Farm-to-School Programs in Southern Arizona

A Case Study on the Economics of Local Foods

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MAP Dashboard Webinar
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Outline

- Local Foods Movement
- Farm to School Programs
- Study Overview
- Farm to School Programs in Southern Arizona
- Economics of Local Foods
- Exploring Economic Impacts
- Takeaways & Key Questions

Local Foods Movement

Local Foods: *Source-identified, originating within certain proximity to consumers; retains information on where, by whom, and often how a food was produced*

Benefits Commonly Cited:

- Shorter supply chain from farm to consumer → greater freshness & quality, reduced environmental footprint
- Supporting regional producers, particularly in rural areas
- Greater consumer awareness and engagement with food supply chain → improved nutrition outcomes

Programs to promote local foods include Farm to School

Farm to School Programs

3-pronged strategy

- Local food procurement by school food authorities (SFAs) for school meals & snacks
- Integrating nutrition education into curriculum
- School garden programs

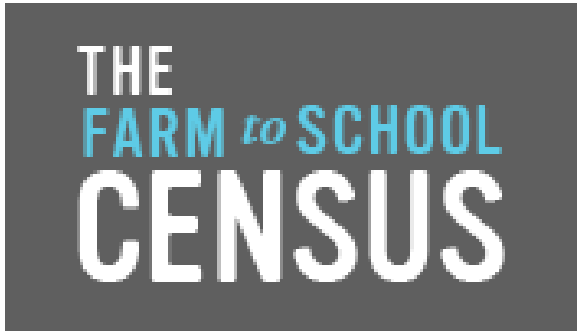
Farm to School Programs

Local food procurement

- Opening up market opportunities for local agricultural producers
- Short-term economic effects
- Easier to study than nutritional or educational outcomes
  - Public school data and USDA Farm to School Census provide systematically collected data on local foods, area which generally lacks data

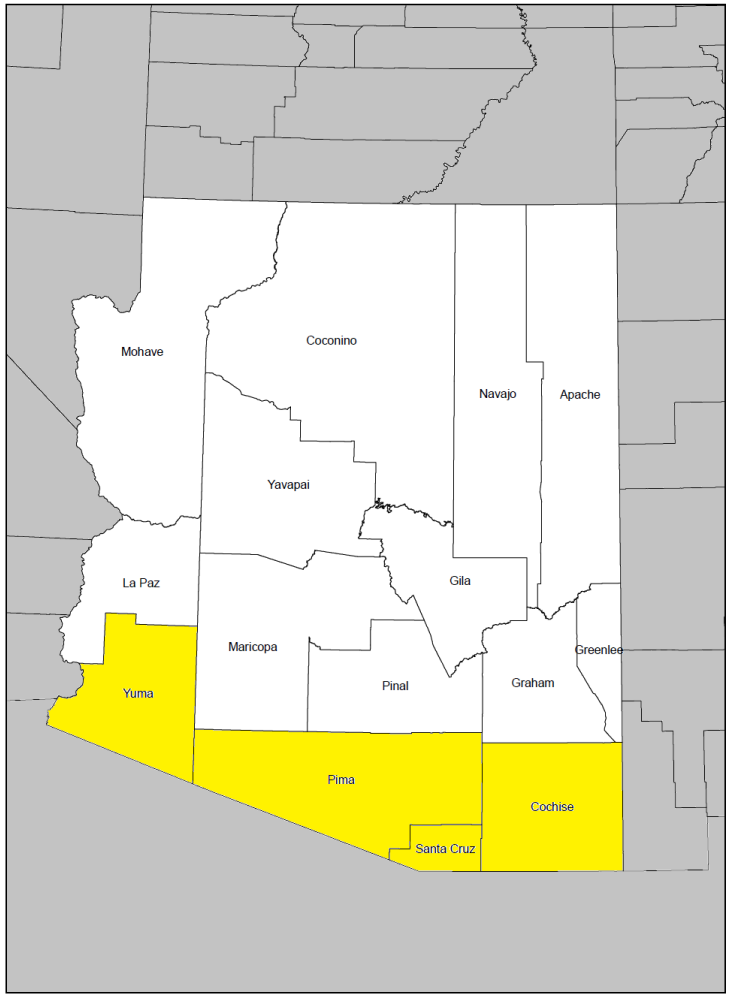
Farm to School Census

- USDA tracks Farm to School activity through Farm to School Census, most recently in 2015 for 2013/14 school year
- National census of school food authorities (SFAs)
- Procurement data on SFA purchases of local foods, commonly purchased local food items, benefits and challenges of farm to school programs, and other farm to school activities beyond procurement



This Study

- Examines potential economic impacts of local foods purchases through farm to school programs in Southern Arizona context
- 2015 USDA Farm to School Census data
- Southern Arizona study area
  - Pima, Santa Cruz, Cochise, & Yuma Counties



Farm to School Activity in Southern Arizona

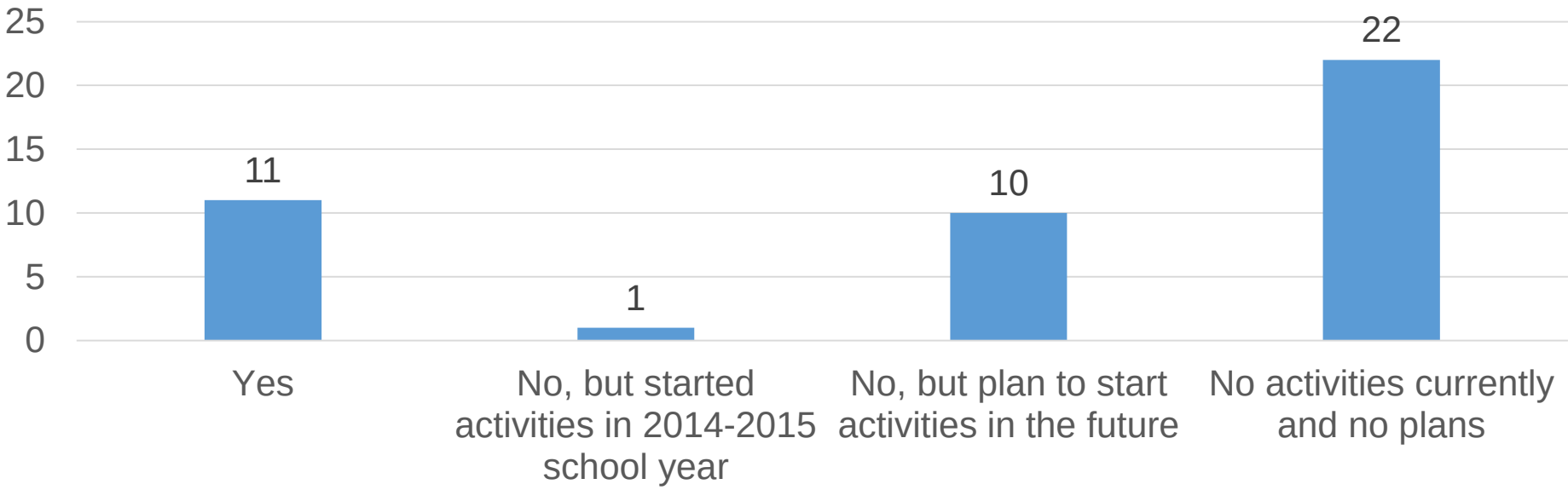
Farm to School Census – Southern Arizona Counties

Southern Arizona Farm to School Census Respondents by County

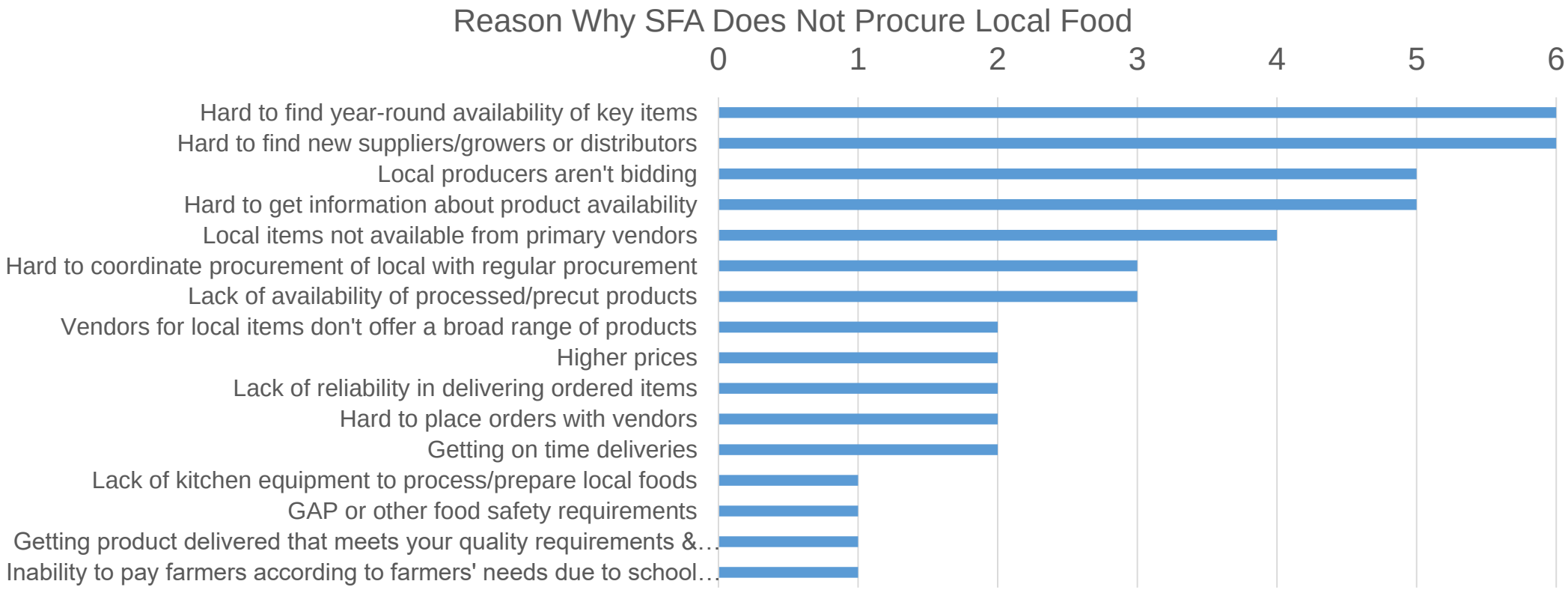
County	Respondents	Universe	% of County Students
Pima	17	96	55.2
Cochise	14	29	64.3
Santa Cruz	4	11	37.8
Yuma	9	15	87.2
TOTAL	44	151	60.8

Farm to School Census – Southern Arizona Counties

Farm-to-School Participation Status among Southern Arizona Farm to School Census Respondents

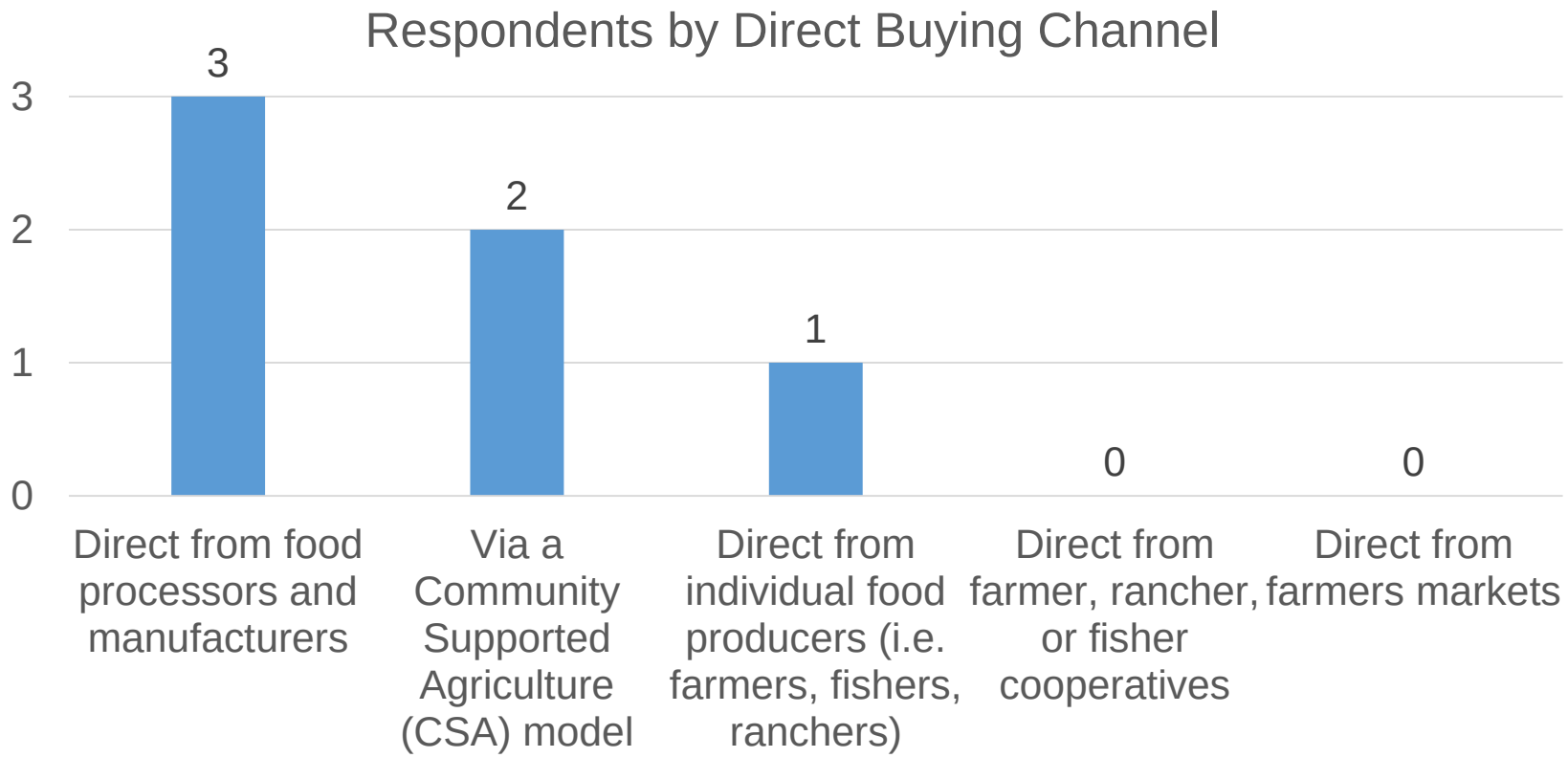


Barriers to F2S Programs



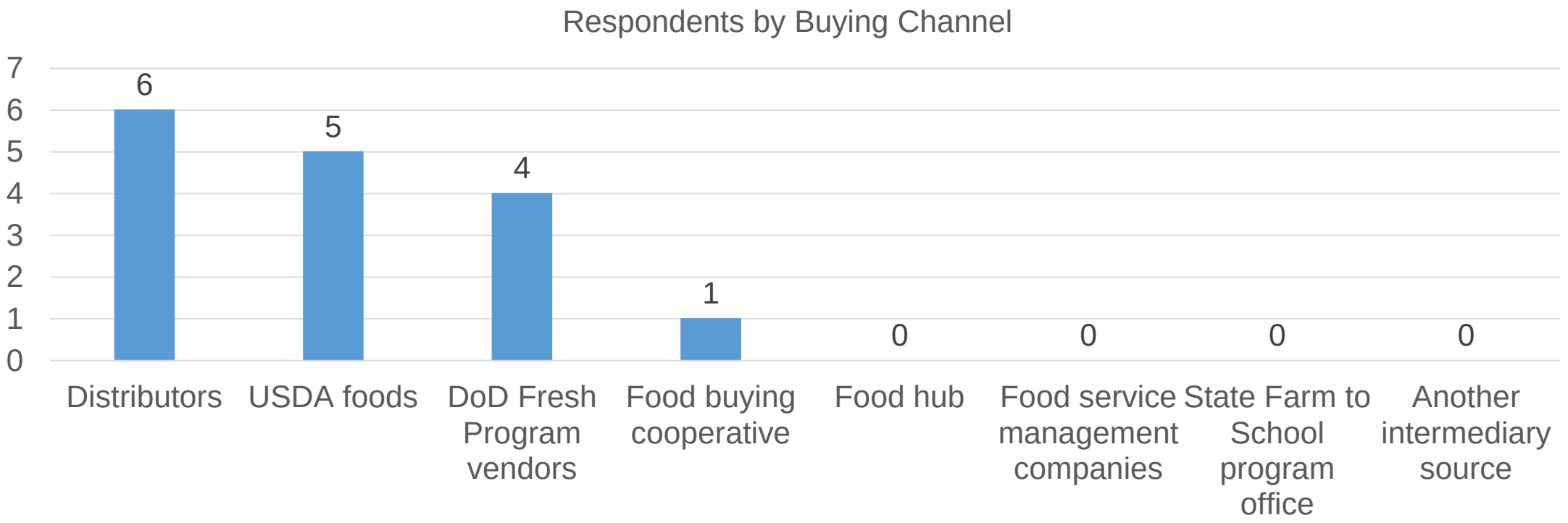
F2S Direct Buying Channels

4 of 10 Southern Arizona F2S respondents with local food procurement report purchasing directly from producers



Indirect Buying Channels

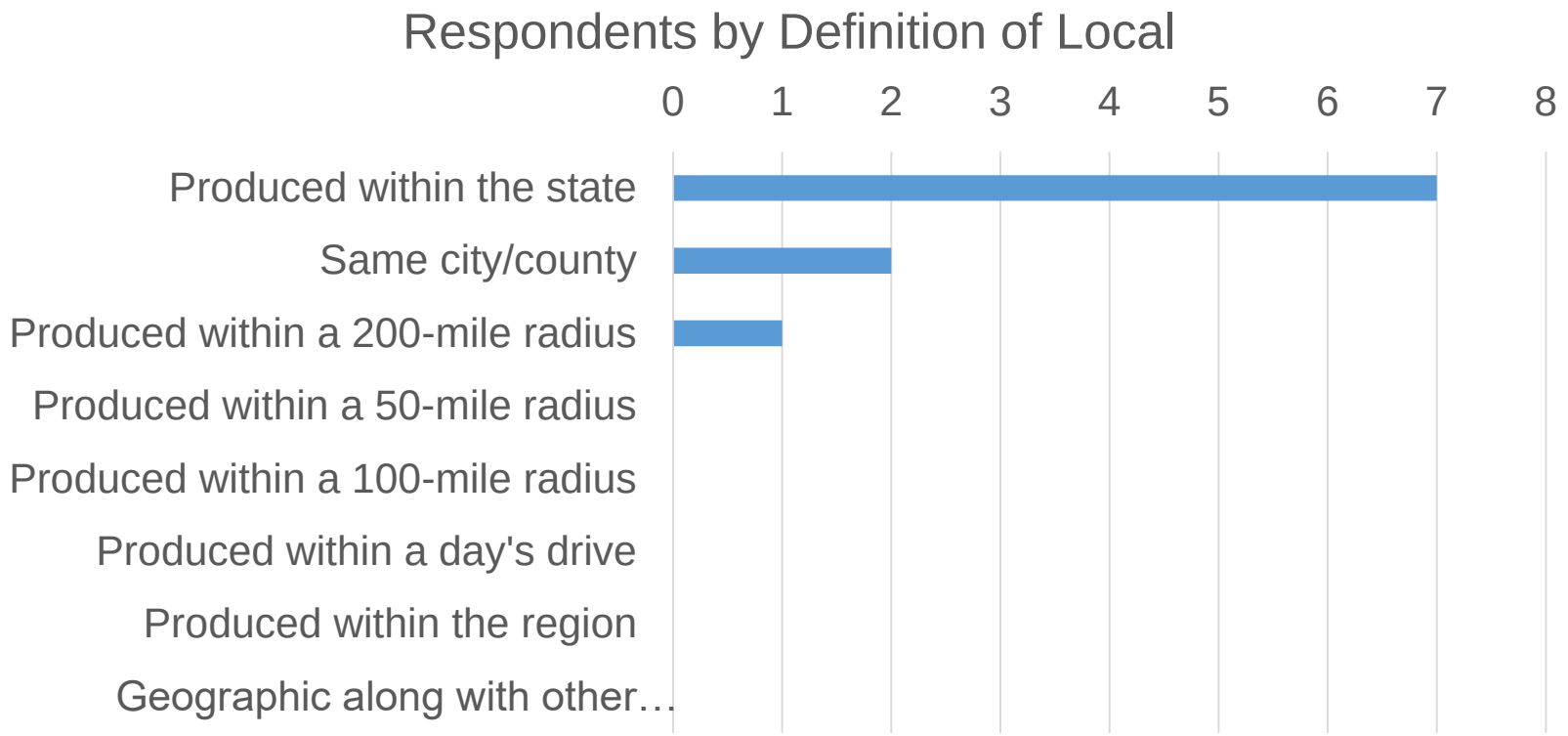
9 of 10 respondents report purchasing through intermediaries



DoD Fresh Produce Program

- Provides up to 20% financial assistance to schools (share of USDA entitlement funds) for fresh produce procurement, including items designated as ‘local’ in their catalogue (local considered in-state)
- In the 2013 school year, DoD program participants in Arizona spent 11% ($501,000) of their program funding on foods designated as ‘local’
- Top fresh produce items purchased statewide were lettuce (41%), celery (39%), broccoli (15%), cauliflower (5%), and vegetable soup mix (5%)
- Southern Arizona counties spent 9% of their program funding ($82,000) on local foods

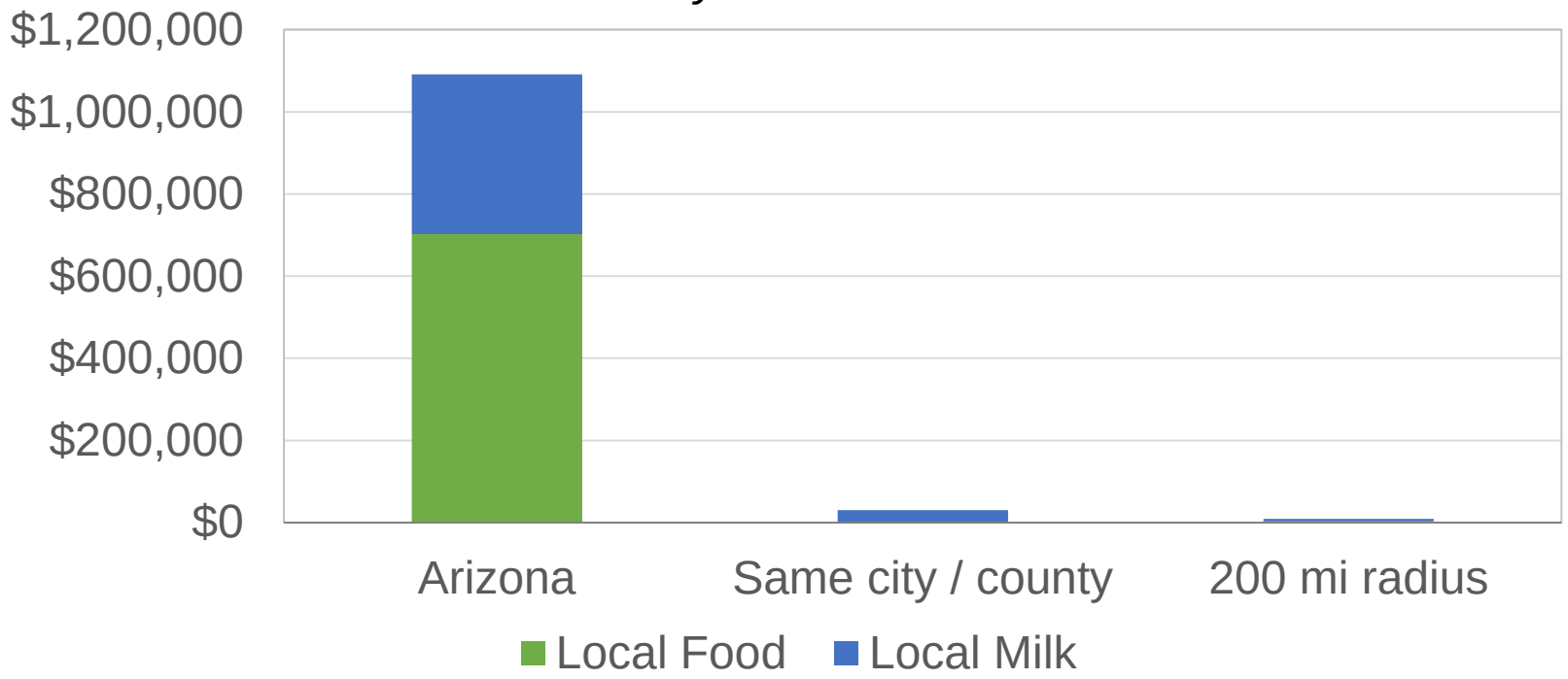
Definition of Local



Southern Arizona F2S respondents most commonly define local foods as food produced within Arizona, followed by within the same city or county

Definition of Local

Southern Arizona School Food Authorities (SFAs) Spending on Local Food and Milk by Definition of Local



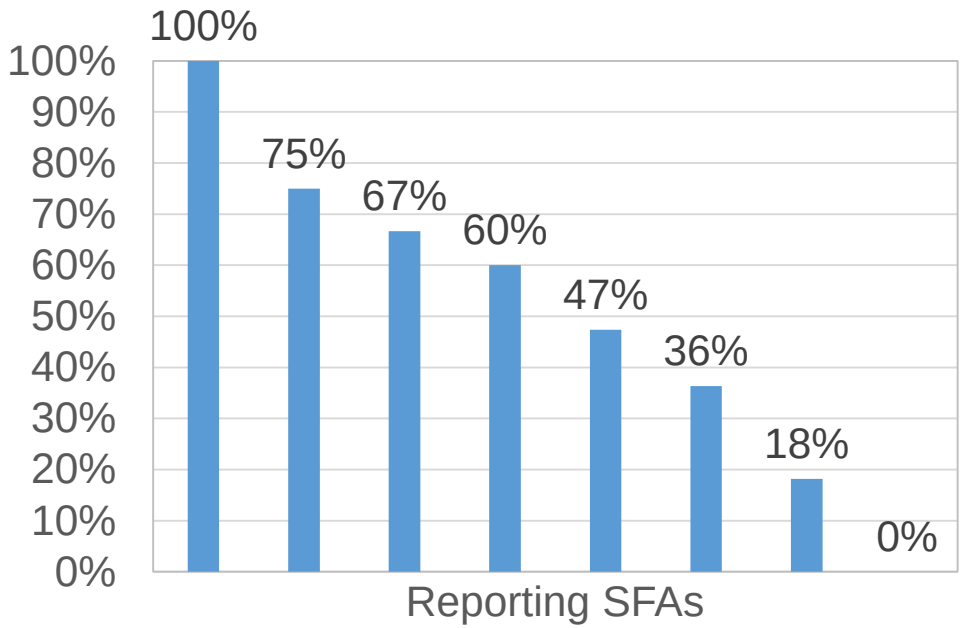
Local Food Items

- Commonly procured local food items in Southern Arizona include vegetables, fruit, and milk
- Local milk is served most frequently, followed by vegetables and fruits

Number of Farm to School Census Respondents by Frequency of Serving Local Food Categories	Daily	More than weekly	Weekly	More than monthly	Monthly	Occasionally	Never
Local fruit	3	1	2	1	0	1	2
Local vegetables	4	0	3	0	0	1	2
Local milk	8	0	0	0	0	0	2
Local dairy products	1	0	0	2	0	1	4
Local meat	1	1	0	0	0	0	7
Local eggs	0	0	0	0	0	0	7
Local seafood	0	0	0	0	0	0	7
Local plant-based protein items (i.e. beans, seeds, nuts)	0	0	0	1	0	1	5
Local grains and flour	1	0	0	0	0	1	6
Local bakery products	0	0	1	0	0	0	6
Local herbs	0	0	0	0	0	0	7
Other local food	0	0	0	0	0	0	5

SFA Food Expenditures

Local Milk Share of Total Local Food Purchases by Southern Arizona School Food Authorities (SFAs)

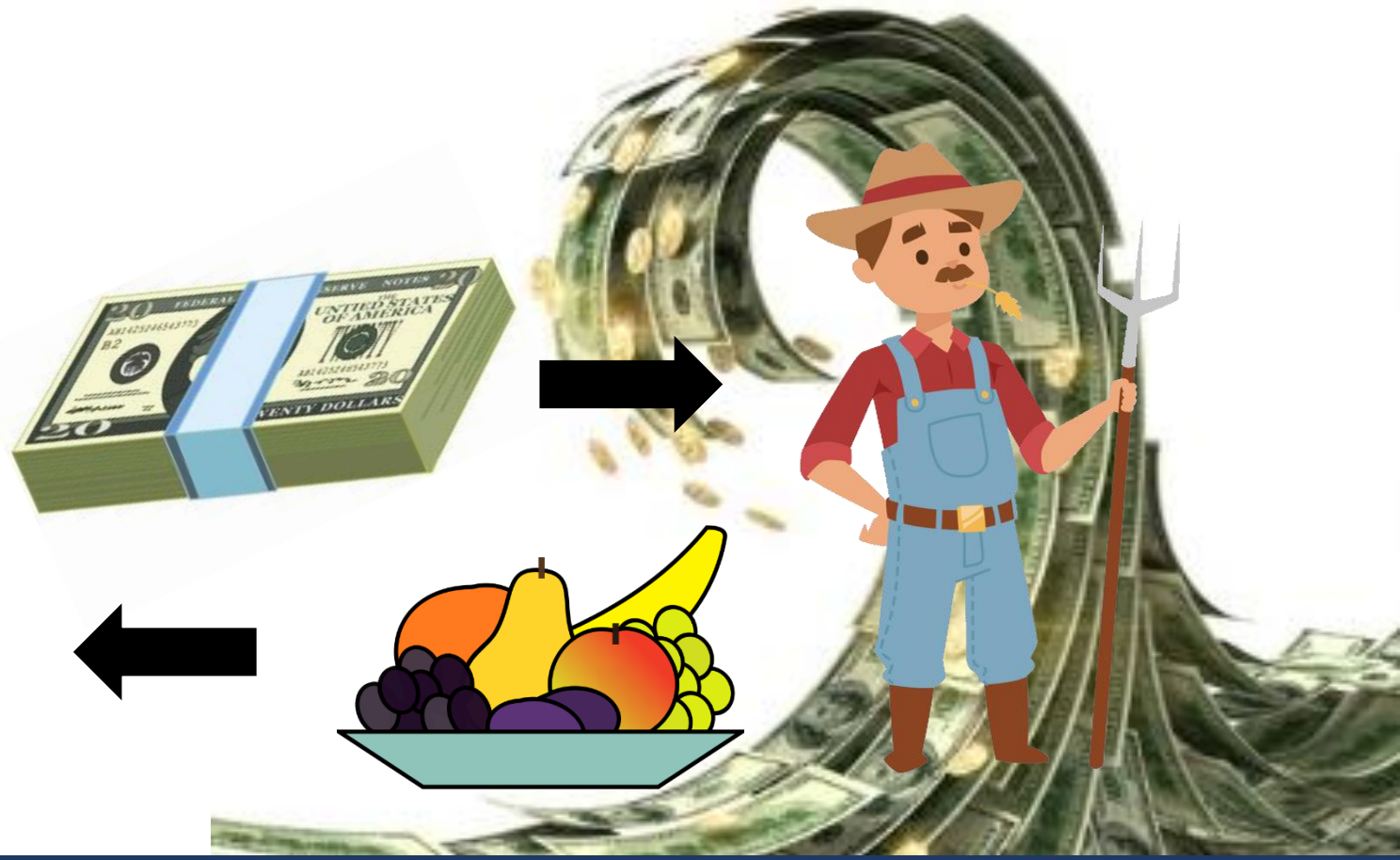


Local Food Expenditures of Southern Arizona School Food Authorities (SFAs) Participating in Farm-to-School Programs

Item	Average	Minimum	Maximum
Total food expenditures	$365,330	$12,000	$1,300,000
Food expenditure (local foods) incl. milk	$113,050	$0	$550,000
% Food Cost Local, Incl. Milk	26.6%	0.0%	100.0%
Food expenditure (local foods) not incl. milk	**$70,550**	$0	$450,000
% Food Cost Local, not incl. milk	9.9%	0.0%	53.6%

Considerations for Evaluating Economic Impacts of Local Food Programs

Common Assumptions

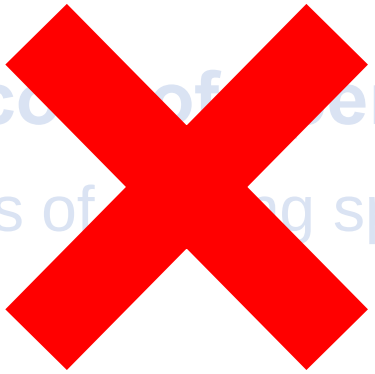


Common Assumptions

Common Assumptions in Analysis of Local Foods Effects

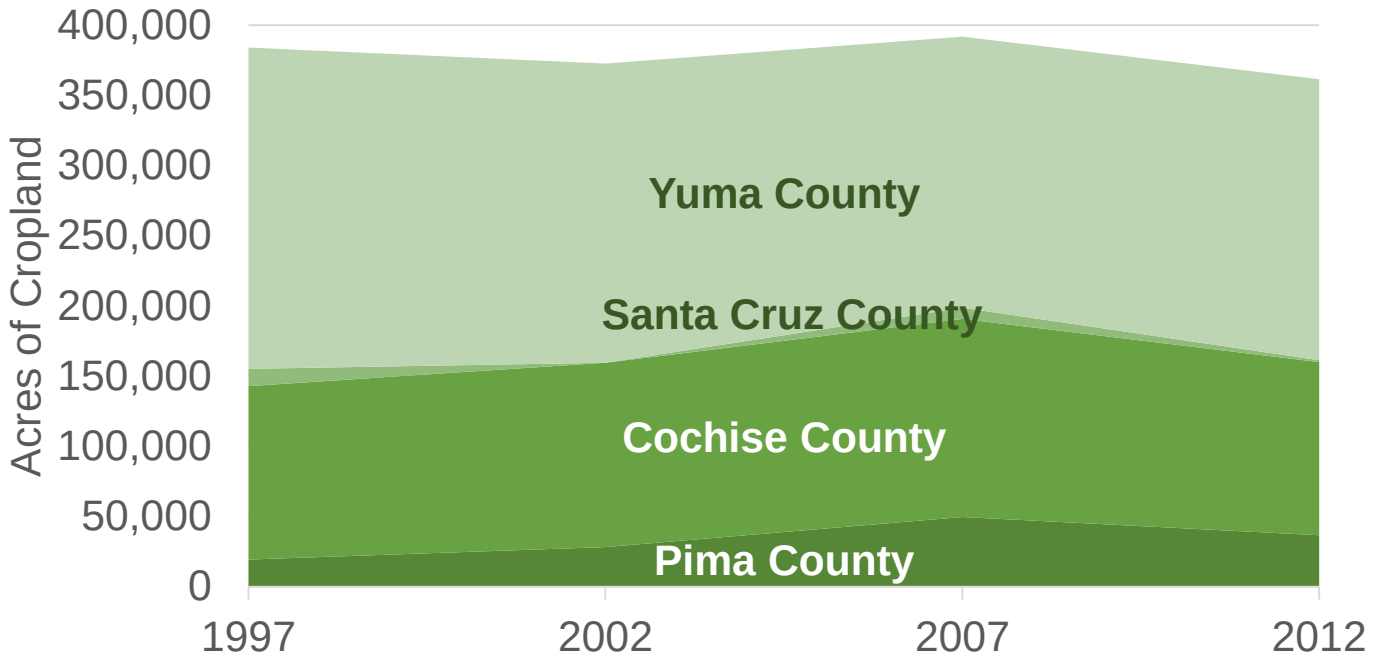
- **“No resource constraints” assumption**
  - No land or resource constraints exist to limit expansion of agricultural production
- **“No opportunity cost of spending” assumption**
  - No negative effects of shifting spending from one buying channel to another

Common Assumptions



- ✓ **Water & irrigated acreage constraints in much of Southern Arizona**
- ✓ **Opportunity cost of spending can impact regional distributors**

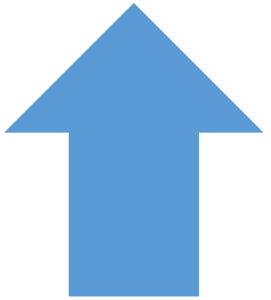
Factors Influencing Economic Effects



Factors Influencing Economic Effects

- Import substitution

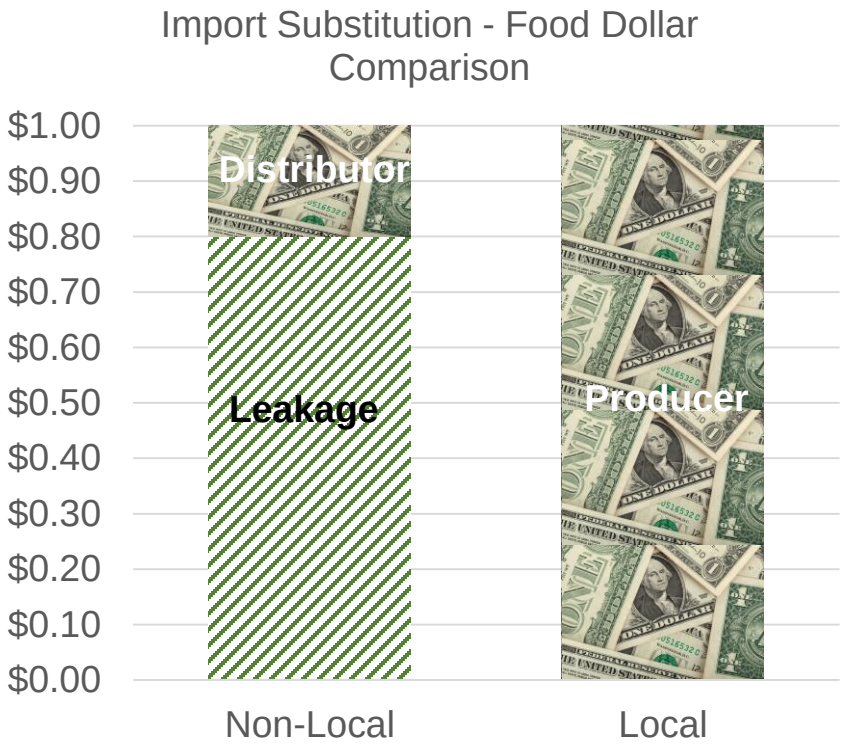
- Countervailing effects
- Definition of local
- Counterfactual



Import Substitution

Replacing goods imported from outside the region with goods produced within the region

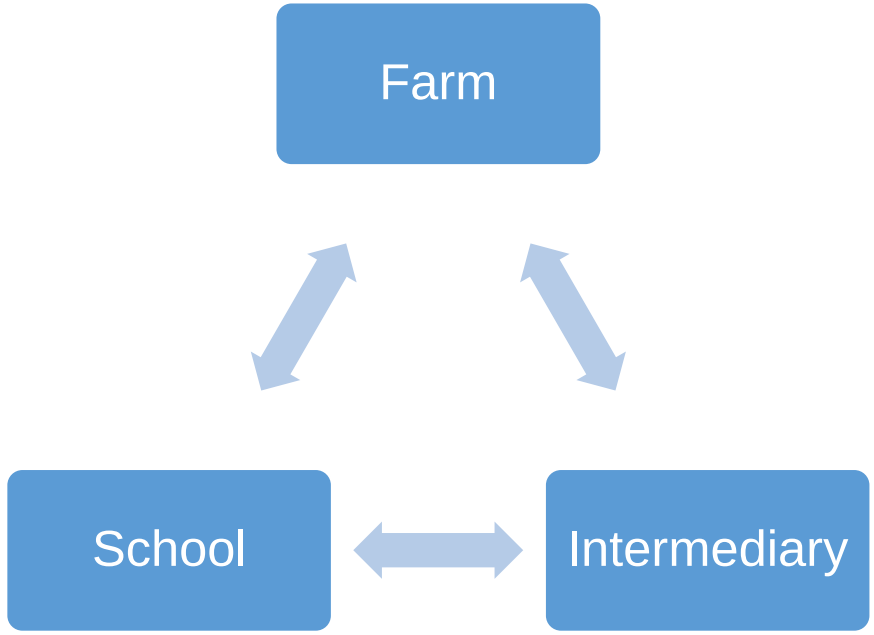
- Primary driver of local foods economic impact
- Implies an increase in local production to offset imports
- Greater share of consumers' food dollar stays within the local economy, supporting jobs, wages, etc.



Countervailing Effects

Accounting for any reductions in economic activity as a result shifting to a local food purchase

- Opportunity cost of spending
- Food chain actors response to local food demand
- Resource constraints
- Export substitution
  - Purchasing a locally produced food that otherwise would have been exported out of the local area
- Definition of local – scope of program and analysis should match



Counterfactual

In the absence of the local food program, where would the food have come from?

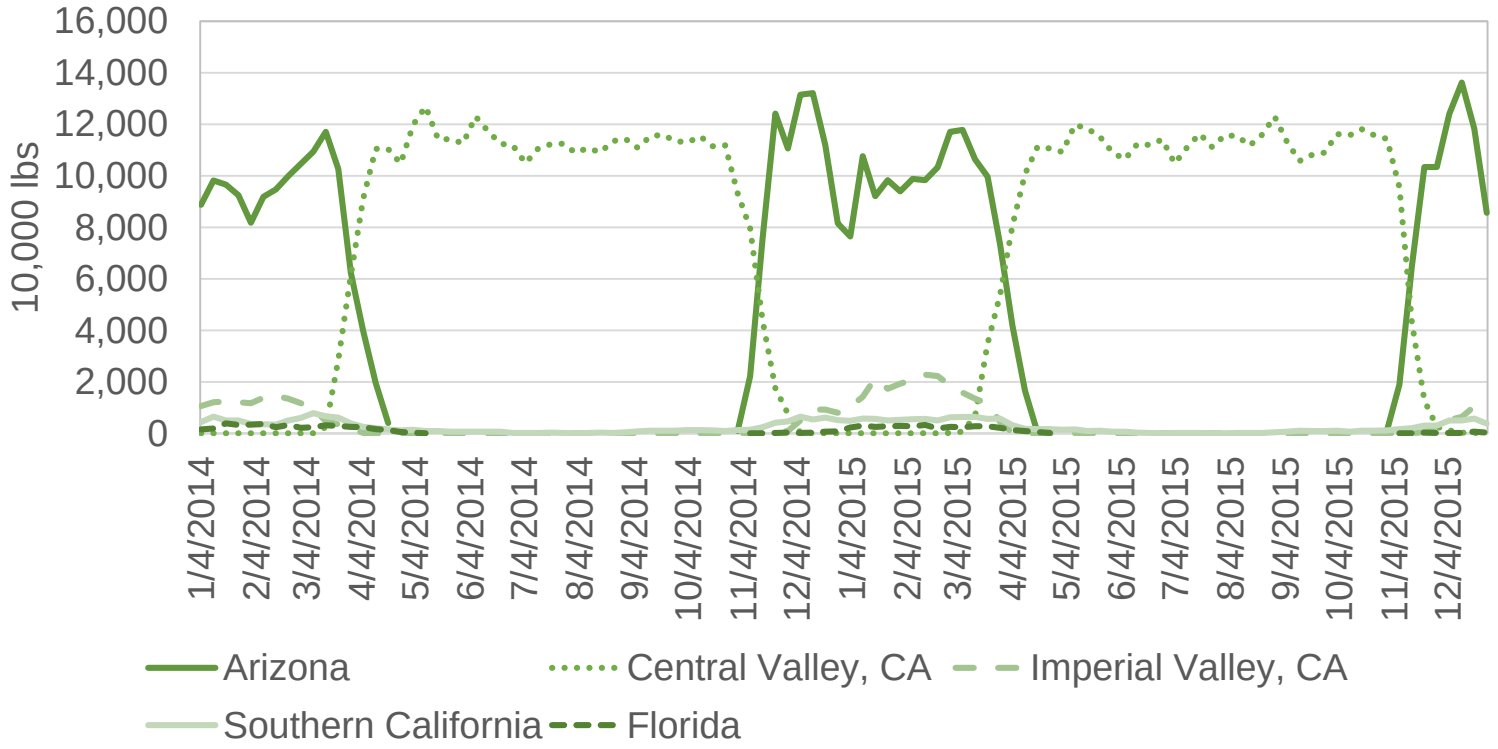
- Some food most commonly sourced from nearby, such as milk
- Areas producing large share of specialty crops may have few alternatives
  - Idaho potatoes
  - Washington apples
  - Arizona lettuce

What can program take credit for?

Counterfactual Example

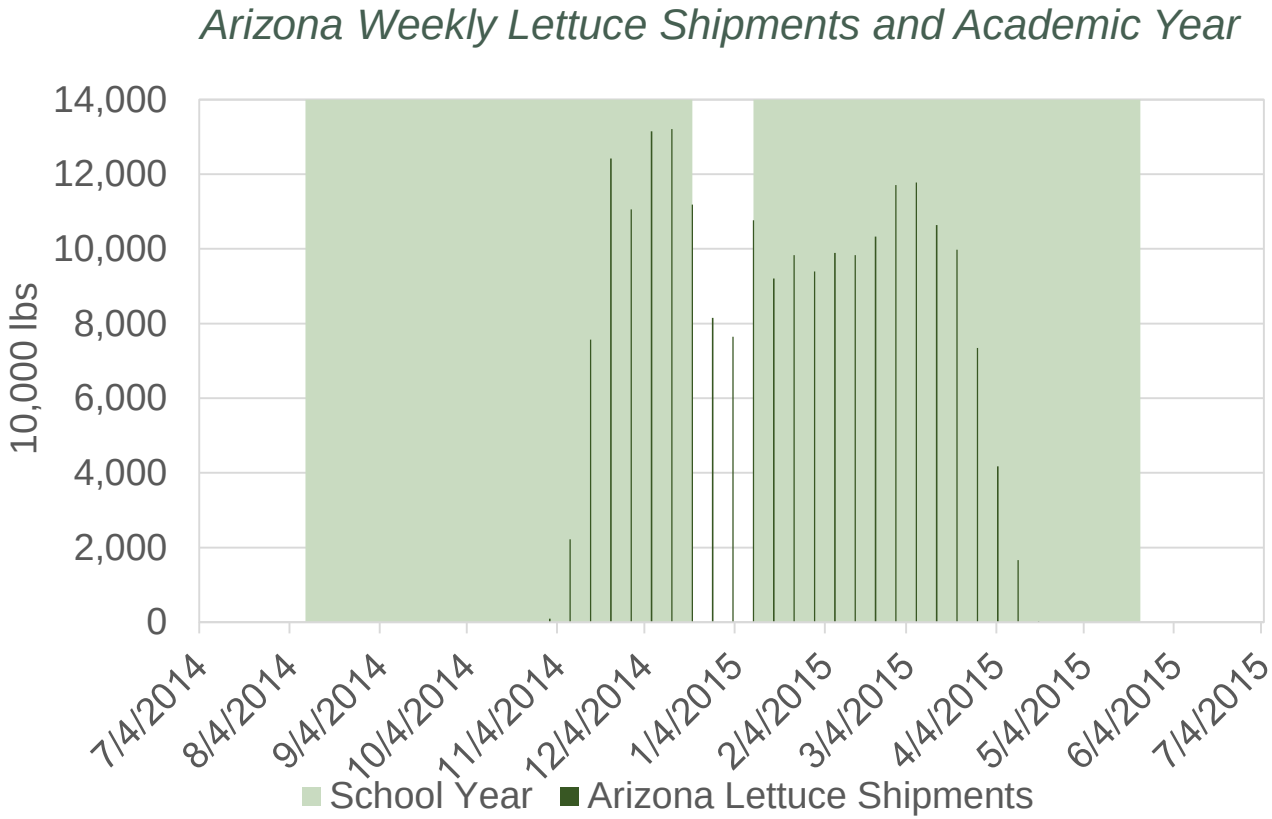
- Between December and March, Arizona supplies over 80% of the nation's lettuce, and as high as 90% in some weeks
- During the 2013 school year, 41% of Arizona DoD Fresh Produce program spending was on lettuce

Weekly Lettuce Movements by Production Region, 2014-2015



Counterfactual Example

- Arizona's lettuce season coincides with much of the school year, meaning that schools may be getting lettuce from Arizona regardless of local food programs



Factors Attenuating Economic Effects

- **Countervailing effects**
  - Opportunity costs of spending by school
  - Switching / crowding out customers
  - Crop shifting (opportunity cost of water)
  - Export substitution
  - Inherently local foods (milk, specialty crops)

Case Study:
Economic Impact of Farm to School Activity in Southern Arizona

Scenarios in which farm-to-school programs could potentially have non-zero economic impacts

Scenario	Effects
Case 1: Increase in local agricultural production of food crops	↑ $70,550 broccoli & spinach production
Case 2: Increase in local agricultural production of food crops through crop-shifting from lower-value field crops to higher-value fruit and vegetable specialty crops (accounting for resource constraints)	↑ $70,550 broccoli & spinach production ↓ $14,250 alfalfa production
Case 3: Increase in local agricultural production of food crops through crop-shifting from lower-value field crops to higher-value fruit and vegetable specialty crops and decrease in wholesale activity (accounting for opportunity costs and resource constraints)	↑ $70,550 broccoli & spinach production ↓ $14,250 alfalfa production ↓ $12,190 decrease in wholesale

Results

Case	School Spending on Local Foods	Countervailing Effect(s)	Net Direct Sales Impact	Total Sales Impact Including Multiplier Effects
Case 1 **No Constraints or Opportunity Costs**	$70,550	N/A	$70,550	$90,800
Case 2 **Resource Constraints**	$70,550	($14,250)	$56,300	$66,650
Case 3 **Resource Constraints & Opportunity Cost of Spending**	$70,550	($26,450)	$44,100	$47,400

Takeaways & Important Questions

- Economic impacts of local foods can be overstated if countervailing effects not accounted for
- In Southern Arizona, water constraints imply tradeoffs
- Intermediaries present a challenge for estimating impacts
- Despite countervailing effects, positive economic impacts possible

Key Questions

Local Foods Economic Impact Considerations

- ❑ Is local food purchaser increasing spending or shifting spending from non-local to local foods?
- ❑ Is local spending on something usually sourced from nearby, such as milk?
- ❑ Is local food producer expanding their operation to meet demand or simply selling existing production to a different, local buyer?
- ❑ If scale of production isn't increasing, are producers changing what they produce to meet demand?

Key Questions

Local Foods Economic Impact Considerations, Cont…

- ❑ If purchases take place through intermediary such as a distributor or food hub, is purchase causing them to expand their operation locally?
- ❑ Does definition of local for all parties involved match?

Demonstrating Economic Impacts

- ❑ How will you collect data on the actions of food chain actors, including growers, final buyers, and, if applicable, intermediaries?

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