Community Food Security in Connecticut: A Town Level Assessment

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Food Insecurity: Assessing Disparities, Consequences, and Policies
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Introduction

- Research at the University of Connecticut
  - Website Under Development: http://zwickcenter.uconn.edu/CFS
Objective of food security research at UConn

• Community level assessment: we study towns

• Develop measures to understand current Community Food Security (CFS) in the state
  – There are no direct measures of CFS
  – Individual measures do not inform multidimensional concepts of CFS and often highly correlated
  – Joint empirical measures needed

• Identify towns with low relative levels of CFS

• Rapid assessment method – a first look
Method of Achieving Objectives

- Define Community Food Security (CFS)
    - Included in our study (secondary data sources available): Socio-demographic characteristics, food resources, accessibility, and food production resources
    - Not included in our study (requires primary data collection): Household food security, food availability, and affordability

- Develop database of town level variables
- Principal Component Analysis can jointly summarize individual variables
- Spearman’s Rank Correlation helps understand relationship between computed indicators
- Maps and charts are golden
2005 Data Used for Rankings

- Individual data
  - 38 variables in these categories
    - Education
    - Household structure (Age, Children, Female Head)
    - Poverty and Unemployment Rates
    - Supermarkets Size, Convenience Stores
    - Farmers Market, CSA, Pantries/Kitchens
    - SNAP, WIC, School Meals
    - Vehicle ownership
    - Public Bus Transportation (cost, availability, ridership)
    - Housing (rent/own), property tax
    - Agricultural Land
2005 Study Data Sources

• Sources of data
  – State of CT Departments of
    • Economic and Community Development (Census data)
    • Public Health
    • Education
    • Social Services
    • Transportation
    • Agriculture
  – Trade Dimensions
  – Mapquest
  – Directories (2-1-1 Infoline/Yellow Pages)
  – Non-Profit Groups (End Hunger CT/Hartford Food System)

• Data primarily from 2000 to 2004
2005 Key Indicators

• 38 Variables combined into 11 Ranking Categories
  – Sociodemographic Challenges
  – Poverty Constraint
  – Wealth
  – Transportation Access
  – Private Food Assistance Resources
  – Public Food Assistance Participation
  – Expenditures on Food Programs
  – Proximity to WIC Clinic
  – Proximity to Food Stamp Office
  – Food Retail Resources
  – Food Production Resources
Spearman’s Rank Correlation between Overall Rankings and Individual Indicators

![Bar chart showing correlations between various indicators and overall rankings.](image)

- **Wealth**: 0.79
- **Transportation Access**: 0.58
- **Private Food Assistance Resources**: 0.30
- **Expenditures on Food Programs**: 0.27
- **Food Production Resources**: 0.27
- **Proximity to WIC Clinic**: 0.01
- **Proximity to Food Stamp Office**: -0.01
- **Food Retail Resources**: -0.10
- **Public Food Assistance Participation**: -0.48
- **Sociodemographic Challenges**: -0.70
- **Poverty Constraint**: -0.76

**Notes:**
- **“** = correlation is significant at the 0.01 level;
- **” = correlation is significant at the 0.05 level.
- Poverty and sociodemographics rankings were expressed from worst to best (e.g., #1 in poverty is the poorest town) for the correlations shown here.

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Concerns about 2005 Study and 2012 Update

• Somewhat confusing for policymakers
  – In developing overall ranking there was concern about being too much weight on poverty and wealth.

• Policymakers expressed a lack of ability to move forward with results
  – “What can we influence?”

• Fast forward to 2012
  – Three ranking categories
  – Maps and Online supplement including individual data access
  – Results easy to interpret for stakeholders interested in enhancing food security
2012 Key Indicators

• Start with indicators and group variables based on theoretical basis instead of analysis.

• Three Ranking Categories
  – Population At-Risk
    • The likelihood a resident of the town is at-risk for food insecurity.
  – Food Retail Ranking
    • Geographic proximity and the number of food retail options for consumers.
  – Food Assistance Ranking
    • How well town residents are being served by public food assistance.
2012 Data Used for Rankings

- Individual data
  - 36 variables in these categories
    - Population At-Risk
      - Education
      - Household structure (Age, Children, Female Head)
      - Poverty and Unemployment Rates
      - Vehicle ownership
    - Food Retail
      - Supermarkets, Grocery, Wholesale Clubs, and Mass Merchandisers
      - Local Foods, Fast Food
    - Food Assistance
      - SNAP, WIC, School Meals
      - Public Bus Transportation
2012 Data Sources

• Sources of data
  – CT Departments of
    • Public Health
    • Education
    • Transportation
  – Trade Dimensions
  – American Community Survey (5 Yr est.)

• Data primarily from 2010
Use of Geographic Information Systems

• ArcGIS and Network Analyst
  – Use roadways to account for natural barriers
  – Eliminates town boundaries
  – Still have outer state boundary

• Closest: Calculate distance to nearest food retailer
  – Number of miles and number of minutes

• Options: Calculate the number of food retailers within a specified distance
  – 5 minute or 10 minute drive
2012 Mapping the Rankings

Population At-Risk

3 Rankings - 3 Maps

Food Retail

Food Assistance
2012 Mapping the Rankings

- Connecticut towns range in population size from 895 to 142,576.
- Need for comparisons with like sized towns/other splits due to differences in resources.
- Well received by stakeholders.

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Spearman Rank Correlation

<table>
<thead>
<tr>
<th></th>
<th>Population At-Risk</th>
<th>Food Retail</th>
<th>Food Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population At-Risk</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Retail</td>
<td>-0.1516*</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Food Assistance</td>
<td>-0.7844**</td>
<td>0.2780**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**, * = correlation is significant at the 0.01 and 0.05 level, respectively.

- A town that ranks low in Food Retail is 15.2% more likely to rank high in Population At-Risk.
- A town that ranks low in Food Assistance is 78.4% more likely to rank high in Population At-Risk.
- A town that ranks low in Food Assistance is 27.8% more likely to rank low in Food Retail.
Main Limitations

• Data availability
  – No directly observable measures of food security at community level
  – Secondary data not perfect
  – Primary data collection necessary
  – Timing of data releases

• Political boundaries vs. CFS boundaries
  – Households are not bound by political boundaries, thus we need to figure out ways to measure food security outside of these boundaries. Use of GIS helps address this issue.

• Does not provide an understanding of the correlation between household food security and community food security.
Future Needs

• Easier price and quality (nutrition/freshness) data availability.
• Better understand of the link between households and local communities.
• Physical infrastructure – is it enough?
  – Policies such as the Healthy Food Financing Initiative that look to bring supermarkets to underserved communities focus on the supply side of access to affordable and nutritious food. We need to consider the demand side as well.
  – What are the reasons that supermarkets do not locate in certain communities?
  – If you bring it, they may not come, they may not consume “nutritious food,” and the policy may not be impacting the issues of food insecurity.
Thank You!