Economic Impacts of Farm to School

October 11, 2017
Webinar Outline and Speakers

Opening comments

Anupama Joshi
Executive Director
National Farm to School Network

Christina Conell
Senior Technical Advisor
USDA Farm to School

Toolkits and Guides

Jeff O’Hara
Agricultural Marketing Specialist
USDA Agricultural Marketing Service

Todd Schmit
Associate Professor
Cornell University

New Resources, Future Research, and Ways to Stay Involved

Libby Christensen
Post-Doctoral Fellow
Colorado State University

Becca Jablonski
Assistant Professor
Colorado State University

Dawn Thilmany McFadden
Professor
Colorado State University
Role of economic impact assessments in supporting farm to school initiatives

Anupama Joshi
National Farm to School Network
Economic Impacts of Farm to School

October 11, 2017

Core Elements of Farm to School

- Education
- School Gardens
- Procurement
Cross-Sector Benefits of Farm to School

Public Health

Education

Community Economic Development

Environmental Quality
Economic Impacts of Farm to School

October 11, 2017

THE BENEFITS OF FARM TO SCHOOL

What is Farm to School?
Farm to school enriches the connection communities have with fresh, healthy food and local food producers by changing food purchasing and education practices at schools and early care and education sites. Farm to school empowers children and their families to make informed food choices while strengthening the local economy and contributing to vibrant communities. Farm to school implementation differs by location but always includes one or more of the following three core elements:

- **Procurement**: Local foods are purchased, promoted and served in the cafeteria, as a snack or in classroom taste-tests.
- **Education**: Students participate in education activities related to agriculture, food, health and nutrition.
- **School gardens**: Students engage in hands-on, experiential learning through gardening.

Why Farm to School?

**KIDS WIN**
Farm to school provides all kids access to nutritious, high-quality, local food so they are ready to learn and grow. Farm to school activities enhance classroom education through hands-on learning related to food, health, agriculture and nutrition.

**FARMERS WIN**
Farm to school can serve as a significant financial opportunity for farmers, fishers, ranchers, food processors and food manufacturers by opening doors to an institutional market worth billions of dollars.

**COMMUNITIES WIN**
Farm to school benefits everyone from students, teachers and administrators to parents and farmers, providing opportunities to build family and community engagement. Buying from local producers and processors creates new jobs and strengthens the local economy.

Benefits of Farm to School

**Public Health**
- Increased fruit and vegetable consumption
- Reduced screen time and increased physical activity
- Minimized diet-related diseases such as childhood obesity and diabetes

**Public Health Education**
- Increased knowledge about gardening, agriculture, healthy food, local food, seasonality
- Willingness to try new and healthy foods; choosing healthier options in the cafeteria and at home

**Public Health Education Community Engagement**
- Overall improvement in both grades and test scores (K-12)
- Improved life skills, self-esteem, social skills and other types personal growth

**Economic Development**
- Average increase of 6% (range 3% to 16%)
- Lowered school meal program costs
- Reaching up to 50% of all produce purchases in season
- Increased offerings of fruits and vegetables; new seasonal recipes; new waste management policies
- Improved morale; increased knowledge of local food
- Positive diet and lifestyle changes; greater intent to integrate farm to school activities in the classroom

**Economic Development Community Engagement**
- Greater opportunity for hands-on, active and experiential learning opportunities

**Economic Development Community Engagement**
- Average increase of 5%
- Increased diversification and new opportunities

**Economic Development Community Engagement**
- $0.60-$2.16 economic activity generated for every $1 spent
- Job creation: Each new farm to school job contributes to the creation of additional 1.67 jobs
- Decreases health risks; encourages community engagement in environmental issues
- Increased food security and positive diet changes; increased student participation in meals at home
- Decreased food waste; decreased air pollution

Summary of Farm to School Benefits
Economic Impacts of Farm to School

October 11, 2017

Economic Benefits

Job Creation

KIDS WIN

FARMERS WIN

COMMUNITIES WIN
USDA Farm to School Census

Christina Conell, Senior Technical Advisor, USDA
Healthy Kids

Local Food

Local Impact
Our Role

As outlined in statute:

The Secretary shall create a Farm to School Program to:

1. Distribute grant funding to improve access to local foods in schools.
2. Provide training and technical assistance to improve access to local foods in schools.
3. Disseminate research and data on existing programs and opportunities for expansion.
Economic Impacts of Farm to School

October 11, 2017

42%

of districts surveyed by USDA say they participate in farm to school activities.

That’s 5,254 districts

and 42,587 schools bringing the farm to school

for the benefit of an estimated 23.6 million children.

USDA
The United States Department of Agriculture
Food and Nutrition Service

https://farmtoschoolcensus.fns.usda.gov

www.farmtoschoolcensus.fns.usda.gov
USDA's Farm to School Census shows schools invest $790 MILLION in local communities. That's a 105% increase over previous results!

https://farmtoschoolcensus.fns.usda.gov
THE MULTIPLIER EFFECT

SCHOOL SPENDING ON LOCAL FOOD DRIVES OVER $1 BILLION IN LOCAL ECONOMIC ACTIVITY

USDA The United States Department of Agriculture
Food and Nutrition Service

www.fns.usda.gov/farmtoschool/farm-school
2015 Farm to School Census tell us...

76% of respondents (3,002 out of 3,954 districts) experienced at least one of the following benefits:

- reduced food waste (18%)
- lower school meal program costs (21%)
- greater acceptance of the new meal pattern (28%)
- **increased participation** (17%)
- greater community support (39%)
Economic Impacts of Farm to School

October 11, 2017

FARM TO SCHOOL GRANT PROGRAM // BY THE NUMBERS (2013-2017)

365 GRANTEES
$25M IN FUNDING
OVER

1,632 APPLICATIONS RECEIVED
$120M REQUESTED

OVER 29K SCHOOLS
APPROX. 13M STUDENTS
IN ALL 50 STATES

ON AVERAGE 1 IN 5 APPLICATIONS FUNDED
From the start of their grant period, grantees report increases in farm to school activities.

- 13% more edible school garden/orchard activities
- Taste tests and cooking demonstrations are up 24%
- Student field trips to farms increased by 20%
- 35% more farm to school concepts embedded in curriculum
- Celebrations of National Farm to School Month are up 20%
Why does farm to school matter?

» Kids are more willing to try new foods.
» Increased consumption of fruits and vegetables
» Improved knowledge and awareness regarding gardening, agriculture and healthy eating.
» Positive economic impacts on local economy.
Economic Impacts of Farm to School

United States Department of Agriculture

Agricultural Marketing Service
Creating Opportunities for American Farmers and Businesses

NATIONAL FARM to SCHOOL NETWORK
FOOD SYSTEMS COLORADO STATE UNIVERSITY
USDA
Cornell University Charles H. Dyson School of Applied Economics and Management
Local Food Research & Development

Overview

Farmers Markets and Direct-to-Consumer Marketing
Food Value Chains and Food Hubs
Wholesale Markets and Facility Design
USDA Farmers Market
Local Food Directories
Grant Programs

Local Food Research & Development

Farmers Markets and Direct-to-Consumer Marketing: conducts regular data collection and analysis of farmers market operations and other direct-to-consumer marketing outlets (Community Supported Agriculture, food hubs, on-farm markets) to help market managers, planners, and researchers better understand the impact of these outlets on food access and local economic development, and help the public easily find sources of fresh, local food.

Food Value Chains and Food Hubs: studies “food value chains”, an innovative business model in which agricultural producers, processors, buyers, and other supply chain members form collaborative, transparent partnerships that intentionally attempt to combine financial success with social benefit. “Food hubs”, a subset of these innovative enterprises, work to ramp...
To what extent have Farm to School programs created economic impacts?

Photo credits: National Farm to School Network
How can “economic impacts” be classified and measured?

- “Direct” effects – revenue from local school food purchases to local farms and/or distributors
- “Induced” effects – occur from increase in labor incomes by employees / proprietors on farm and/or distributor (that result in local expenditures)
- “Indirect” effects – revenue to input suppliers of farm and/or distributor
Economic Impacts of Farm to School

October 11, 2017

The Economics of Local Food Systems

A Toolkit to Guide Community Discussions, Assessments and Choices
First Set of Toolkit Modules

• Module 1: Framing community economic assessment process
• Module 2: Using secondary data
• Module 3: Generating and using primary data
• Module 4: Engaging community process with data
Second Set of Toolkit Modules

- Module 5: Introduction to input-output analysis
- Module 6: Addressing opportunity costs of local food investments
- Module 7: Advanced IMPLAN analysis
The Practitioner’s Guide as a Resource for Farm to School Economic Impact Assessments

Todd Schmit, Associate Professor, Cornell University
What is it?


- Recommended procedures for assessing impacts for food hubs
- Includes downloadable Excel companion file (PGUIDE companion.xlsx)
So why am I talking about it for a F2S webinar?

- General approach is **not** food hub specific and is adaptable to alternative scenarios to address
  - Food hubs aren’t an industry in IMPLAN, but neither are F2S programs
  - Ultimately, If you know the spending pattern(s) of the entity(ies) you are examining you can estimate impact

- Creating/disaggregating sectors is important in refining impact, when data are available; e.g., scale specific differences.

- Alternative PGUIDE pathways relevant to your work

- Types of data and skills required (or to commission for)
PGUIDE Main Components

1. DEFINING THE STUDY AREA
2. DEFINING FOOD HUB TRANSACTIONS
3. CONSTRUCTING THE MODEL IN IMPLAN
4. IMPACT ANALYSIS
5. INTERPRETING RESULTS
Why IMPLAN-ACCESS-IMPLAN iterative process?

1. Getting institutional demands right!
   - Households, governments, etc.

2. Getting imports, exports, & local S/D right!
   - Demand for foreign, demand for nonlocal domestic, demand for local
   - Supply to foreign, supply to local, supply to nonlocal domestic

3. Keeping imports, exports, & local S/D right!
   - Order is important in customization!!
   - Be vigilant and check across software uses

The curse of the ‘empty’ sector!
Economic Impacts of Farm to School

Getting the impacts right!


Source: https://en.wikipedia.org/wiki/Glass_Joe
Some (crude) Alternative Pathways for Assessing F2S Impacts

1. School districts in a 6-county region shift 25% of current food distributor and manufacturer purchases to fresh fruits & vegetables from local farms.
   1. Construct 6-county region in IMPLAN
   2. Industries in IMPLAN adequate (no ABP):
      • Vegetable farming (3) & Fruit farming (4) – IMPLAN farm distribution ok
      • Canned F&V manufacturing (81) – IMPLAN ok
      • Wholesale trade (395) – food distributor purchases (fresh F&Vs).
      • Elementary & secondary schools industry (472) – IMPLAN ok but for F&V purchases
   3. Customize F2S model in IMPLAN: Adjust GACs (production function) for 472 that increases (3) & (4) and decreases 81 and 395.
      • Use data from school to inform adjustments in dollars and local purchase %
      • Shifting from 395 will require margining in reducing wholesale purchase dollars as well as transportation and farm sectors (to the degree they are local)
   4. Run same direct effect ($ of expanded food purchases) in baseline and customized models.
   5. Considerations for modeling:
      • How much from 81 and 395 is already local? IMPLAN or school numbers?
      • What do farmers do to respond to increase in demand? Expand? Reallocate sales?
      • How pay for expanded food purchases? Higher taxes? Reduce spending elsewhere?
      • Other expenses in shifting to more fresh F&Vs, including higher prices per unit of F&Vs?
Some (crude) Alternative Pathways for Assessing F2S Impacts

2. School districts in a 6-county region shift 25% of current food distributor and manufacturer purchases to fresh fruits & vegetables from local farms.

Same as in Example #1 but for the following:

1. **Sourcing from small and medium scale producers only**
   a. Collect financial data from these types of farms in study area to construct new sector. Extract same from industries 3 and 4.
   b. Adjust sales pattern for new sector (along the row) to accommodate reallocation and/or expansion to school sales. In other words, adjust the columns for all industries buying from these farms and the other ‘default’ farms.
   c. The curse of the ‘empty’ sector comes into play.

2. **School now purchases from the new sector, not (3) and (4), but offsets are the same.**
Some (crude) Alternative Pathways for Assessing F2S Impacts

3. SDs in NY purchase fresh F&Vs from farms in CA 6 months out of the year due to seasonality issues. The governor just approved a program allocating $5 million in grants to NY F&V producers to expand their operations by adopting season extension technologies and reducing nonlocal purchases by schools in half. What will the impact be to NY?

What information do you need to assess?

1. Construct F&V farming sectors under existing and with-season-extension-adoption.
2. Assume all farm sales stay the same, but for expanded NYS sales.
3. What farms affected? Adjust existing sector or create new sector? Primary data collection necessary or not?
4. Reflect import substitution in customized model by adjusting local purchase percentages for NYS F&V farm commodities by school industry.
5. Edit school industry sector to reflect NYS GACs and RPCs? Do you have data from the SDs to do this?
6. Analyze net changes in impacts from alternative models reflecting increase demand for local F&Vs by the school industry.
7. How are grants ($5M) funded? Income tax? Reduce induced effects.
Some (crude) Alternative Pathways for Assessing F2S Impacts

4. SDs in NYC purchase fresh F&Vs from farms in CA 6 months out of the year due to seasonality issues. The governor just approved a program allocating $5 million in grants to NY F&V producers to expand their operations by adopting season extension technologies and reducing nonlocal purchases by schools in NYC in half. What will the impacts be now?

   What information do you need to assess? How attack it with the PGUIDE?

   1. Same as example #3, and...

   2. Do you expect the national average production function for elementary and secondary schools in IMPLAN is ‘good enough’ for the unique NYC School System? Can you get reasonable information from the NYS School system to instead do ABP, rather than adjusting the production function characteristics for food purchasing only?

   3. ABP makes sense here and is arguably a more efficient approach, if detailed spending data is available.
Summary

1. Construction of appropriate impact scenarios takes time and concerted thought to ensure all effects (positive & negative) are accounted for.

2. Assumptions to scenarios must be clear and defendable. Documentation and clarity of process is necessary, regardless of who is conducting the analyses.

3. There is no silver bullet as most situations are case-specific, but recommended procedures in primary modeling areas are a useful (p)guide.

4. How to collect the right kind of data, ensuring IMPLAN is doing what you think it is doing, and understanding the outputs IMPLAN gives you are essential.

5. It is important that you understand what needs to be done upfront to assess your teams intellectual capacity.

6. Be realistic. If it’s beyond your capacity, you still need to understand what to ASK FOR and what to EXPECT!
Economic Impacts of Farm to School: Case Studies and Assessment Tools

Libby Christensen, Becca Jablonski, Lacy Stephens, and Anupama Joshi
New Report

• Available at the National Farm to School Network’s website

• Wouldn’t have been possible without:
  – Peer-reviewers
  – Data collection team
Goal

Develop and apply a standardized, replicable framework to assess the local economic impact of a school’s or district’s shift to local food procurement using primary and secondary data.
Farm to school activities

- **Education**: 80% of districts
- **School Gardens**: 61% of districts
- **Procurement**: 92% of districts
Good Data: IMPLAN

• IMPLAN data comes primarily from national sources – e.g., BEA, Ag Census
• Each IMPLAN industrial sector represented by a single, initially-fixed expenditure pattern – 14 agricultural sectors, for example vegetable and melon farming
Good Data: Model Reflects Reality

• Local food system producers have different expenditure patterns
Good Data

• Luckily, there is a lot of new data available vis-à-vis local foods and farm to school:
  – USDA NASS Local Foods Survey
  – USDA ARMS
  – Farm to School Census
Good Data

- All local food
- Non-local food

- Other variable expense
- Labor
- Utilities
- Purchased feed
- Seeds and plants
- Fertilizer and chemical
- Maintenance and repair
- Machine hire and custom work
- Purchased livestock
- Fuel and oil
- Other livestock related

Source: USDA ARMS 2013; Bauman, Thilmany, and Jablonski (forthcoming)
Economic Impacts of Farm to School

Good Data

- All local food
- Non-local food

Source: USDA ARMS 2013; Bauman, Thilmany, and Jablonski (forthcoming)
Sounds Assumptions

- Finite resources (e.g., land, consumers dollars, public dollars) so every decision involves a choice

- Incorporated into economic impact assessments by estimating the net rather than the gross impact of changes in a local/regional food system

- Trade-offs can be on supply (production) or demand (consumer) side, or both
Developing our Approach

Source: Christensen, Jablonski, and O’Hara (forthcoming)
Survey

- 20 questions
- Production practices, sales, markets, overall satisfaction selling to schools, participation in farm to school activities
- Information about six general expenditure categories that account for 66% of all variable expenditures for local farmers and ranchers with gross cash income up to $350,000 (ARMS 2013)
- Pilot tested by six farm to school stakeholders before launch

Photo credit: National Farm to School Network
Defining the functional economic area for Minneapolis

- **Survey:**
  - Average total sales to schools ($33,205)
  - Farm to school sales by supply chain (50% direct and 50% intermediated)

- **USDA’s Farm to School Census:**
  - Total purchases of non-milk local food products ($1,057,880)
  - Definition of local (200 miles)
  - Sources of local food (distributors and producers)

- **Estimate:** 32 farmers in 163 counties

Map image: Esri, HERE, Garmin, NGA, USGS, NPS.
Case Study: Minneapolis

Source: Survey and IMPLAN

n = 5
Case Study: Distribution of $100 in variable costs for Minneapolis FTS and non-FTS farm businesses inside and outside of FEA

$82 STAYS IN THE REGION

$70 STAYS IN THE REGION

$18 LEAVES THE REGION
Farm to school farm

$30 LEAVES THE REGION
Non-farm to school farm
Sales profile by industry category for Minneapolis farm to school farm

- Direct to consumer: 23%
- Direct farm to school: 7%
- Intermediated/wholesale: 70%

n = 5
Impact results with opportunity costs

Economic Output Multiplier for Minneapolis Public Schools = 1.45*
Economic Multiplier for Georgia = 1.48*

*In line with previous farm to school economic assessments, but larger that the more traditional fruit and vegetable production sectors.

Photo credit: Carrot by Hopkins from the Noun Project
Conclusion/Discussion

This report complements the Toolkit and pGuide and provides an approach for data collection and modeling using primary and secondary data that accounts for farmers and their supply chains and opportunity costs.
We need you to use this guide!
Rural Community Impacts of Farm to School: Food Supply Chains, Educational Programming, and Household Purchases

Becca Jablonski, Assistant Professor, Colorado State University
Research and Extension Team

Colorado State University
• Alessandro Bonanno
• Becca Jablonski
• Dawn Thilmany
• Marco Costanigro
• Melissa Prescott
• Allie Bauman
• Rebecca Cleary
• Sachinthra Mendis
• Abby Long

Partners
• Clare Cho, USDA ERS
• Jeff O’Hara, USDA AMS
• Anupama Joshi, NFSN
• Steve Vogel, USDA ERS
• Erin Healy, USDA FNS
• Rachel Spencer, USDA FNS
• Chyi Lyi Liang/Brian Raison, eXtension
• Thompson, Weld, and Poudre School Districts
Advisory Team

Brian Roe, Van Buren Professor, Dept. Of Agricultural, Environmental and Development Economics, The Ohio State University

Wendy Peters Moschetti, Director of Food Systems, LiveWell Colorado; Colorado Core Partner, National Farm to School Network

Kim Niewolny, Associate Professor Community Education and Development, Department of Agricultural, Leadership, and Community Education, VirginiaTech

Katherine Ralston, Senior Agricultural Economist, U.S. Department of Agriculture, Economic Research Service
RESEARCH QUESTION: What are the impacts of farm to school programs on farmers and food supply chain businesses, household consumption patterns, and school food choice, consumption and food plate waste?
Objective 1: Evaluate if FTSPs result in increased market access and profitability outcomes for farmers and food supply chain businesses.
Objective 2: Explore geographic and inter-temporal patterns in U.S. households' food demand/consumption to assess whether FTSPs are correlated with changes in the purchased amounts of recommended foods at home.
Objective 3: Pilot in-school experiments to assess how specific FTSPs influence food choice, consumption, and food plate waste.
Objective 4: Introduce results to research, Extension, practitioner, and policymaker audiences.
eXtension Community of Practice Economics of Local Foods

Dawn Thilmany McFadden, Professor, Colorado State University
Continues link with USDA AMS Toolkit
- Farm to School now embedded as a core project
- Integrates other local food projects that include economic analyses

Featured case studies across the projects and communities

Listserv, forum, glossary
Farm to School Work is New Component to CoP

- AMS Toolkit
- Farm to School
- Benchmarks
- Farmers Market Metrics
- Rural-Urban Linkages
- Community Supported Agriculture
Submit your Project!

**Toolkit in Action**

Below are some examples of studies that have used the Toolkit as a guide in the assessment process. For more information, please contact the authors of the reports directly.

---

**Do Farm-to-School Programs Create Local Economic Impacts?**
*Florence Becot, Jane M. Kolodinsky, Erin Roche, Alexandra E. Zipparo, Linda Berlin, Erin Buckwalter, and Janet McLaughlin*

---

**Critical Reflections on the USDA Local Food Economics Toolkit**
*David Conner, Florence Becot, Diane Imrie*

---

**Economic Impact of Local Food Producers in the Sacramento Region: Spring 2016**
*Shermain Hardesty, Libby O. Christensen, Erin McGuire, Gail Feenstra, Chuck Ingels, Jim Muck, Julia Boorinakis-Harper, Cindy Fake & Scott Oneto*

---

**Economic Contribution and Potential Impact of Local Food Purchases Made by Vermont Schools: May 2016**
The Journal of Agriculture, Food Systems, and Community Development announces a call for papers: Economics of Local Food Systems Utilization of USDA AMS Toolkit Principles

foodsystemsjournal.org

Abstract submission deadline: November 30, 2017
(Completed paper submission deadline: April 5, 2018)
Engaging our Community through an interactive Website

- From the launch of this site in April of 2015 through October 2017, it has over 50,000 page views.
- Among those visitors, 16,600 were new or unique visitors.
  - A relatively high visitation rate for a relatively new government-sponsored outreach project.
An ongoing Community of Practice

In addition to the hundreds of training participants,

- Over 200 website visitors have asked to join the localfoodeconomics listserv
  - Limited to 1 email/month by leadership team
- Becoming a part of a new Community of Practice meant to intersect the community development, food systems and regional economics fields

https://localfoodeconomics.com/register/
Using Social Media to Increase Communications

• To complement the eXtension website, we partnered with eXtension for a social media campaign through Facebook site
• “Community, Local, and Regional Food Systems”
• 105 members contribute weekly posts on events, jobs, news and issues of relevance to the community
Next Steps for Farm to School and Local Food Economics Community of Practice

• Extend the recent report from the National Farm to School Network with ongoing research on Farm to School
  – CSU Project is well positioned to lead, but wants to integrate other partners and work
• Elevate the Community of Practice to include a myriad of projects on Local Food Economics
  – Toolkit simply one core project for this new CoP
• Identify CoP members, resources and programming to highlight more broadly to strengthen the CoP
Resources and contacts

The webinar will be housed at the National Farm to School website:

www.FarmtoSchool.org
www.FoodSystems.colostate.edu
www.LocalFoodEconomics.com

Anupama@farmtoschool.org
Christina.Conell@fns.usda.gov
JeffreyK.OHara@ams.usda.gov
tms1@cornell.edu
Libby.Christensen@colostate.edu
Becca.Jablonski@colostate.edu
Dawn.Thilmany@colostate.edu
QUESTIONS?