



Assessing the Capacity for Greater Food System Self Reliance in the Northeast: The Case of Fresh Produce

A Production & Distribution Team Collaboration

presented by

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The views expressed here are those of the authors, and may not be attributed to the Economic Research Service, the U.S. Department of Agriculture, or Penn State University. Partial funding under USDA NIFA grant no. 2011-68004-30057 is gratefully acknowledged.





Research Objective

A model of seasonal fresh produce value chains serving U.S. regional markets is linked to a model of land availability and soil productivity, as calibrated in other project efforts. This model will factor in land constraints that limit the supply responses and affect output prices of regionally produced fresh produce. The outcomes of simulations will provide a more complete assessment of the Northeastern regions near-term capabilities to expand the production of fresh produce.



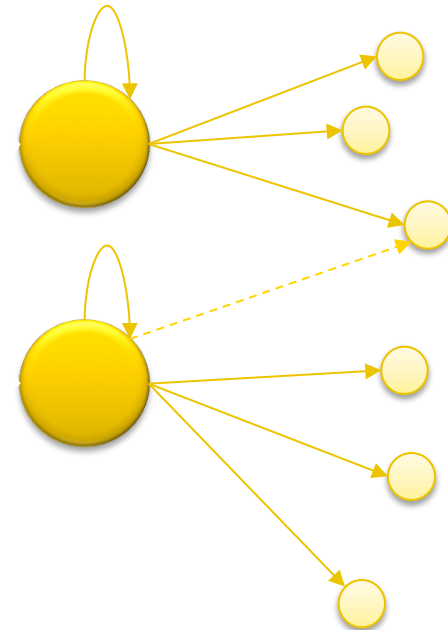
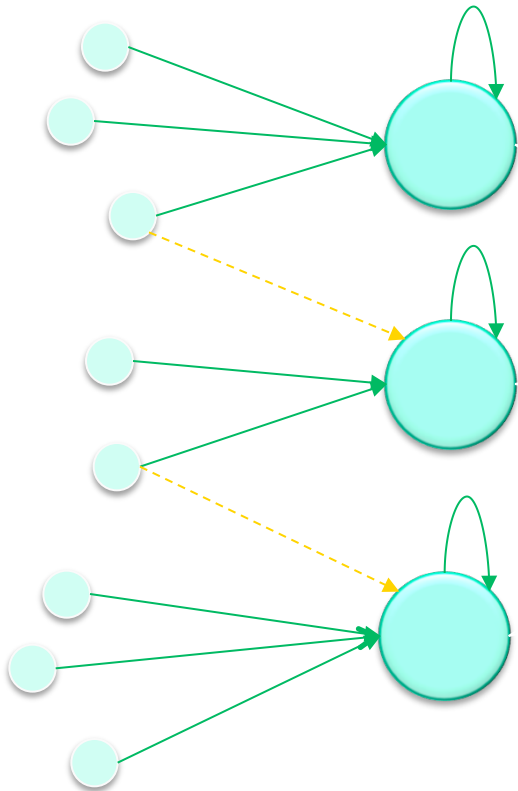
Hub-and-Spokes Schematic

Growers /
Importers

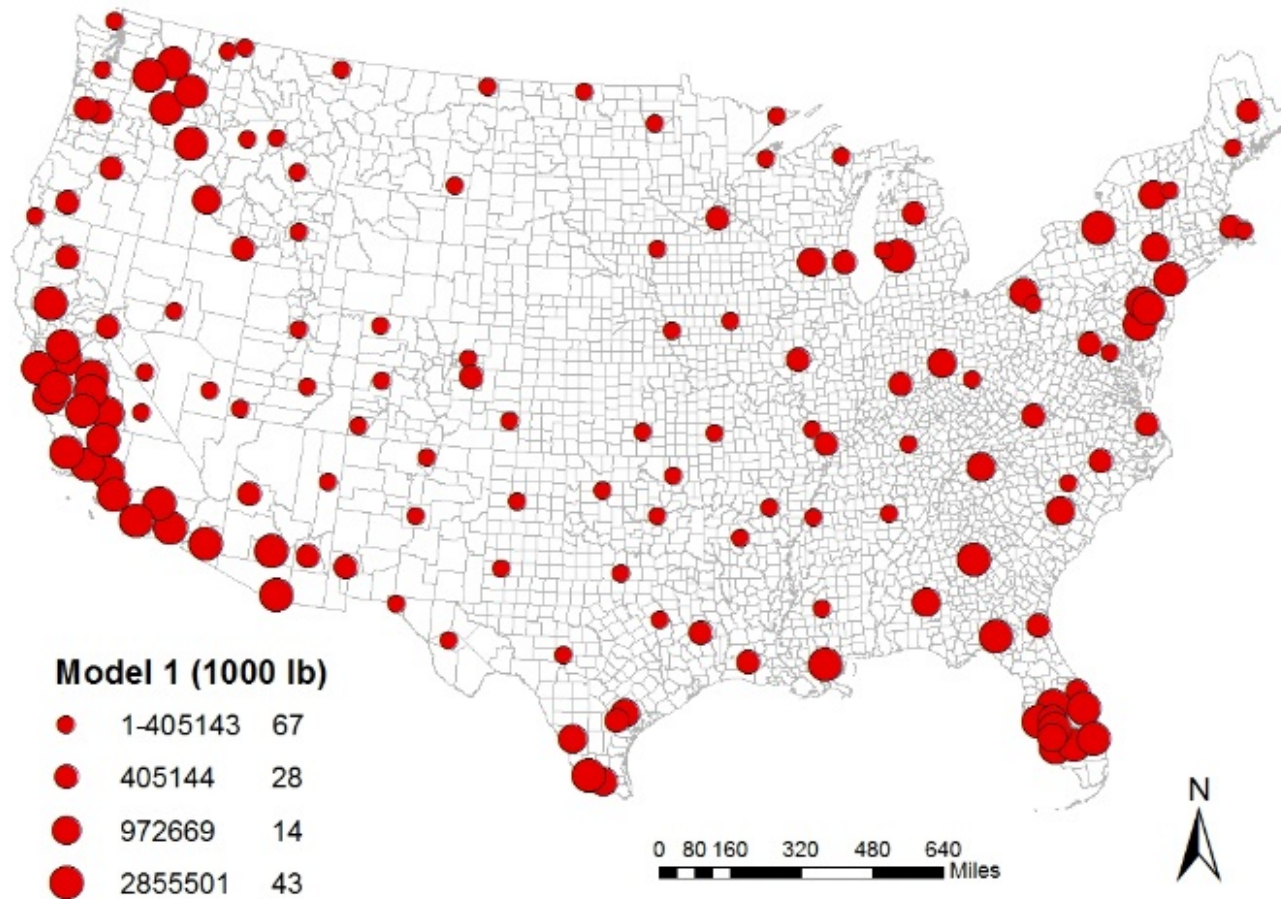
Production
Hubs

GMA Hubs /
Exporting Hubs

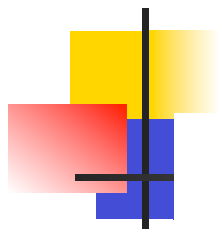
Households



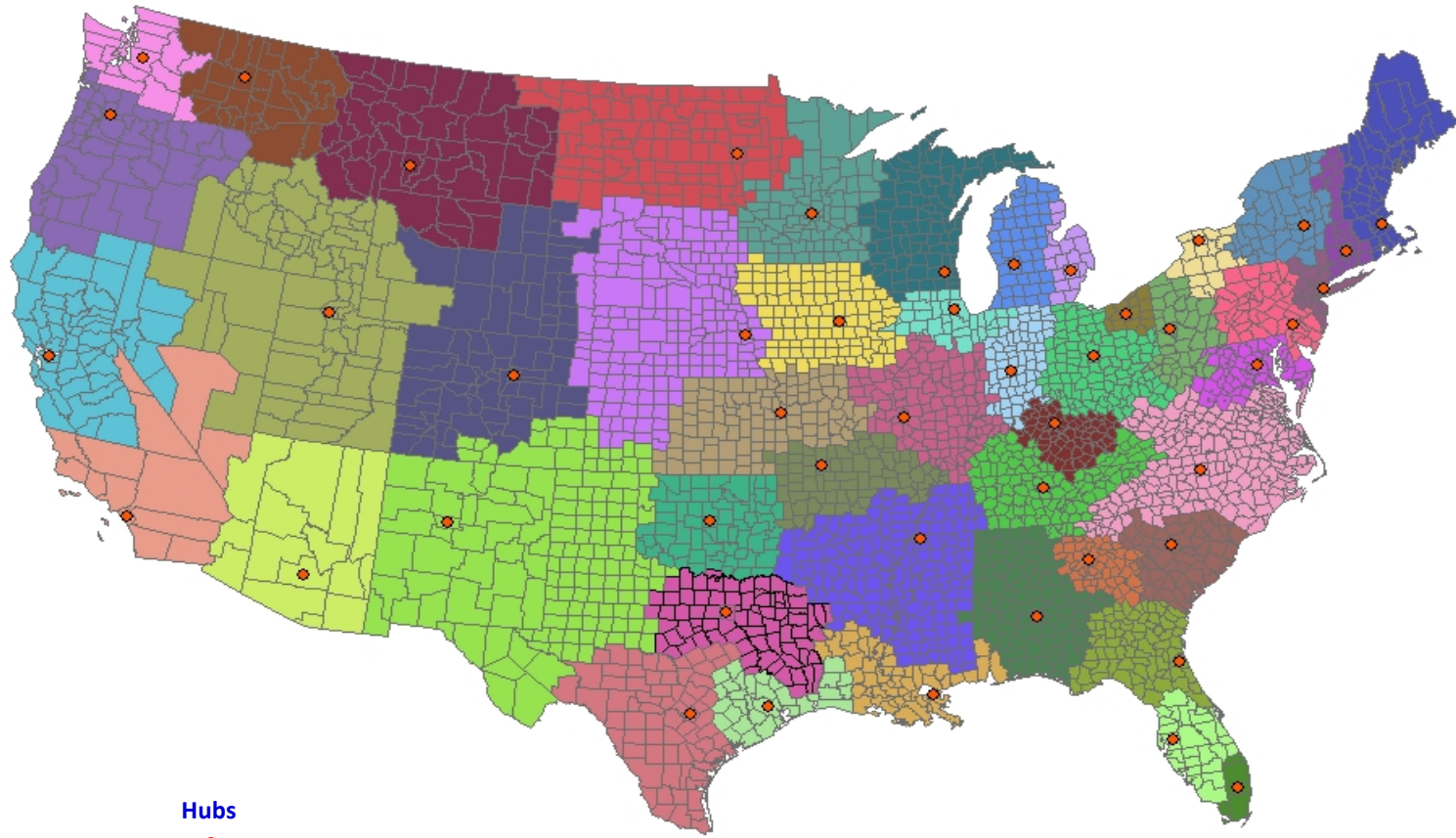
Locations and Inventories of Production Hubs



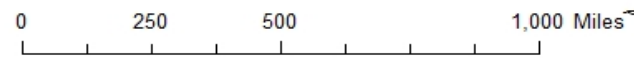
Locations and Market Size of Distribution Hubs



GMA HUBS



Hubs
●

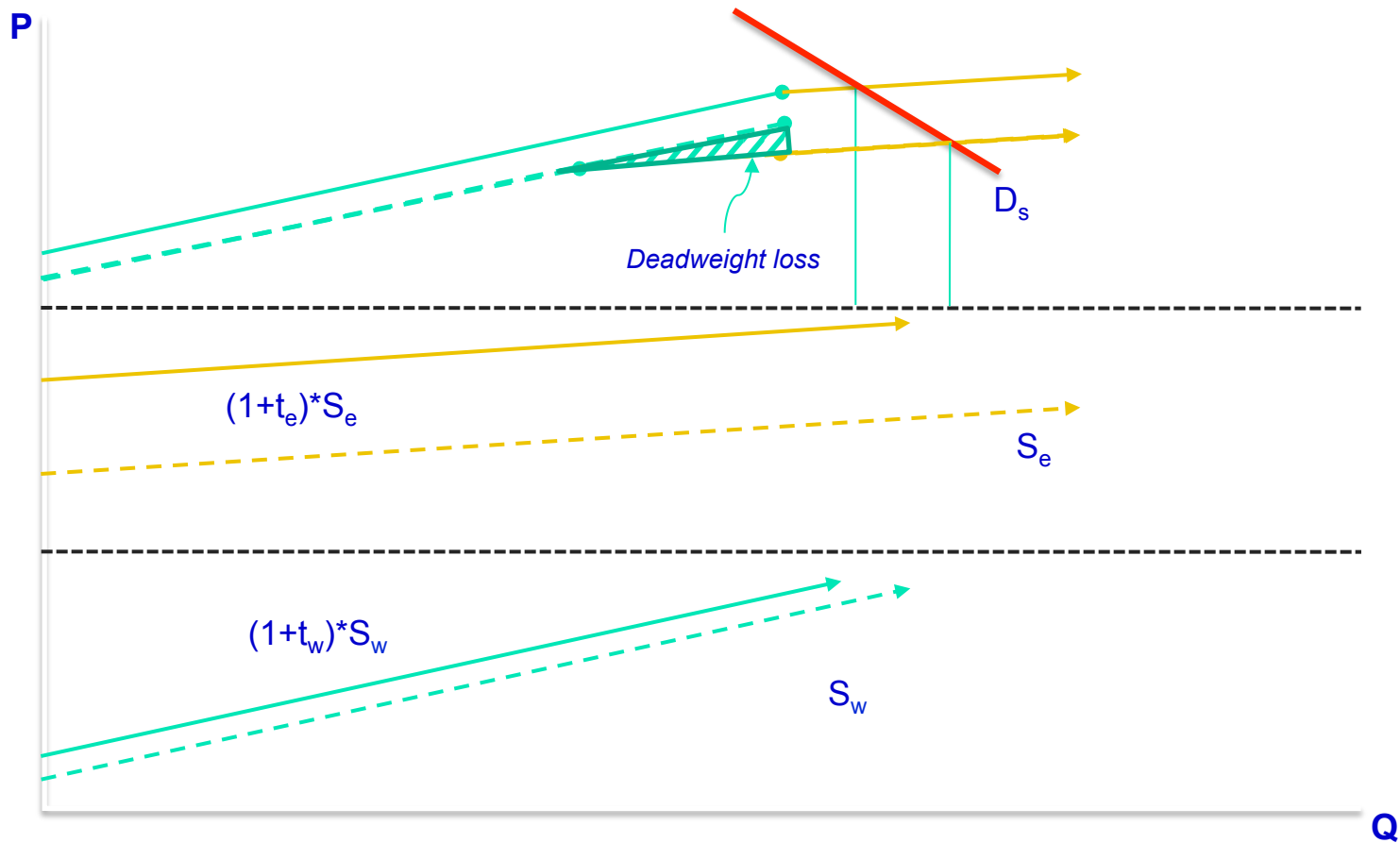


Model Coverage: Highly Perishable Fresh Produce

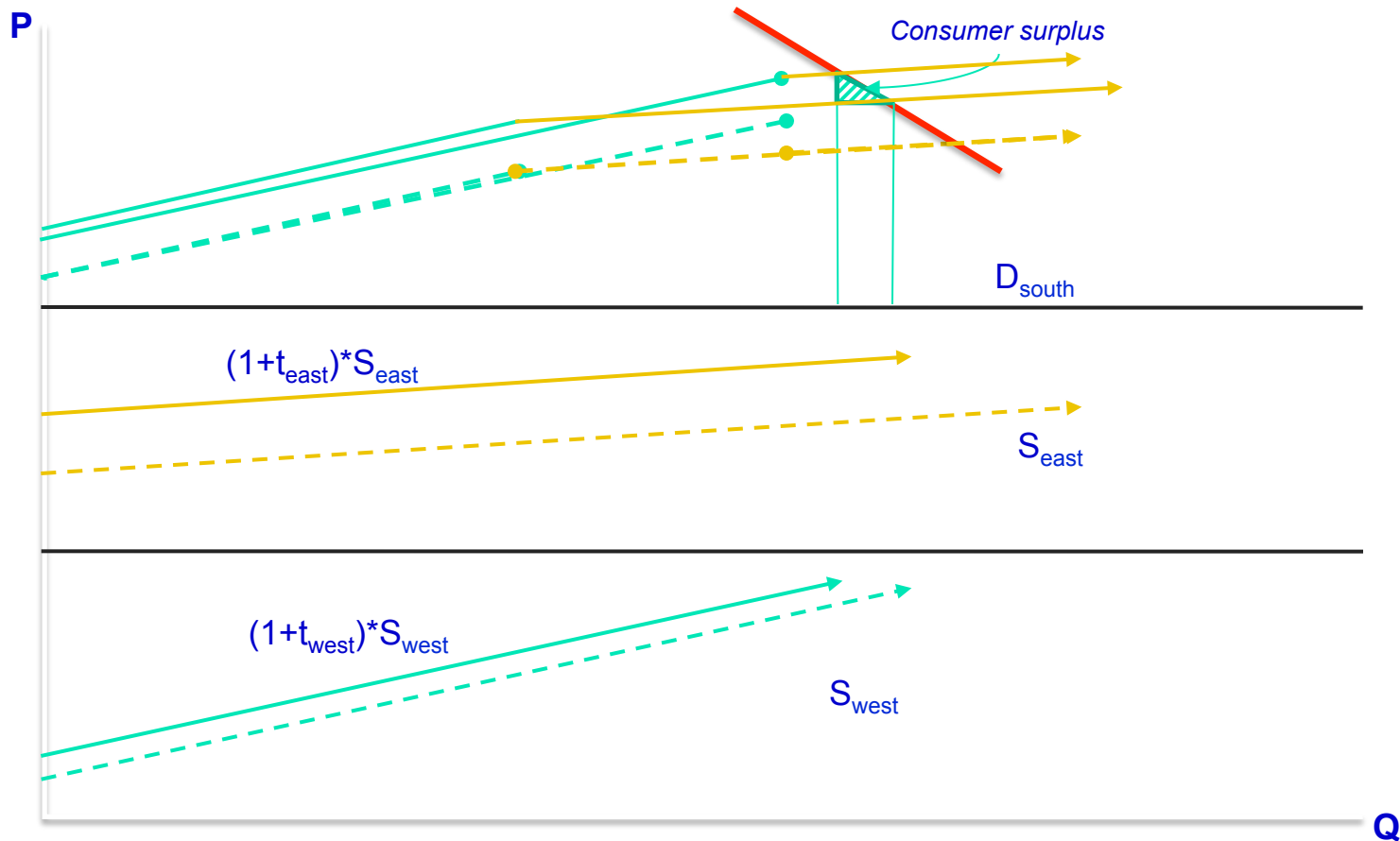
Fresh Produce With a Shelf Life of Under 4-Weeks

Category	Commodity	Category	Commodity
Berries	Blackberries	Other Veg.	Artichokes
	Blueberries		Asparagus
	Boysenberries		Cucumbers
	Loganberries	Red & Orange Veg.	Tomatoes
Dark Green Veg.	Raspberries	Starchy Veg.	Cauliflower
	Strawberries		Squash
	Bell Peppers	Stone Frt.	Sweet Corn
	Broccoli		Apricots
Lettuce and romaine	Cherries, sweet		
Melons	Spinach	Cherries, tart	
	Cantaloups	Nectarines	
	Honeydews	Olives	
Tropical Frt.	Watermelons	Peaches	
	Avocados	Plums	
	Bananas	Prunes	
	Figs	Citrus Frt.	Tangerines
	Guavas		Mandarins
Papayas			

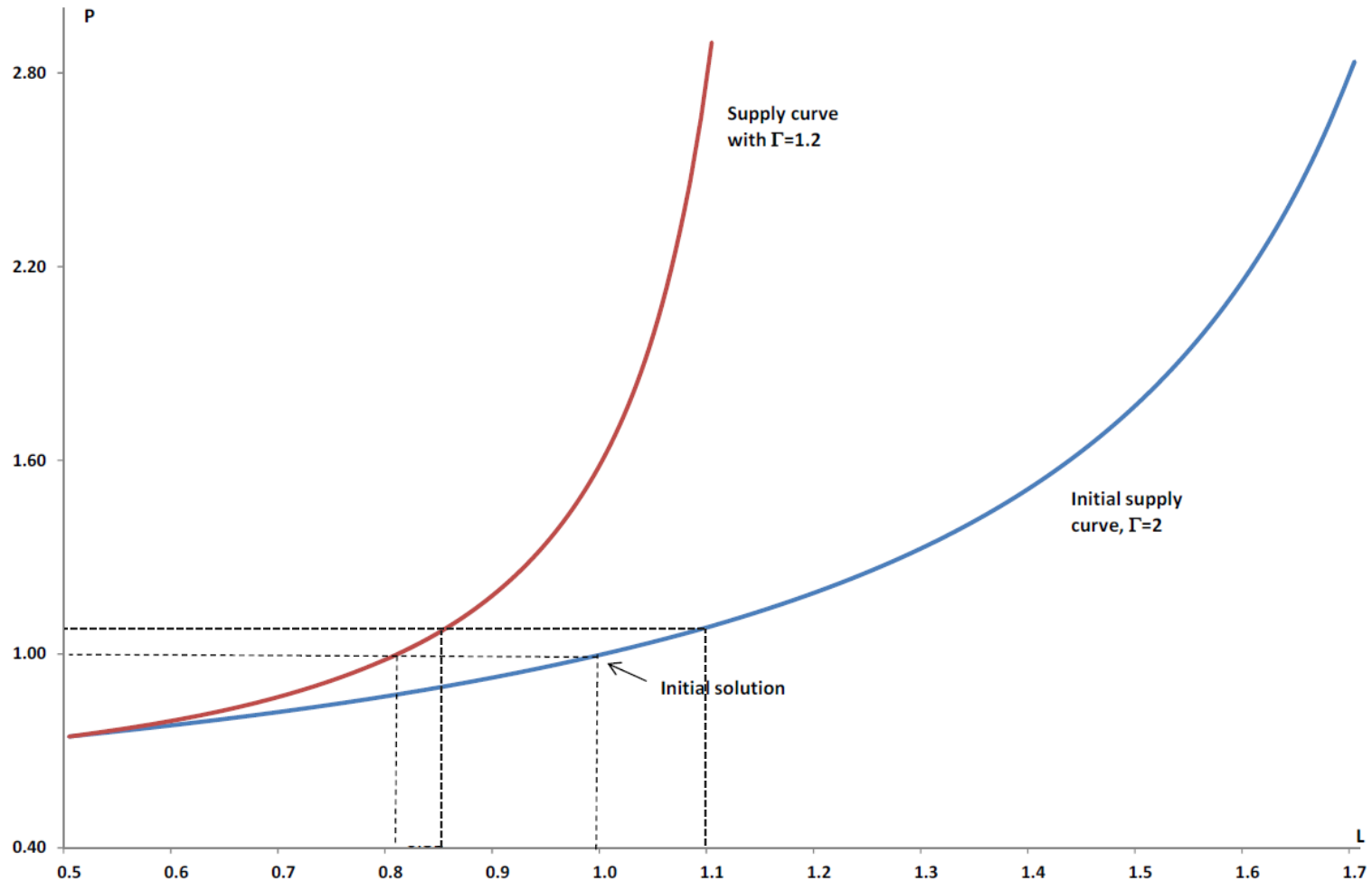
Increasing Supplier Returns and Optimal Land Use



Constant Supplier Returns and Optimal Land Use



Hypothetical Regional Land Supply Functions Calibrated from Land Use, Inventory, and Productivity Statistics





Key Modeling Issues

- Beyond the rental costs of bringing more land into produce production, an accounting of the opportunity costs of taking the land out of its current use must be considered.
- In assessing the suitability of soils for use in fruit and vegetable production, it is important to distinguish between feasible and probable land conversion outcomes.