

Cornell University
Charles H. Dyson School of
Applied Economics and Management



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Understanding the Economic Contributions of the Apple Industry Supply Chain in New York State

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Northeastern NY Commercial Tree Fruit School

Lake George, NY

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Funding Support: New York Apple Association



Project Team

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NY Cider Association: Jenn Smith
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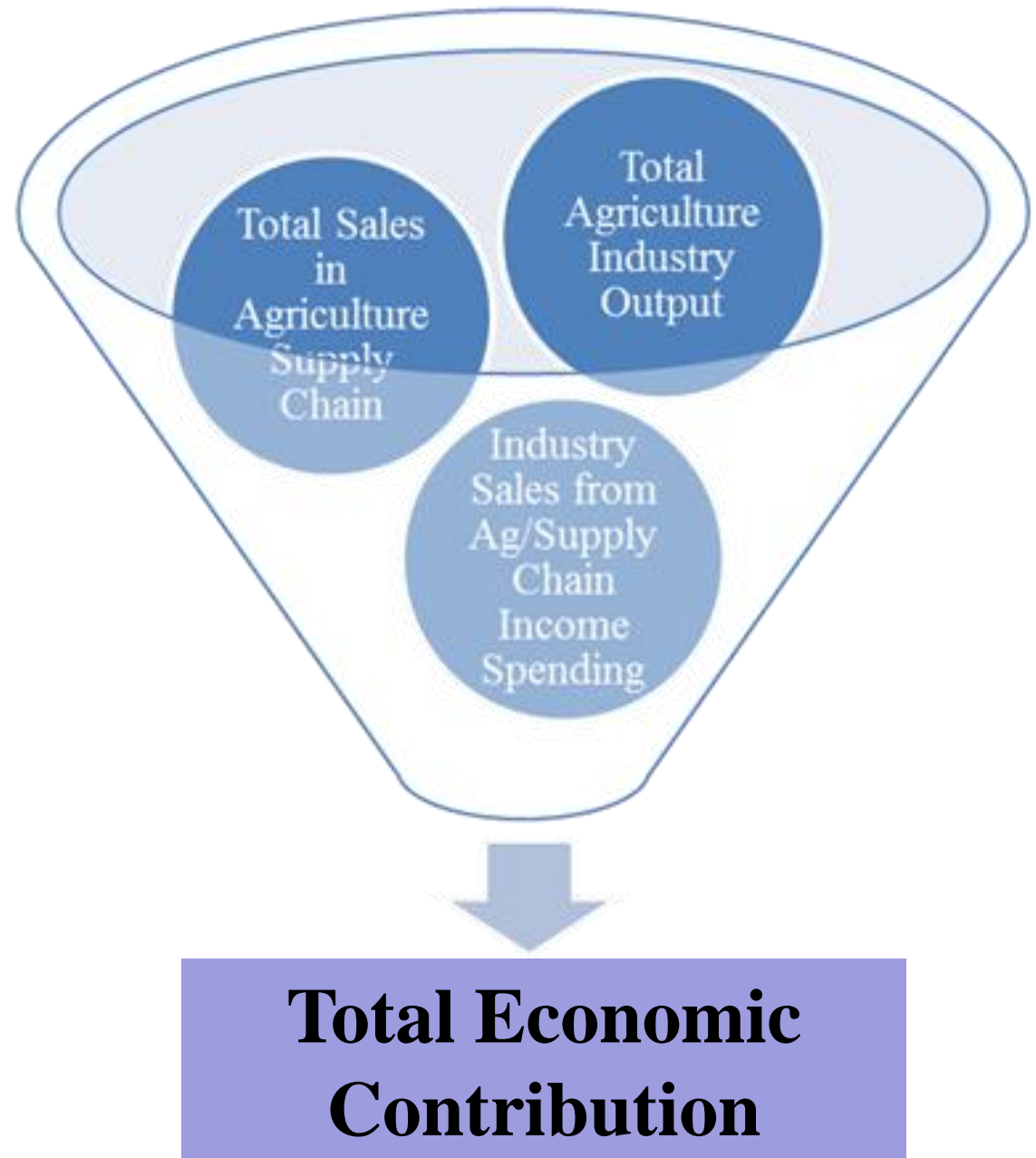


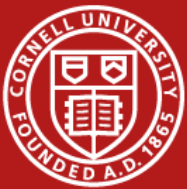
Apple Supply Chain:

- (i) On-farm production,
- (ii) Support services (e.g., grading, packing, storing), and
- (iii) Apple processing

Contribution Analysis:

- (i) Direct effects
- (ii) Indirect effects (supply chain)
- (iii) Induced effects (labor income spending)
- (iv) Total effects, $i+ii+iii$





Economic contribution of agriculture on the NYS economy, 2014.

Aggregate Sector	Direct	Indirect	Induced	Total	Implicit Multiplier
Industry Output (\$ million)					
Agricultural Production	6,665	1,310	1,660	9,635	1.45
Agricultural Support Services	304	41	148	493	1.62
Agricultural Manufacturing	37,844	15,080	6,697	59,621	1.58
All Agriculture	44,813	11,499	7,536	63,849	1.42
Employment (jobs)					
Agricultural Production	54,484	8,898	11,294	74,675	1.37
Agricultural Support Services	7,088	181	1,009	8,278	1.17
Agricultural Manufacturing	83,757	77,718	45,963	207,437	2.48
All Agriculture	145,328	54,458	51,683	251,469	1.73
Total Value Added (\$ million)					
Agricultural Production	3,941	748	1,102	5,791	1.47
Agricultural Support Services	221	23	98	342	1.55
Agricultural Manufacturing	9,606	9,240	4,481	23,327	2.43
All Agriculture	13,768	7,270	5,042	26,081	1.89

Source: IMPLAN, LLC (2016)



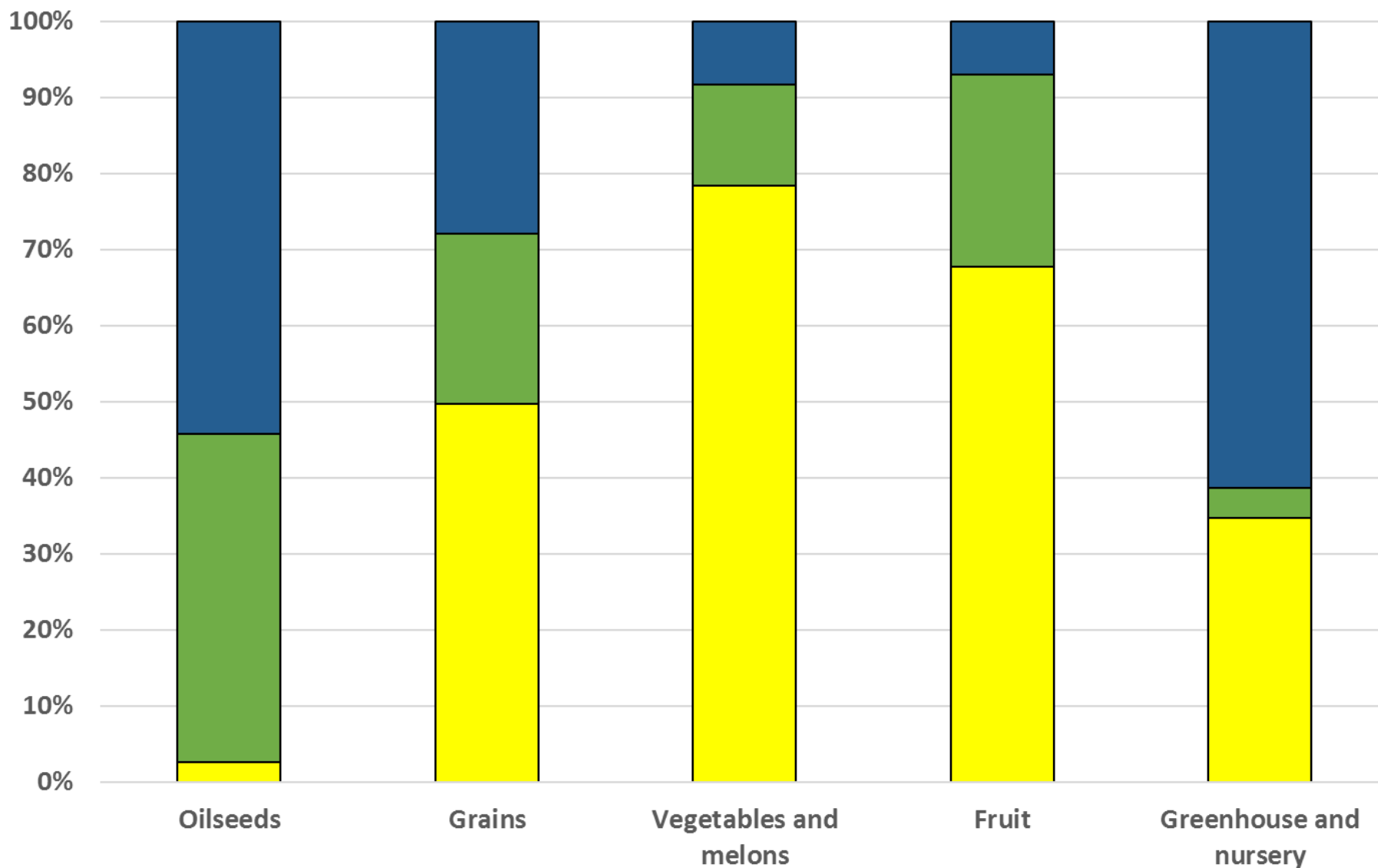
Economic Multipliers – Food Manufacturing Sectors, New York State, 2014

Sector	Employment	Output	Labor Income	TVA
Animal Food	4.33	1.54	4.19	3.47
Grain/Oilseed	5.40	1.58	4.48	3.77
Sugar/Confect	2.29	1.62	2.72	2.88
Fruit/Vege/Spec	2.43	1.63	2.67	3.13
Dairy	4.85	2.01	4.48	5.66
Meat/seafood	2.81	1.51	2.22	2.68
Bakery/Tortilla	1.47	1.64	1.94	1.94
Bev - NonAlc	3.14	1.60	2.73	2.73
Bev - Alc	2.87	1.40	2.48	1.41

Source: IMPLAN LLC, 2016, Type SAM multipliers



Estimated destination of New York State Crop Supply, 2014

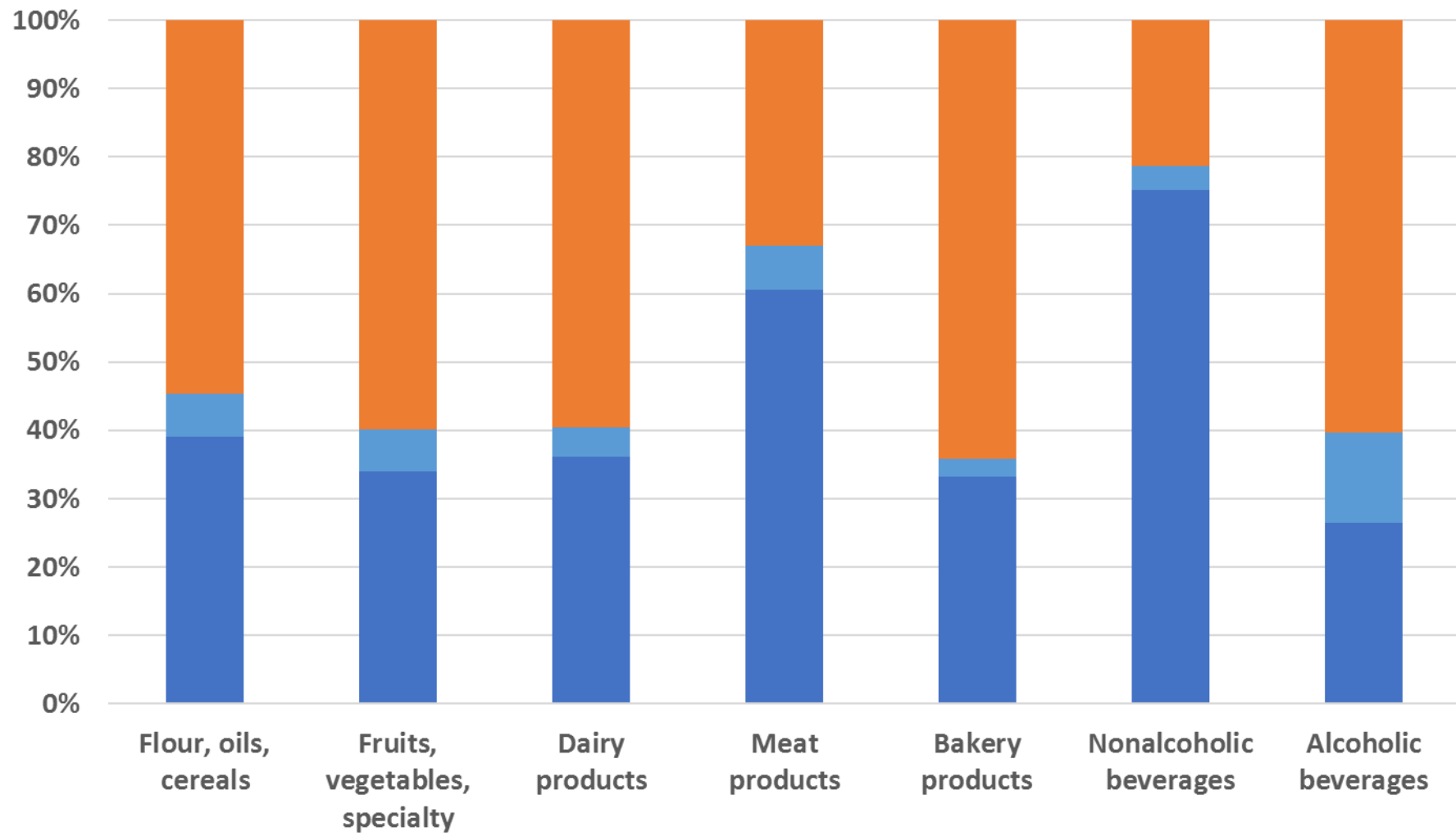


Source: Implan LLC, 2016

■ In-State ■ Foreign exports ■ Domestic exports



Estimated destination of selected processed food and beverage products, New York State, 2014

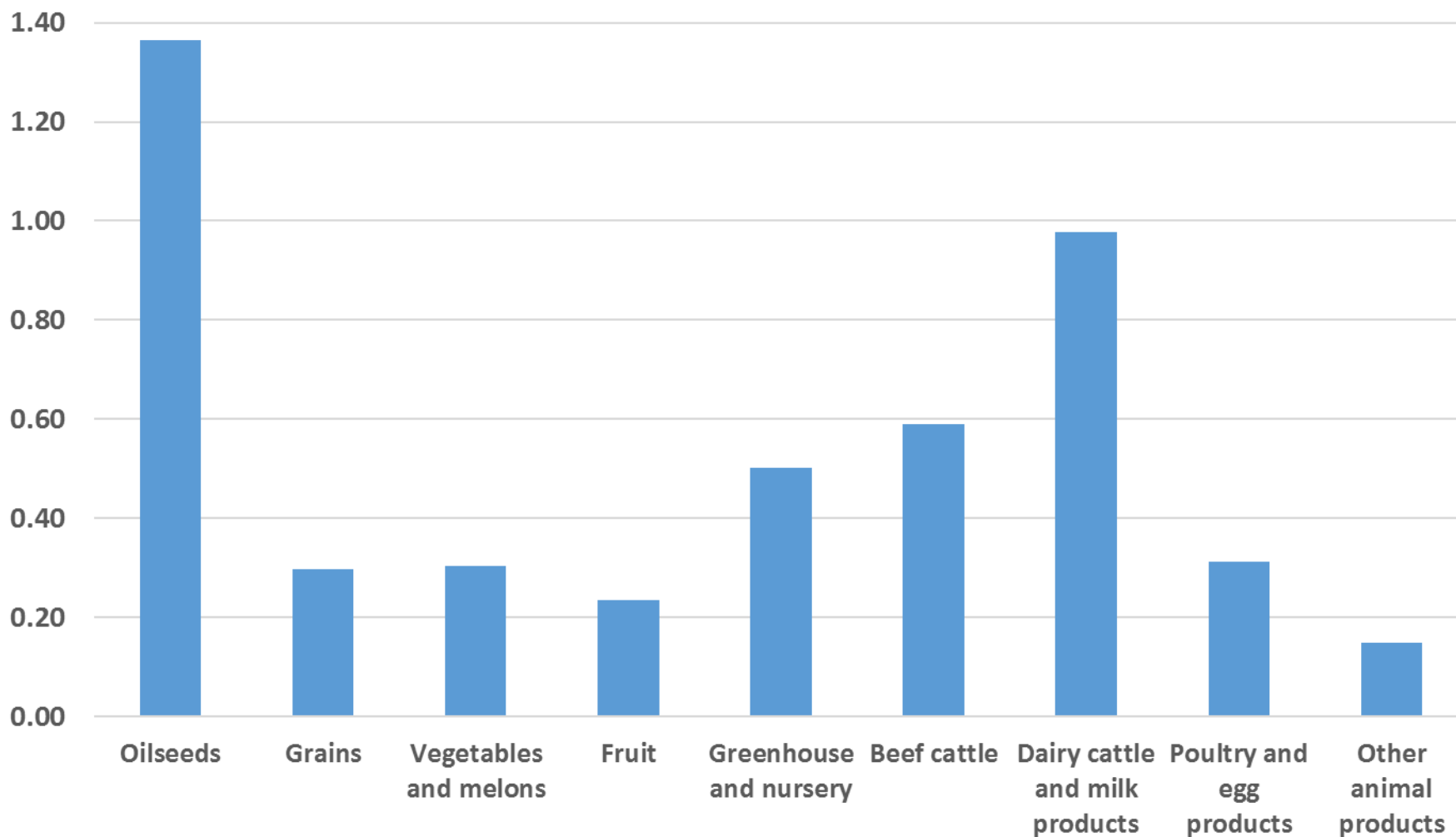


Source: Implan LLC, 2016

■ In-State ■ Foreign exports ■ Domestic exports



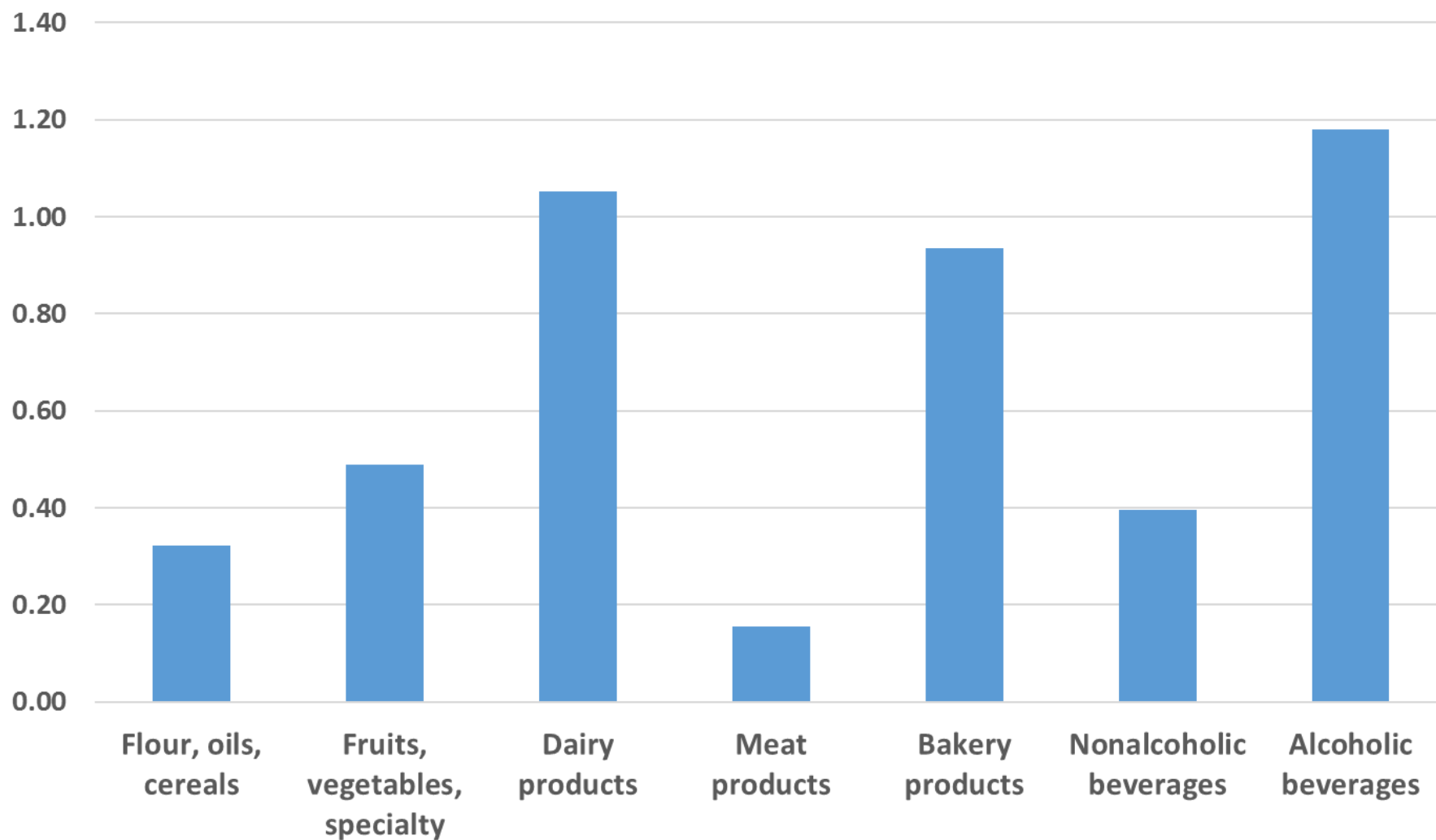
Commodity Production to Demand Ratio (all users) of farm products, New York State, 2014



Source: Implan LLC, 2016



Commodity Production to Demand Ratio (all users) of processed food and beverage products, New York State, 2014



Source: Implan LLC, 2016



Scope of Work - NYAA

- Assemble and update baseline economic information on the status and trends in NYS apple industry sectors.
- Conduct a detailed inspection of current input-output tables for the apple industry sectors (i.e., tracking inter-industry transactions) to get a clearer picture of the baseline structure available (in IMPLAN) and where updating is needed with PRIMARY DATA.
- Construct economic models and estimate economic contributions to the NYS economy for the apple industry, and its component parts (avoid double counting).
- Set the stage for continuing discussion of challenges and opportunities for apple industry development in NYS.



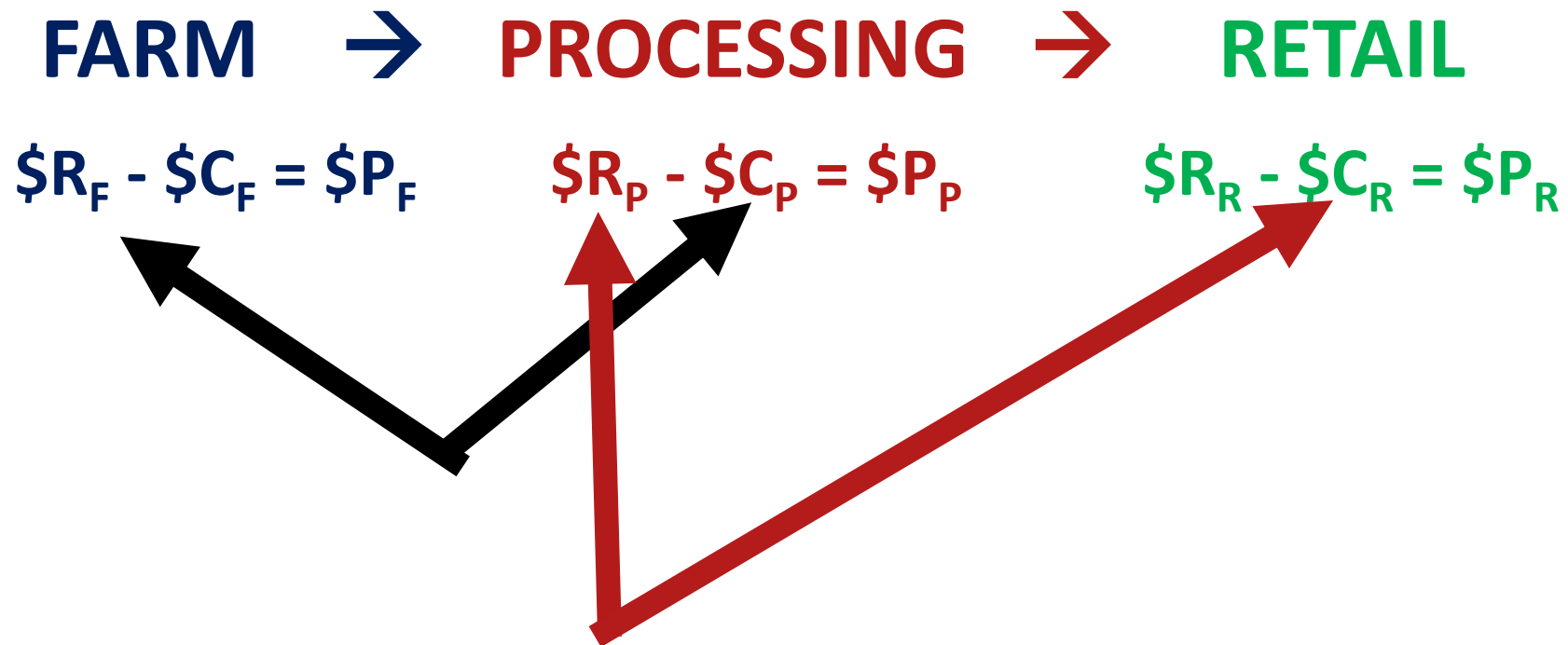
Modeling Issue #1: WHAT COUNTS?

- Apple Farm Production... *just apples?*
checkoff?
- Apple support services (storage, grading, packing)... *only NY apples? ownership?*
- Apple Processing (juices, ciders, vinegar, sauces)... *fruit mixes? checkoff?*
- Apple Research... *Cornell (Ithaca, Geneva), CCE, State, Fed?*



Modeling Issue #2:

ELIMINATE DOUBLE COUNTING!





Modeling Issue #3:

UNIQUENESS OF NYS INDUSTRIES?

Are Apple Firms different in NYS? Within NYS?

- *Production Functions*
 - *The default is the national average*
- *Regional Supply Coefficients (RSCs), Local Purchase Percentages (LPPs), Local Demands*
 - *Default adjust national by local S & D characteristics (gravity model)*
 - *Foreign/domestic imports and exports?*
 - *Local demand for local products?*



Modeling Issue #4:

**PRIMARY DATA IS DIFFICULT and COSTLY
TO COLLECT!**

- Particularly Financial Data!
- Particularly Detailed Financial Data!
- Particularly Detailed Financial Data
Differentiating Local/Nonlocal
Spending!



CURRENT STATUS REPORT:

- **Descriptive analysis and trend report**
(complete)
- **Primary data collection & management**
(complete Feb 16)
- **IMPLAN modeling & scenario analysis**
(complete Feb 25)
- **Economic contribution report** **(draft Feb 28)**
- **Revisions/Additions** **(complete Apr 30)**
- **Papers, presentations, outreach...**



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Thank You!

Questions?

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