

Demand and supply of specialty crop supply elasticities: Insights from a profession-wide survey

Zoë Plakias

Assistant Professor, Department of Agricultural, Environmental, and Development Economics
The Ohio State University (plakias.2@osu.edu)

Daniel Tregeagle

Assistant Professor, Department of Agricultural and Resource Economics
North Carolina State University (tregeagle@ncsu.edu)

*Selected Poster prepared for presentation at the 2021 Agricultural & Applied Economics Association
Annual Meeting, Austin, TX, August 1 – August 3*

Copyright 2021 by Zoë Plakias and Daniel Tregeagle. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Demand and supply of specialty crop supply elasticities: Insights from a profession-wide survey

Zoë Plakias* and Daniel Tregeagle⁺

* Assistant Professor, Department of Agricultural, Environmental, and Development Economics, The Ohio State University (plakias.2@osu.edu)
+ Assistant Professor, Department of Agricultural and Resource Economics, North Carolina State University (tregeagle@ncsu.edu)

THE PROBLEM

Supply elasticity estimates for specialty crops are scarce, not available, or out of date, and there is no comprehensive work on specialty crop supply elasticities (SCSEs)

What do we mean by specialty crop supply elasticity (SCSE)?

- Specialty crop: Fruits and vegetables, tree nuts, dried fruits, and horticulture and nursery crops (including floriculture)
- Supply elasticity: The price elasticity of supply, or the responsiveness of producers to changes in the farm output price

WHY IS THIS A PROBLEM?

Accurate welfare analysis for policy-making requires accurate SCSEs

- Example: In their overview of a collection on studies evaluating California's mandated commodity promotion programs, Alston et al. (2007) write "[Benefit-cost] ratios based on total program costs are highly sensitive to the supply elasticity (e.g., reducing the supply elasticity from 5.0 to 1.0 causes the benefit-cost ratios to increase by roughly a factor of five)."¹

SCSEs help us not only understand how total welfare is affected, but also how welfare is affected across groups

- Example: In an evaluation of the Farmers' Market Nutrition Program (FMNP), Just and Weninger (1997) found that "[t]he gain by farmers and loss to non-FMNP consumers approximately double when the supply elasticity is changed from 1.0 to 0.2. Both fall to zero with perfectly elastic supply."²

In the absence of rigorous empirical estimates, authors make assumptions and educated guesses that are used by other scholars without critical examination

Why are specialty crops special?

- Variety differentiation
- Diverse choice sets for farmers
- Multiple production methods
- Multiple growing regions
- May be perennials
- Use of diverse market channels
- Scarce data
- Each crop less economically important than commodity crops

WHAT DO WE DO?

1. Define the problem and its sources
2. Assess the literature and start building a database of existing SCSEs
3. Survey others about their needs and concerns related to SCSEs

WHO RESPONDED?

Survey focused on Academia and Government

- Sent to all department heads listed on AAEA website
- Sent to 2-5 people with relevant job titles in each state department of ag
- Sent to USDA ERS, FAS, RMA, and the Office of the Chief Economist
- Sent to SCE and FAMPS section mailing lists

19 detailed responses

- 53 opened the survey
- 40 indicated whether they use or produce SCSEs

HOW DO THEY USE SCSEs?

There are more users of SCSEs (22) than producers of SCSEs (10)

- 8 of these both used and produced

They obtain estimates from the prior literature (12) or via educated guess (12)

Respondents are often unable to find suitable estimates

There are light and heavy users

- 8 use fewer than one annually (averaged over the previous 5 years)
- 6 use 1-5 annually
- 4 use more than 5 annually

HOW DO THEY PRODUCE SCSEs?

They were split between producing for necessity (6) and by choice (4)

They use publicly available secondary data (7), primary data (4) and private secondary data (2)

All produce their estimates with regression analysis

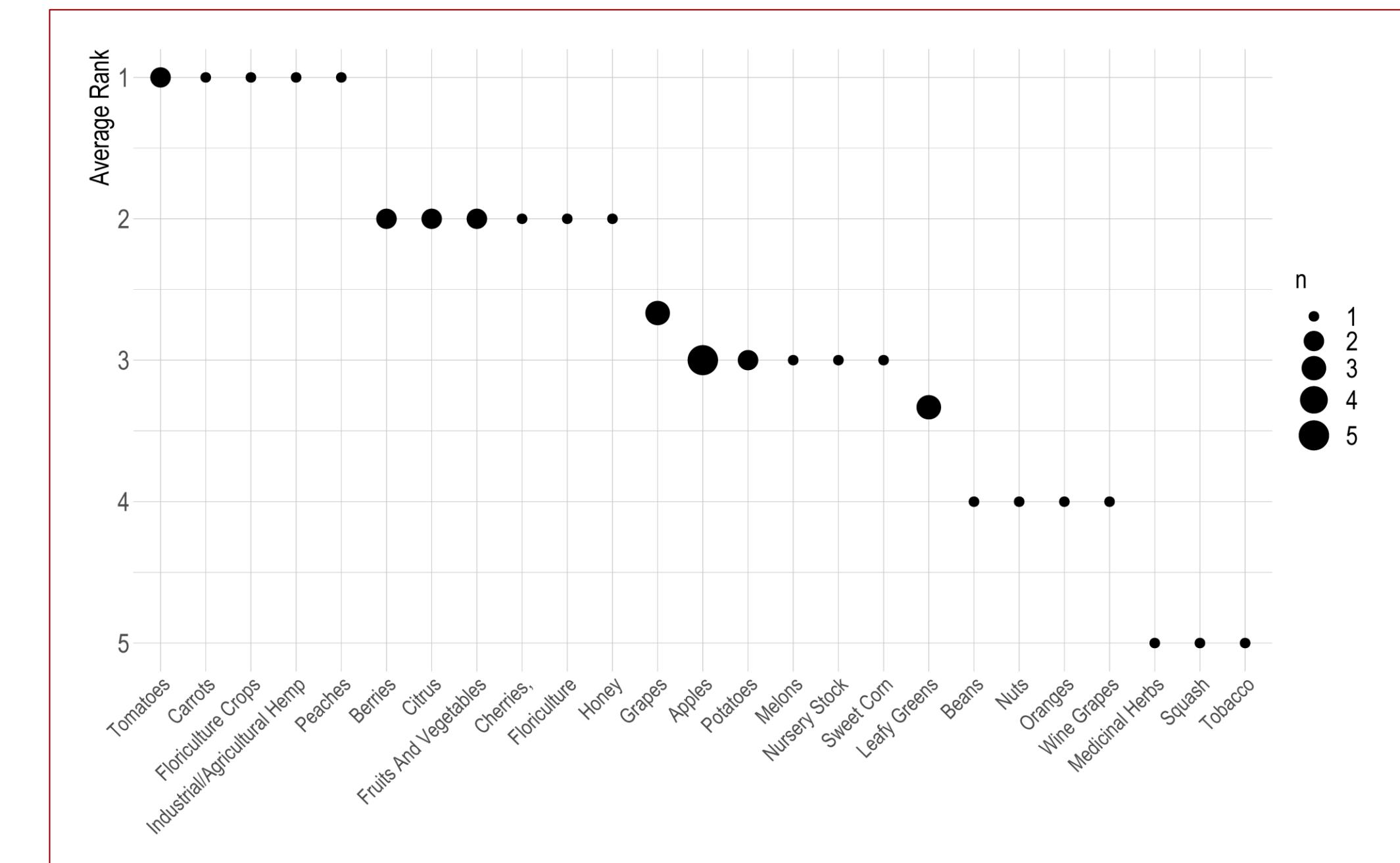
WHAT ARE THEIR CONCERNs?

Concern	n
Accuracy and precision of estimate	12
Estimate is not for specific crop	8
Validity of identification strategy	7
Estimate is not for specific marketing channel	6
Length of run of estimate	6
Estimate is not for specific region	5
Other	3

WHICH SCSEs WOULD BE USEFUL?

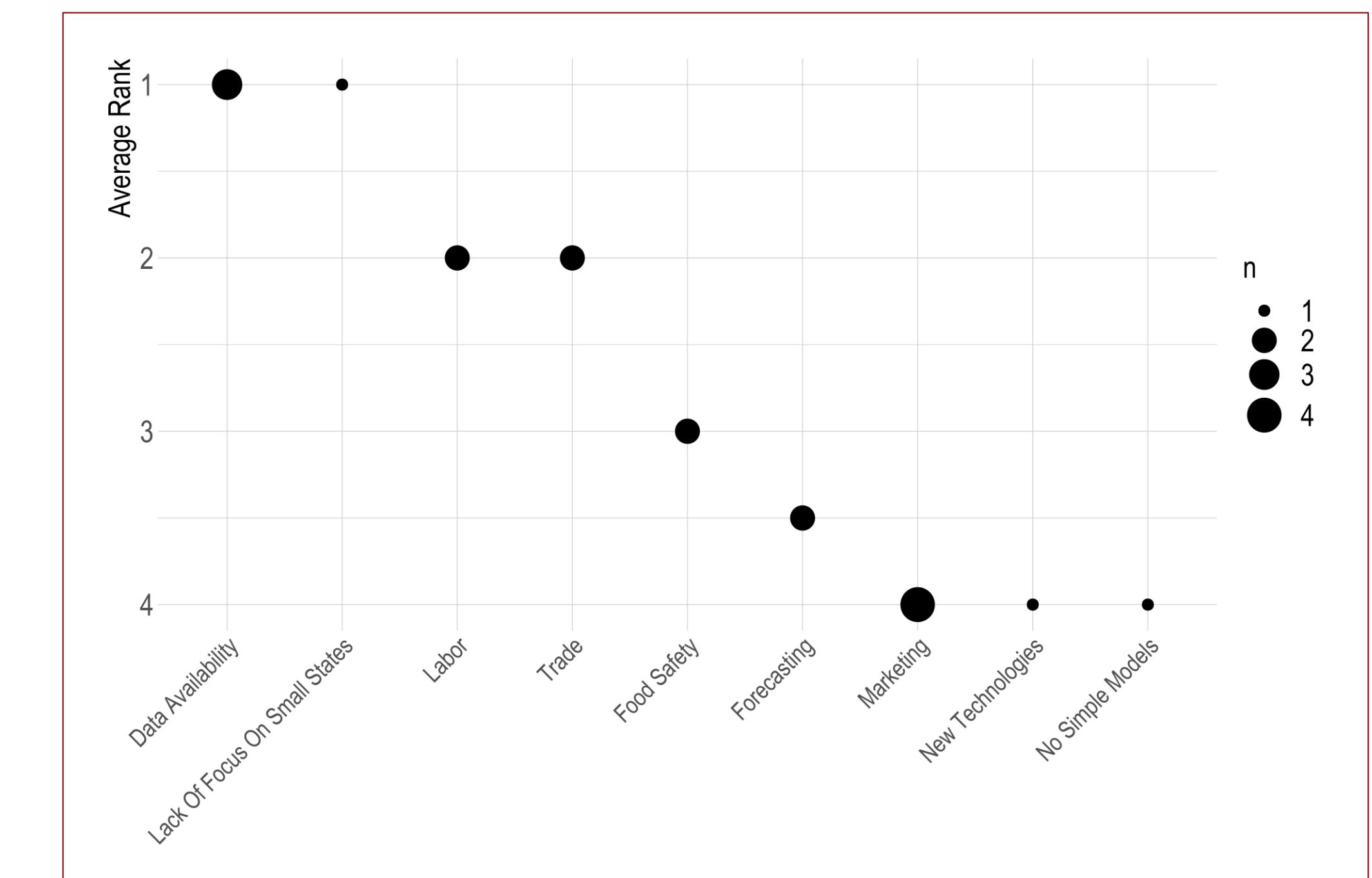
National estimates would be most useful (10), followed by state (8), region (7), county (4) and crop reporting district (2)

Apples, grapes, and leafy green estimates received the most votes



WHAT ARE THE MOST IMPORTANT ISSUES IN SC ECONOMICS?

Data availability is the top issue



FUTURE DIRECTIONS

Continue building database of existing SCSEs

Work with government agencies to improve data collection for specialty crops

Gather team of researchers to determine current best practices for estimation

Estimate new SCSEs using current best practices

We'd love to answer your questions, get your feedback, or have you join us in this work. Take our quick survey here if you'd like to connect with us!

SCAN ME



¹ Alston, J.M., Crespi, J.M., Kaiser, H.M. and Sexton, R.J. (2007). An Evaluation of California's Mandated Commodity Promotion Programs. *Applied Economic Perspectives and Policy*, 29:40-63. <https://doi.org/10.1111/j.1467-3532.2006.00329.x>

² Just, R.E. and Weninger, Q. (1997). Economic Evaluation of the Farmers' Market Nutrition Program. *American Journal of Agricultural Economics*, 79: 902-917.

<https://doi.org/10.2307/1244431>