An economic analysis of Indiana’s recent food manufacturing growth
SECTION 1

Background: Food Manufacturing Trends and Context
Indiana Food Manufacturing (prior 2000s)

- Indiana’s food manufacturing highly influenced by local agricultural supply
- Hog supply → meat processing
- Decline in wheat, oat and tobacco led to decline in flour and cigar industries
Indiana Food Manufacturing (prior 2000s)

- Decreased local demand hurt producers of cookies, crackers, and distilled liquors
- National/International demand led Indiana to also expand bread baking, soft drink bottling, frozen specialty foods, and other prepared foods
- High labor costs and low productivity lead to vegetable canning declines
National Food Manufacturing Trends

1. Conventional influences: infrastructure, agglomeration, urbanity, input markets, and product markets (Henderson & McNamara, 1997; Lambert & McNamara, 2009; Low et al., 2020)

2. Policy influences: state and local taxes, health department regulations, and environmental laws (Capps et al., 1988; Goetz, 1997)

3. Social influences: ethnic diversity may have a positive impact (Davis & Schluter, 2005)
Recent Food Trends

1. Increased focus on health and wellness

2. Push towards sustainability in the food system, leveraging labeling and “authenticity” (Fusaro, 2009; Toops, 2012)

3. Food manufacturers and retailers have targeted different flavors, food, and messages to different ages, ethnicities, and incomes (Sloan, 2011)
Research Question:
How do recent food trends and Indiana-specific factors impact localized determinants of food manufacturing growth in Indiana?
SECTION 2

Analysis
Multivariate Regression, HC5

1. **Dependent**: 2009-2017 change in Food Manufacturing firms

2. **Independents**: Per Capita Food Manufacturers, 2009 (100k)
   Per Capita Food Manufacturers, 2009 (100k) squared
   Unemployment Rate (%), 2009
   Population Density, 2009
   In(Per Capita Personal Income, 2009)
   Share of Non-White Residents, 2009
   Share of Foreign-Born Residents, 2009
   Per Capita Specialty Food Services, 2009
   Obesity Rate, 2009
   Share of Amish Residents, 2009
Data

1. U.S. Census County Business Patterns, 2009 & 2017
2. American Community Survey (5-year estimates), Social Explorer, 2009
3. Obesity Rate: County Health Rankings & Roadmap, Wisconsin Population Health Institute, 2010
4. Amish population: The Young Center population estimates, 2009
## Per Capita Change in Food Manufacturers, 2009-2017 (100k)

<table>
<thead>
<tr>
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Foreign-born Resident Effect

- Linguistic isolation in the local labor market often promotes entrepreneurship among the English-fluent immigrants (Mora & Dávila, 2005)
- Foreign-born populations could provide new niche markets
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Specialty Food Services

- Contractors, caterers and food trucks depend on processed inputs, which could lead to localized clustering (Schmit & Hall, 2013)
- Food trucks more resilient during 2007-2009 economic recession (Brennan, 2014)
- Gourmet good trucks could serve niche markets (McNeil & Young, 2019)
### Analysis

#### Economic Factors
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#### Social Factors
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Potential Amish Mechanisms

• Available labor source for food manufacturing

• High business creation and survival rates among Amish entrepreneurs (Kraybill et al., 2013)

• “Authenticity” of Amish label for goods, although Amish business owners are reluctant to use this leverage (McConnell & Loveless, 2018)
Food Manufacturing Growth amid COVID-19

• Municipalities could leverage diverse, niche communities

• Specialty food services could be a resilient market for food manufacturing goods, but there is also a trend towards at-home consumption

• More research needed to understand the influence of Amish communities
  • Amish population doubling every 21 years (Donnermeyer et al., 2019)
  • Could this influence flip, given COVID’s likely high impact on Amish communities?
References:


References:


McNeil & Young, 2019


Share Grounds
A Model for Expanding Food Innovation Beyond the Academic Setting

Dr. Renee Threlfall
University of Arkansas System
SHARE GROUNDS
CERTIFIED KITCHEN & DISTRIBUTION CENTER

Creating facilities at Arkansas county fairgrounds in:
- Marshall
- McCrory
- Rison

Share Grounds facilities offer:
- Produce Aggregation
- Product/Process Development
- Value-Added Production
- Regulatory Assistance
Project Goals

Collaborate with county fair boards and community members to use existing fairground infrastructure to establish food innovation centers

Convert three fairground concession stands and warehouses to food manufacturing facilities for food production and aggregation

Provide university and extension education and technical assistance to expand opportunities for growth of farms and food businesses in local and regional markets
Diverse Project Funding

• Share Grounds project was initially funded by a federal grant but other diverse funding was needed to implement the project.
  • State and federal grants
  • Individual, industry, and nonprofit donations
Hub and Spoke Model

Implemented a hub and spoke model to provide University and Extension expertise for food innovation opportunity in rural community settings

- **Hub**: team with expertise in food science, food safety, horticulture, agricultural marketing, and food regulation
- **Spoke**: local county extension staff, fair boards, and community advisors
- **Clients**: local farmers and entrepreneurs using Share Grounds sites
- **Link between Hub, Spoke and Clients**: part-time Share Grounds managers
Hub and Spoke Model

Arkansas Food Innovation Center

Dr. Renee Threlfall
John Swenson
Dr. Ruben Morawicki
Jack Lisle
Ashlynn Robinson

Local, Regional and Safe Foods

Dr. Amanda Philyaw Perez
Angela Gardner
Julia Fryer
Rip Weaver
Lisa Brown

County Agents

Diane Clement
Leigh Ann Bullington
Les Walz

Searcy County Share Grounds

Dawn Kelly
Valour Taylor Cobbins

Three County Fair Share Grounds

Cleveland County Share Grounds

Angela Gardner
Valour Taylor Cobbins

UofA DIVISION OF AGRICULTURE RESEARCH & EXTENSION University of Arkansas System
Arkansas Share Grounds Site

Source: U.S. Census Bureau, American Community Survey: 2013-2017
Cleveland County

BEFORE

AFTER
Woodruff County (Three Co. Fair)

B E F O R E

A F T E R
Aims

• Food businesses in marketplaces
• Arkansas Made branding
• Trend for local retail
  • Local restaurants
  • Small grocers
• Business expansion
  • Potential for successful businesses to move beyond Arkansas borders through market connections with larger buyers (Walmart) and/or moving online (Amazon)
## Client Intake Process

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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</table>
| 1    | Review UAEX Resources  
To make better informed business decisions, review the following pages:  
- Share Grounds of  
- Cottage Food vs Manufactured Food  
- How to Start a Food Business in Arkansas |
| 2    | Client Intake Form  
Contact your local Share Grounds Manager to schedule an initial meeting and tour of the facility. Be prepared to discuss your food product and business strategy. During your meeting, you will receive a User Agreement, facility policies and a rental fee chart to review. |
| 3    | Market Research  
Based on your meeting with the Manager, research retail options for your product and price shop ingredients and packaging for your product. Use these numbers to estimate your start up costs. |
| 4    | Purchase Insurance  
In order to use the Share Grounds Kitchen, you must have product liability insurance in force. The Food Liability Insurance Program (FLIP) provides insurance to small food businesses (~$300/yr). |
| 5    | Trial Run  
Schedule a time to run a trial batch of your recipe in the Share Grounds Kitchen. Bring a copy of your insurance Policy and a signed User Agreement to the facility. This step may require multiple test batches to achieve the right recipe based on taste, quality and food safety. |
| 6    | Develop Operational Procedures  
With the help of the manager, develop Standard Operating Procedures (SOP), Sanitation Standard Operation Procedure (SSOP), Recall Plan, Allergen Plan and other operational documentation for your food company. |
| 7    | Product Label  
Develop a product label. The Product Labeling Information Guide provides information on mandatory label requirements. For a nominal fee, AFIC can create a Nutrition Facts panel for your product label. |
| 8    | Commercial Process Review  
Prepare your application for the Arkansas Department of Health, Wholesale/Manufactured Food permit. Review all paperwork and product label(s) with the Share Grounds site manager. |
| 9    | ADH Permit  
Apply for a food manufacturing permit from the Arkansas Department of Health. Once approved, provide a copy to the Share Grounds Manager. |

### COVID - 19 Impact and Adjustments
- Delayed openings
- Virtual meetings
- Sanitation procedures
- Social distancing
Share Grounds Clients & Products

• Share Grounds sites opened June 2020
• 20 clients initiating food product development
• Goal of producing 20 market ready, value-added food products

  • Salsa
  • Pickles
  • Teas/tinctures
  • **Commercial honey**
  • Seasonings
  • Pepper jelly
  • Frozen hand pies
  • Refrigerated yeast rolls
  • Pickled okra
  • Caramels and caramel sauce

  • Quinoa granola
  • Mayhaw jelly
  • **Soybean dip**
  • Elderberry gummies
  • “Farmer Protein Bar”
  • Freeze dried probiotic snack for kids
  • Caponata di melenzane (sicilian caponata sauce)
  • **Cricket flour**
  • Cornbread crackers
  • Hot sauce
Potential Outcomes

- Economic opportunity in rural communities
- Potential revenue stream for Fair Associations
- Client focus on product development/production
  - Creating a novel product
  - Cold-chain storage
  - Distribution relationships that are built-in
- Strengthening rural – urban linkages through food
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Cooperative Extension Service, UA System  
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If this project is successful, the hub-and-spoke model could be utilized in other regions.
Developing Standardized Metrics for Reporting Farm-to-Institution Purchases

Jeffrey K. O’Hara – USDA Agricultural Marketing Service
1 of 11 pilot steering committee members
October 13, 2020
2020 Food Distribution Research Society Annual Meeting

The findings and conclusions in this presentation are those of the author and should not be construed to represent any official USDA or U.S. Government determination or policy.
Farm to Institution Programs Overview

• Anchor institutions have been strategically identified for local sourcing in U.S.
  • Large employers
  • On-site captive customer base
  • May receive public support
  • May have mission-focused objectives that align with local sourcing

• Institutions (USDA):
  • K-12 schools or preschools
  • Colleges or universities
  • Hospitals
  • Workplace cafeterias
  • Prisons
  • Food banks
  • Gleaners
  • Senior care facilities
Role of Intermediaries

• “Farm-to-intermediary-to-institution” a more accurate description of the supply chain than “farm-to-institution”

• This implies a tracking system is needed for institutions to report local food purchases

• Standardized tracking metrics are preferable to ad hoc tracking metrics:
  • Consistency and transparency in reporting
  • Supports cross-sector and regional comparison, aggregation, and evaluation
  • Reduces transaction costs on distributors
National FTI Metrics Collaborative

• The Collaborative consists of U.S. organizations that share information, resources, and best practices on measuring FTI programs

• The Collaborative launched a project to standardize farm impact metrics for FTI purchases

• Pilot steering committee:
  • University of Kentucky Food Connection
  • USDA Food and Nutrition Service
  • Farm to Institution New England
  • Michigan State University Center for Regional Food Systems
  • Center for Good Food Purchasing
  • USDA Agricultural Marketing Service
  • Health Care Without Harm
  • National Farm to School Network
  • Community Health Improvement Partners
  • Real Food Generation
Every product has multiple characteristics

- Business Type: _______
- Ownership: _______
- Farm Impact: _______
- Farm Identity: _______
- Product Type: _______
- Market Channel: _______

*Carrots: Item # 1545*
Gather (self-defined) “local” purchases in template

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
<th>Label/Brand</th>
<th>Product Description</th>
<th>Cost</th>
<th>Business Type</th>
<th>Minority Owned</th>
<th>Woman Owned</th>
<th>Farm Impact</th>
<th>Farm Identity Preserved</th>
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Tabulation Example – How does local sourcing impact farms?

Getting over the “local is whatever I say it is” hump
For more detailed instructions on how to use these metrics:

https://ftimetrics.localfoodeconomics.com/
jeffreyk.ohara@usda.gov
Urban Agriculture: Who Benefits from California’s Urban Agricultural Incentive Zones Act?

Samane Zare,
Postdoctoral Scholar, UC, Riverside

Jon C. Phillips
Professor of Agribusiness, Cal Poly Pomona

Lauren Hays
Recent M.S. Agriculture, Cal Poly Pomona
Urban Agriculture

• In 2013, AB 551 was introduced to the California Legislature to allow cities and counties to enact Urban Agriculture Incentive Zones (UAIZ). The Bill allows landowners to enter into a 5-year contract with cities and counties to use vacant lots 0.1 to 3 acres for small-scale commercial and non-commercial agriculture.

• Properties would then be assessed at the same tax rate as irrigated crop land, adjusted proportionally by acreage. [California Legislative Information. (2013). AB 551 Local government: Urban agriculture incentive zones.]

• In 2017, AB 465 was enacted to extend authorization of UAIZ contracts into 2029. The purpose of AB 551 is to promote sustainable urban farm enterprises in urban centers.
Urban Agriculture

- Urban Agriculture provides various benefits for the individuals involved, including:
  - Economic (Cohen, 2016)
  - Social impacts
    - Youth development opportunities (Cohen, 2016)
    - Addressing **food access and security** (Cohen, 2016), (Prové, 2015), (Siegner, et al, 2018)
    - Increased home values (Voicu & Been, 2008)
  - Public benefits such as providing green spaces and greenhouse gas emissions reductions (Lovell, 2010), (Deelstra & Girardet, 2000).
Research questions

• What are the socioeconomic and demographic characteristics of those who practice urban agriculture?

• Is UAIZ program effective in increasing the number of urban ag sites in California?

• Who is taking advantage of UAIZ?
Figure 1. Total Urban Ag sites in San Diego in 2020 (Sum=2723).
Who practices urban agriculture?

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Urban Ag Sites</td>
<td></td>
<td>San Diego County</td>
</tr>
<tr>
<td>Census Tract</td>
<td>Census Tract ID from 2010 Census</td>
<td>Census</td>
</tr>
<tr>
<td>Total Population</td>
<td>2010 population in census tracts</td>
<td>Census</td>
</tr>
<tr>
<td>Pollution Burden</td>
<td>Average of percentiles from the Pollution Burden indicators (with a half weight for the Environmental Effects indicators)</td>
<td>Cal EPA</td>
</tr>
<tr>
<td>Education</td>
<td>Percent of population over 25 with less than a high school education</td>
<td>Census</td>
</tr>
<tr>
<td>Poverty</td>
<td>Percent of population living below two times the federal poverty level</td>
<td>Census</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Percent of the population over the age of 16 that is unemployed and eligible for the labor force</td>
<td>Census</td>
</tr>
<tr>
<td>Percent population Children &lt; 10 (%)</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Percent population Elderly &gt; 65 (%)</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Percent White</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Percent African American</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Percent Hispanic</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Percent Asian</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Percent Other</td>
<td></td>
<td>Census</td>
</tr>
<tr>
<td>Income</td>
<td>Median income in 2010</td>
<td>Census</td>
</tr>
</tbody>
</table>
### Who practices in urban agriculture?

| Table 2. Factors Associated with the Number of Urban Ag Sites in San Diego, CA |
|---------------------------------|--------|--------|--------|--------|
|                                | (1)    | (2)    | (3)    | (4)    |
| Population                     | 1.827*** | 1.921*** | 1.954*** | 1.916*** |
| Income                         | -0.568*** | -0.498*** | -0.404*** | -0.559*** |
| Education                      | 0.883**  | 1.104*** | 1.243*   | 0.824   |
| Unemployment                   | -0.385   | -0.499   | -0.959   | -2.078** |
| Poverty                        | -0.540*  | -0.491   | -0.501   | -0.745** |
| Children <10 (%)               | -0.608   | -0.858   | -0.986   |         |
| Elderly> 65 (%)                | 0.257    | 0.201    | 0.135    |         |
| Hispanic (%)                   |         | -0.069   | 0.474    |         |
| African American (%)           |         | 1.044*   | 0.842    |         |
| Asian (%)                      |         | -0.203   | -0.352   |         |
| Pollution Burden               |         |         |         | -1.578*** |
| Observations                   | 3,648   | 3,648   | 3,648   | 3,648   |

*** p<0.01, ** p<0.05, * p<0.1
Regression results: Summary

- Positive association between number of urban ag sites with population and education.
- Negative association between number of urban ag sites with median income level, poverty level, and unemployment rate.
- Negative association between number of urban ag sites and pollution burden score.
Next steps (1)

• Until recently, urban agriculture was not widespread in California, leaving opportunities to increase adoption.

• In 2013 the state passed legislation AB 551, known as the "Urban Agriculture Incentive Zones (UAIZ) Act," that aims to increase the use of privately owned, vacant land for urban agriculture (UA).

• Since 2013, various cities in California, including San Francisco, Los Angeles, and San Diego, adopted the UAIZ Act provisions that provide a tax incentive for the owners to use private properties for UA purposes.
Next steps (2)

We intend to use ongoing UAIZ programs that have been implemented throughout the state’s larger cities to investigate . . .

• Who is taking advantage of the UAIZ program, i.e., how the adoption rate differs across different income and demographic groups
• How the UAIZ program and its design will impact disadvantaged communities in any appreciable manner
• Whether the UAIZ program has the same effects in different cities
References


