Abstract
We estimate the demand function for obesity using a panel model across fifty-one U.S. states over the years 2000 to 2010. We study the impact of educational attainment, average commute time to work, relative price, per capita income, and the state unemployment rate on obesity levels, controlling for differences in regional culture. We find that since 2001, obesity is a function of the relative prices of healthy and non-healthy foods across regions, as well as state per capita income and educational attainment. From 2005 to 2010, we find that average commute time to work is a significant factor in the state obesity rate as well. Our results indicate that obesity is an inferior good due to its negative relationship with per capita income. In addition, we find obesity to be very inelastic to changes in the relative price of healthy and non-healthy food over both time periods. For every one percentage increase in the relative price of healthy food, the obesity rate increases by only 0.062 percent. Our findings suggest that in order to most effectively reduce the state obesity rate, public policies should focus on increasing educational attainment rather than lowering the relative price of healthy food. This suggests that, regardless of the price of food, some people will choose to adopt an unhealthy lifestyle as a result of cultural influence.

Data Set
- Sample Size: 510
- Panel Data Set—captures changes in the obesity rate caused by both cross sectional and time sensitive variables as indicated by the subscript “it”

Data Transformations
- Relative Price: Calculated based on the break down of the Consumer Price Index regarding specific food prices, published by the Bureau of Labor Statistics. The relative price of healthy foods was determined by the average price of bananas, tomatoes, lemons fresh chicken and lettuce per lb. The relative price of unhealthy foods was determined by the average price of white bread, ground beef, white potatoes, and bacon per lb. Each food with equal weight.
- Average Commute: The U.S. Census Bureau published data in 2000 and from 2005 to 2010. Simple averages were used to interpolate remaining data values.
- Educational Attainment: Data was collected from the U.S. Census Bureau in 2005 to 2010. Simple averages were used to interpolate remaining data values.

Educational Attainment: Data was collected from the U.S. Census Bureau in 2005 to 2010. Simple averages were used to interpolate remaining data values.

Empirical Analysis
The data set was restricted from 2005 to 2010 in order to see if data interpolation affected accuracy of the model. The data transformation which occurred in the earlier years did not appropriately capture the effect commute time has on the obesity rate. The coefficient of educational attainment, how ever remained significant in both time periods.

Results indicate that an increase in education will have a greater impact on the obesity rate than a reduction in the relative price of food.

Policy Implications
Our research indicates that because obesity is relatively more elastic to changes in education, a more efficient policy to reduce obesity in these areas would be to educate people on the effects their lifestyle has had on their health and offer healthier alternatives.

Results from Ordinary Least Squares Regression Analysis:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Regression 1</th>
<th>Regression 2</th>
<th>Regression 3</th>
<th>Regression 4</th>
<th>Regression 5</th>
<th>Regression 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Attainment</td>
<td>-0.283366</td>
<td>-0.284416</td>
<td>-0.287181</td>
<td>-0.286578</td>
<td>-0.285821</td>
<td>-0.287317</td>
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<tr>
<td>Relative Price</td>
<td>0.027962</td>
<td>0.027968</td>
<td>0.027487</td>
<td>0.027607</td>
<td>0.026759</td>
<td>0.026795</td>
</tr>
<tr>
<td>Per Capita Income</td>
<td>-1.03506</td>
<td>-1.035616</td>
<td>-1.016106</td>
<td>-1.028325</td>
<td>-2.12367</td>
<td>-3.17128</td>
</tr>
<tr>
<td>Average Commute</td>
<td>-0.003518</td>
<td>-0.003907</td>
<td>0.000503</td>
<td>0.005370</td>
<td>0.000515</td>
<td>0.000590</td>
</tr>
<tr>
<td>Urbanization Rate</td>
<td>-0.062476</td>
<td>-0.064376</td>
<td>0.002928</td>
<td>0.002928</td>
<td>0.002928</td>
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<tr>
<td>Adjusted R-Squared</td>
<td>0.934079</td>
<td>0.934221</td>
<td>0.934221</td>
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<td>0.934221</td>
<td>0.934221</td>
</tr>
</tbody>
</table>

Acknowledgements
Professor Jeff Summers, Ph.D
Department of Economics

References

Sassi, Franco. Obesity and the economics of prevention: fit or fat. E. Elgar/OECD, 2011.


The Economics Of Obesity
An Application of the Law of Demand to Obesity Prevalence within the United States
A. Hasenohrl, T. Hill
Department of Economics

Empirical Results
Results indicate that an increase in education will have a greater impact on the obesity rate than a reduction in the relative price of food.