Building Sustainable Food Systems in New York State

Impacts of Food Hubs & Other Local Food Efforts: A Research Perspective

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U.S. Local Food Sales

• In 2012 (Low et al. 2015):
  – 8% of farms marketed food locally (160,000+)
    • 70% D2C only; 30% D2C + intermediated, or intermediated only
  – $6.2B in sales
  – D2C leveling out?
  – Intermediated market expansion

• Strong demand for more local in urban:
  – Aggregation/distribution, market access constraints
  – Consumer income/diet constraints
  – Opportunities for food hubs/other innovations
  – Farm expansion coupled with demand expansion
Local Foods & Economic Development

- Consumer demand currently at nearly $9 billion (USDA): creating new business opportunities for farmers and other supply chain firms.

- Increased state, federal, foundation, & community support.

- Opportunities for small, mid-sized, & large producers, depending on marketing channel & business objectives

- Community stakeholders recognizing that LFSs systems can contribute to community & economic development goals.
  - Much evidence to date has been anecdotal or limited in scope.

- LFSs often have different community linkages that elicit different economic impacts. They can be measured, but requires a thoughtful approach – including diverse community stakeholders, resources, and expertise.
Local Food Systems Toolkit

- Dawn Thilmany (Coordinator), Allie Bauman, Rebecca Hill, Becca Jablonski, *Colorado State University*
- David Conner, *University of Vermont*
- Steve Deller, *University of Wisconsin*
- David Hughes, *University of Tennessee*
- Ken Meter and Megan Phillips Goldenberg, *Crossroads Resource Center*
- Alfonso Morales, *University of Wisconsin*
- **Todd Schmit, Cornell University**
- David Swenson, *Iowa State University*
- Debra Tropp and Samantha Schaffstall, *USDA Agricultural Marketing Service*

**eXtension Community of Practice**

*Economic Impacts of L&RFS*

localfoodeconomics.com
Why did USDA AMS sponsor the Toolkit?

Wanted to understand:

• How do we more accurately measure the impact of local food system investments?

• How do we help community stakeholders make the economic case for local food when communicating with local decision makers?

• How do we ensure greater uniformity and compatibility in local food research studies going forward, to allow for greater cross-comparisons?

Local Food Systems Toolkit

**Benefits to communities**

- **Translates** the latest academic results & research into lay terms.
- **Provides points of entry** to stakeholders at all levels of expertise.
- **Proven methods & examples** to help guide community-based local foods assessments.
- **Guidance** on how to structure a study so that it best reflects community priorities a& needs.
- **Better grasp of the potential AND the limitations** of input-output analysis for evaluating economic impact.
- **Equips stakeholders** to gain more broad-based support for local food projects by gathering robust evidence.
- **Empowers communities** to become more competitive in securing grants by enabling them to more accurately estimate project benefits and tradeoffs.
Local food research linkages (TMS)

- **Food Hub Innovations**
- **Rural Wealth Creation**
- **Rural-Urban Linkages**
- **Producer Scale Effects**

**Economic Impact Assessment**
Case Study: Capital District Region

- Where should agricultural expansion efforts be focused?
- Do small/medium scale farms with D2C sales have different impacts than ‘average ag’?
- Irwin et al. (2010): empirical testing of this intriguing result has not yet occurred.
- Primary data used to convert an aggregate agriculture sector into two components: Small Direct Ag (SDA) and Non-Small Direct Ag (NSDA)
For the same $1M output shock (direct effect):

<table>
<thead>
<tr>
<th>Type</th>
<th>Employment</th>
<th>Labor income</th>
<th>Value added</th>
<th>Output</th>
</tr>
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<tbody>
<tr>
<td><strong>Non-Small Direct Ag (NSDA)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>23.3</td>
<td>$597,048</td>
<td>$903,479</td>
<td>$1,942,660</td>
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<tr>
<td><strong>Small Direct Ag (SDA)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>19.4</td>
<td>$640,753</td>
<td>$981,787</td>
<td>$1,872,472</td>
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</tbody>
</table>
Case Study: Regional Access

- Private sector collaboration to develop recommended assessment methodology
- Successful hub, $6M sales, 30+ employees, 100 NYS farmers, 65 specialty
- Are farms selling to the hub ‘different’ for impact? Develop a ‘food hub farm sector’
- Farm sales facilitated by the hub – who does it help the most?
- Data from RA, farms, & customers.
- Explicitly consider opportunity costs.
- Sales (final demand) expansion and/or improved cost efficiencies are key for impact

Regional Access’ 25,000 sq ft warehouse, Trumansburg, NY
Indirect and Induced Effects per $1 increase in final demand

Industry Sectors

- Food hub farm
- Food sold-nonfarm
- Real estate and rental
- Retail stores-gasoline stations
- Health and social services
- Insurance carriers
- Retail trade
- Automotive equipment rental
- Finance and insurance
- Other farm
- Utilities
- Nondepository credit intermediation and
- Wholesale trade

- Indirect effects (Total = $0.42)
- Induced effects (Total = $0.22)

Case Study: Greenmarket

- Provide a more accurate accounting of linkages and impacts between rural and urban markets with respect to urban-based local food markets
- How do urban-based local food initiatives differentially support farmers and rural communities?
- Determine changes in regional impacts when modifying interregional trade flows
- 53 producer-only markets throughout the 5 boroughs, 22 year round
- Create viable civic spaces where people shop, interact, learn
Single Region Estimates

1. Average GM farm vendor is profitable and has increased employees & gross farm sales over 16% (2010 to 2014).
2. For every $1 of sales generated at GM, an additional $0.61 of economic activity contributed to the regional economy.
3. Depending on the degree GM access associates with farm viability (farm-specific), the total economic contributions of GMs and farm vendors range from $143 to $565 million (output) and 1,100 to 4,200 jobs.
Rural Urban Linkages (in process)

- **Spillover coefficients**: Relative measure of linkages between two economies for a particular sector (Hughes & Holland 1994).

- **Existing linkages across regions** based on aggregate data vs. estimated linkages of GM farm sector based on primary data.

- **What does this imply for impact differences in rural?**
  - Formulate enhanced inter-regional feedback loops
  - Distinction of effects for intermediate and institutional purchases
Case Study: Greenmarket

- RWC considers a broader set of impacts concerning community wealth (social, cultural, individual, intellectual, political, physical, natural, & financial capitals)

- Prioritized impacts and indicators in the context of RWC & urban farmers markets
  - Research and Extension Advisory Panels
  - Primary data collected from GM farmers, GM customers, and GM

- Compare human capital flows to rural areas from farmer participation
Rural Wealth Creation

- **GM farmer education**
  - Urban consumer demands
  - New product/production/variety testing
  - Demystification of the city

- **Impacts on urban intellectual capital**
  - Promotion of public education on agriculture
  - More informed conversations with policymakers
  - More informed voters on agricultural, food, and rural policy

- **Impacts on rural intellectual capital**
  - Supports entrepreneurial innovation
  - Informs production/investment planning
  - Improves marketing and sales techniques
  - Increases linkages between farms and local intermediaries
  - Identifies possible supply chain innovations

- **GM consumer education**
  - Perceptions of agriculture and of rural places
  - Agricultural and rural policy issues
  - Demystification of farming

- **Rural influences on impact**
  - Extent of farmer networks for idea sharing
  - Market competition
  - Level of public educational resources
  - Level of human resources
  - Level of available food system infrastructure

- **Urban influences on impact**
  - Limit of GM footprint and consumer draw
  - Urban planning and development priorities
  - Extent of policymaker interest/political clout
  - Understanding of upstate-downstate linkages
### Means difference tests for human capital index, NYS.

<table>
<thead>
<tr>
<th>Areas</th>
<th>Means Difference Test (Null = 0)</th>
<th>df</th>
<th>Diff</th>
<th>SE</th>
<th>t-stat</th>
<th>P-value</th>
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<tbody>
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<td>3 = 2</td>
<td>NNYC counties = NYC counties</td>
<td>60</td>
<td>2.086</td>
<td>0.394</td>
<td>5.289</td>
<td>&lt; 0.001</td>
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<tr>
<td>4 = 2</td>
<td>NNYC GM counties w/ GM vendors = NYC GM counties w/ GM vendors</td>
<td>30</td>
<td>2.268</td>
<td>0.468</td>
<td>4.848</td>
<td>&lt; 0.001</td>
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<tr>
<td>4w = 2w</td>
<td>NNYC GM counties w/ GM vendors = NYC GM counties w/ GM vendors (weighted)</td>
<td>30</td>
<td>3.193</td>
<td>0.687</td>
<td>8.261</td>
<td>&lt; 0.001</td>
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<tr>
<td>4 = 5</td>
<td>NNYC GM counties w/ GM vendors = NNYC GM counties w/o GM vendors</td>
<td>44</td>
<td>0.389</td>
<td>0.194</td>
<td>2.002</td>
<td>0.052</td>
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<tr>
<td>4w = 5</td>
<td>NNYC GM counties w/ GM vendors = NNYC GM counties w/o GM vendors (weighted)</td>
<td>44</td>
<td>0.391</td>
<td>0.184</td>
<td>2.128</td>
<td>0.039</td>
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<tr>
<td>4 = 6</td>
<td>NNYC GM counties w/ GM vendors = NNYC NGM counties</td>
<td>36</td>
<td>0.286</td>
<td>0.194</td>
<td>1.479</td>
<td>0.148</td>
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<tr>
<td>4w = 6</td>
<td>NNYC GM counties w/ GM vendors = NNYC NGM counties (weighted)</td>
<td>36</td>
<td>0.289</td>
<td>0.175</td>
<td>1.651</td>
<td>0.107</td>
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</tbody>
</table>
Rural Wealth Creation

• Vendors bring positive intellectual capital flows to rural areas from GM
  ➢ GM education efforts and facilitator for V2C and V2V interactions.
  ➢ Applying gains to rural markets and producers

• Extending gains by urban customers to public education and political capital necessary to translate benefits to rural
  ➢ Ability within urban uncertain, as is extent of political interest
  ➢ Changing perceptions about ‘rural places’?

• Ultimate impacts on stock of intellectual capital in rural area influenced by rural resource constraints
  ➢ Success of GM-induced supply chain innovations may support infrastructural & educational resource investments.

• Human capital stocks higher in the counties with GM vendors

• In Process: Extended SAM model to incorporate community capitals & interactions between them & traditional sector accounts
  ➢ Data and measurement issues are challenging
Construction of appropriate impact analyses takes time and concerted thought to ensure all effects (positive & negative) are accounted for.

1. **Producer Scale Effects**: Expenditure patterns vary, so do impacts. What is the impact metric that matters?

2. **Food hub innovations**: provide opportunities for improved access, but ensure countervailing effects are appropriately accounted for when assessing impact.

3. **Rural-Urban linkages**: For LFS impacts, linkages are different by definition! Accounting for industry and institutional changes is tricky. (in process)

4. **Rural Wealth Creation**: A more encompassing view of impacts and nonmarket amenities that folks value. Preliminary evidence shows relationship to urban FM participation and stocks of human capital in rural areas. But how compare with $$$? (in process)


Additional Resources


Questions?

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