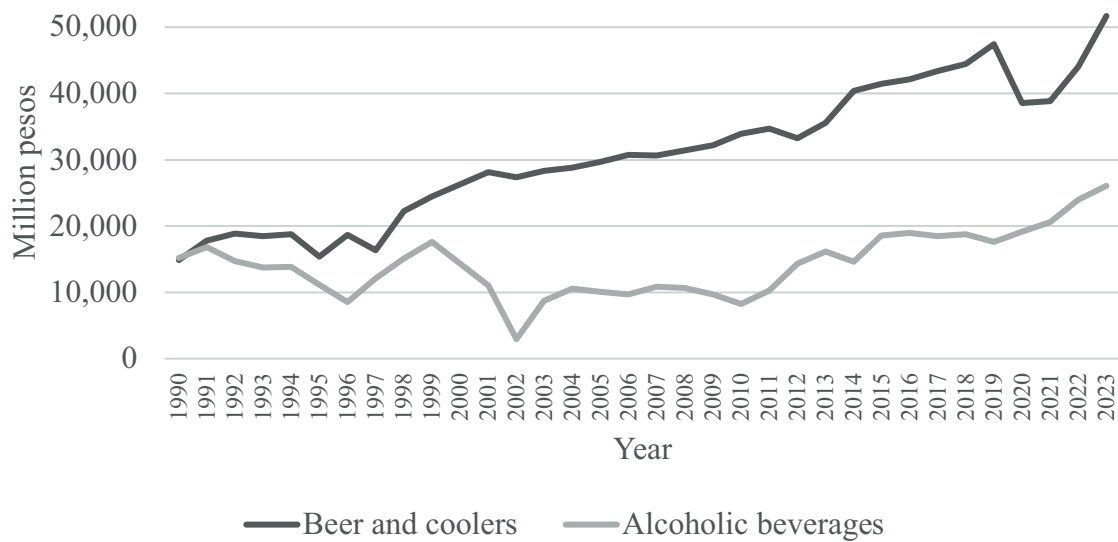
Table 1. Current ad valorem taxes for alcoholic beverages

Alcohol content	Tax rate
Beverages with alcoholic content up to 14° GL	26.5%
Beverage of 14° GL and up to 20° GL	30%
Beverages more than 20°GL	53%

Source: Own elaboration with data from the Official Journal of the Federation <https://www.diputados.gob.mx/LeyesBiblio/pdf/LIEPS.pdf> GL: degrees of Gay Lussac

Fiscal Revenues

Tax revenues for alcoholic beverages are divided in two types of beverages: beer and coolers, and other alcoholic beverages (wines and spirits). Figure 1 shows fiscal revenues from 1990 to 2023 for beer and other alcoholic beverages. Tax revenues for beer and coolers went from \$14,873 in 1990 to \$51,690 million pesos in 2023 and for other alcoholic beverages from \$15,171 to \$26,069 million pesos (Table S2).



Values in millions of pesos of 2022. Own elaboration with data from the Ministry of Finance. Finanzas Oportunas SHCP: <http://presto.hacienda.gob.mx/EstoporLayout/estadisticas.jsp>

Figure 1. Fiscal revenues for alcoholic beverages in Mexico, 1990-2023

3. Literature review on the effectiveness of tax policies to reduce alcohol consumption

A literature review was performed in PubMed and EconLit databases to search for studies from 2000 to 2023 showing the effectiveness of fiscal policies to reduce alcohol consumption. Algorithms included the words: “alcohol taxes”, “alcohol taxation”, “alcohol price policy”, “alcohol consumption” and “binge drinking”.

The inclusion criteria were that the outcome was alcohol consumption or binge drinking, that the studies were an impact evaluation of a current fiscal policy, a modeling or simulation of a tax, from published papers since 2000 using data no older than 1950. We identified 167 publications. We used the Rayyan software to identify duplicated texts, which in total were 7. Of the 160 texts, we excluded 128 by reviewing the title and abstract. We reviewed 32 full texts, of which we excluded 14 that failed to follow the inclusion criteria on the outcome, on the study design as estimations were price elasticities and study period. We also conducted a search in the gray literature through Google scholar. We identified 7 publications, of which 6 met the inclusion criteria. Twenty-four reports were included in the final sample of the review (Figure S1); of them ten were simulations of increases in current taxes or changes in the tax structure for the different types of beverages,⁴⁻¹³ and fourteen were impact evaluations.¹⁴⁻²⁷

Simulation studies showed that an increase in current taxes, whether ad valorem or specific, could reduce alcohol consumption and binge drinking.^{4,6-8,10-12} Moving from an ad valorem tax structure to a specific one increases prices more and reduces consumption to a greater extent compared to what would be expected with an increase in ad valorem taxes.⁵

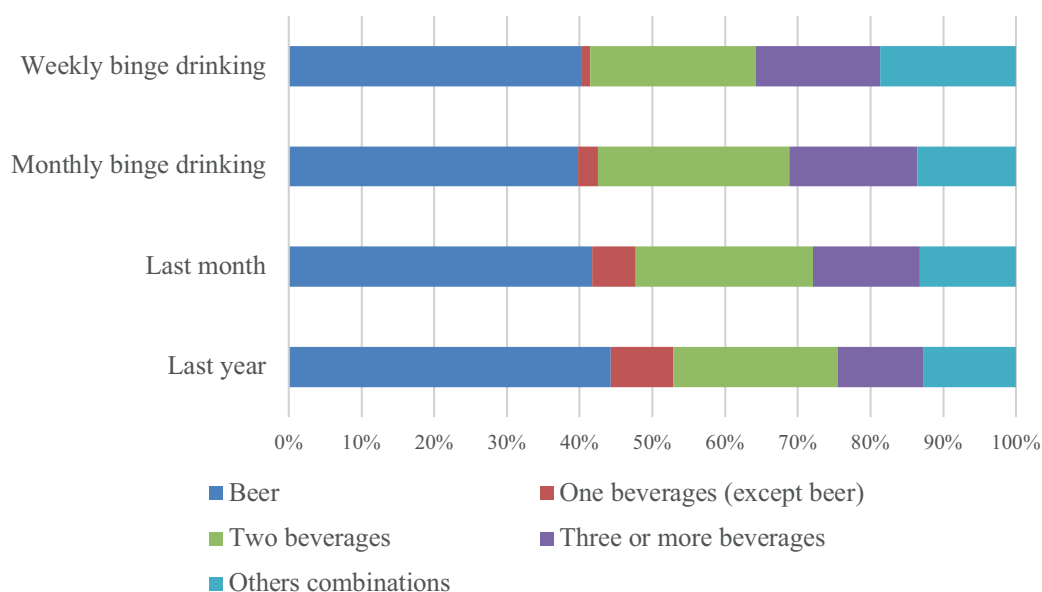
Impact evaluations of implemented taxes show that increasing both ad valorem and specific taxes had a positive impact on reducing per capita alcohol consumption and tax collection.^{14,17-19,23} In contrast, different studies that evaluated a 45% reduction in alcohol taxes in Finland, Denmark, and Sweden in 2004, show increases in the consumption of pure alcohol.^{21,24-27}

4. Alcohol consumption patterns in Mexico

Data on per capita consumption of pure alcohol in Mexico ranged from 5 liters in 2018²⁸ to 7 liters in 2020 and is expected to increase to 7.7 liters by 2025.²⁹ Although alcohol consumption in Mexico is not among the highest in the world (the highest is Lithuania with 14.4 per capita liters of alcohol), binge drinking (5 drinks or more for men and 4 drinks for women on a single occasion) is more frequent compared to daily/moderate consumption is during the weekend.³⁰ Although no level of consumption is safe, binge drinking is associated with non-communicable diseases such as liver diseases, some types of cancer, cardiovascular diseases and mental disorders, as well as injuries and traffic related accidents.³¹

Based on the most recent National Survey on the Consumption of Drugs, Alcohol and Tobacco (ENCODAT 2016), alcohol consumption in the last year was 49.1%, while the prevalence in the last month was 35.9% with an increase of 4 percentage points compared to 2011.¹ Binge drinking in the last month in adolescents between 12 and 17 years old increased from 4.3% in 2011 to 8.3% in 2016, this increase was greater among women. For the population between 18 and 65 years old, binge drinking in the last month went from 13.9% in 2011 to 22.1% in 2016, the increase being greater among men.¹

Figure 2 shows alcohol consumption of at least one drink in the last 12 months for the population between 12 to 65 years old, by type of alcoholic beverage and two types of consumers: 1) non-binge drinkers who reported consuming at least once in the last 12 months and those who reported consuming at least one drink in the last 30 days; 2) binge drinkers -defined as those who consumed 5 or more drinks in a single occasion for men, 4 for women- in the last month or in the last week. Beer alone is the most consumed alcoholic beverage (more than 40%) followed by the consumption of beer and spirits together (more than 15%). A higher proportion of binge drinkers combined more than one beverage (57.5% for monthly binge drinkers and 58.5% for weekly binge drinkers) compared to non-binge drinkers who reported consuming once in the last year (47.1%) or last month (52.3%) (Table S3).

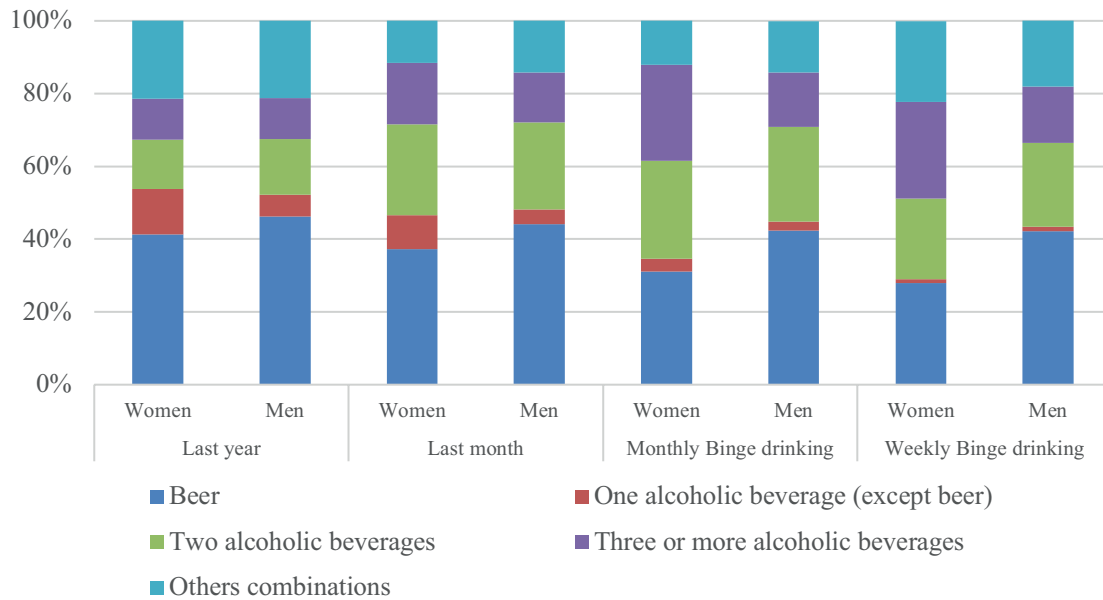


Own elaboration with data from the 2016 National Survey of Drug, Alcohol and Tobacco Consumption.

Figure 2. Alcohol consumption of at least one drink in the last 12 months by type of beverage and consumption pattern

Figure 3 shows alcohol consumption of at least one drink in the last 12 months by type of alcoholic beverages and sex. A higher percentage of men consume only beer compared to women and the difference is larger by binge drinking. Among non-binge drinkers and binge drinkers, women consume two and three beverages or more than men (Table S4).

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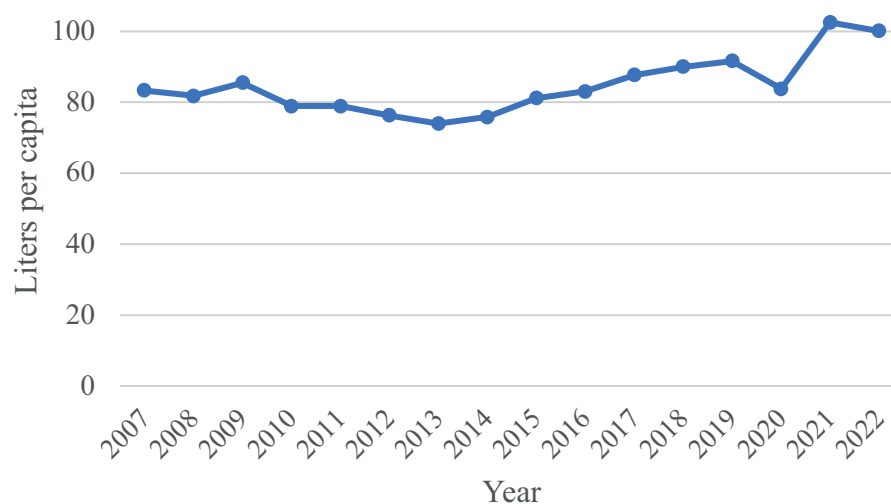


Own elaboration with data from the 2016 National Survey of Drug, Alcohol and Tobacco Consumption.

Figure 3. Alcohol consumption of at least one drink in the last 12 months by type of beverage and consumption pattern by sex

To look at trends of alcoholic beverages consumption over time, we estimated per capita annual sales for beer, table wines and tequila from 2007 to 2022 for the population 15 years and over, using data from the Monthly Survey of the Manufacturing Industry (EMIM for its acronym in Spanish)³² and population projections from the National Population Council.³³ The EMIM has a deterministic design: producers are selected from the economic census and the sample size is reached until the number of firms equals the expected coverage for each economic activity. For all beverages, coverage reaches 80% of total income and 80% (sales) of employees. The EMIM collects information on sales, production, number of employees, hours worked and total remunerations of the manufacturing sector. To get domestic sales we included imports and excluded exports using the Trade Balance of the Bank of Mexico.³⁴ We were unable to get domestic sales for spirits as there were inconsistencies when using the Trade Balance of the Bank of Mexico. As sales for wine are very low in the EMIM, we only show trends for beer. As shown in Figure 4, annual per capita sales of beer went from 83.4 liters in 2007 to 100.1 in 2022.

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Own elaboration with data from the Monthly Survey of the Manufacturing Industry, Trade Balance of the Bank of Mexico and National Population Council.

Figure 4. Alcoholic beverages sales per year (liters per capita). Mexico 2007-2022

5. Evaluation of the current fiscal policy

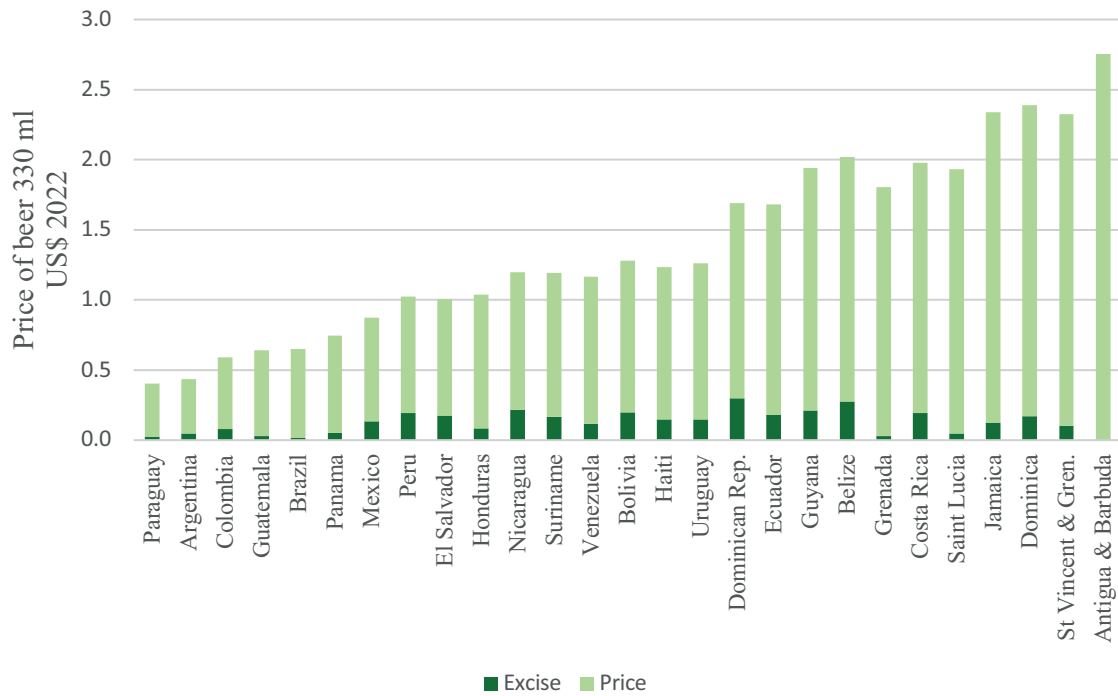
The current ad valorem taxes have two limitations as described below.

1) The price of beer is low compared to other countries in the region

Figure 5 shows prices of beer for the most consumed brand of 330ml in 2022 USD comparing countries in Latino America with taxes to alcoholic beverages. Prices range from 0.37 in Paraguay to 2.75 USD in Antigua & Barbuda. The price of beer in Mexico is in the lowest range with a price of 0.74 USD. The current excise ad valorem tax for beer in Mexico is very low to significantly affect consumer price.

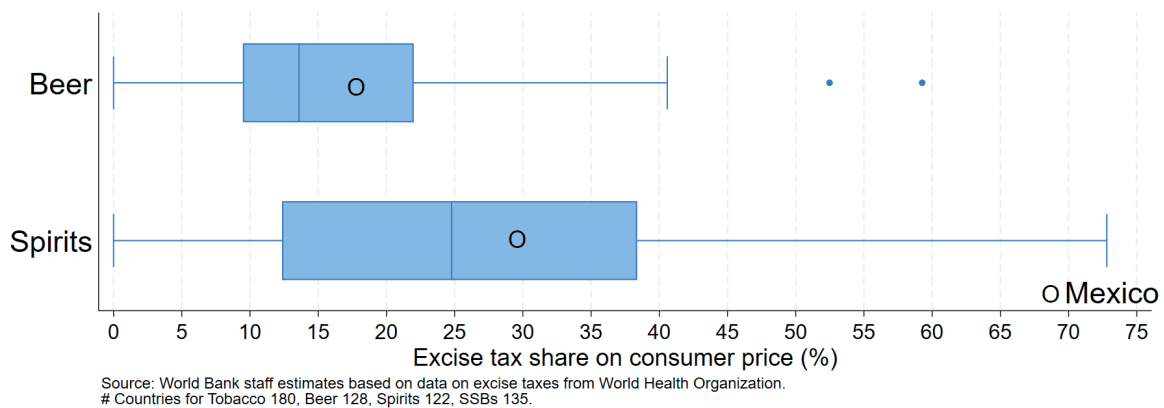
Figure 6 show tax share of alcohol excise taxes worldwide (excise tax shares on consumer prices) for beer and spirits. Although tax shares for Mexico are above the median, they are below countries that have high taxes.

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Note: price of beer/US dollar 2022. Source: own elaboration with information from the WHO

Figure 5. Price of beer for the most consumed brand in Latin American countries



Note: price of beer/US dollar 2022. Source: own elaboration with information from the WHO

Figure 6. Tax shares of alcohol excise tax worldwide, 2002

2) Beer pays a lower tax per degree of alcohol

Although ad valorem tax rates increased with pure alcohol content, the amount of tax paid in pesos per degree of alcohol under the current fiscal policy is not proportional across beverages. As shown in Table 2, based on the price structure derived using prices of alcoholic beverages, current taxes favor beer, the most consumed alcoholic beverage in the country as it pays a lower tax per degree of alcohol. Beer pays a tax of \$1.05 pesos/degree of alcohol, table wines 3.00 pesos/degree of alcohol and spirits \$2.5 (median values).

Table 2. Tax paid per degree of pure alcohol under the current fiscal policy (pesos per degree of alcohol, median values)

Type of beverage	Tax paid per degree of alcohol
Beer	\$1.05
Wine	\$3.00
Spirits	\$2.5

Source: Own elaboration with data using price data collected in 46 cities that are used to estimate consumer price index in the country 36.

6. Tax redesign

Based on the limitations of the current taxes, we propose to introduce a specific tax to pure alcohol content -same for all beverages- and to significantly increase the rates to reduce the affordability of beer. Two additional considerations emerge:

1) Beverages with low alcohol content

Alcoholic beverages with low or no alcohol content still represent a low market share but they are increasing globally.^{37,38} Although these beverages are introduced as a tool to reduce consumption and as harm reduction for binge drinkers, evidence of the effect on consumption is not conclusive.³⁷ No or low alcohol content beverages may have negative consequences on misleading minors, pregnant women, abstainers or among the population wishing to stop consumption.

Although price data include beer with pure alcohol content between 2.5 and 5.3%, beverages with lower alcohol content have been introduced in the country and the demand may increase. Beverages with no or low alcohol content, would pay a small specific tax to pure alcohol content, so a minimum value for the specific tax to alcohol content would raise the amount paid for these beverages to discourage the consumption.

Mexico classifies beverages with low alcohol content those with 2 to 6% of alcohol concentration, beverages with less than 2% are not considered alcoholic beverages.^{39,40} In addition, the current ad valorem taxes apply to alcoholic beverages with more than 3°G.L. to 55 °G.L. To introduce a minimum value -for the specific tax- to beverages with less than 3°G.L, the law would need to change.

2) Very high prices of alcoholic beverages

Alcoholic beverages have a very large variation in prices (see table 3). Beverages with very high prices would pay a small specific tax to pure alcohol content as a percentage of price. Although these high-cost beverages are not the most consumed, keeping an ad valorem tax for all beverages, including the high-price beverages, would allow to have a significant tax for all alcohol products in the market.

Table 3. Average prices of alcoholic beverages and by percentile (pesos/liter)

Type of beverage	Average price	25th	50th	75th	95th
Beer	\$48.3	\$39.3	\$46.5	\$54.9	\$67.5
Wine	\$255.0	\$176.7	\$220.0	\$301.3	\$478.6
Brandy	\$379.9	\$219.0	\$296.3	\$461.2	\$620.0
Tequila	\$526.7	\$337.1	\$435.8	\$545.3	\$1221.5
Rum	\$363.3	\$257.2	\$312.9	\$398.7	\$638.7
Other spirits	\$475.4	\$203.3	\$358.7	\$627.1	\$1295

Source: Own elaboration with data using price data collected in 46 cities that are used to estimate consumer price index in the country.³⁶

Proposed tax design

Based on the limitation of the current taxes and the considerations for beverages with low alcohol content and those with very high prices, we propose to modify the design from an ad valorem to a mixed type with two components: a **specific tax to pure alcohol content** -the principal component- and an **ad valorem tax**.

- The **specific tax to pure alcohol** content addresses the limitation of the current taxes -beer pay a lower tax per degree of alcohol compared to wines and spirits- as the rate will be the same for all alcoholic beverages. As beverages with very low alcohol content would pay a small specific tax to alcohol content, a **minimum value** for the specific tax can differentiate these alcoholic beverages from other products in the market (e.g SSBs, water).
- The specific tax share for alcoholic beverages with a very high cost would be low, so an **ad valorem** tax would raise the amount paid.

Proposed tax rates

Tax rates proposed are based on regional benchmarks, namely, the tax for beer Mexico needs to reach the mean price in the region (50th percentile of prices for the most consumed brand of 330ml compared to countries in the region as shown in Figure 7). A high increase in price would reduce the affordability of alcoholic beverages. The amount of the tax for Mexico needed to reach this goal is \$16.6 pesos for the most consumed brand of beer of 330ml, thus \$50.6 pesos/liter.

The proposed mixed tax for all alcoholic beverages using this goal for beer is: **\$750/liter of pure alcohol + 30% ad valorem tax**, with the specific component having a minimum of \$8 per liter.

7. Estimation of alcoholic beverage consumption

There are two sources of information that can be used to estimate the impact of the tax reform on consumption, we will compare results from both sources as both have limitations and advantages as described at the end of this section.

Consumption data

We used data from the 2016 - 2017 National Survey for Drugs, Alcohol, and Tobacco Consumption (ENCODAT, for its Spanish acronym), the most recent national addiction survey in Mexico. One of the advantages of using survey data to estimate consumption, as compared to sales from production, import, or export data, is that it considers the consumption of alcohol of non-controlled origin, whether from legal or illegal sources.⁴¹ The methodological specifications of this survey can be found in another publication.⁴² Briefly, this is a probabilistic survey representative at the national and state levels of Mexican adolescents and adults, with a global response rate of 74%. Data was collected between June 1st and October 31st, 2016. For the present project, we used the sample of individuals aged 15 years and older (n=44,437). Supplemental material S3 describes the methods used to estimate alcohol per capita consumption using the ENCODAT.

Table 4 shows that the most consumed alcoholic beverage is beer (56.8 liters per capita per year), followed by coolers (11 liters per capita per year). Per capita consumption of spirits is only 2.3 liters. However, having a higher pure alcohol content, spirits represent 16% of pure alcohol consumption per capita, while beer represents 50% of total liters per capita. The total per capita consumption is 82.9 liters of alcoholic beverages, and the consumption of pure alcohol is 5.6 liters.

Sales data

The second source of information are sales data from the 2023 EMIM. We retrieved sales of classes 312120 for brewing beer, 312131 for table wines and other wines, and 312142 for tequila according to the North American Industrial Classification System.⁴³ As sales in the EMIM represent beverages produced in the country, we estimated domestic sales for 2022 by adding imports and subtracting exports from sales. Imports and exports were

Table 4. Alcohol consumption among population 15 years and older

Beverage	Liters/capita/year		Liters of pure alcohol/capita/year	
	Liters	CI 95%	Liters	CI 95%
Beer	56.8	53.5, 60.1	2.8	2.7, 3.0
Wine	4.6	4.0, 5.3	0.6	0.5, 0.7
Coolers	11.0	9.4, 112.6	0.5	0.5, 0.6
Spirits	2.3	2.1, 2.5	0.9	0.8, 1.0
Fermented (pulque)	7.4	5.9, 9.0	0.4	0.3, 0.4
Pure (aguardiente)	0.7	0.6, 0.9	0.3	0.2, 0.4
Total	82.9	77.5, 88.2	5.6	5.2, 5.9

Own estimations using the ENCODAT 2016.

obtained from the Trade Balance of the Bank of Mexico³⁴ using the following tariff codes: 2203000100 for beer, 2204210402 for table wines, 2204210401 and 2204210499 for other wines, 2208900391 for tequilas.

We estimated per capita domestic sales by dividing sales by the population aged 15 years and using population projections.⁴⁴ Finally, to calculate the per capita domestic sales of pure alcohol, we multiplied per capita domestic sales by the average percentage of alcohol contained for each type of beverage (5% for beer, 13% for table wines, 18% for other wines and 40% for tequila).

Table 5 shows that the domestic sales of alcoholic beverages in 2023 were 10,090.7 million liters, beer being the most consumed beverage. The average per capita domestic sales of alcohol were 103.5 liters and 6.1 liters of pure alcohol, higher than the data published by the World Health Organization of 4.8 liters of pure alcohol per capita for 2024.

Table 5. Domestic sales of alcoholic beverages in Mexico, 2023

Beverages	Sales	Exports	Imports	Domestic Sales	Population	Per capita domestic sales	Per capita domestic sales (pure alcohol)
Beer	14,158.0	4,429.5	29.3	9,757.8	97.5	100.1	5.0
Table Wines	17.8	0.8	64.1	81.1	97.5	0.8	0.1
Other wines	12.3	0.0	5.0	17.3	97.5	0.2	0.03
Tequila	316.9	82.4	0.0	234.5	97.5	2.4	1.0
Total	14,505	4,512.7	98.4	10,090.7	97.5	103.5	6.1

Own elaboration with data from the Monthly Survey of the Manufacturing Industry, Bank of Mexico, and the National Population Council. Sales, exports, imports in millions of liters. Population in millions of inhabitants. Apparent National Consumption per capita and per capita of pure alcohol in liters.

Data limitations

In general, sales are less underestimated compared to consumption. However, the limitation of the EMIM data for alcoholic beverages is that it represents classes and establishments that contribute most to the income of the alcoholic industry, so it is not representative of all beverages. For consumption, although the ENCODAT may not reflect the most recent consumption patterns as data were collected in 2016, the survey is representative at the national level and has a more adequate representation of the distribution of all beverages consumed. Therefore, we used consumption data to estimate changes in consumption and revenues.

8. Impact on prices, consumption and fiscal revenues

To estimate changes in prices associated with the proposed tax, we created a data set for alcoholic beverages using price data collected in the country to estimate the consumer price index ⁴⁵ and added from different sources the alcohol content for each product. Using the final price post taxes, we calculated tax shares for each tax component.

Post tax prices for the proposed tax were estimated as follows:

$$\text{Price post tax} = \text{Specific tax} + \text{minimum tax} + \text{ad valorem tax} + \text{retailer price} + \text{VAT}$$

$$\text{Price post tax} = (\text{Retail price} + \text{Specific tax} + \text{minimum tax} + \text{ad valorem tax}) * (1 + \text{VAT})$$

where the retail price is the price net of taxes and VAT is the value added tax of 16%.

The proposed taxes are calculated as follows

- Specific tax: \$750*percent alcohol*(volume/1000)
- Minimum tax: \$8*(volume/1000)
- Ad valorem: retail price*30%

Changes in prices are displayed in table 6

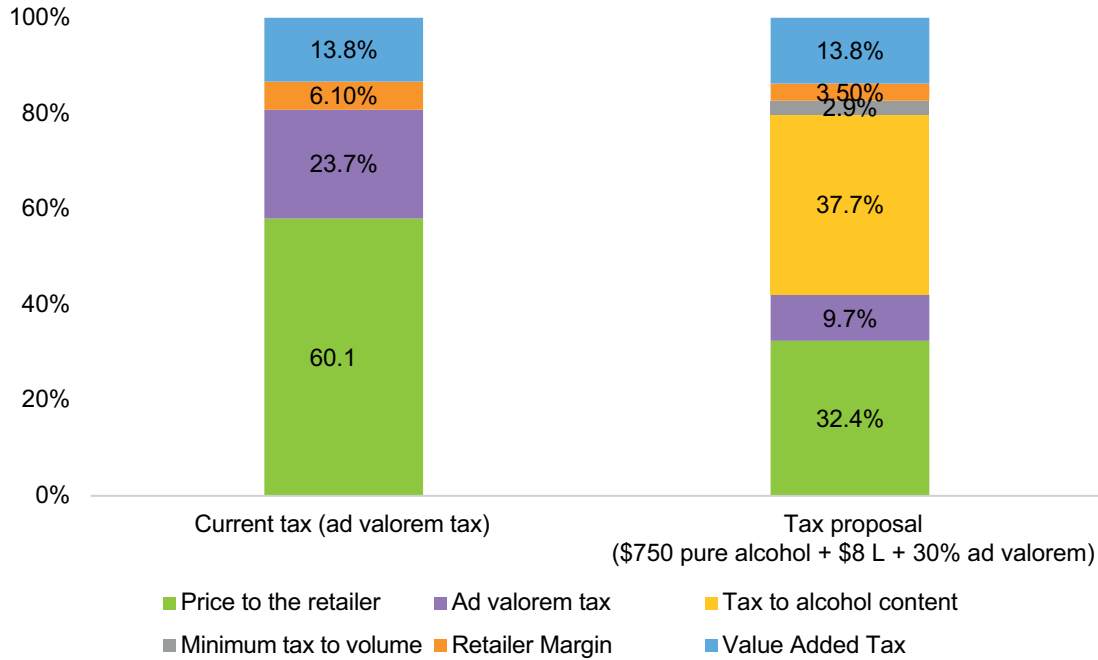
Table 6. Change prices of alcoholic beverage after a tax redesign

Type of beverages	Current prices	Price post tax	Change in price
Beer	\$48.3	\$100.4	107.8%
Coolers	\$61.1	\$105.2	72.1%
Wine	\$255.0	\$400.1	56.9%
Spirits	\$443.6	\$848.6	91.3%

Source: own elaboration

Price structure

Figure 7 illustrates the price breakdown for alcoholic beverages under both the current and proposed tax designs. Under the current system, the *ad valorem* tax accounts for an average of 23.7% of the retail price. In the proposed tax scenario, total taxes would comprise 50.3% of the retail price, with 37.7% attributed to the alcohol content tax, 9.7% from the *ad valorem* tax, and 2.9% from the minimum volume-based tax.



Source: own elaboration.

Figure 7. Price structure for alcoholic beverages: current and proposed tax

We estimated changes in consumption based on ENCODAT considering economic and population growth, income and price elasticities and changes in prices as well as fiscal revenues. To estimate changes in consumption, we used the following formula:

$$Consumption = (C * (1 + \Delta Ig * \epsilon_i) * (1 + \Delta pg)) * (1 + \Delta p * \epsilon_p),$$

Where C are current consumption, ΔIg is the per capita income growth (3.2%⁴⁶), ϵ_i is the income elasticity (0.39 for beer, 1.1 for wine, and 1 for spirits,⁴⁷ and 0.26 for coolers),⁴⁸ Δpg corresponds to the population growth (1.3%),⁴⁴ Δp is the change in price in and ϵ_p the price elasticity.

We used a price elasticity of demand for beer of -0.7 which is the 60th percentile of the estimated -0.5 price elasticity reported on Elder et. al review (2010).⁴⁹ We chose the 60th percentile because price elasticity estimations

for beer in Mexico are very high (around -1.0) compared to the reported price elasticities from the last two world-wide systematic reviews of price elasticities for beer that are considerably lower, ranging from -0.3 to -0.5. Price elasticities used for wine and spirits were -0.6 and -0.65⁵⁰ respectively and for coolers -0.58.⁵¹ Fiscal revenues were estimated by multiplying the estimated consumption by the tax.

Table 7 shows changes in relative and absolute consumption and tax revenues for the proposed scenario of \$750 per liter of pure alcohol + \$8 per liter + 30% ad valorem tax. For all alcoholic beverages, the proposed tax design leads to a 66.5% reduction in consumption from 7,444.5 to 2,496.8 millions of liters) and a 144% increase in total revenues (from \$73,686.9 to \$180,153 millions pesos)

Table 7. Impact of the proposed tax on consumption and fiscal revenues overall and by alcoholic beverage

Type of beverage	Consumption (millions of liters)	Absolute change in consumption	Relative change in consumption	Fiscal revenues (millions of pesos)	Absolute change in fiscal revenues	Relative change in fiscal revenue
Beer						
Current fiscal policy	5,608.1	-	-	\$41,035.9	-	-
\$750 per liter of pure alcohol + \$8 per liter + 30% ad valorem tax	1,411.7	-41,96.4	-74.8%	\$71,429.7	\$30,393.8	74.1%
Wine						
Current fiscal policy	454.2	-	-	\$14,952.4	-	-
\$750 per liter of pure alcohol + \$8 per liter + 30% ad valorem tax	313.7	-140.5	-30.9%	\$34,379.1	\$19,426.7	129.9%
Coolers						
Current fiscal policy	1086.1	-	-	\$7,947.1	-	-
\$750 per liter of pure alcohol + \$8 per liter + 30% ad valorem tax	645.5	-440.6	-40.6%	\$39,440.3	\$31,493.2	396.3%

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Spirits						
Current fiscal policy	296.2	-	-	\$9,751.5	-	-
\$750 per liter of pure alcohol + \$8 per liter + 30% ad valorem tax	125.9	-170.3	-57.5%	\$34,903.9	\$25,152.4	257.9%
Total						
Current fiscal policy	7,444.5	-	-	\$73,686.9	-	-
\$750 per liter of pure alcohol + \$8 per liter + 30% ad valorem tax	2,496.8	-4,947.8	-66.5%	\$180,153.0	\$106,466.1	144.5%

9. Recommendations

We propose a tax reform to **move from an ad valorem to a specific tax**. Specific taxes have several advantages compared to ad valorem taxes. Specific taxes are easier/less expensive to collect as often producers pay the taxes. There is more traceability (monitoring products throughout the supply chain to ensure tax compliance), less price dispersion, and substitutions. We propose a tax redesign with a strong component of a specific tax to pure alcohol content of \$750 pesos/liter of pure alcohol, a minimum tax of \$8 pesos per liter and a 30% ad valorem tax (tax base retailer price). Although the proposed tax is high and would lead a large increase in prices and a tax share from 25.4 to 50.7%, affordability of alcoholic beverages would significantly decrease.

With a tax reform that increases prices, substitution for low price beverages with high alcohol content might be a concern. However, the proposed tax reform increases prices of beverages with higher alcohol content. As beer is the most favored alcoholic beverage as it pays the lowest tax per pure alcohol, having the same rate raises the price of beer more than the rest of the alcoholic beverages. In contrast, for beverages that pay the largest amount per pure alcohol content, a fix rate to pure alcohol is associated to lower price increases.

As for the specific tax on sugar-sweetened beverages since 2019⁵², the law for this new specific tax on alcoholic beverages should contemplate at least **annual adjustments to inflation** for the specific tax components.

The **minimum value of 8 for the specific component** for all beverages would send a clear market signal to discourage binge drinking.

We recommend adding alcoholic beverages with added sugars (as some coolers) to the sugar-sweetened beverage tax. Although alcoholic beverages currently lack labels -no information on sugar content is displayed- efforts should be made to introduce them.

Supplemental material

Table S1. Ad valorem tax design in Mexico for alcoholic beverages	
Year	Description
1980	15% for beer; 15% for table wines, ciders with more than 14° GL; 40% for other alcoholic beverages not included in the previous categories.
1986	15% for beer; 19% for wines; 50% for other alcoholic beverages (spirits).
1989	25% for beer; 25% for wines; 50% for other alcoholic beverages (spirits).
2002	25% Beverages with alcoholic content up to 13.5° GL; 30% Beverage of 13.5° GL and up to 20° GL; 60% Beverages more than 20°GL.
2010	25% Beverages with alcoholic content up to 13.5° GL; 30% Beverage of 13.5° GL and up to 20° GL; 50% Beverages more than 20°GL.
2014	26.5% Beverages with alcoholic content up to 14° GL; 30% Beverage of 14° GL and up to 20° GL; 53% Beverages more than 20°GL.

Source: Own elaboration with data from the Special Tax Law on Production and Services

The law did not specify the tax base from 1980 to 1989, tax rates vary by type of beverages. From 2002, the law explicitly specifies the tax rates are related to the alcohol content measured on degrees of Gay Lussac (GL) but the three main groups remained with different/increasing tax rates remained (beer, wines and spirits). The ad valorem tax rate is determined as a percentage of the retail price (see supplemental material S1).

In 1980, the taxes were as follows: 15% for beer; 5% for table wines and ciders that with a temperature of 15° centigrade have a graduation up to 14° GL and rompopo up to 15° GL; 15% for table wines, ciders, and rompopo not included in the previous category, as well as flavored and generous wines and vermouths; 40% for other alcoholic beverages not included in the previous categories.²

In 1986, the law was modified for tax rates and classification of some beverages. Wines were unified in a single category and were taxed with a 19% rate. The rate of other alcoholic beverages (spirits) increased by 10 percentage points. In 1989, the tax rate for wines increased from 19 to 25%, beer 25%; table wines, flavored, generous and vermouths, ciders, rompopo 19%; alcohol, spirits, and other alcoholic beverages 50%.⁵³

In 2002, the tax structure was modified as follows: beverages with alcoholic content of up to 13.5° GL 25%; with an alcoholic graduation of more than 13.5° GL and up to 20° GL 30%; and finally, alcoholic beverages over 20°GL 60%⁵⁴. In 2010 the tax for beverages with more than 20° GL had a reduction from 60 to 50%⁵⁵. In 2013, the law was reformed and came into force in 2014.

Table S2.		
Fiscal revenues for alcoholic beverages in Mexico, 1990-2022		
Year	Beer and coolers	Alcoholic beverages
1990	14,872.9	15,171.2
1991	17,822.4	16,794.8
1992	18,836.7	14,719.8
1993	18,446.2	13,769.7
1994	18,754.8	13,849.3
1995	15,385.8	11,125.2
1996	18,675.2	8,546.7
1997	16,379.6	12,094.4
1998	22,217.5	15,132.4
1999	24,505.1	17,566.1
2000	26,279.3	-941.3 *
2001	28,086.5	11,063.3
2002	27,400.0	2,938.9
2003	28,337.3	8,713.2
2004	28,834.1	10,564.2
2005	29,666.6	10,126.1
2006	30,710.1	9,655.1
2007	30,687.7	10,847.7
2008	31,417.2	10,634.2
2009	32,225.5	9,662.2
2010	33,963.5	8,223.7
2011	34,660.0	10,234.8
2012	33,249.5	14,311.3
2013	35,558.7	16,184.5
2014	40,421.9	14,651.0
2015	41,493.3	18,580.9
2016	42,166.4	18,929.6
2017	43,380.4	18,491.2
2018	44,450.9	18,799.5
2019	47,454.3	17,586.2
2020	38,517.6	19,122.2
2021	38,888.3	20,636.0
2022	44,064.7	23,985.1
2023	51,690.8	26,069.5

Values in millions of pesos of 2022. Source: Ministry of Finance. Finanzas Oportunas SHCP: <http://presto.hacienda.gob.mx/EstoporLayout/estadisticas.jsp>

Figure S1.
Literature review diagram

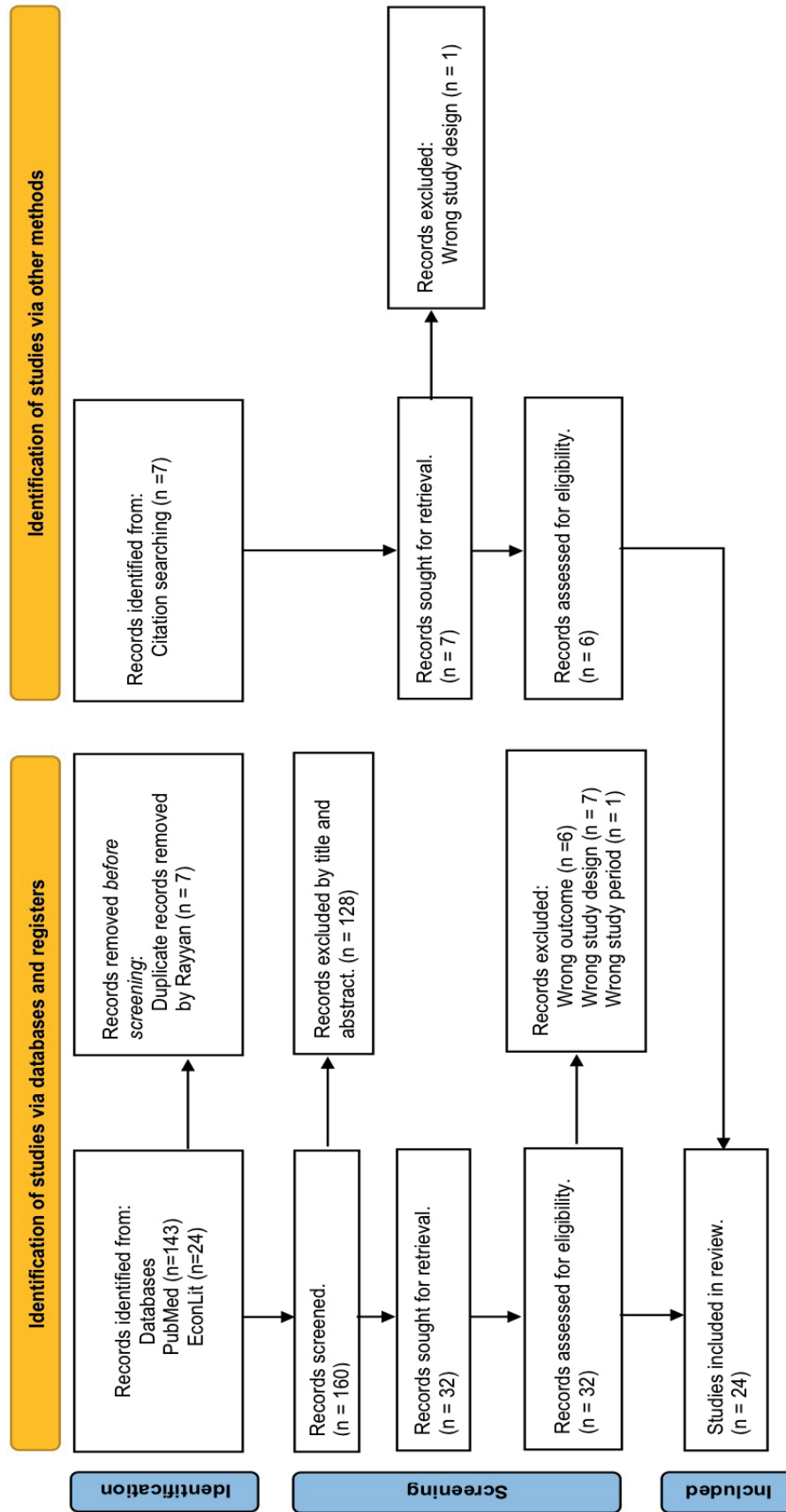


Table S3. Alcohol consumption of at least one drink in the last 12 months by type of beverage and consumption pattern				
Type beverage/ combination	Non-binge drinkers		Binge drinkers	
	Last year	Last month	Last month	Last week
One beverage				
Beer	44.3%	41.7%	39.8%	40.3%
Spirits	6.1%	4.5%	2.3%	0.8%
Wine	1.2%	0.6%	0.2%	0.0%
Coolers	0.9%	0.5%	0.2%	0.1%
Fermented or pure alcohol+	0.5%	0.4%	0.2%	0.3%
Total	52.9%	47.7%	42.5%	41.5%
Two beverages				
Beer and spirits	15.5%	17.4%	21.1%	16.9%
Beer and wine	3.4%	3.5%	2.4%	3.2%
Beer and coolers	2.4%	2.5%	2.0%	2.0%
Wine and spirits	0.9%	0.6%	0.4%	0.0%
Wine and coolers	0.2%	0.2%	0.0%	0.0%
Beer, fermented or pure alcohol	0.2%	0.3%	0.4%	0.7%
Total	22.6%	24.4%	26.3%	22.8%
Three or more beverages				
Beer, wine and spirits	4.3%	5.2%	5.7%	3.9%
Beer, wine and coolers	1.0%	1.1%	0.9%	1.1%
Beer, coolers and spirits	3.7%	4.7%	6.1%	6.8%
Beer, wine, coolers and spirits	2.8%	3.7%	4.9%	5.2%
Total	11.7%	14.8%	17.5%	17.0%
Others combinations	12.8%	13.2%	13.6%	18.7%

Own elaboration with data from the 2016 National Survey of Drug, Alcohol and Tobacco Consumption. +Fermented or pure alcohol were grouped as the prevalence was very small.

Table S4. Alcohol consumption of at least one drink in the last 12 months by type of beverage and consumption pattern by sex								
Type beverage/ combination	Non-binge drinkers				Binge drinkers			
	Last year		Last month		Last month		Last week	
	Women	Men	Women	Men	Women	Men	Women	Men
One beverage								
Beer	41.4%***	46.3%***	37.3%***	44.1%***	31.1%***	42.3%***	28.0%***	42.3%***
Spirits	8.5%***	4.4%***	6.9%***	3.3%***	2.9%	2.1%	0.7%	0.8%
Wine	1.9%***	0.7%***	1.0%***	0.3%***	0.2%	0.2%	0.0%	0.0%
Coolers	1.6%***	0.4%***	1.1%***	0.2%***	0.4%*	0.0%*	0.0%	0.1%
Fermented or pure alcohol+	0.5%	0.5%	0.3%	0.4%	0.0%*	0.2%*	0.3%	0.3%
Total	53.8%	52.2%	46.7%*	48.2%*	34.6%***	44.7%***	29.0%***	43.4%***
Two beverages								
Beer and spirits	5.6%***	10.0%***	15.6%*	18.4%*	19.4%	21.6%	14.0%	17.3%
Beer and wine	4.3%***	2.8%***	4.7%***	2.8%***	4.3%***	1.9%***	4.8%	3.0%
Beer and coolers	3.0%**	2.0%**	3.4%**	2.1%**	2.9%*	1.7%*	3.1%	1.8%
Wine and spirits	0.6%***	0.3%***	1.0%***	0.3%***	0.4%	0.4%	0.0%	0.0%
Wine and coolers	0.1%	0.1%	0.3%*	0.0%*	0.0%	0.0%	0.3%*	0.0%*
Beer, fermented or pure alcohol	0.0%*	0.2%*	0.0%*	0.4%***	0.0%***	0.5%***	0.0%***	0.9%***
Total	13.6%*	15.3%*	24.9%*	23.9%*	27.0%	26.1%	22.2%	23.0%
Three or more beverages								
Beer, wine and spirits	4.6%	4.1%	6.5%**	4.6%**	8.3%***	4.9%***	7.8%***	3.2%***
Beer, coolers and spirits	3.6%	3.7%	5.2%	4.5%	9.0%***	5.2%***	9.1%	6.4%
Beer wine and coolers	0.5%	0.5%	1.4%*	0.9%*	1.3%	0.8%	1.2%	1.1%
Beer, wine, coolers and spirits	2.6%	2.9%	3.9%	3.6%	7.8%***	4.1%***	8.4%**	4.7%**
Total	11.2%	11.2%	16.9%*	13.6%*	26.4%**	15.0%**	26.5%**	15.5%**
Other combinations								
Other combinations	21.4%	21.3%	11.6%	14.2%	12.0%	14.1%	22.3%	18.1%

Own elaboration with data from the National Survey of Drug, Alcohol and Tobacco Consumption 2016. +Fermented or pure alcohol were grouped as the prevalence was very small. Comparisons by sex were performed using Chi 2 test: * p<0.05, ** p<0.01, *** p<0.001.

Table S7.			
Per capita sales of alcoholic beverages per year (liters per capita). Mexico 2007-2022			
Year	Beer	Wine	Total
2007	83.4	0.7	84.1
2008	81.9	0.9	82.8
2009	85.5	0.8	86.3
2010	79.0	0.8	79.8
2011	79.0	0.8	79.8
2012	76.3	0.9	77.2
2013	74.0	0.9	74.9
2014	75.9	0.8	76.7
2015	81.2	0.9	82.1
2016	83.1	0.9	84.0
2017	87.7	0.8	88.5
2018	90.0	0.8	90.8
2019	91.7	0.8	92.4
2020	83.8	0.6	84.4
2021	102.5	0.3	102.8
2022	100.1	0.3	100.4

Own elaboration with data from the Monthly Survey of the Manufacturing Industry and National Population Council

References

1. National Institute of Psychiatry Ramón de la Fuente Muñoz NI of PHNCAA. Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016-2017: Reporte de Alcohol. 2017. Accessed April 20, 2021. https://encuestas.insp.mx/ena/encodat2017/reporte_encodat_alcohol_2016_2017.pdf
2. Cámara de Diputados del H. Congreso de la Unión. Ley del Impuesto Especial sobre la Producción y Servicios. Diario Oficial de la Federación. 1980. Accessed July 3, 2023. https://dof.gob.mx/nota_detalle.php?codigo=4862905&fecha=30/12/1980&print=true
3. Cámara de Diputados de la H. Congreso de la Unión. Reforma de la Ley del Impuesto Especial sobre la Producción y Servicios. *Diario Oficial de la Federación*. Published online 2013. Accessed July 3, 2023. https://www.dof.gob.mx/nota_detalle.php?codigo=5325371&fecha=11/12/2013#gsc.tab=0
4. Naimi TS, Daley JL, Xuan Z, Blanchette JG, Chaloupka FJ, Jernigan DH. Peer Reviewed: Who Would Pay for State Alcohol Tax Increases in the United States? *Prev Chronic Dis*. 2016;13(5). doi:10.5888/PCD13.150450
5. Sornpaisarn B, Kaewmunkun C, Rehm J. Assessing Patterns of Alcohol Taxes Produced by Various Types of Excise Tax Methods—A Simulation Study. *Alcohol and Alcoholism*. 2015;50(6):639-646. doi:10.1093/ALCALC/AGV065
6. Cobiac LJ, Mizdrak A, Wilson N. Cost-effectiveness of raising alcohol excise taxes to reduce the injury burden of road traffic crashes. *Injury Prevention*. 2019;25(5):421-427. doi:10.1136/INJURYPREV-2018-042914
7. Chalak A, Ghandour L, Anouti S, Nakkash R, Yassin N, Afifi R. The impact of broad-based vs targeted taxation on youth alcohol consumption in Lebanon. *Health Policy Plan*. 2020;35(6):625-634. doi:10.1093/HEAPOL/CZAA018
8. Ng CS, Au M, Ma R, Leung JYY, Quan J. The impact of alcohol pricing policies on public health in Hong Kong, China: A modelling study. *Lancet Reg Health West Pac*. 2022;26. doi:10.1016/J.LANWPC.2022.100510
9. Vandenberg B, Sharma A. Are Alcohol Taxation and Pricing Policies Regressive? Product-Level Effects of a Specific Tax and a Minimum Unit Price for Alcohol. *Alcohol and Alcoholism*. 2016;51(4):493-502. doi:10.1093/ALCALC/AGV133
10. Byrnes JM, Cobiac LJ, Doran CM, Vos T, Shakeshaft AP. Cost-effectiveness of volumetric alcohol taxation in Australia. *Medical Journal of Australia*. 2010;192(8):439-443. doi:10.5694/J.1326-5377.2010.TB03581.X
11. Chonvihampan B, LEWIS P. The net benefit of increasing alcohol taxation in Thailand. *eJournal of Tax Research*. 2016;14(1):148-165.
12. Daley JL, Stahre MA, Chaloupka FJ, Naimi TS. The Impact of a 25 Cent-Per-Drink Alcohol Tax Increase: Who Pays the Tab? *Am J Prev Med*. 2012;42(4):382. doi:10.1016/J.AMEPRE.2011.12.008
13. Sornpaisarn B, Shield KD, Rehm J. Alcohol taxation policy in Thailand: implications for other low- to middle-income countries. *Addiction*. 2012;107(8):1372-1384. doi:10.1111/J.1360-0443.2011.03681.X
14. Vandenberg B, Jiang H, Livingston M. Effects of changes to the taxation of beer on alcohol consumption and government revenue in Australia. *International Journal of Drug Policy*. 2019;70:1-7. doi:10.1016/J.DRUGPO.2019.04.012
15. Xuan Z, Chaloupka FJ, Blanchette JG, et al. The relationship between alcohol taxes and binge drinking: evaluating new tax measures incorporating multiple tax and beverage types. *Addiction (Abingdon, England)*. 2015;110(3):441. doi:10.1111/ADD.12818
16. Wagenaar AC, Salois MJ, Komro KA. Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. *Addiction*. 2009;104(2):179-190. doi:10.1111/J.1360-0443.2008.02438.X
17. Chikritzhs TN, Dietze PM, Allsop SJ, Daube MM, Hall WD, Kypri K. The “alcopops” tax: heading in the right direction. *Medical Journal of Australia*. 2009;190(6):294-295. doi:10.5694/J.1326-5377.2009.TB02415.X
18. Saffer H, Gehrsitz M, Grossman M. The Effects of Alcohol Excise Tax Increases by Drinking Level and by Income Level. Published online May 30, 2022. doi:10.3386/W30097
19. Gehrsitz M, Saffer H, Grossman M. The Effect of Changes in Alcohol Tax Differentials on Alcohol Consumption. *J Public Econ*. 2021;204. doi:10.1016/J.JPUBECO.2021.104520

20. Dee TS. State alcohol policies, teen drinking and traffic fatalities. *J Public Econ*. 1999;72(2):289-315. doi:10.1016/S0047-2727(98)00093-0
21. Helakorpi S, Mäkelä P, Uutela A. Alcohol Consumption before and after a Significant Reduction of Alcohol Prices in 2004 in Finland: Were the Effects Different across Population Subgroups? *Alcohol and Alcoholism*. 2010;45(3):286-292. doi:10.1093/ALCALC/AGQ007
22. Nelson JP. How similar are youth and adult alcohol behaviors? panel results for excise taxes and outlet density. *Atlantic Economic Journal*. 2008;36(1):89-104. doi:10.1007/S11293-007-9106-6/METRICS
23. Alexeev S, Weatherburn D. The Australian ready-to-drink beverages tax missed its target age group. *International Journal of Drug Policy*. 2021;95:103399. doi:10.1016/J.DRUGPO.2021.103399
24. Mäkelä P, Bloomfield K, Gustafsson NK, Huhtanen P, Room R. Changes in volume of drinking after changes in alcohol taxes and travellers' allowances: results from a panel study. *Addiction*. 2008;103(2):181-191. doi:10.1111/J.1360-0443.2007.02049.X
25. Grittner U, Gustafsson NK, Bloomfield K. Changes in alcohol consumption in Denmark after the tax reduction on spirits. *Eur Addict Res*. 2009;15(4):216. doi:10.1159/000239415
26. Gustafsson NKJ. Alcohol Consumption in Southern Sweden after Major Decreases in Danish Spirits Taxes and Increases in Swedish Travellers' Quotas. *Eur Addict Res*. 2010;16(3):152. doi:10.1159/000314358
27. Room R, Bloomfield K, Gmel G, et al. What happened to alcohol consumption and problems in the Nordic countries when alcohol taxes were decreased and borders opened? *Int J Alcohol Drug Res*. 2013;2(1):77-87. doi:10.7895/IJADR.V2I1.58
28. World Bank. Total alcohol consumption per capita (liters of pure alcohol, expected estimates, over 15 years). 2018. Accessed July 10, 2023. <https://datos.bancomundial.org/indicador/SH.ALC.PCAP.LI?locations=MX>
29. World Health Organization. Total per capita (15+) consumption, projections to 2020 and 2025. WHO. Accessed July 10, 2023. <https://apps.who.int/gho/data/node.main.A1041?lang=en>
30. Salud OP de la. Informe sobre la situación del alcohol y la salud en la Región de las Américas 2020. Published online April 12, 2021. Accessed January 24, 2023. <https://iris.paho.org/handle/10665.2/53579>
31. World Health Organization. Alcohol. 2018. Accessed September 6, 2021. <https://www.who.int/news-room/fact-sheets/detail/alcohol>
32. National Institute of Statistic and Geography. Encuesta Mensual de la Industria Manufacturera. Síntesis metodológica, serie 2013. 2019. Accessed January 17, 2023. www.inegi.org.mx
33. National Population Council. Proyecciones de la Población de los Municipios de México. 2015. Accessed June 22, 2022. <https://www.gob.mx/conapo/documentos/proyecciones-de-la-poblacion-de-los-municipios-de-mexico-2015-2030>
34. Banco de México. Balanza comercial. Series por Producto. Accessed December 14, 2023. <https://www.banxico.org.mx/CuboComercioExterior/Volumen/seriesproducto>
35. Colchero M.A., Quiroz-Reyes J.A, Vargas-Flores A. Reporte: Impuestos al alcohol en México. *Pan American Health Organization*. Published online 2021.
36. National Institute of Statistics and Geography. Precios Promedio. 2018. Accessed June 6, 2021. <https://www.inegi.org.mx/app/preciospromedio/>
37. World Health Organization. *A Public Health Perspective on Zero- and Low-Alcohol Beverages*. Brief 10.; 2023.
38. Anderson K. The emergence of lower-alcohol beverages: The case of beer. *Journal of Wine Economics*. 2023;18(1):66-86. doi:10.1017/jwe.2023.8
39. Secretaría de Salud. *NORMA Oficial Mexicana NOM-142-SSA1/SCFI-2014, Bebidas Alcohólicas. Especificaciones Sanitarias. Etiquetado Sanitario y Comercial*. Diario Oficial de la Federación; 2015. Accessed September 3, 2024. https://www.dof.gob.mx/nota_detalle.php?codigo=5386313&fecha=23/03/2015#gsc.tab=0
40. Cámara de Diputados del H. Congreso de la Unión. *Ley General de Salud*. DOF; 2024:1-357. Accessed September 3, 2024. <https://www.diputados.gob.mx/LeyesBiblio/pdf/LGS.pdf>
41. Department of Mental Health and Substance Dependence ND and MHClusterWHO. *International Guide for Monitoring Alcohol Consumption and Related Harm*.; 2000.

42. Villatoro-Velázquez JA, Reséndiz Escobar E, Mujica Salazar A, Bretón Cirett M, et al. *Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016 - 2017: Reporte de Alcohol*; 2017.
43. National Institute of Statistic and Geography. Sistema de Clasificación Industrial de América del Norte. 2013. Accessed January 16, 2023. <https://www.inegi.org.mx/app/biblioteca/ficha.html?upc=702825051693>
44. National Population Council. Proyecciones de la Población de los Municipios de México, 2015-2030. 2023. Accessed January 17, 2023. <https://www.gob.mx/conapo/documentos/proyecciones-de-la-poblacion-de-los-municipios-de-mexico-2015-2030>
45. Instituto Nacional de Estadística y Geografía. Consulta de Precios Promedio. 2021. Accessed November 24, 2021. <https://www.inegi.org.mx/app/preciospromedio/?bs=18>
46. PIB per cápita (US\$ a precios actuales) | Data. Accessed March 24, 2024. <https://datos.bancomundial.org/indicador/NY.GDP.PCAPCD>
47. Gallet CA, Gallet CA. The demand for alcohol: a meta-analysis of elasticities*. *Australian Journal of Agricultural and Resource Economics*. 2007;51(2):121-135. doi:10.1111/J.1467-8489.2007.00365.X
48. Collis J, Grayson A, Johal S. *Econometric Analysis of Alcohol Consumption in the UK*; 2010. Accessed January 17, 2023. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/331614/alcohol-consumption-uk.pdf
49. Elder RW, Lawrence B, Ferguson A, et al. The Effectiveness of Tax Policy Interventions for Reducing Excessive Alcohol Consumption and Related Harms. *Am J Prev Med*. 2010;38(2):217-229. doi:10.1016/j.amepre.2009.11.005
50. Guindon GE, Zhao K, Fatima T, et al. Prices, taxes and alcohol use: a systematic umbrella review. *Addiction*. 2022;117(12):3004-3023. doi:10.1111/ADD.15966
51. Meng Y, Brennan A, Purshouse R, et al. Estimation of own and cross price elasticities of alcohol demand in the UK—A pseudo-panel approach using the Living Costs and Food Survey 2001–2009. *J Health Econ*. 2014;34:96-103. doi:10.1016/j.jhealeco.2013.12.006
52. Cámara de Diputados del H. Congreso de la Unión. *Decreto Por El Que Se Reforman, Adicionan y Derogan Diversas Disposiciones Del Código Fiscal de La Federación*; 2013.
53. Cámara de Diputados del H. Congreso de la Unión. Ley del Impuesto Especial Sobre la Producción y Servicios. *Diario Oficial de la Federación*. Published online 2021. Accessed July 3, 2023. <https://www.diputados.gob.mx/LeyesBiblio/pdf/LIEPS.pdf>
54. Cámara de Diputados del H. Congreso de la Unión. Ley del Impuesto Especial sobre la Producción y Servicios. *Diario Oficial de la Federación*. 2002. Accessed July 3, 2023. https://dof.gob.mx/nota_detalle.php?codigo=737409&fecha=01/01/2002&print=true
55. Cámara de Diputados del H. Congreso de la Unión. Ley del Impuesto Especial sobre la Producción y Servicios. *Diario Oficial de la Federación*. Published online 2009. Accessed July 3, 2023. <http://www.ordenjuridico.gob.mx/Federal/Combo/L-77.pdf>
56. Barrera-Núñez DA, Rengifo-Reina HA, López-Olmedo N, Barrientos-Gutiérrez T, Reynales-Shigematsu LM. Cambios en los patrones de consumo de alcohol y tabaco antes y durante la pandemia de Covid-19. *Ensanut 2018 y 2020. Salud Publica Mex*. 2022;64(2):137-147. doi:10.21149/12846
57. Ramírez-Toscano Y, Canto-Osorio F, Carnalla M, et al. Patrones de consumo de alcohol en adolescentes y adultos mexicanos: Ensanut Continua 2022. *Salud Publica Mex*. 2023;65:s75-s83. doi:10.21149/14817
58. World Health Organization. SAFER. Pricing policies on alcohol. 2020. Accessed November 10, 2022. <https://www.who.int/initiatives/SAFER/pricing-policies>
59. Chaloupka FJ, Powell LM, Warner KE. The Use of Excise Taxes to Reduce Tobacco, Alcohol, and Sugary Beverage Consumption. <https://doi.org/10.1146/annurev-publhealth-040218-043816>. 2019;40:187-201. doi:10.1146/ANNUREV-PUBLHEALTH-040218-043816
60. Moreno-Aguilar LA, Guerrero-López CM, Colchero MA, Quezada-Sánchez AD, Bautista-Arredondo S. Elasticidad precio y elasticidad ingreso de la demanda de cerveza en México. *Salud Publica Mex*. 2021;63(4):575-582. doi:10.21149/12026

61. Catalán H, Moreno E. Consumo de bebidas alcohólicas en México. Un enfoque de adicción racional. *Economía Informa*. 2016;399(julio-agosto):16-33.
62. Garritty C, Gartlehner G, Nussbaumer-Streit B, et al. Cochrane Rapid Reviews Methods Group offers evidence-informed guidance to conduct rapid reviews. *J Clin Epidemiol*. 2021;130:13-22. doi:10.1016/j.jclinepi.2020.10.007
63. International guide for monitoring alcohol consumption and related harm. Accessed September 13, 2023. <https://apps.who.int/iris/handle/10665/66529>
64. Shield K, Manthey J, Rylett M, et al. National, regional, and global burdens of disease from 2000 to 2016 attributable to alcohol use: a comparative risk assessment study. *Lancet Public Health*. 2020;5(1):e51-e61. doi:10.1016/S2468-2667(19)30231-2
65. Esser MB, Sherk A, Subbaraman MS, et al. Improving Estimates of Alcohol-Attributable Deaths in the United States: Impact of Adjusting for the Underreporting of Alcohol Consumption. <https://doi.org/10.15288/jsad202283134>. 2022;83(3):134-144. doi:10.15288/JSAD.2022.83.134
66. General Directorate of Health Information (DGIS). Health Information Systems, Ministry of Health (SSA). Accessed September 18, 2023. http://www.dgis.salud.gob.mx/contenidos/basesdedatos/Datos_Abiertos_gobmx.html
67. General Directorate of Health Information (DGIS). Health Information Systems, Ministry of Health (SSA). Accessed September 13, 2023. http://www.dgis.salud.gob.mx/contenidos/basesdedatos/Datos_Abiertos_gobmx.html
68. National Institute of Statistics and Geography (INEGI). Demographic and Social Information Subsystem. Accessed September 13, 2023. <https://www.inegi.org.mx/programas/mortalidad/?ps=Microdatos#microdatos>
69. Camacho-García-Formentí DZTR. Introduction to the pifpaf package: Estimating Potential Impact and Population Attributable Fractions from Cross-Sectional data.
70. Taguri M, Matsuyama Y, Ohashi Y, Harada A, Ueshima H. Doubly robust estimation of the generalized impact fraction. *Biostatistics*. 2012;13(3):455-467. doi:10.1093/BIOSTATISTICS/KXR038
71. Sterne JAC, White IR, Carlin JB, et al. Multiple imputation for missing data in epidemiological and clinical research: potential and pitfalls. *BMJ*. 2009;338(jun29 1):b2393-b2393. doi:10.1136/bmj.b2393