Potential and Pitfalls of Administrative Data in Studying the Agricultural Services Sector
Acknowledgements

**DISCLAIMER**: Any opinions and conclusions expressed herein are those of the author(s) and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential information is disclosed.

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Agricultural Services

“The true beginning of scientific activity consists rather in describing phenomena and then in proceeding to group, classify and correlate them” (Freud, 1915)
Agricultural Services

- Q: What is the definition of agricultural services according to the North American Industrial Classification System (NAICS)?
Agricultural Services

• Q: What is the definition of agricultural services according to the North American Industrial Classification System (NAICS)?

• A: There is none!
Agricultural Services

Sector 11 -- Agriculture, Forestry, Fishing and Hunting

115 Support Activities for Agriculture and Forestry
Agricultural Services

Sector 11 -- Agriculture, Forestry, Fishing and Hunting

115 Support Activities for Agriculture and Forestry

Industries in the Support Activities for Agriculture and Forestry subsector provide support services that are an essential part of agricultural and forestry production. These support activities may be performed by the agriculture or forestry producing establishment or conducted independently as an alternative source of inputs required for the production process for a given crop, animal, or forestry industry. Establishments that primarily perform these activities independent of the agriculture or forestry producing establishment are in this subsector.
Agricultural Services

Sector 11 -- Agriculture, Forestry, Fishing and Hunting

115 Support Activities for Agriculture and Forestry

11511  Support Activities for Crop Production
   115111  Cotton Ginning
   115112  Soil Preparation, Planting, and Cultivating
   115113  Crop Harvesting, Primarily by Machine
   115114  Postharvest Crop Activities (except Cotton Ginning)
   115115  Farm Labor Contractors and Crew Leaders
   115116  Farm Management Services

11521  Support Activities for Animal Production

11531  Support Activities for Forestry
Agricultural Services

"Services" refers to a collection of 13 distinct NAICS sectors.
Agricultural Services

22 Utilities
48-49 Transportation & Warehousing
51 Information
52 Finance and Insurance
53 Real Estate and Rental & Leasing Services
54 Professional, Scientific, and Technical Services
55 Management of Companies and Enterprises
56 Administrative & Support, and Waste Management & Remediation Services
61 Educational Services
62 Health Care and Social Assistance
71 Arts, Entertainment, and Recreation
72 Accommodation and Food Services
81 Other Services (except Public Administration)
Agricultural Services

• Can you aggregate service industries to create a synthetic sector?

• Is this the extent of agricultural services?
Aggregation

• **493130 Farm Product Warehousing and Storage**

This industry comprises establishments primarily engaged in operating bulk farm product warehousing and storage facilities (except refrigerated). Grain elevators primarily engaged in storage are included in this industry.
Aggregation

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But.....

• **811310 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance**
  This industry comprises establishments primarily engaged in the repair and maintenance of commercial and industrial machinery and equipment. Establishments in this industry either sharpen/install commercial and industrial machinery blades and saws or provide welding (e.g., automotive, general) repair services; or repair agricultural and other heavy and industrial machinery and equipment (e.g., forklifts and other materials handling equipment, machine tools, commercial refrigeration equipment, construction equipment, and mining machinery).
Extent: Example 1

Sector 11 -- Agriculture, Forestry, Fishing and Hunting

115 Support Activities for Agriculture and Forestry

Industries in the Support Activities for Agriculture and Forestry subsector provide support services that are an essential part of agricultural and forestry production. These support activities may be performed by the agriculture or forestry producing establishment or conducted independently as an alternative source of inputs required for the production process for a given crop, animal, or forestry industry. Establishments that primarily perform these activities independent of the agriculture or forestry producing establishment are in this subsector.
Extent: Example 1

• **444220 Nursery, Garden Center, and Farm Supply Stores**

This industry comprises establishments primarily engaged in retailing nursery and garden products, such as trees, shrubs, plants, seeds, bulbs, and sod, that are predominantly grown elsewhere. These establishments may sell a limited amount of a product they grow themselves. **Also included in this industry are establishments primarily engaged in retailing farm supplies, such as animal (non-pet) feed.**
Extent: Example 1

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  This is not a service industry, but a retail industry, that includes establishments that provide a **(not alternative!)** source of inputs required for the production process for a given crop, animal, or forestry industry.
Extent: Example 2

• 493130 Farm Product Warehousing and Storage

This industry comprises establishments primarily engaged in operating bulk farm product warehousing and storage facilities (except refrigerated). **Grain elevators primarily engaged in storage are included in this industry.**
Extent: Example 2

• **424510 Grain and Field Bean Merchant Wholesalers**

This industry comprises establishments primarily engaged in the merchant wholesale distribution of grains, such as corn, wheat, oats, barley, and unpolished rice; dry beans; and soybeans and other inedible beans. **Included in this industry are establishments primarily engaged in operating country or terminal grain elevators primarily for the purpose of wholesaling.**
Extent: Example 2

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This industry comprises establishments primarily engaged in the merchant wholesale distribution of grains, such as corn, wheat, oats, barley, and unpolished rice; dry beans; and soybeans and other inedible beans. *Included in this industry are establishments primarily engaged in operating country or terminal grain elevators primarily for the purpose of wholesaling.*

This is not a service industry, but a wholesaling industry, that provides a similar “product” to an industry that falls squarely into agricultural services.
Agricultural Services

• Can you aggregate service industries to create a synthetic sector?

   NO! [Non-exclusivity at the 6-digit level]

• Is this the extent of agricultural services?

   Unclear [depends on placement in supply chain]
Establishment-level microdata

• **Benefit 1:** Assign individual establishments to the agricultural services sector
Establishment-level microdata
Establishment-level microdata

- **Benefit 1:** Assign individual establishments to the agricultural services sector:

  This is the basis for:

  - Basic account keeping
    - Number of establishments and firms engaged in agricultural services
    - Number of workers employed in agricultural services
    - Payroll in agricultural services

  - Describing the agricultural economy:
    - Size distribution of establishments and firms
    - Wage distribution of workers
Establishment-level microdata

- **Benefit 2**: Link establishments and firms and workers across different Census data products:
Establishment-level microdata

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  • Economic Census (every 5 years ending ‘2 and ‘7)
    • Census of Services Industries
    • Census of Retail Trade
    • Census of Wholesale Trade
Establishment-level microdata

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    - Census of Services Industries
    - Census of Retail Trade
    - Census of Wholesale Trade
  
  - Industry Annual Surveys
    - Services Annual Survey
    - Annual Survey of Retail Trade
    - Annual Survey of Wholesale Trade
Establishment-level microdata

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    • Census of Wholesale Trade
  
  • Industry Annual Surveys
    • Services Annual Survey
    • Annual Survey of Retail Trade
    • Annual Survey of Wholesale Trade
  
  • CES Economic Datasets
    • Longitudinal Business Database (LBD)
    • Longitudinal Employer-Household Database (LEHD)
Census RDC Project: TX1119

Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database
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1) Use restricted-access data (LBD, SSEL, EC) to identify establishments in the agricultural services sector.
Census RDC Project: TX1119

Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database

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<table>
<thead>
<tr>
<th>Scope</th>
<th>Description</th>
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<tbody>
<tr>
<td>EC out-of-scope, FAI exclusive</td>
<td>115111 Cotton Ginning; 115112 Soil Preparation, Planting, and Cultivating; 115113 Crop Harvesting, Primarily by Machine; 115114 Post-harvest Crop Activities except Cotton Ginning; 115115 Farm Labor Contractors and Crew Leaders; 115116 Farm Management; 115210 Support Activities for Animal Production</td>
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<td>424820 Farm and Garden Machinery and Equipment Merchant Wholesalers; 424430 Dairy Product Merchant Wholesalers; 424440 Poultry and Poultry Product Merchant Wholesalers; 424480 Fresh Fruit and Vegetable Merchant Wholesalers; 424510 Grain and Field Bean Merchant Wholesalers; 424520 Livestock Merchant Wholesalers; 424590 Other Farm Product Raw Material Merchant Wholesalers; 424910 Farm Supplies Merchant Wholesalers; 445230 Fruit and Vegetable Markets, 493130 Farm Product Warehousing and Storage;</td>
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<tr>
<td>EC in-scope, FAI non-exclusive</td>
<td>444220 Nursery, Garden Center, and Farm Supply Stores; 484110 General Freight Trucking, Local; 484220 Specialized Freight Trucking, Local; 532490 Other Commercial and Industrial Machinery and Equipment Rental and Leasing; 541940 Veterinary Services; 811310 Commercial and Industrial Machinery Equipment (except Automotive and Electronic) Repair and Maintenance</td>
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Census RDC Project: TX1119

Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database

1) Use restricted-access data (LBD, SSEL, EC) to identify establishments in the agricultural services sector.

2) Validate the birth and death records in the LBD.
   - Small firms that have spells of being completely owner-operated (partnerships).
Census RDC Project: TX1119

Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database

1) Use restricted-access data (LBD, SSEL, EC) to identify establishments in the agricultural services sector.

2) Validate the birth and death records in the LBD.

3) Validate employment records in the LBD to account for seasonality.
   • LBD only contains March 12 employment, SSEL includes quarterly for some
Census RDC Project: TX1119

Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database

1) Use restricted-access data (LBD, SSEL, EC) to identify establishments in the agricultural services sector.

2) Validate the birth and death records in the LBD.

3) Validate employment records in the LBD to account for seasonality.

4) Generate summary statistics for agricultural services sector.
   - Create a synthetic industry that can be reported as in CBP for public use.
Census RDC Project: TX1119

Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database

1) Use restricted-access data (LBD, SSEL, EC) to identify establishments in the agricultural services sector.
2) Validate the birth and death records in the LBD.
3) Validate employment records in the LBD to account for seasonality.
4) Generate summary statistics for agricultural services sector.
5) Describe establishment and firm dynamics in agricultural services.
   • Create a synthetic industry that can be reported as in BDS for public use.
Census RDC Project: TX1119

Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database

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5) Describe establishment and firm dynamics in agricultural services.

6) Describe firm structure (single vs. multi-unit) in agricultural services and its evolution over-time.
Census RDC Project: TX1119

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5) Describe establishment and firm dynamics in agricultural services.
6) Describe firm structure (single vs. multi-unit) in agricultural services and its evolution over-time.
7) Compare dynamics by firm structure.
Firm Dynamics in the Agricultural Services Sector: Evidence from the Longitudinal Business Database

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3) Validate employment records in the LBD to account for seasonality.
4) Generate summary statistics for agricultural services sector.
5) Describe establishment and firm dynamics in agricultural services.
6) Describe firm structure (single vs. multi-unit) in agricultural services and its evolution over-time.
7) Compare dynamics by firm structure.
8) Examine wage dynamics in agricultural services.
Predominant Purpose Statement (PPS)

The predominant purpose of this study is to increase the utility of Title 13, Chapter 5 data of the Census Bureau by meeting the criteria listed below and as described.
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Criterion 5: Understanding and / or improving the quality of data produced through a Title 13, Chapter 5 survey, census or estimate;
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*Criterion 5: Understanding and / or improving the quality of data produced through a Title 13, Chapter 5 survey, census or estimate;*

*Criterion 11: Preparing estimates of population and characteristics of population as authorized under Title 13, Chapter 5.*