City and County of San Francisco

Office of the Controller – Office of Economic Analysis

Tax on Sugar-Sweetened Beverages to Fund Food and Health Programs

Office of Economic Analysis
July 14th, 2014

Item #140098

Introduction

- The proposed motion would place a dedicated $0.02 per ounce tax on sugar-sweetened beverages on the November 2014 ballot.
- The tax would apply to businesses who distribute these beverages into the city, not to the consumers who purchase them at restaurants or retail stores.
- Because the tax would dedicate funding to food and health programs, a two-thirds majority of San Francisco voters would be required in order for the ballot measure to pass.
- The Controller's Office of Economic Analysis (OEA) has determined this tax could have a material impact on San Francisco's economy.

Health Impacts

- There is a strong body of academic literature supporting the link between soda consumption and obesity, as well as other health problems, such as diabetes.[1,2,3,4]
- Research also suggests that a tax such as the one being proposed will have a meaningful reduction in consumption of sugary drinks and caloric intake from SSBs.[5,6,7,8]
- However, in order for this tax to have an impact on obesity, increased taxation would need to result in a reduction in overall caloric intake, and not a substitution to calories from other sources. Some research suggests that some or all of the reduction in caloric intake due to SSB taxes would be offset by increases in consumption of other high calorie food and drinks.[8,9,10,11]
- The proposed legislation calls for revenue to be used on health and education programs that promote healthier food and beverage choices and more physical activity. Research has shown these types of programs have the potential to be effective in reducing the prevalence of obesity.[12,13]
- The economic impacts of a reduction in obesity would likely be seen over a longer period of time through a reduction in direct health costs, as well as the reduction in indirect costs of lost wages and productivity due to health issues, lower insurance costs, and a re-allocation of that spending on other goods.[14,15,16]

Income, Education, and Consumption of Sugar-Sweetened Beverages

- Sugar-sweetened beverage consumption grew dramatically between the 1980's and 1990's in the United States.[17] Over the last decade, there has been an overall decline in per capita consumption, but not back to 1990 levels.[18]
- A national study by the Chicago Federal Reserve Bank shows that less-educated and poor populations allocate a larger proportion of their spending on sugar-sweetened beverages than other groups.[19]
- That study estimated that SSBs make up .33% of total spending for the average household. This share is much higher for those with less than a high school education and those under the poverty line at .53% and .50% respectively.[19]
- Caloric intake also varies by population group. Individuals in households with a high school diploma or less get over twice the proportion of their daily calories from sugar-sweetened beverages than those in college graduate households (7.4% to 3.3% respectively).[19]
- Those below the poverty line also get a much larger share of their daily calories from sugar-sweetened beverages at 9.0%.[19]

Important Terms in the Legislation

- The tax would apply to certain sales of *sugar-sweetened beverages* and *concentrate* (collectively, "SSBs") within San Francisco.
- The privilege of conducting an *initial distribution* of an SSB within San Francisco would be taxed.
- A *distributor* would be required to pay the tax.
- These terms are discussed on the next three pages.

Definition of Sugar-Sweetened Beverage

- *Sugar-sweetened beverages* are defined as non-alcoholic, non-diet beverages that have caloric sweeteners, and contain more than 25 calories per 12 ounces of beverage.
- Excluded from this definition are:
  - Sweetened beverages with fewer than 25 calories per 12 ounces, regardless of ingredient.
  - Milk and milk alternatives, including non-dairy creamers.
  - Any beverage that contains solely of 100% natural fruit juice, natural vegetable juice, or combined natural fruit and vegetable juice.
  - Infant formula.
  - Medical food.
  - Any product designed as supplemental, meal replacement, or sole-source nutrition that includes proteins, carbohydrates, and multiple vitamins and minerals.
  - Any product sold in liquid form designed for use as an oral nutritional therapy for persons with limited ability to absorb or metabolize dietary nutrients from traditional food or beverages.
  - Any product sold in liquid form designed for use for weight reduction.

Definition of Concentrate

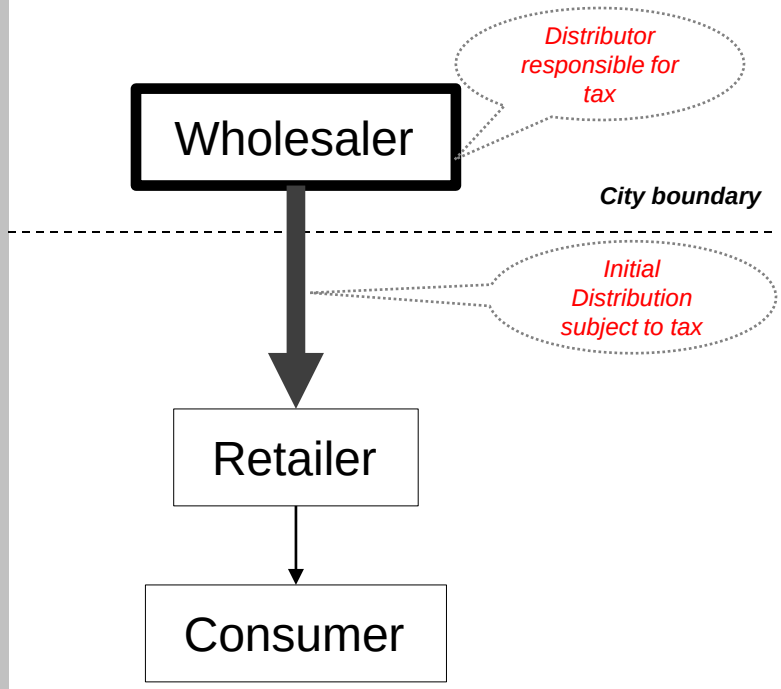
- *Concentrate* is defined as a syrup or sweetened caloric powder, that is used for mixing, compounding, or making sugar-sweetened beverages in a beverage dispensing machine.
- This definition does not include:
  - Any product that is designed to be used primarily to prepare coffee or tea.
  - Powdered drink mix used by consumers.
  - Infant formula.
  - Medical food.
  - Any product designed as supplemental, meal replacement, or sole-source nutrition that includes proteins, carbohydrates, and multiple vitamins and minerals.

Definition of Initial Distribution

- *Distribution* means:
  - The physical transfer of SSBs within the City for sale, by anyone other than a common carrier*.
  - Possessing, for the purpose of resale, SSBs transferred outside of the city, or from a common carrier within the city.
- In effect, initial distribution generally means the first sale within San Francisco of SSBs to retailers, restaurants, and other businesses.
- In addition, a business that acquires SSBs outside of the city, and brings them into the city for resale, has made an initial distribution.
- After a taxable transfer, any subsequent transfer to another business would not be taxed. Only the initial distribution is taxed.
- A sale to a consumer is never considered a distribution, and is never subject to the tax.
- Any business that makes a distribution, as defined above, is a *Distributor* and would be responsible for paying the tax on an initial distribution.
- Some examples of initial distributions are provided on the following five pages.

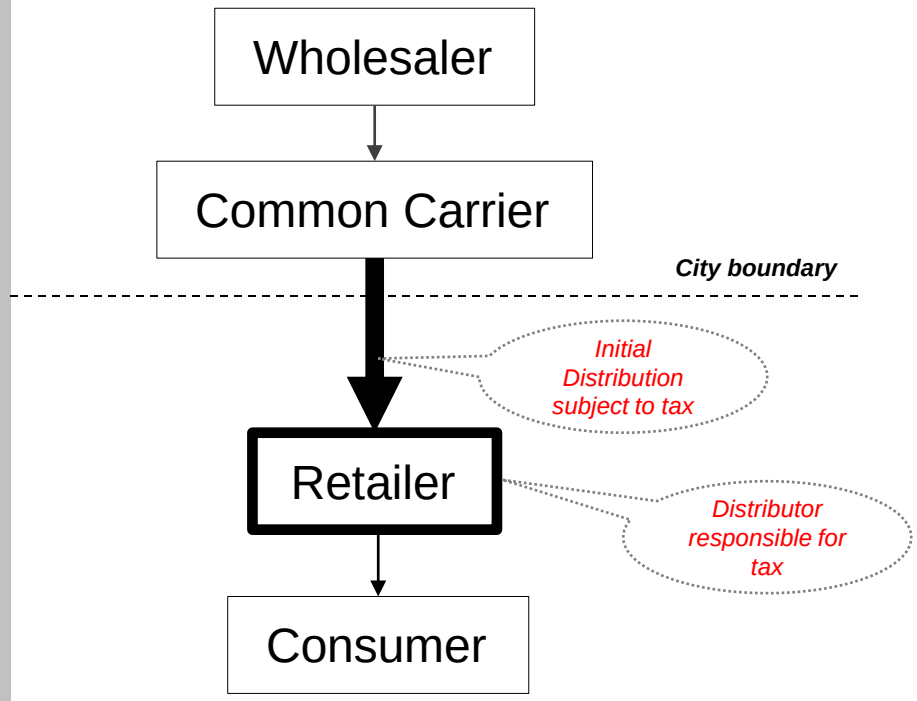
* A common carrier is a third-party delivery service that does not sell the items it delivers.

Example: A Wholesaler Outside the City Delivers SSBs Directly to a Retailer Inside the City



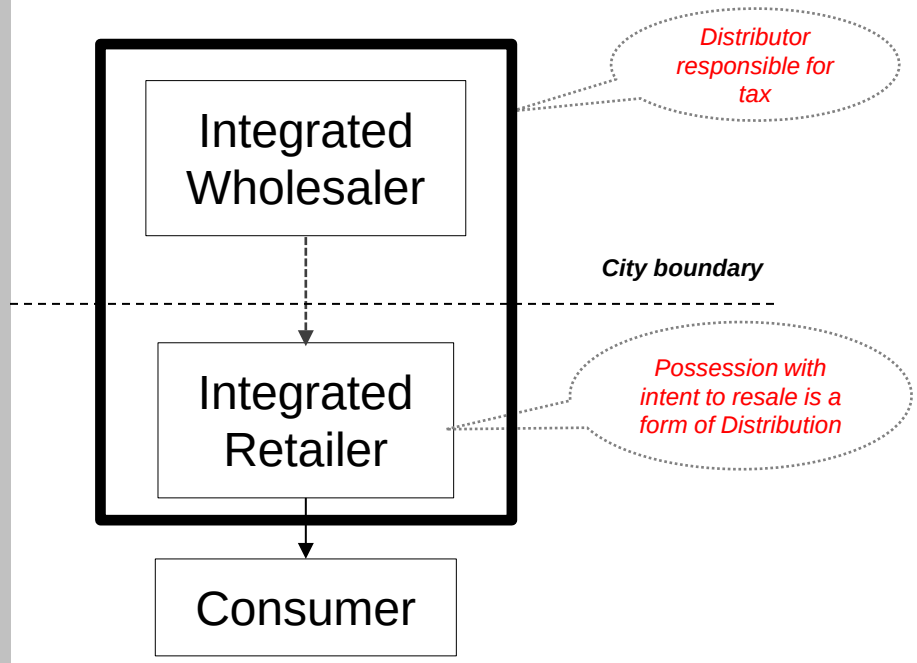
If a wholesaler from outside of the city delivers SSBs to a retailer in the City using its own truck, then the wholesaler would be considered the distributor, and would be responsible for paying the tax. The transfer to the consumer would not be taxed.

Example: A Wholesaler Outside the City Uses a Common Carrier to Deliver SSBs to a Retailer Inside the City



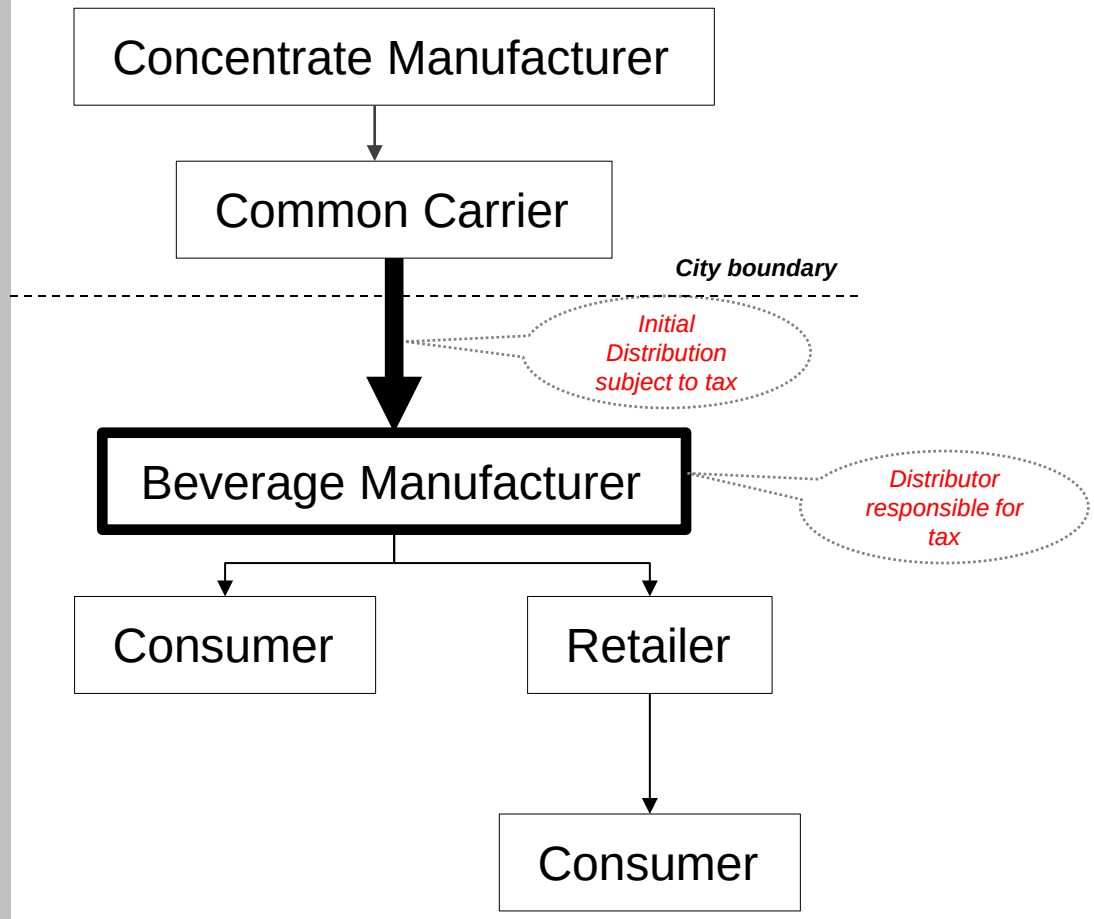
If a wholesaler instead uses a common carrier to transfer the SSBs into the city, the recipient (in this case a retailer) would be responsible for paying the tax. Again, the transfer to the consumer is not taxed.

Example: A Vertically-Integrated Retailer Obtains SSBs from a Related Wholesaler Outside the City



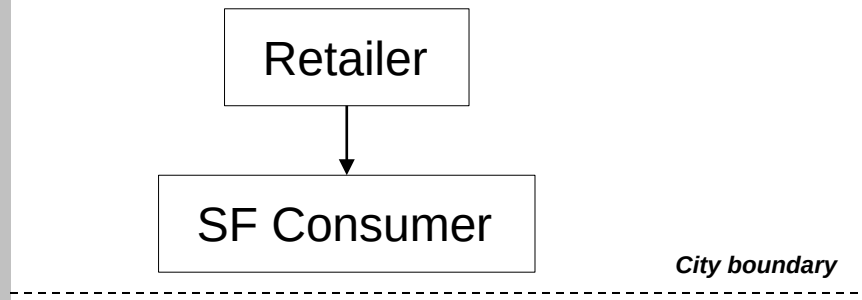
If the wholesaler and retailer are vertically integrated within the same company, there is no sale of SSBs from the wholesaler to the retailer. A distribution has nonetheless taken place, by virtue of the retailer's possession of SSBs within the city, with an intent to re-sell. The vertically-integrated wholesaler/distributor is responsible for paying the tax.

Example: A Beverage Manufacturer in the City sells Sugar-Sweetened Beverages to Retailers and Directly to Consumers



In this case, it is the distribution of concentrate to the beverage manufacturer that is taxable. If a common carrier is used, the responsibility for paying the tax falls to the manufacturer. Subsequent transfers to retailers and consumers are not taxed.

Example: A Consumer Travels Outside of the City to Purchase SSBs For Personal Use Within the City



In this case, the transfer takes place outside of the city, and while the consumer does possess the SSBs within the city, that possession is not for the purpose of resale.

Therefore, no distribution takes place as defined in the legislation, and there is no tax liability.

Details of the Tax

- The ballot measure would place a tax of $0.02 per fluid ounce on the initial distribution of each sugar-sweetened beverage in the city.
- The tax would also place a tax on the initial distribution of any concentrate in the city. Concentrate would be taxed at $0.02 per fluid ounce of beverage that could be made from the concentrate, using manufacturer's instructions.
- If multiple concentrates are used in the preparation of a single beverage, the distribution of each concentrate into the city would taxed separately.

Expenditure of Tax Revenue

- Net of administrative costs, the tax will be dedicated as follows:
  - 40% will go to the San Francisco Unified School District for student nutrition services, school-based gardens, nutrition classes, and cooking classes, teacher training and curricular support in nutrition education programs, and after school programs, and expansion and improvement of physical education.
  - 25% will go to the Department of Public Health and the Public Utilities Commission for healthy food access initiatives, drinking fountain and water bottle filling stations, oral health services, chronic disease prevention, and public education campaigns.
  - 25% will go to the Recreation and Park Department for recreation centers, organized sports, and athletic programming.
  - 10% will fund grants to community-based organizations for programs that support healthy food access, active recreation, oral health, and chronic disease prevention, and for public education campaigns.
- 2% of the revenue will be used for administration of the tax.

Economic Impact Factors

- The tax can be expected to impact the San Francisco economy in the following ways:
  - The tax will raise the wholesale price of SSBs paid by restaurants, retailers, and other vendors that sell SSBs to consumers. This will reduce their income.
  - To restore their income, businesses may, in turn, pass the cost of the tax on to consumers in the form of higher prices for SSBs, and possibly other items.
  - Higher consumer prices will reduce consumption, causing consumers to shift their spending to other goods.
  - The tax revenue will increase city revenue and spending.
  - Over the long term, the reduction in consumption of SSBs could reduce overall caloric consumption in San Francisco, along with obesity, illness, and the costs of public and private health care. These potential economic benefits are not quantified in this report, however.

How the Tax Would Affect Businesses and Consumers

- As the tax is levied on businesses, these payers would have to pass the the tax through to consumers of SSBs in order for it to have an effect on consumer behavior.
- The legislation does not mandate any pass-through, and it would be accomplished through market forces.
- The extent of any pass-through will depend partly on the price sensitivity of consumers, but also on how sensitive distributors' costs are to SSB sales. If distributors cannot easily replace lost SSB sales, or reduce their costs in line with lost SSB sales, they may absorb a share of the tax instead of passing it through.
- The OEA lacks sufficient data about distributors' costs to estimate this. We estimate that SSBs account for approximately 3% of sales of food retailers in San Francisco, and less than 3% of restaurant sales.
- A reduction in SSB sales is therefore unlikely to substantially reduce retailer margins, on average. Retailers can also stock other items on their shelves, and restaurants can serve other beverages, as they typically would in response to a change in consumer demand.
- Accordingly, the majority of distributors affected by the tax are likely to fully pass it on to consumers in the form of higher prices.

Would SSB Consumers, or All Consumers, Get the Pass-Through?

- It is possible that some businesses may elect to spread the tax across all consumers, instead of only to purchasers of SSBs, through an across-the-board price increase.
- Businesses may do that if SSBs are more profitable than other items that they sell, or if consumers are more price-sensitive to SSBs than they are to other products.
- These same considerations apply to distributors whose customers are other businesses, such as wholesale distributors.
- To the extent this occurs, consumers will have less incentive to reduce SSB consumption, and tax revenue would be higher than it would have been with a full pass-through to SSB customers only.
- In this case as well, the OEA lacks the data to accurately estimate how many distributors would attempt to spread the tax burden across all customers. The fact that the tax is high – representing a 23-36% retail price increase as discussed on the next page – suggests that SSB retailing would be significantly less profitable activity if the tax were not fully passed through to SSB consumers.
- Moreover, the elasticity of demand of SSBs (also discussed on the next page) is not unusually high or low.
- These facts suggest that most distributors will probably focus their pass-through to SSB consumers, and not attempt an across-the-board pass-through.

Estimating Tax Revenue

- As discussed in the Appendix, the OEA believes that between 2.6 and 3.2 billion ounces of SSBs are consumed in San Francisco each year.
- The average retail price per ounce is estimated to range between $0.06 and $0.075.
- A $0.02 per ounce tax would therefore raise the retail price of SSBs by between 23% and 36% (including sales tax, where applicable), if it were fully passed through to SSB consumers.
- Given the considerations discussed on the previous two slides, the OEA believes the pass-through to SSB consumers will be between 80% - 100%.
- Economic research on the price elasticity of SSB demand indicates that it likely ranges between -0.8 and -1.2, meaning a 1% increase in price yields a reduction in consumption of between 0.8% and 1.2%.
- Given these factors, the OEA believes the proposed tax would generate revenue ranging from $35 million to $54 million per year, in today's dollars.
- In addition, because higher prices will affect taxable sales, the City and other local agencies could receive a very small increase or decrease in sales tax revenue, estimated at less than $0.2 million.

Economic Impact Assessment: REMI Model Simulation

- The OEA's REMI model was used to simulate the effects of the proposed tax on San Francisco's economy.
- The model considered the following ranges of potential changes to the city's economy, based on on the range of revenue estimates presented on the previous page:
  - Between -$22.1 million and -$29.4 million change in consumer purchases of SSBs at retailers.
  - Between -$14.1 million and -$18.8 million change in consumer purchases of SSBs at restaurants.
  - Between $12.8 million and -$7.0 million in other consumer spending
  - Between $0 and $6.6 million in higher production costs at retail trade businesses
  - Between $0 and $4.2 million in higher production costs at food service businesses.
  - Between $35 million and $54 million in higher city revenue
  - A loss of consumer utility valued at between $0 and $6.5 million.
  - A loss of distributor profits valued at between $0 and $1.6 million.
- The other consumer spending results from consumers shifting their spending in response to SSB price changes.
- The increase in production costs to businesses reflects the possibility that some businesses may not fully pass through the tax to consumers.

Economic Impact Assessment

- The OEA projects that the proposed tax on SSBs would be effective in reducing SSB consumption in San Francisco. Consumption could decline by up to 31% as a result of the tax, if it is fully passed through to consumers.
- In the short term, the OEA estimates a very slight employment loss of between 80 and 250 jobs, equaling between 0.01% and 0.04% of total employment in the city.
- Jobs supported by the tax, with the City or its contractors, will grow by an estimated 110 – 150. These gains will partially offset private sector losses, concentrated in the restaurant and retail trade industries, of between 190 and 400.

Tax Equity and Stability

- Some SSB consumers can be expected to change their behavior, in response to the tax, and hence would benefit from reduced risk of future health problems.
- Those SSB consumers who do not change their behavior will bear the burden of the tax, and have their income reduced.
- As stated earlier, SSBs are disproportionately consumed by low income and less-educated populations.
- The programs being funded by the tax will target these groups. The overall impact on low-income San Franciscans will depend on the effectiveness of these programs, and the behavior of SSB consumers.
- In terms of revenue stability, recent national trends show a steady decline in the consumption of sugar-sweetened beverages. If these trends continue, then over time this tax will be a shrinking revenue stream.

Conclusion

- The robust reduction in SSB consumption that the tax is projected to cause suggests the City can expect a reduction in future obesity rates, and long-term economic benefits associated with higher productivity and lower health-care costs.
- As this is a new tax, and limited data is available to understand how a tax on distributors will be passed through to consumers, revenue estimates will necessarily be uncertain. Reasonable assumptions lead to estimates ranging from $35 million to $52 million per year.
- The proposed tax is expected to have a modest employment impact of between 0.01% and 0.04% of city employment. Losses in the private sector, concentrated in the restaurant and retail trade industries, will largely be offset by jobs supported directly and indirectly by the tax revenue.
- Like any flat tax targeting items that are disproportionately consumed by lower-income people, the tax could be seen as regressive. However, both the programs and services supported by the tax revenue, and the long-term health and economic benefits, will also be primarily realized by low-income groups.

End Notes

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Appendix: Consumption and Price Estimates

Assumptions	Low Consumption Estimate	High Consumption Estimate
SSB Price per Ounce (2013 dollars)[a]	$0.075	$0.060
SSB Revenue (millions, 2013 dollars)[b]	$192	$192
SSB Consumption (million of ounces)[c]	2,556	3,195

a) A survey conducted by the University of Illinois-Chicago estimates that nationally, the average SSB price per ounce is $0.06 (OEA adjusted to 2013 dollars).[20] Using OEA data collected for its Formula Retail Control study, we estimate that the average SSB price in San Francisco is 24% greater than the rest of the nation, which gives us a SSB price per ounce estimate of $0.075.

b) The San Francisco Department of Public Health conducted a Nexus study and estimated that $192 million in SSBs were sold in San Francisco (OEA adjusted to 2013 dollars).[21]

c) By dividing SSB revenue by average prices, OEA estimates a range of SSB consumption of between 2,556 million ounces to 3.195 million ounces.

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