



## Impact of Sugary Beverage Taxes

Professor Frank J. Chaloupka, University of Illinois at Chicago  
 Sugary Beverage Tax Public Hearing  
 Standing Committee on Finance and Portfolio Committee on Health  
 31 January, 2017, Cape Town, South Africa

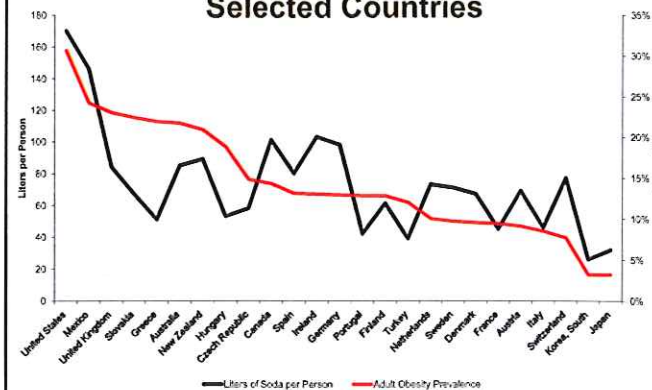
## Overview

- Mexico's experience with sugary beverage tax
- General arguments about employment impact of sin taxes
- Empirical evidence on employment impact of :
  - Sugary beverage taxes in Mexico, US
  - Tobacco taxes in South Africa



## Mexico's Successful Experience with a Sugary Beverage Tax

## Soda Consumption & Obesity Selected Countries



Source: Soda consumption from Euromonitor, 2011, Obesity prevalence from OECD Health Data, 2005

## SSB tax in Mexico Implemented January 2014

- Excise tax of **1 peso per litre** (~10% increase in price) on all non-alcoholic beverages with added sugar
  - Excludes 100% juices and beverages with artificial sweeteners
  - Paid by the producer



## Impact of Tax on Prices

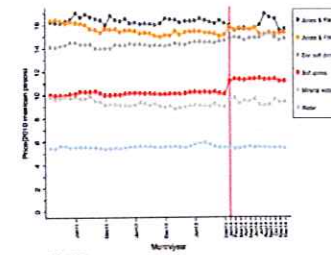


Fig 1. Average price per liter by type of beverage (unadjusted).

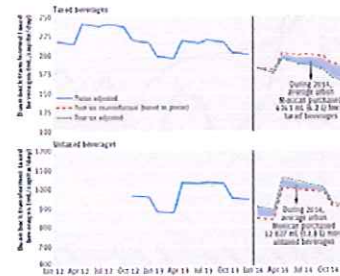
- Tax passed on to consumers in higher prices
- Overshifting of tax on carbonated beverages
- Relatively larger increase on smaller containers
- Amount of price increase varies by region



Cochera MA, Sargado JC, Ucar-Mungula M, Nohra M, Ng S, Rivera-Dommarco JA (2015) Changes in Prices After an Excise Tax to Sweetened Sugar Beverages Was Implemented in Mexico: Evidence From Urban Areas. *PLoS ONE* 10(12): e0144428. doi:10.1371/journal.pone.0144428

## Impact of Tax on Purchases Year One (2014)

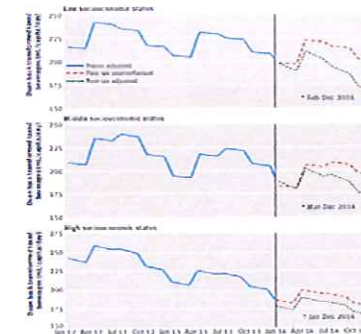
- **6% decline** in purchases of **taxed beverages** in 2014 compared to pre-tax trends
- Reduction of **12%** by December
- **4% increase** in purchases of **untaxed beverages**



Cochera MA, Popkin BM, Rivera JA, Ng SW. Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study. *BMJ* 2015;352

## Impact of Tax on Purchases Year One (2014)

- Purchases of taxed beverages reduced in all SES groups
- Reductions in purchases **greatest among lowest SES households**
  - **9% decline** in 2014



Cochera MA, Popkin BM, Rivera JA, Ng SW. Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study. *BMJ* 2015;352

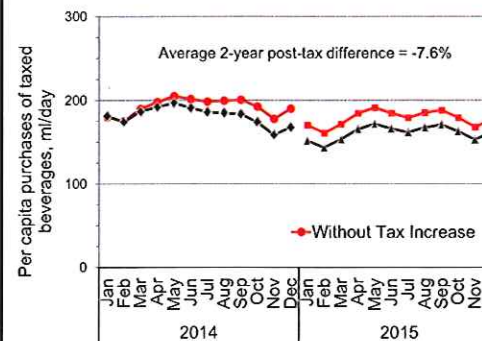
## Impact of Tax on Purchases Year One (2014)

- **Greatest impact on heaviest consumers**
  - **Highest purchasers:**
    - 31% of households, purchased average of 157 liters of SSB/capita/yr
      - **10% reduction in purchases following tax**
  - **Middle purchasers:**
    - 40% of households, purchased average of 60 liters of SSB/capita/yr
      - **8% reduction of taxed beverages post-tax**
  - **Light and non purchasers:**
    - Remaining households; small impact on light purchasers



Ng SW, Rivera J, Popkin B, Colchero MA. Did high purchasers respond differently to the excise tax on sugar-sweetened beverages in Mexico?

## Impact of Tax on Purchases Year Two (2015)



- Consistent with year 1 findings
- Reductions greatest among low income households



Colchero MA, Rivera J, Popkin B, Ng SW. Sustained consumer response: evidence from two years after implementing the sugar sweetened beverage tax in Mexico. *In press at Health Affairs*

## Impact of Tax on Sales Mexico, 2007-2016



Impact on SSB sales consistent with reductions in purchases:

- 6% drop in 2014
- 8% drop in 2015
- 11% drop in first half of 2016

5.2% increases in bottled water sales

OLS-Adjusted for seasonality, the global indicator of the economic activity



Colchero MA, Guerrero Lopez C, Molina M, Rivera J. Beverage sales in Mexico before and after implementation of a sugar sweetened beverage tax 2016. *PLoS ONE*. 11(3).  
Changes in sales of sugar-sweetened beverages in Mexico before (2007-2013) and after the tax (2014-2016): <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4773773/changes-sales/>

## Impact of Tax on Health

- A 10% reduction in SSB consumption associated with the tax would lead in 10 years to:
  - Cases of diabetes prevented: **189,300**
  - Strokes and myocardial infarctions prevented: **20,400**
  - Premature deaths averted: **18,900**
  - Savings: **\$983 million** international dollars
- Higher effect among the age group: 35-44



Sánchez-Romero LM, et al. Projected impact of Mexico's sugar sweetened beverage tax policy on diabetes and cardiovascular disease: a modeling study. *PLoS Medicine*. 13(11); projections based on Cardiovascular Disease Model adapted to Mexico

## Summary of Mexico's Experiences

- Households reduced purchases of taxed beverages and increased purchases of untaxed beverages
- Greatest reductions among lowest income households and those with higher purchases
- Reductions in both purchases and sales larger in 2015 than in 2014
- Consumption declines likely to produce significant reductions in disease, deaths and healthcare costs.
- Revenues: US\$953.9 million in 2014; US\$1,12 billion in 2015
- A larger, 2 pesos/liter (20%) tax would have larger impact
- Using some of the new tax revenues for obesity prevention would lead to even greater impact



## Research Team & Funding

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## Employment Impact of Sin Taxes

## Sin Taxes and Jobs

Industries argue that production and consumption of their products makes a significant economic contribution

- employment in farming, manufacturing, distribution, retailing, and related sectors
- multiplier effects as income earned in these jobs is spent on other goods & services





## Sin Taxes and Jobs

Industry-sponsored studies tell only part of story:

- Focus on the gross impact:
  - New tax or tax increase will lead to decreased consumption of taxed product
  - Results in loss of some jobs dependent on production of taxed product
  - Exaggerated effect of industry specific job losses on jobs in other sectors
- Ignore the net impact:
  - Money not spent on taxed product will be spent on other goods and services
  - New/increased tax revenues spent by government
    - **Offsetting job gains in other sectors**



## Sugary Beverage Taxes and Jobs

Industry-sponsored studies projecting employment impact of sugary beverage tax in South Africa:

- Oxford Economics:
  - Ignores job creation due to consumer substitution away from tax products to untaxed products
  - Ignores job creation resulting from government spending of new tax revenues
- Econex:
  - Ignores job creation resulting from government spending of new tax revenues

**Industry estimates of gross impact do not reflect overall impact on South African economy**



## Employment Impact of Sugary Beverage Taxes

RESEARCH AND PRACTICE

### Employment Impact of Sugar-Sweetened Beverage Taxes

Lisa M. Powell, PhD, Roy Wada, PhD, Joseph J. Chaloupka, PhD, and Frank J. Chaloupka, PhD

Sugar-sweetened beverages (SSBs) are the leading source of added sugar in the American diet and are associated with increased risk of type 2 diabetes, cardiovascular disease, dental caries, osteoporosis, and obesity.<sup>1-4</sup> From 1988-1994 to 1999-2004, average daily caloric intake of SSBs increased from 157 to 203 kilocalories among adults and from 204 to 224 kilocalories among children aged 2 to 19 years.<sup>5,6</sup> Recently, SSB consumption prevalence fell across all age groups from 1999-2000 to 2007-2008, although the prevalence of sports and energy drinks increased and berry SSB consumption (≥ 500 kcal/day) in-

**Objectives.** We assessed the impact of sugar-sweetened beverage (SSB) taxes on net employment.

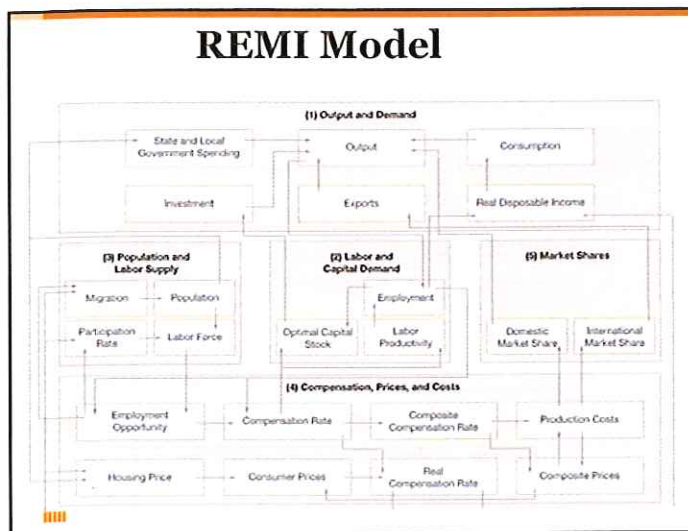
**Methods.** We used a macroeconomic simulation model to assess the employment impact of a 20% SSB tax, accounting for changes in SSB demand, substitution to non-SSBs, income effects, and government expenditures of tax revenues for Illinois and California in 2012.

**Results.** We found increased employment of 4456 jobs in Illinois and 6654 jobs in California, representing a respective 0.09% and 0.03% change in employment. Declines in employment within the beverage industry occurred but were offset by new employment in nonbeverage industry and government sectors.

**Conclusions.** SSB taxes do not have a negative impact on state-level employment, and industry claims of regional job losses are overstated and may mislead lawmakers and constituents. (*Am J Public Health* 2014;104:672-677. doi:10.2195/AJPH.2013.301630



Powell LM, Wada R, Penky JJ, Chaloupka FJ (2014). Employment Impact of Sugar-Sweetened Beverage Taxes. *American Journal of Public Health* 104:672-677. doi:10.2195/AJPH.2013.301630



## Key Findings

- Model the impact of a 20% tax on sugary beverages
- Sugary beverage tax would lead to net job gains in both states
  - 4,406 job increase in Illinois
  - 6,654 job increase in California



Powell LM, Wada R, Fensky JJ, Chaloupka FJ (2014). Employment Impact of Sugar-Sweetened Beverage Taxes. *American Journal of Public Health* 104:672-677. doi:10.2195/ajph.2013.001630

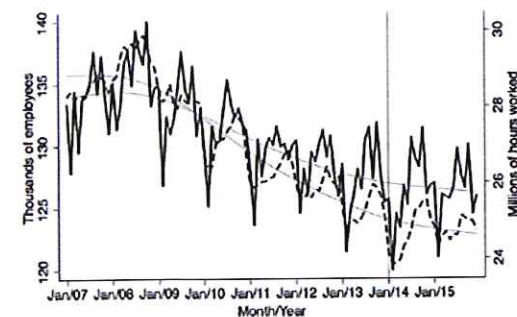
## Employment Impact of Mexico's Sugary Beverage Tax

- Monthly and quarterly data on overall unemployment and employment by sector were analyzed to assess impact of taxes
- **NO DECREASE IN TOTAL EMPLOYMENT in the manufacturing sector for beverages and nonessential foods** following the implementation of sugary beverage and junk food taxes
- **NO CHANGE IN EMPLOYMENT IN COMMERCIAL STORES** (micro, small, medium or large stores) selling food and beverages after implementation of taxes
- **NO INCREASE IN UNEMPLOYMENT RATES** in the country after the taxes were implemented.

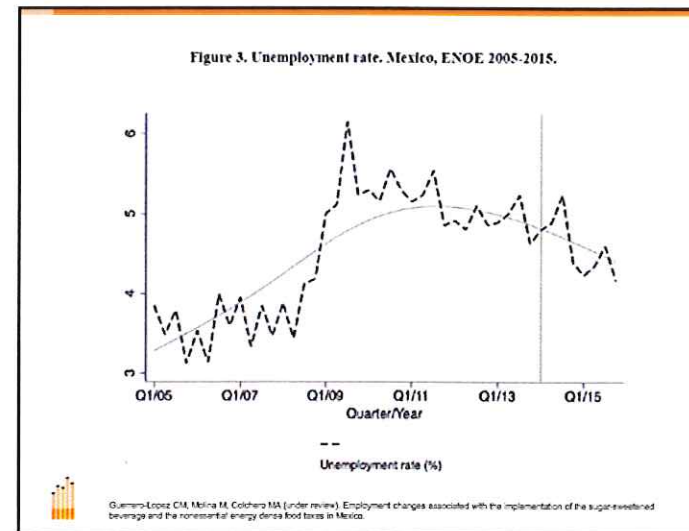
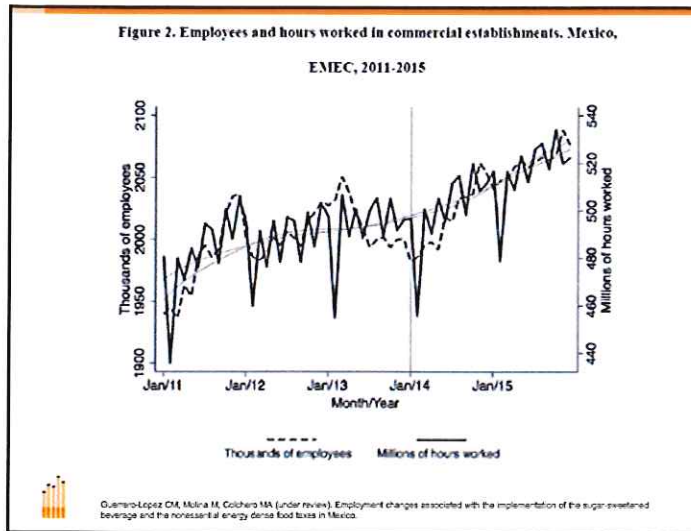


Employment changes associated with the implementation of the sugar-sweetened beverage and the nonessential energy dense food taxes in Mexico: [https://www.researchgate.net/publication/261112062\\_Employment\\_changes\\_associated\\_with\\_the\\_implementation\\_of\\_the\\_sugar-sweetened\\_beverage\\_and\\_the\\_nonessential\\_energy\\_dense\\_food\\_taxes\\_in\\_Mexico](https://www.researchgate.net/publication/261112062_Employment_changes_associated_with_the_implementation_of_the_sugar-sweetened_beverage_and_the_nonessential_energy_dense_food_taxes_in_Mexico)

Figure 1. Employees and hours worked in the sugar-sweetened beverages and nonessential energy dense food manufacturing industries. Mexico, EMIM 2007-2015



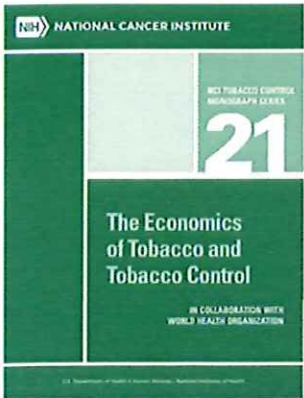
Guerrero-Lopez CM, Makra M, Colchero MA (under review). Employment changes associated with the implementation of the sugar-sweetened beverage and the nonessential energy dense food taxes in Mexico.



## Employment Impact of Tobacco Taxes

## Tobacco Taxes and Employment in South Africa

- Economics of Tobacco Control Project, University of Cape Town (1999)
  - Static input-output model
  - Domestic consumption expenditures eliminated
  - Expenditures allocated based on recent quitter and average spending patterns
  - Government spending maintained by increasing other taxes.
  - **Net gain of 50,236 jobs in 1995**
    - Similar finding of net job gain under alternative scenarios



"In nearly all countries, national tobacco control policies will have either no effect or a net positive effect on overall employment because any tobacco-related job losses will be offset by job gains in other sectors"

National Cancer Institute and World Health Organization (2016). NCI Tobacco Control Monograph 21: The Economics of Tobacco and Tobacco Control; online at <https://tobaccocontrol.cancer.gov/tup/21/monographs/21/index.html>

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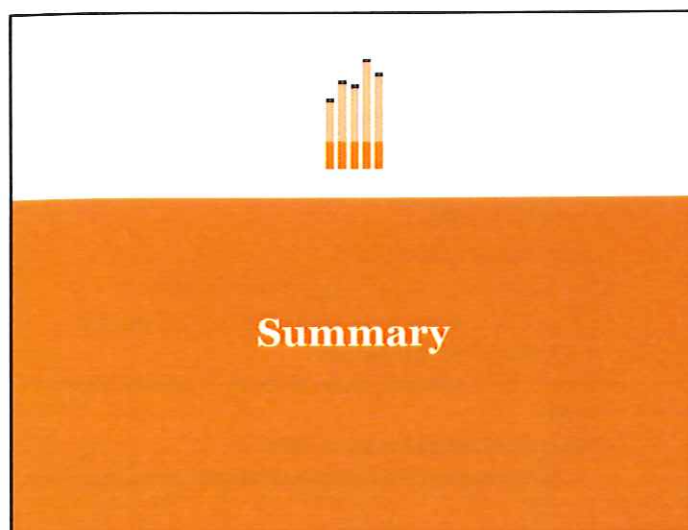
## Tobacco Taxes and Jobs

Concerns about job losses in tobacco sector have been addressed using new tax revenues:

- Turkey, Philippines among countries that have allocated tobacco tax revenues to helping tobacco farmers and/or those employed in tobacco manufacturing make transition to other livelihoods through crop substitution programs, retraining programs



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**Summary**

## Conclusions

- Mexico's peso per litre tax on sugary beverages effective in reducing SSB purchases and sales
  - Particularly among lowest income group and heavier SSB consumers
- Sugary beverage taxes do not lead to net job losses
  - Consistent with experiences from tobacco taxes
- Additional economic benefits likely to result from tax-induced changes in behavior
  - Reduced health care spending, increased productivity, enhanced development

