

**tobacconomics**

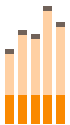
Economic Research Informing Tobacco Control Policy

# Employment Impact of Tobacco, Alcohol, and Sugary Beverage Taxes

Professor Frank J. Chaloupka, University of Illinois at Chicago  
National Treasury Consultation on Taxation of Sugary Beverages  
11 November 2016, Midrand, South Africa

# Overview

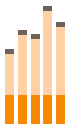
- General arguments about employment impact of sin taxes
- Empirical evidence:
  - Tobacco
  - Sugary beverages
  - Alcoholic beverages



# Sin Taxes and Jobs

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

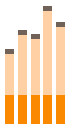
- employment in farming, manufacturing, distribution, retailing, and related sectors
- multiplier effects as income earned in these jobs is spent on other goods & services

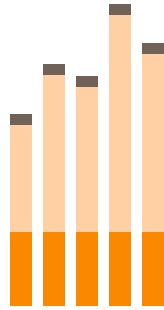


# Sin Taxes and Jobs

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
- 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***





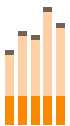
# Employment Impact of Tobacco Taxes

# Tobacco Taxes and Jobs

March 9, 2009 – Vanguard, AllAfrica.com

## **Nigeria Anti-Tobacco Bill – 400,000 Jobs on the Line**

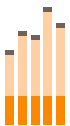
- **“if passed into law, The National Tobacco Bill which is currently on the floor of the National Assembly will lead to at least 400,000 Nigerians being thrown into the unemployment market.”**
- “This was the view expressed by the Chairman, Senate Committee on Industries, Senator Kamorudeen Adedbu, while speaking with reporters recently in Iselyn, Oyo State, while speaking at the 2008 Farmers Productivity Day Award Ceremony.”



# Tobacco Taxes and Jobs

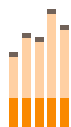
Many published studies from US and elsewhere consider the impact of reductions in tobacco use from tax increases and/or other tobacco control measures:

- Alternative methodologies:
  - Static Input-Output approach
  - Dynamic macroeconomic modeling
  - Regression methods



# Tobacco Taxes, Control Policies, and Jobs

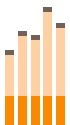
Studies	Model and assumptions	Conclusions
<b>United States Michigan: Warner and Fulton 1994</b>	<p>Dynamic regional economic model</p> <p>Domestic consumption expenditures were eliminated, and the rate of consumption decline from 1992 to 2005 doubled.</p> <p>Expenditure was allocated by the average expenditure pattern.</p> <p>Government spending was reduced or kept at the same level by increasing other taxes.</p>	<p>Net job gains: 5,600 in 1992 and 1,500 by 2005; with the consumption decline, 300 in 1992 and 880 by 2005</p>
<b>United States Indiana: Barkey 2005</b>	<p>Dynamic regional economic model</p> <p>Domestic consumption expenditures and tobacco production in 2003 were eliminated.</p> <p>Expenditures were allocated by the average expenditure pattern.</p> <p>Tobacco-induced health care expenditures were released and reallocated. Excess mortality caused by tobacco use was accounted for.</p>	<p>Net gain of 178,200 jobs in 2050, the end of the simulation period. Milestones are 18,000 jobs in 2005; 50,700 jobs in 2010; 97,000 jobs in 2020; 132,000 jobs in 2030; and 159,400 jobs in 2040.</p>
<b>United States Regional Economies: Warner and colleagues 1996</b>	<p>Dynamic regional economic model</p> <p>Domestic consumption expenditures were eliminated, and the rate of consumption decline from 1993 to 2009 doubled.</p> <p>Expenditures were allocated by the average expenditure pattern.</p> <p>Government spending was reduced or kept at the same level by increasing other taxes.</p>	<p>Net job gains: 47 in 1993 and 133,000 by 2000; with the consumption decline: 78 in 1993 and 19,719 by 2000</p>





# Tobacco Taxes, Control Policies, and Jobs

Studies	Model and assumptions	Conclusions
<p><b>United Kingdom: Buck and colleagues 1995</b></p>	<p>Static input–output model This model describes a 40% decline in tobacco product expenditures. Expenditures were allocated by recent quitter, nonsmoker, former smoker, and average expenditure pattern. Government spending was reduced or kept at the same level by increasing other taxes.</p>	<p>Net gain of 155,542 jobs; or 115,688 full-time equivalent jobs in 1990 with the recent quitter expenditure and the same government spending</p>
<p><b>Canada: Irvine and Sims 1997</b></p>	<p>Static input–output model This model describes a 20% decline in tobacco product expenditures. Expenditures were allocated by the average expenditure pattern. Government spending was reduced.</p>	<p>Net loss of 6,129 jobs in 1995</p>
<p><b>South Africa: Van der Merwe and Abedian 1999</b></p>	<p>Static input–output model Domestic consumption expenditures were eliminated, and the rate of consumption decline in 1995 doubled. Expenditures were allocated by recent quitter and average expenditure pattern. Government spending was reduced or kept at the same level by increasing other taxes.</p>	<p>Net gain of 50,236 jobs occurred in 1995 by eliminating tobacco expenditures, with consumers acting as recent quitters and the same government spending</p>



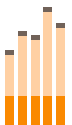
# Tobacco Taxes, Control Policies, and Jobs

Studies	Model and assumptions	Conclusions
<p><b>Bangladesh:</b>  <b>Van der Merwe 1998</b></p>	<p>Static input–output model            Domestic consumption expenditures and all tobacco production for tobacco products and bidis in 1994 were eliminated.            Average input–output pattern changed, and all tobacco production was shifted to alternative agriculture products.            Because of increases in other taxes, no change in government spending occurred.</p>	<p>Net gain of 10,989,192 jobs in 1994</p>
<p><b>Egypt:</b>  <b>Nassar and Metwally 2003</b></p>	<p>Static input–output model            A 10% increase in cigarette prices and a one unit increase of education level (as a proxy for non-price tobacco control measures) occurred.            Expenditures were allocated by the average expenditure pattern.            Because of increases in other taxes, no change in government spending occurred.</p>	<p>Net gain of 6,108,517 jobs in 1997 for the price increase, and net gain of 6,000,134 jobs in 1997 under non-price measures</p>
<p><b>Indonesia:</b>  <b>Ahsan and Wiyono 2007</b></p>	<p>Static input–output model            Percentage increases of 25%, 50%, and 100% occurred in the cigarette tax.            Expenditures were allocated by the average expenditure pattern.</p>	<p>Net gain of 84,340 jobs with a 25% tax increase; net gain of 140,567 jobs with a 50% tax increase; and net gain of 281,135 jobs with a 100% tax increase</p>



# Tobacco Taxes and Convenience Store Business

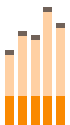
- More recent argument that higher taxes will harm convenience stores
- Huang & Chaloupka (2012)
  - Number of convenience stores, by state, 1997-2009
  - State cigarette tax rates and smoke-free air policies
  - Economic conditions (income, unemployment, gas prices)
  - Multivariate, fixed effects econometric models
  - Find that higher taxes associated with **increase** in convenience store business
    - Likely due to spending on other products, overshifting of taxes

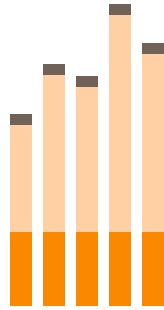


# Tobacco Taxes and Jobs

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
  - Crop substitution programs, retraining programs

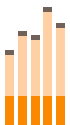




# Employment Impact of Sugary Beverage Taxes

# Sugary Beverage Taxes and Jobs

- Opposition to California Senate Bill 1210 claimed: “The beverage industry, its customers, and suppliers account for nearly 250,000 jobs in California, paying \$15 billion in wages. Economic modeling suggests the industry and its employees would suffer from the tax. The net effect of consumer response to these taxes is a significant reduction in combined sales of taxed and non-taxed beverages leading to: **Lost jobs, wages, and economic output in those industries directly affected; Lost jobs, wages, and economic output in industries and businesses that supply those companies (so-called indirect effects);** Lost tax revenue to governments from lower wages and corporate income”
- A recent study by Hahn (2009), widely distributed by the ABA, claims that a federal 10-cents tax on a 12-ounce serving of SSB **would cause the loss of 210,000 jobs in the beverage industry and another 150,000 jobs in the related industries.**



# Employment Impact of Sugar-Sweetened Beverage Taxes

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

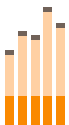
Sugar-sweetened beverages (SSBs) are the leading source of added sugar in the American diet and are associated with increased risk of type 2 diabetes, cardiovascular disease, dental caries, osteoporosis, and obesity.<sup>1-4</sup> From 1988-1994 to 1999-2004, average daily caloric intake of SSBs increased 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 heavy SSB consumption ( $\geq 500$  kcal/day) increased among children.<sup>2,7</sup> In 2009-2010,

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

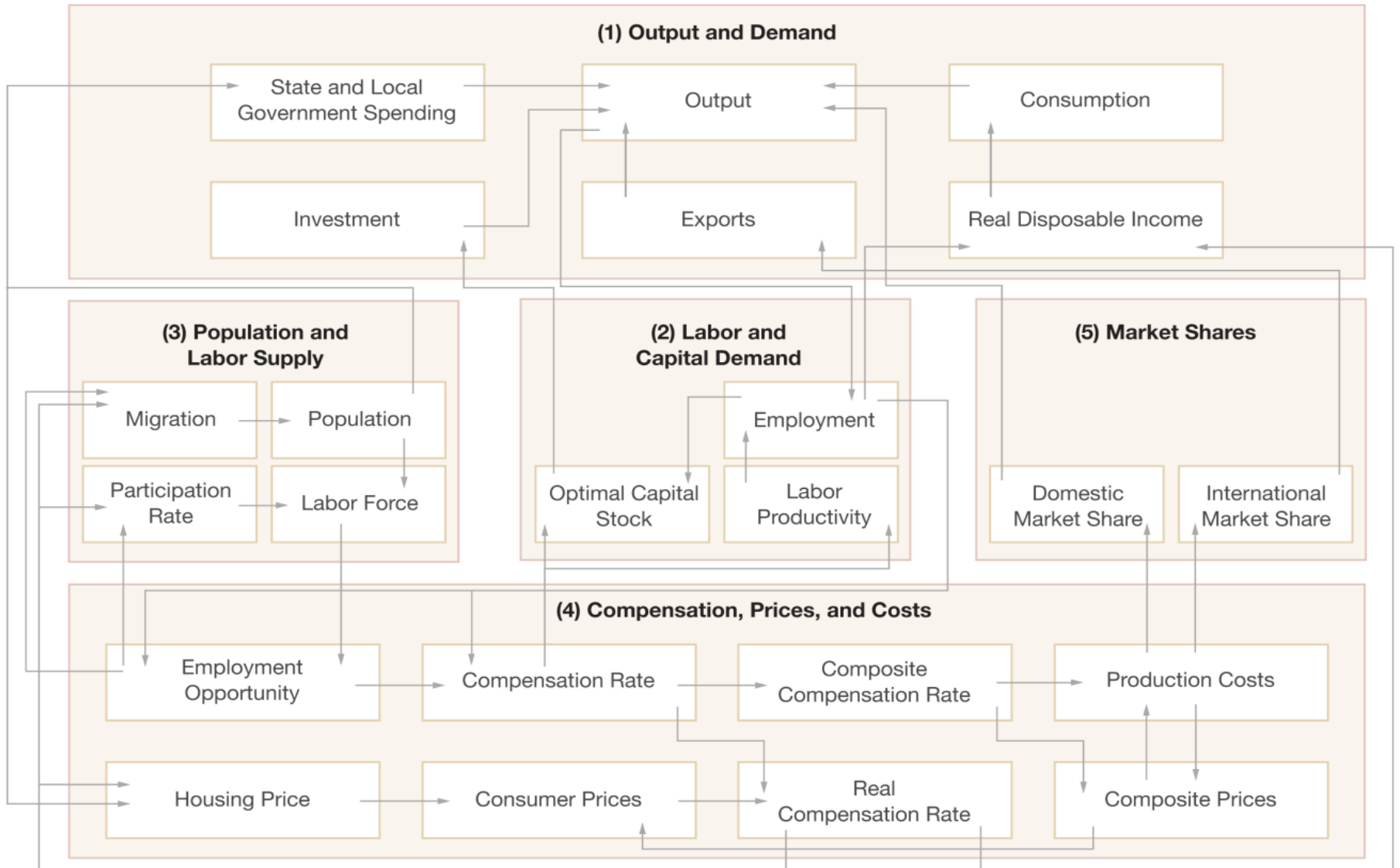
*Methods.* We used a macroeconomic simulation model to assess the employment impact of a 20% SSB tax accounting for changes in SSB demand, substitution to non-SSBs, income effects, and government expenditures of tax revenues for Illinois and California in 2012.

*Results.* We found increased employment of 4406 jobs in Illinois and 6654 jobs in California, representing a respective 0.06% 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:10.2105/AJPH.2013.301630)



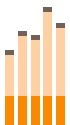
# REMI Model





# Parameters and Assumptions

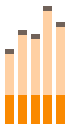
- 20% tax -- fully passed on to consumers
- Prices of non-SSBs do not change due to tax
- All purchases are subject to the same tax rate (including SNAP purchases)
- Own-price elasticity of demand for SSBs is -1.2; assumed constant across states and SSBs
- Cross-price elasticity between SSBs and non-SSBs is 0.1; assumed constant across states and SSBs and non-SSBs
- Beverage industry retail mark-up of 24%



# Sugary Beverage Tax Modeling

Three effects modeled:

- Direct (gross) effect
  - Impact on beverage industry
- Indirect Effect – Consumer Behavior
  - Alternative assumptions about substitution
    - Spending reallocated; substitution to other beverages (full replacement and cross-price elasticity)
- Indirect Effect: Government Revenue



**TABLE 3—Impact of 20% SSB Tax on Total Jobs and Jobs in Selected Industries, Simulated Effects with Nonexplicit Beverage Substitution: Illinois and California, 2012**

Jobs	SSB Industry Effect Only	SSB Industry, Income, and Nonexplicit Beverage Substitution Effects	SSB Industry, Income, Nonexplicit Substitution, and Government Effects
<b>Illinois</b>			
Total	-7002	-5979	4406
Private sector	-6450	-5506	-910
Beverage manufacturing	-1359	-1359	-1357
Retail trade	-2632	-2444	-1894
State and local government sector	-552	-474	5316
<b>California</b>			
Total	-14 992	-12 137	6654
Private sector	-13 695	-11 082	-248
Beverage manufacturing	-2306	-2303	-2294
Retail trade	-4359	-3926	-2722
State and local government sector	-1295	-1055	6902

*Note.* SSB = sugar-sweetened beverage. Calculations are based on the Regional Economic Models, Inc. model.

**TABLE 4—Impact of 20% SSB Tax on Total Jobs and Jobs in Selected Industries, Simulated Net Effects Including Industry, Income, Substitution, and Government Effects, by Alternative Substitution Scenarios: Illinois and California, 2012**

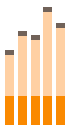
Jobs	Net Effect With Nonexplicit SSB Substitution	Net Effect With Explicit SSB Substitution on the Basis of Cross-Price Elasticities	Net Effect With Explicit SSB Substitution on the Basis of Full-Volume Replacement
<b>Illinois</b>			
Total	4406	4509	4870
Private sector	-910	-814	-478
Beverage manufacturing	-1357	-1274	-985
Retail trade	-1894	-1706	-1054
State and local government sector	5316	5323	5348
<b>California</b>			
Total	6654	6252	5887
Private sector	-248	-617	-953
Beverage manufacturing	-2294	-1856	-1453
Retail trade	-2722	-2189	-1695
State and local government sector	6902	6869	6840

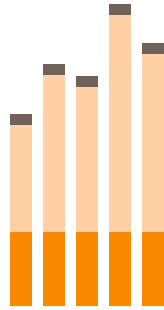
Note. SSB = sugar-sweetened beverage. Calculations are based on the Regional Economic Models, Inc. model.

# Sugary Beverage Taxes

Tax structure likely to play a role:

- Sugar-based tax likely to have less impact on beverage industry employment
  - Industry reformulation, smaller portion size, shift in marketing, in order to avoid higher tax
  - Greater substitution within beverage category as consumers have more options to substitute to lower sugar content beverages



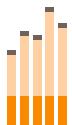


# Employment Impact of Alcoholic Beverage Taxes

# Alcohol Taxes and Jobs

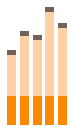
Similar arguments about alcohol taxes:

- A rollback of the doubling of the Federal beer tax in 1991 “could restore an estimated 50,000 jobs to the U.S. economy.”
- “A proposal that passed this year to add sales tax to the industry’s already high tax burden in Massachusetts is expected to reduce state economic activity by over \$85 million eliminating some 800 jobs in the process.”
- 2009 proposed alcohol tax increases in California would cause 20% drop in sales, resulting in 38,200 lost jobs and millions of dollars in lost tax revenue.



# Alcohol Tax Increases and Jobs Spending as General Revenue Spent

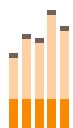
		5 ¢	10 ¢	25 ¢	5%
AR	Gross Impact	-312	-585	-1232	-187
	Net Impact	<b>762</b>	<b>1459</b>	<b>3262</b>	<b>447</b>
FL	Gross Impact	-3113	-5872	-12541	-2093
	Net Impact	<b>4157</b>	<b>7979</b>	<b>17911</b>	<b>2704</b>
MA	Gross Impact	-961	-1809	-3849	-630
	Net Impact	<b>881</b>	<b>1691</b>	<b>3803</b>	<b>553</b>
NM	Gross Impact	-315	-593	-1260	-200
	Net Impact	<b>593</b>	<b>1136</b>	<b>2547</b>	<b>366</b>
WI	Gross Impact	-1023	-1919	-4045	-619
	Net Impact	<b>1072</b>	<b>2054</b>	<b>4607</b>	<b>628</b>

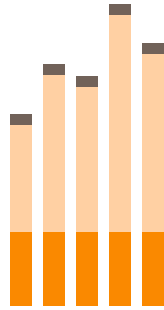




# Alcohol Tax Increases and Jobs Revenue Dedicated to Health Care

		5 ¢	10 ¢	25 ¢	5%
AR	Gross Impact	-312	-585	-1232	-187
	Net Impact	<b>59</b>	<b>118</b>	<b>286</b>	<b>33</b>
FL	Gross Impact	-3113	-5872	-12541	-2093
	Net Impact	<b>884</b>	<b>1709</b>	<b>3935</b>	<b>555</b>
MA	Gross Impact	-961	-1809	-3849	-630
	Net Impact	<b>205</b>	<b>399</b>	<b>932</b>	<b>122</b>
NM	Gross Impact	-315	-593	-1260	-200
	Net Impact	<b>119</b>	<b>230</b>	<b>528</b>	<b>72</b>
WI	Gross Impact	-1023	-1919	-4045	-619
	Net Impact	<b>976</b>	<b>1872</b>	<b>4204</b>	<b>571</b>

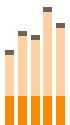




# Summary

# Conclusions

- Tobacco, alcohol, and sugary beverage taxes do not lead to net job losses
- Job losses in taxed sector offset by job gains in other sectors
  - Reallocation of consumer spending
  - Government spending of new tax revenues
- Additional economic benefits from tax-induced changes in behavior
  - Reduced health care spending, increased productivity, enhanced development



# For more information:

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