The monetary impact of grocery tax in Alabama on fruit and vegetable purchases in a variety of demographics

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Study Purpose

• The purpose of this research was to determine the tax cost of meeting the USDA recommended intake of F/V for all demographics in the state of Alabama in order to determine if tax cost on these goods could be prohibitive to consuming adequate servings.
Obesity & F/V consumption

• Approximately 30% of US adults obese
  – Alabama - 32.2% of adults obese

• In Alabama
  – <30% consume recommended F/V servings
  – >30% are obese
  – $0.04 sales tax on F/V and other goods

• F/V inverse relationship to chronic disease (dz)

• High cost listed as barrier to F/V consumption
Obesity Costs

- Medical costs of obesity estimated at $147 billion, 2009
- Association with chronic disease
- Social costs
- Low socioeconomic status (SES)/minority status positively associated with obesity
- Low cost of energy dense foods
  - Positive relationship between nutrient density & cost
  - Inverse relationship between energy & cost
F/V Costs

• Most common barrier to adequate F/V consumption – cost
• Price increase
  – 2004 - 3 fruits/4 vegetables = $0.64
  – 2009 - 2 cups fruit/2.5 cups vegetables = $2.50
• F/V higher cost/calorie than all other groups
• $0.12 of each food dollar spent on F/V
• Household income increases, increased F/V spending but not as much as other foods
Current Taxation

• Current AL tax at 4% on goods and groceries
• AL and Mississippi only remaining states taxing groceries with no subsidies or cuts
• Low SES associated with low F/V intake
• Engle’s Law
  – As income decreases, the portion of household income spent on food increases
Tool Development

- USDA Economic Research Service data sets & regional foods
- Consideration of non-fresh alternatives
- Price per pound/price per item
- State divided into 11 public health regions by AL Department of Public Health
- Highest poverty and lowest poverty counties chosen
  - Food desserts - areas where healthy and affordable food options are difficult to locate
  - Both urban and rural
- Stores: n=43, Wal-Mart: n=16
- Data collected by Alabama Obesity Taskforce
Results 1

- Estimated average cost per serving of fruits and vegetables in Alabama
- Average cost for individual F/V computed
- Overall average cost/cup computed

\[
\text{Price per serving of each fruit (vegetable)} = \frac{\text{average price per serving}}{\text{Number of fruits (vegetables) included}}
\]

- Fruits $0.69
- Vegetables $0.68
Results 2

• Potential tax on adequate fruit and vegetable purchases, individual
• Calculated for all USDA age/gender groups
• Applied $0.04 tax to amounts computed in research question 1
### Table 4.3: Daily cost, daily tax cost, and yearly tax cost of consuming the recommended servings of fruits and vegetables for male individuals in Alabama, 2011

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Fruit Servings</th>
<th>Cost of Fruit Servings</th>
<th>Vegetable Servings</th>
<th>Cost of Vegetable Servings</th>
<th>Total Daily Cost</th>
<th>Daily Tax Cost</th>
<th>Yearly Tax Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>$0.69</td>
<td>1</td>
<td>$0.68</td>
<td>$1.37</td>
<td>$0.0548</td>
<td>$20.00</td>
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<tr>
<td>3-5</td>
<td>1.5</td>
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<td>1.5</td>
<td>$1.02</td>
<td>$2.06</td>
<td>$0.0824</td>
<td>$30.08</td>
</tr>
<tr>
<td>6-8</td>
<td>1.5</td>
<td>$1.04</td>
<td>2</td>
<td>$1.36</td>
<td>$2.40</td>
<td>$0.096</td>
<td>$35.04</td>
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<tr>
<td>9-10</td>
<td>1.5</td>
<td>$1.04</td>
<td>2.5</td>
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<tr>
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<td>2</td>
<td>$1.38</td>
<td>2.5</td>
<td>$1.70</td>
<td>$3.08</td>
<td>$0.1232</td>
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<tr>
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<td>$1.38</td>
<td>3</td>
<td>$2.04</td>
<td>$3.42</td>
<td>$0.1368</td>
<td>$49.93</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>$1.38</td>
<td>3</td>
<td>$2.04</td>
<td>$3.42</td>
<td>$0.1368</td>
<td>$49.93</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>$1.38</td>
<td>3.5</td>
<td>$2.38</td>
<td>$3.76</td>
<td>$0.1504</td>
<td>$54.90</td>
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<td>16-25</td>
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<td>$1.73</td>
<td>3.5</td>
<td>$2.38</td>
<td>$4.11</td>
<td>$0.1644</td>
<td>$60.01</td>
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<td>26-45</td>
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<td>$1.38</td>
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<td>$3.76</td>
<td>$0.1504</td>
<td>$54.90</td>
</tr>
<tr>
<td>46-65</td>
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<td>$1.38</td>
<td>3</td>
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<td>$0.1368</td>
<td>$49.93</td>
</tr>
<tr>
<td>66+</td>
<td>2</td>
<td>$1.38</td>
<td>3</td>
<td>$2.04</td>
<td>$3.42</td>
<td>$0.1368</td>
<td>$49.93</td>
</tr>
</tbody>
</table>
Results 3

• Total potential state tax revenue for adequate fruit and vegetable purchases

• 2010 US Census Bureau statistics

• Annual tax cost x number of individuals in age/gender group = total tax revenue for group

• Total $215,494,732.16
  – Portion of reported $1,842,049,663.04 generated by Alabama sales tax in the 2009-1010 fiscal year
Table 4.6 Projected annual tax revenue generated if all females were to consume the recommended one-cup equivalent servings of fruits and vegetables daily

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Number of Individuals</th>
<th>Tax Cost Per Year</th>
<th>Population cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>30,676</td>
<td>$20.00</td>
<td>$613,520.00</td>
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<td>3</td>
<td>30271</td>
<td>$24.97</td>
<td>$755,866.87</td>
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<td>4 to 6</td>
<td>89109</td>
<td>$30.08</td>
<td>$2,680,398.72</td>
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<tr>
<td>7 to 9</td>
<td>91689</td>
<td>$35.04</td>
<td>$3,212,782.56</td>
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<tr>
<td>10 to 11</td>
<td>63143</td>
<td>$40.00</td>
<td>$2,525,720.00</td>
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<tr>
<td>12 to 18</td>
<td>224634</td>
<td>$44.97</td>
<td>$10,101,790.98</td>
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<td>19-25</td>
<td>236323</td>
<td>$49.93</td>
<td>$11,799,607.39</td>
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<td>26-50</td>
<td>806516</td>
<td>$44.97</td>
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<tr>
<td>&gt;51</td>
<td>828351</td>
<td>$40.00</td>
<td>$33,134,040.00</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$101,092,751.04</td>
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</tbody>
</table>
Results 4

• Potential number of servings of fruit and vegetables purchased with sales tax

Annual tax cost per year = number of servings

Cost per serving $F (V)$

• Differs by group
  – Highest were males 16-25
  – 87 fruit or 88 vegetable servings

• Money may not be spent on extra servings
Discussion

• Cost increase from 2008, $2.50 ($2.63 after adjustment for inflation) to $3.08

• Household setting
  – Four person household, $179.88
  – On average, 0.45% of median household income
  – Higher percentage for low income
  – Dependants supported by earners
    • Children, older adults, disabled

• Additional county taxes
Discussion

• AL residents endure added charge in form of sales tax that increases cost of F/V – barrier
• Money spent on tax could be spent on extra servings
• Behavior difficult to predict, low income/price elasticity
• Potential reduction in chronic dz/cost of obesity
• Potential $215,494,732.16 in state revenue
• In AL, 850,000 receive monthly Medicaid reimbursements of approximately $3000
  – State contributes roughly 1.4 billion annually
Opportunities

• AL is in a unique position to determine if targeted reductions in cost (tax) of F/V could increase consumption

• Low price elasticity of demand, income elasticity of demand

• FREE! Study
  – Lindt Truffle ($.40) – consumed by 40%; Hershey Kiss ($.01) – consumed by 40%
  – Prices dropped $.01 – 90% consumed Hershey Kiss
Thank you

Questions, Comments?