

Featured Article

Case-Study Research Topics in Agribusiness Economics and Management

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Abstract

Within agricultural and applied economics, the development of and methodology for case-study research receives wide discussion. Despite this, there exists no published case-study research studies based in classic case-study methodology. Case-study research is an important methodological tool in social sciences, but generally not taught in agricultural and applied economics graduate programs. The objective is to discuss two different researchable topics requiring extensive data collection that are suitable for dissertations and research. The first topic is to help inform the theoretical contributions in geographic indications by collecting supply data for food products to better understand the relative shape of supply curves and their relative elasticities of supply for such products. The second topic is to understand the depth of agricultural global supply chains in a topical area such as sustainability. Both topics would provide cross-sectional and time-series dimensions in a detailed experimental design with individual firms being the subject of each data. There are opportunities for graduate degree programs to focus on case-study research, which would be suitable for dissertations. This is especially true for graduate students in agribusiness economics and management who have a desire to teach as a career.

1 Introduction

Boland and Cağır (2018) summarized the role of teaching or decision case studies published in *Applied Economics Perspectives and Policy* (formally *Review of Agricultural Economics (RAE)*); *American Journal of Agricultural Economics (AJAE)*; *Journal of Natural Resources and Life Sciences Education (JNRLSE)*; *International Food and Agribusiness Management Review (IFAMR)*; and *Case Research Journal (CRJ)*. The *RAE* published case studies from 1996 to 2010 and the *AJAE* from 2011 to 2017. The *JNRLSE* and *IFAMR* have continually published cases over time since their inception in 1998, and the *CRJ* is the highest ranked decision case journal. Boland and Cağır (2018) did not review cases published by Harvard Business School Publishing given the structure of their cases is not like that of academic journals. They found the *RAE* published 72 decision case studies from 1996 to 2010 while *IFAMR* had published 77 over the 1998–2018 time period. However, with the exception of Wysocki's (1998) dissertation, they could not identify a published case-study research based in some case-study methodology.

One of the classic case-study research readings is Penrose's (1960) case on Hercules Powder, which involved a significant collection of data through interviews. This remains the classic citation for literature on resource theory of the firm. Generally, a research case study does not generate a large number of citations or serve as a foundation for a new theory as Penrose (1960) did. It is surprising though that case-study research is not a widely used methodology in a social science such as agricultural and applied economics. Thus, while many papers describe the process of case-study research, in practice it is not being conducted, which may be because it is not taught as a methodology in doctoral programs. In an attempt to address this shortcoming, the objective of this article is to provide two examples of data collected using case research analysis and potential case-study research for dissertations.

2 What Is Case-Study Research?

Case-study research methodologies involve detailed investigation or descriptive study of a single individual or firm, group, or event to explore the causes of underlying principles. Case-study research can be single or multiple case studies that are based in theory and rely on multiple sources of evidence, including quantitative evidence. Case studies are analyses of persons, groups, events, decisions, periods, policies, institutions, or other systems that are studied holistically by one or more methods.

Yin (2018) describes several types of case studies including: (1) *illustrative*, which is used to describe an event or situation in such a way that people can become more familiar with the subject; (2) *exploratory*, which is a condensed case study to gather basic data that could be used to identify a particular question for a larger study; (3) *cumulative*, which is designed to collect information for events and aggregate them to analyze in greater generalization; and (4) *critical instance*, which are studies to examine situations of unique interest or to challenge a generalized belief.¹

A researcher can use a variety of approaches and methods to collect data, including interviews, direct participant observations, protocol or transcript analyses, a review of documents or records, field studies, or an exploration of artifacts. Researchers may choose to use one of these methods to collect data (single-method approach), or they may use several methods (multimethod approach). Case-study researchers typically interpret their data through coding procedures. If the data set is not studied as a single set of data, the data can be segmented into smaller sets and combined into multiple data sets. This is generally the case when you have data collected in different units of time. For example, some firm data are collected on a year-end basis, which might be a calendar year, while others, especially those operating close to production agriculture at first handler level, might use a marketing year end, which could be August or September when harvest occurs in the northern hemisphere (Boland 2018).

A good starting point is the process of preparing for a human subjects review within an Institutional Review Board (IRB). Such applications require a carefully laid out data collection plan when using field interviews or direct participant observations. An IRB looks carefully at experimental design with regard to how the data will be used to make inferences. If the data collection process does not involve human subjects, then documents such as minutes of board meetings; bylaws, articles of incorporation, or similar governance documents; or corporate records in library archives can be collected in some standard reporting process.

3 Sources and Uses of Data

Yin (2018) is the usual reference for social science case-study research methodology. More than two dozen articles by agribusiness economics and management faculty describe the contributions of Coase (1937), Holmström (1979), Ostrom (1990), Williamson (2005), and Hart (2017) for their Nobel Memorial Prizes in economics and how their theoretical contributions could provide research and dissertation topics. Many of these articles suggest using case-study research as a potential topic for work in new institutional economics. However, despite these theoretical contributions, limited empirical work exists, with notable exceptions being Knoeber (1989) and Balbach (1998). Why is there limited empirical work based on case-study research? It is not the lack of data within food and agricultural markets, which have a wide variety of cultural, economic, historical, organizational, and political contextual factors and variables for consideration. These factors and associated data could be the focus in analyzing firms' decision making across competitors and within an industry through time and over space.

Data are not an issue in case-study research. A number of new data sets are available within academic units with the ability to handle confidentiality concerns and privacy, working with IRBs. Colleges of business have financial resources, and their faculty require access to Compustat, EuroStat, IRI, Nielsen, and the University of Chicago Kilts Center market research data. These data have firms categorized by their North American Industrial Classification System (NAICS). Similar data are emerging in the European Union. For example, figure 1 shows how segment data are available in Compustat. A researcher could create data for publicly traded firms in a certain NAICS industry. Figure 2 describes the business units for a supplier of inputs to a farmer. Limits exist on firms not publicly traded, but proprietary data may be available from industry sources. It is possible to combine such data with other data

¹ There are some examples of illustrative cases done in agricultural and applied economics such as Cook and Ye (2016).

including number of facilities, mergers or other business combinations, senior management tenure and changes, and/or new products introduced to create a data set to analyze industry changes using information from the U.S.

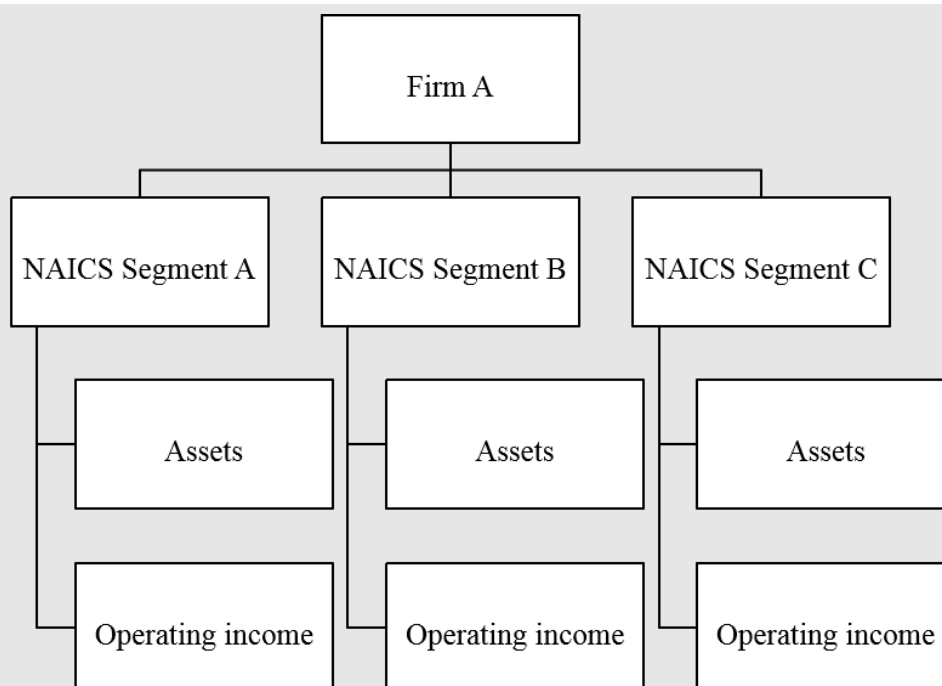


Figure 1: Overview of Segment Data in Compustat by NAICS
Source: Standard & Poor's (2019)

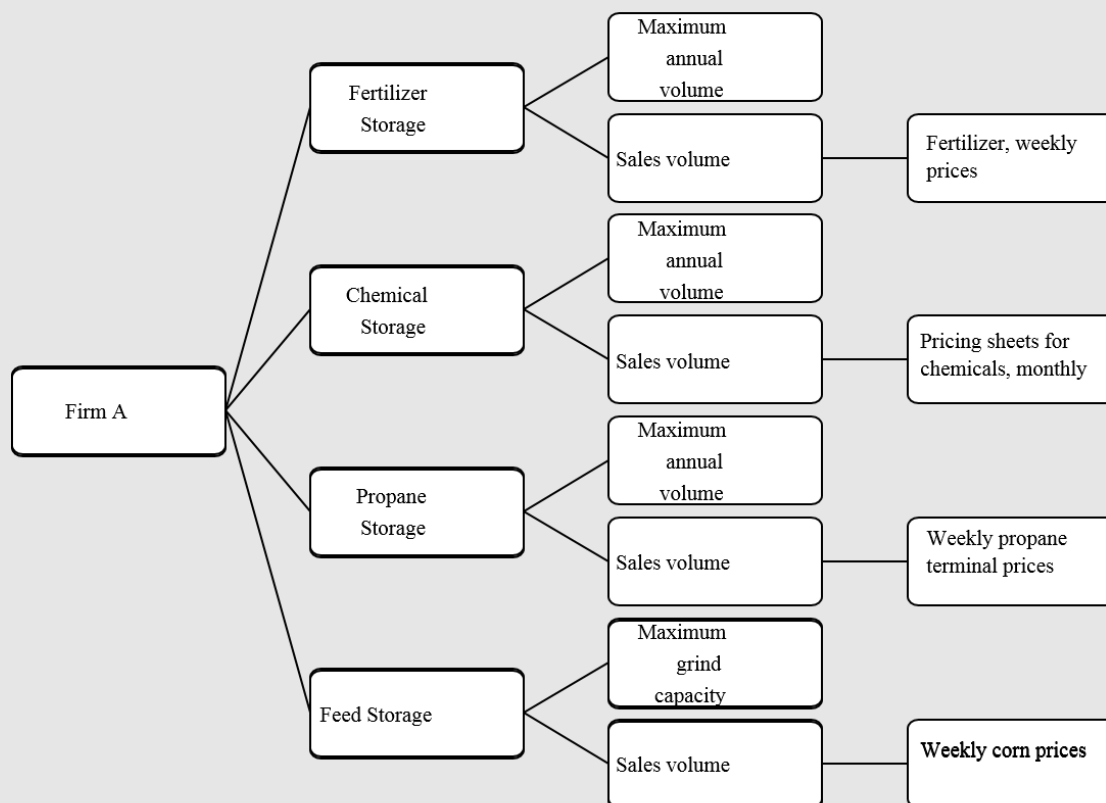


Figure 2: Overview of Business Units for a Farm Input Supplier

Securities and Exchange Commission (SEC) and trade publications. Combining this with data linked to variables from new institutional economics can provide additional theoretical applications.

Another source of data are public and private libraries, which might house corporate records for the food industry that could serve as a starting point for a research case. As an example, the Minnesota Historical Society collected annual reports and newsletters from agricultural and consumer cooperatives. These and other corporate records provide a foundation for writing a business history of a firm and its decision making using work by Penrose (1960) as an example.

Attempts have been made to conduct case research to test theories of the Nobel laureates cited earlier. To do so requires the type of data used by Goodhue, Mohapatra, and Rausser (2010) on canning tomatoes. When looking at data by trucks and farms for orchard crops such as canning peaches, pears, and fresh apples, the variability in grades or standards does not exist. In fact, when visiting with senior management and farmers of tree nut crops, pome fruit, and other orchard crops, it became apparent that twenty-first-century farming methods have resulted in most crops attaining the highest grades. For example, in any given year the amount of canning peaches sold by the California Canning Peach Association is likely to be greater than 95 percent for the highest grade. Similar statistics exist in other industries. Without variability in such crops, it becomes less interesting to empirically test contract theories. Indeed, contributions of Holmström (1979) and Hart (2017) are widely disseminated and used by farmers and firms in agriculture.

4 Two Examples of Research Topics Requiring Case-Study Research

In recent years, a number of theoretical contributions have been made by agricultural economists who suggest in the conclusions of their manuscripts that data are needed to test these theories. Two such streams of research are described below, and data collected using case-study research could help test these theories.

4.1 Geographic Indications in the European Union

Differentiated food products labeled by their geographic location, production, and processing are a widely contested issue in trade negotiations between the United States and European Union (Josling 2006). Compromise exists in the wine and spirits market, but not in food, with the exception of some cheese markets. Agricultural economists have made important theoretical contributions in understanding the role of differentiated products and how they are understood (Lence et al. 2007; Moschini, Menapace, and Pick 2008; Mérel and Sexton 2012; Menapace and Moschini 2014). Literature exists on individual products (Hayes, Lence, and Stoppa 2003), but there is little or no literature at a firm microlevel. Case-study research offers advantages for theoretical microlevel analysis, particularly with regard to the responsiveness of supply.

For microlevel analysis, there are the following four designations: (1) optional quality terms relate to a characteristic of one or more food type, farm, or processing attribute that applies in specific geographical areas, which have an EU dimension such as “Mountain-grown” and adds value to a product compared with similar products. (2) Traditional specialties guaranteed identify a product made according to a traditional practice such as “matured for 12 months” or produced from traditionally used ingredients. The name should be traditionally used to refer to the specific product and identify the traditional or specific character of the product. (3) Protected geographical indications identifies a product as originating in a particular area, which may be a whole country such as France. The product’s given quality, reputation, or other characteristics should be attributable to this area, and at least one of the production steps must take place in the defined area. (4) Protected designations of origin identify a product as originating in a particular area, which, due to its geography and associated natural and human factors, imparts particular qualities or characteristics. All the production takes place in a defined geographical area, such as the three provinces in Greece for the production of feta cheese using sheep’s milk that consume the grass in that region, which has unique botanical properties. In exceptional cases, this can be as large as a whole country.

Compiled in July 2018, figures 3 to 7 illustrate alternative approaches for data analysis. Figure 3 shows the four designations used with the EU in order of their difficulty in qualifying for this designation, while figure 4 shows the number of the four designations recognized by the EU in three categories. The EU does not track optional quality terms. Figures 5 and 6 show the respective number of the four designations approved by year beginning in 1996 and type of food products approved as of July 1, 2018. Finally, figure 7 shows the number of four designations approved by country.

One question that requires understanding in this issue is the relative responsiveness of supply and demand (Mérel and Sexton 2012). Case-study research could define a population of food products, such as figure 6, and

choose one type of product, with cheese or meat products likely the easiest. Stratifying the data in figures 4 and 7 could create a representative sample. Finally, consider the process shown in figure 8 to obtain data on annual supply. Collectively owned food associations exist for many of these foods with members and data existing through member association reports. Doing research on this topic generally requires second language skills and resources for remote

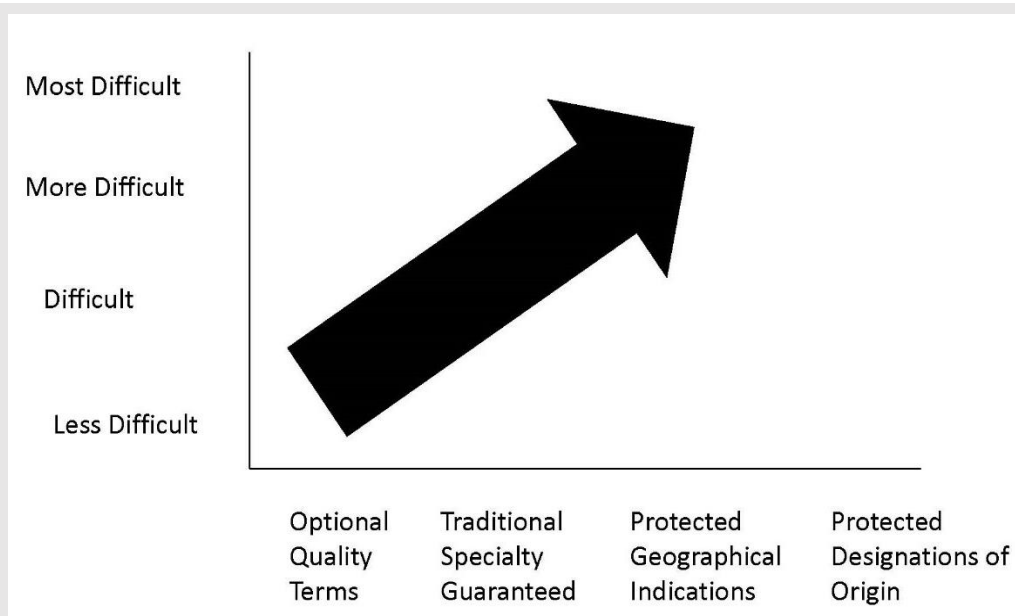


Figure 3: The Four Designations of Geographic Indications in the European Union

Source: European Commission (2019)

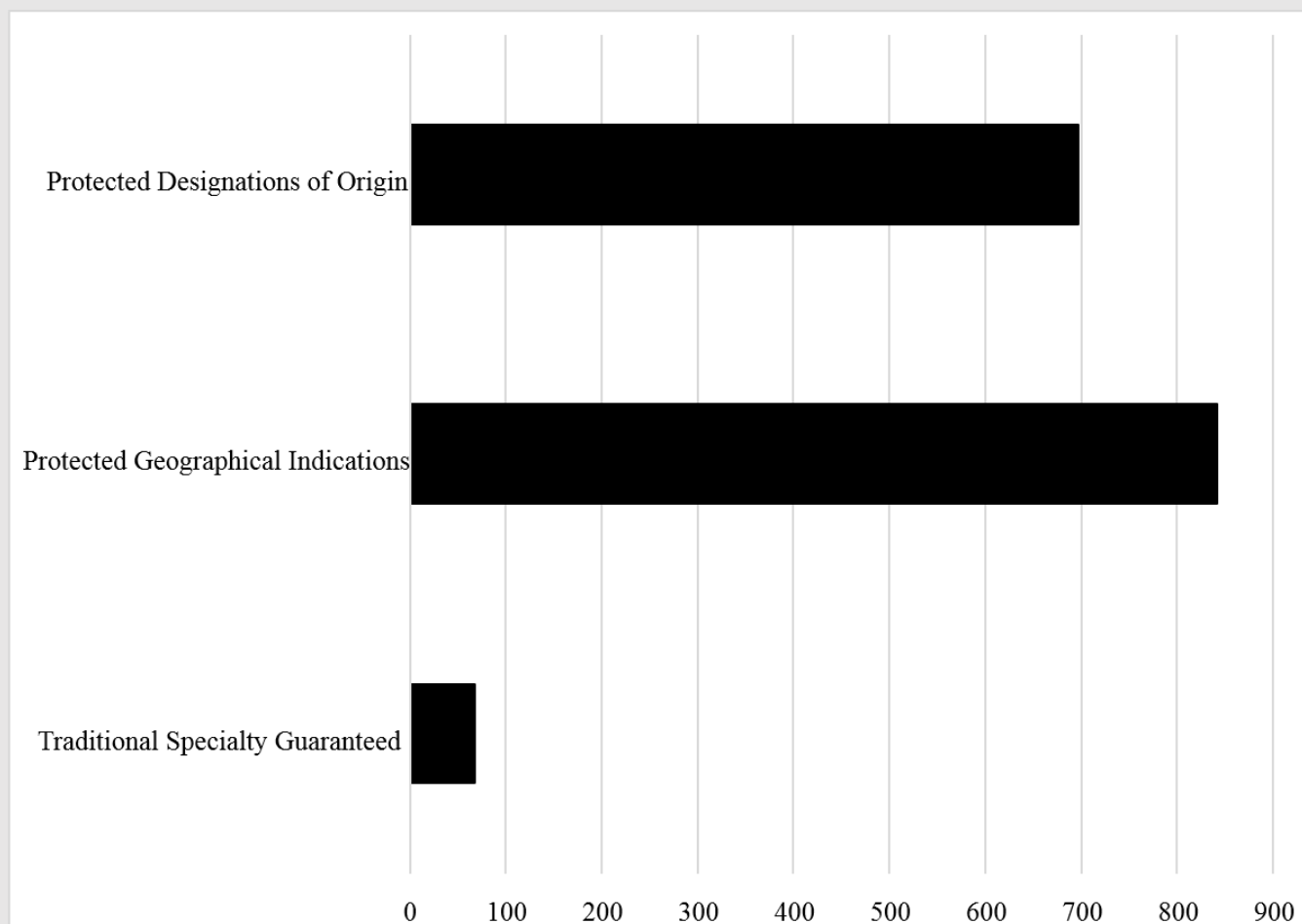


Figure 4: The Number of Designations Recognized by the European Union in July 2018

Source: European Commission (2019)

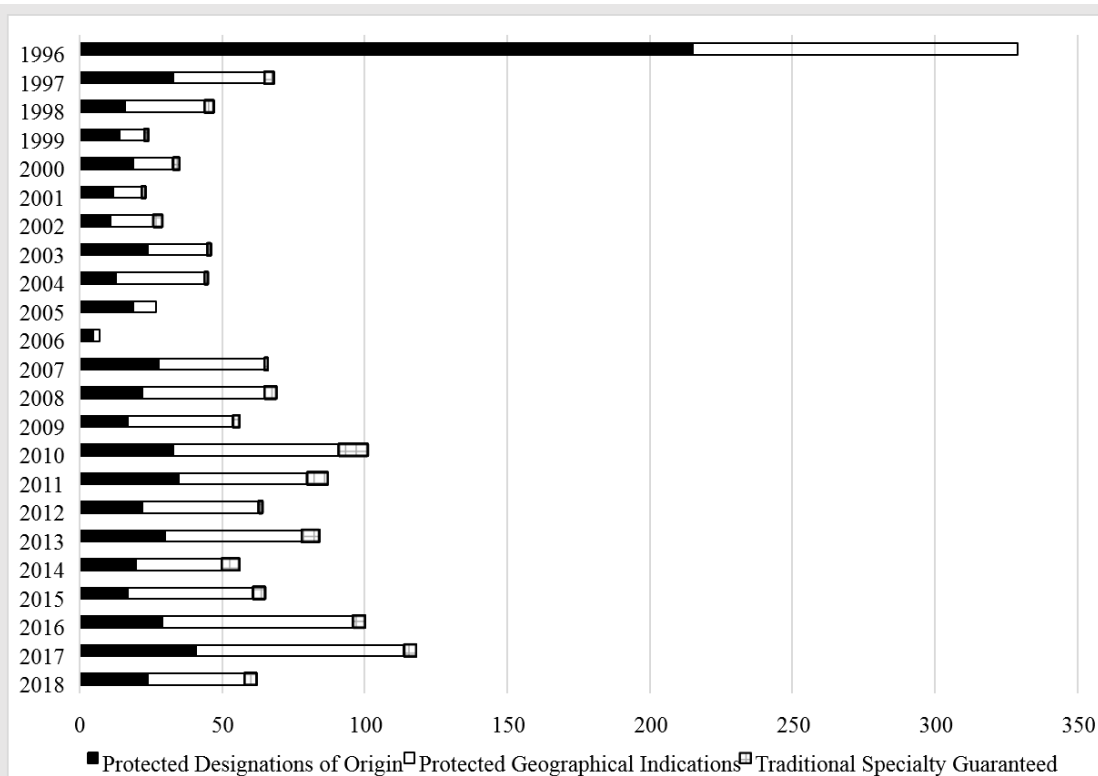


Figure 5: Number of Designations by Year of Approval in the European Union (July 2018)
 Source: European Commission (2019)

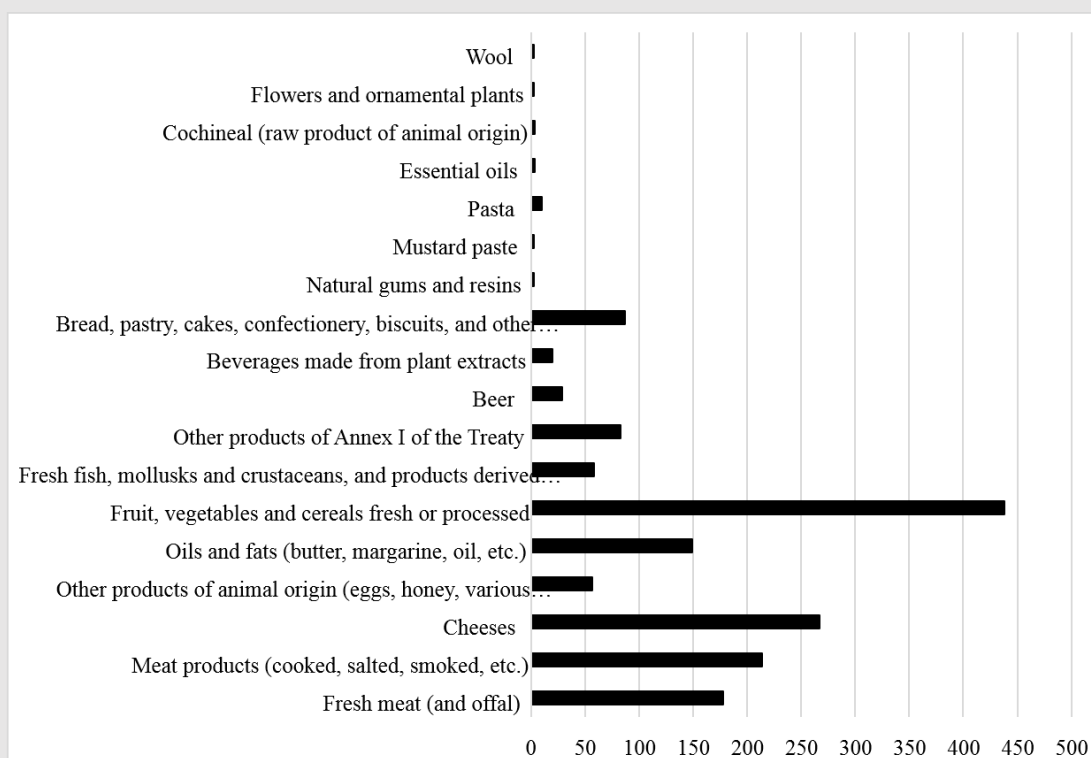


Figure 6: Type of Food Products Designated as Protected Denomination of Origin, Protected Geographical Indications, and Traditional Specialty Guaranteed in the European Union (July 2018)
 Source: European Commission (2019)

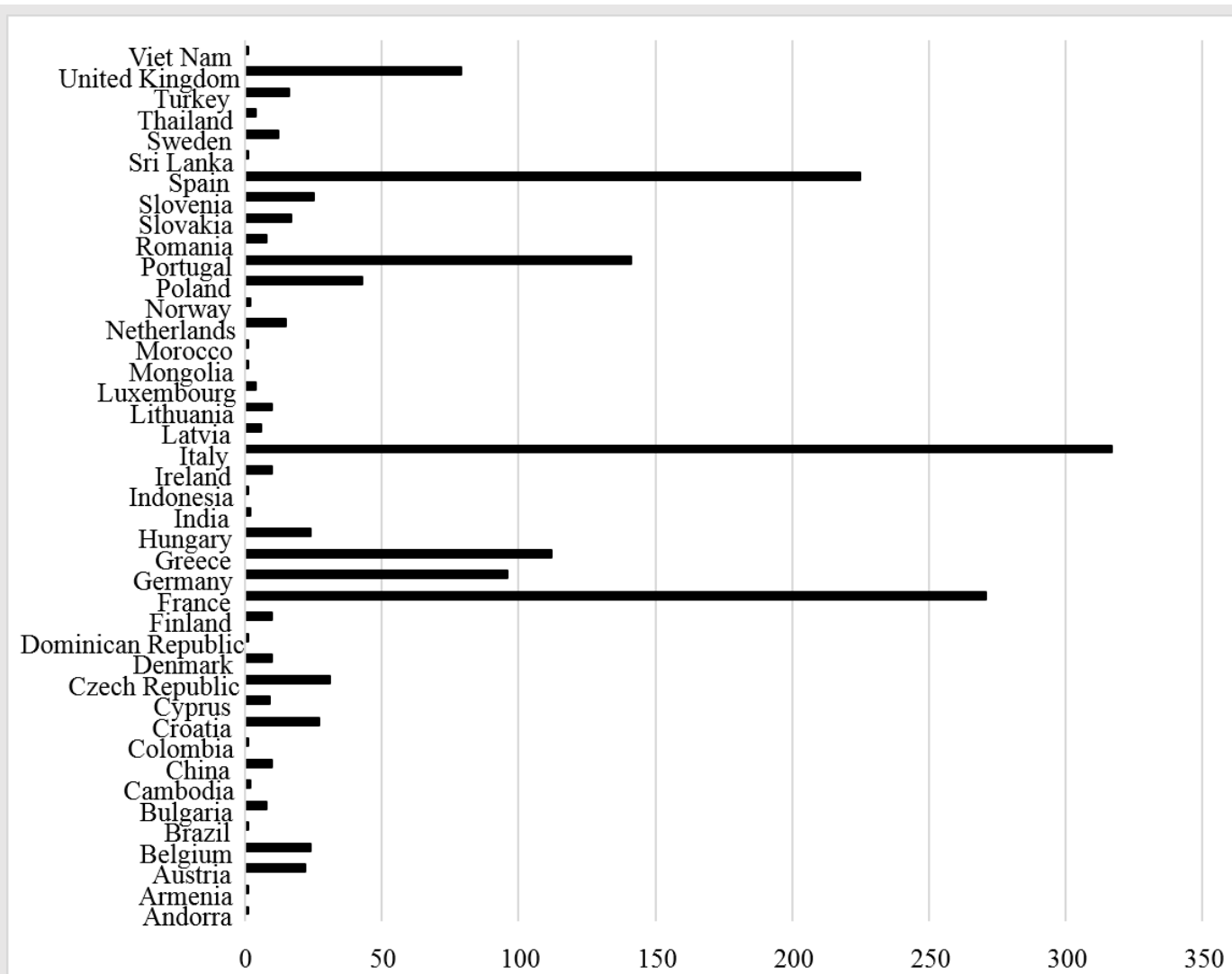


Figure 7: Number of Food Products Approved by Country (July 2018)

Source: European Commission (2019)

data collection such as those used by Sánchez (2008). With such primary data collection, answers will emerge on a number of research questions. For example, the data collected in figure 8 could help inform the issue of the responsiveness of supply, which could be used to test the hypothesis of whether the long-run supply curve is perfectly elastic. As retail-scanner data becomes available, it is possible to estimate a demand system, but the supply data will likely require alternative data possibly derived from a case study.

4.2 Global Agricultural Supply and Value Chains

Kuijpers and Swinnen (2016) provide a literature review on the important contributions in understanding the welfare effects of global supply and value chains on agricultural producers, while Bellemare and Lim (2018) discuss the literature on contracts with an example of empirical results from Madagascar.² Gereffi, Humphrey, and Sturgeon (2005) discuss five governance models within the context of new institutional economics. Antràs (2016) provides the theory for the use of transactions costs, incomplete contracts, and property rights in value chains.³ He describes databases used for empirical research including the U.S. Bureau of Customs and Border Protection, U.S. Related Party

² Boland (2018) traces the development of the words *supply chain* and *value chain* and notes how they are used in the management literature.

³ The concepts build on a number of studies including Grossman and Helpman (2002), Antràs and Helpman (2004), and Antràs and Chor (2013).

Trade of the U.S. Census Bureau, and direct investment data from the U.S. Bureau of Economic Analysis. Several difficulties exist in empirically testing the different theories because there is no publicly reported data.

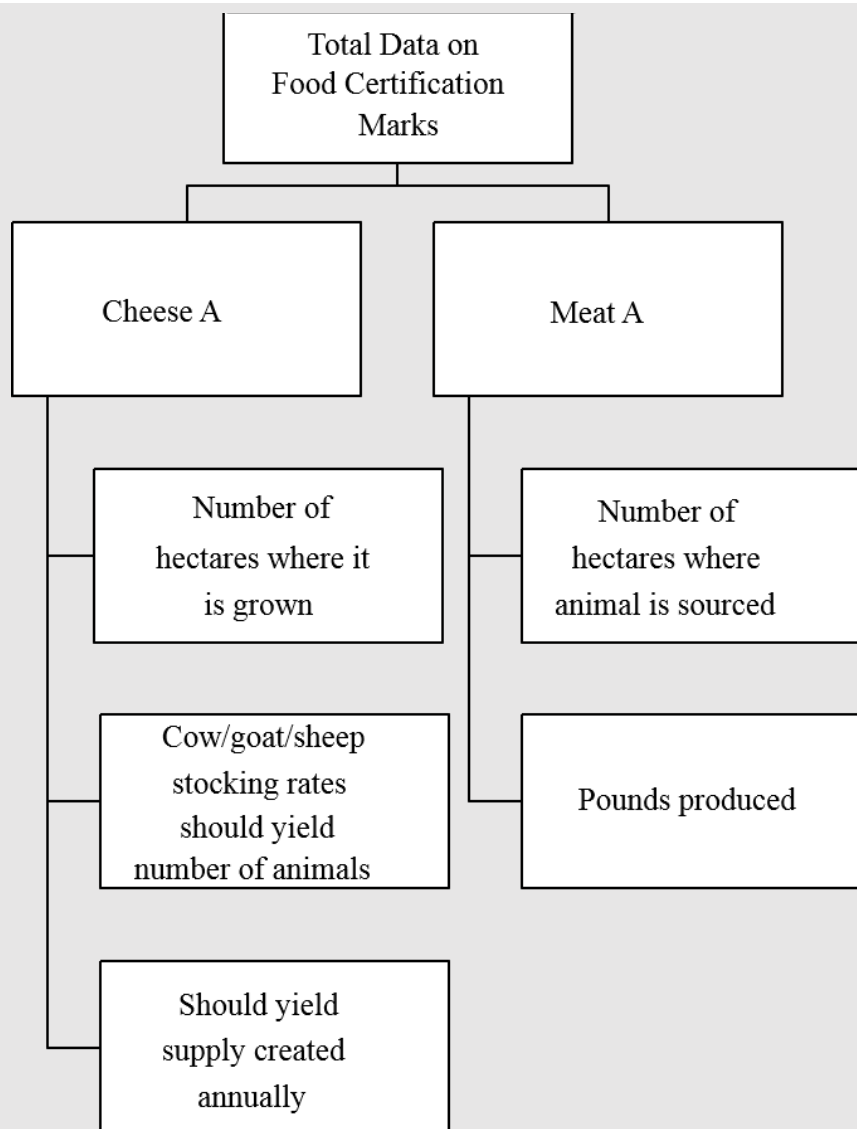


Figure 8: Example of Data That Is Available for Doing Case-Study Research on the Topic of Food Geographic Indications

Case-study research offers an approach to investigate firm-level boundaries and their development over time within the United States, European Union, and/or other countries. In particular, the development of agricultural global-value chains and their impact on sustainability could be analyzed using this approach. Figure 9 illustrates how to develop a database of food firms to examine each of their NAICS segments, location of manufacturing plants, trade data based on the ten-digit harmonized tariff codes, and Gereffi et al. (2005) typography for governance systems and sustainability strategies. The first data are from the SEC annual 10-k reports, which are available since 1996 for publicly traded firms. The second data are available from various trade publication annual summaries, which often contain the location and address of agricultural handling, processing, manufacturing, and distribution warehouses. The trade data are available within the Foreign Agricultural Trade of the United States (FATUS) for the ten-digit Harmonized Tariff Codes.

Obtaining the Gereffi et al. (2005) data involves working backward to examine the various certification claims made on retail food data. Boland, Cooper, and White (2016) employ the Gereffi et al. (2005) model to demonstrate an example for a dairy firm considering four sustainability strategies. This includes types of initiatives pursued internally, certification schemes, audits, and codes of conduct. Internal initiatives include software

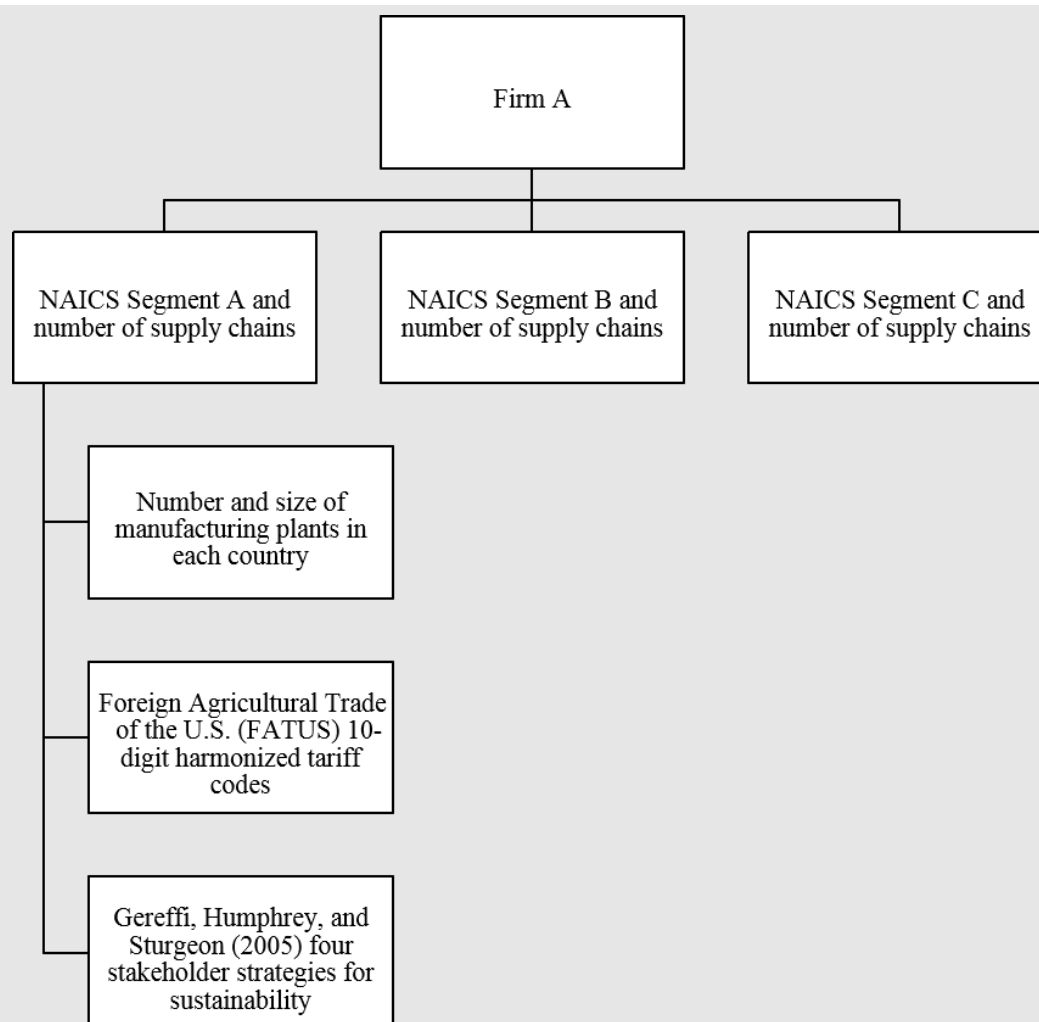


Figure 9: Example of Data Available for Conducting Case-Study Research on Global Agricultural Value Chains

programs that optimize transportation and logistical functions to reduce miles traveled by trucks. Certification schemes are processes involving one stakeholder including International Organization for Standardization (ISO) standards and ISO 26000 Social Responsibility. Audits might include GlobalG.A.P., Rainforest Alliance, or organic certification. Codes of conduct are the most advanced because they involve more than one stakeholder and convey a high level of assurance and trust.

Firms publicize their use of these four strategies and their level of attainment in press releases, annual reports, websites, and other publicly available data. For microlevel analysis, consider categorizing each strategy for each plant and product category. Then the length of the supply chains could be traced step-by-step to see how far back they go into the supply chain. GlobalG.A.P. is a business-to-business certification system regarding sustainable farming practices. For a number of fruits and vegetables, consumers can check the 13-digit GlobalG.A.P. number against the global database. Similarly, Child Labor Free is a code of conduct strategy involving a number of firms and stakeholders in a supply chain.

Employing these data provides information on the global supply chain and how far upstream into production sustainability efforts last, how many stakeholders are involved, and how they have changed over time. Then one could employ Gereffi et al. (2005) five-governance typographies to characterize each supply chain for each firm in an NAICS segment. A hypothesis to test would be whether governance systems have really become more complex as suggested by new institutional economics. While the answer might be yes, there is no real data to support this hypothesis.

5 Summary

Case-study research is an important methodological tool in social sciences, but not often taught in agricultural and applied economics doctoral programs. Doctoral programs in agricultural and applied economics are likely to get smaller as noted by Boland and Crespi (2010) and likely to become more specialized (Boland 2009). One model is Harvard's doctorate in business economics, which is distinct from its doctorates in management or economics. The business economics degree requires field courses in business history, industrial organization, and similar concepts, in addition to microeconomic and macroeconomic courses. These field courses teach students to do scholarly research, often with case-study methodology, in-industry analyses, and other industrial organization topics. Publication outlets include *The Business History Review* and *Economic Geography*.

There is no such requirement in any existing doctoral program in agricultural and applied economics. The gradual move to more broadly applied economic topics in some historical departments of agricultural economics would suggest that opportunities for publishing in these journal outlets would align with the mission of the academic units. This would include a course in case-study research methodology. A logical place to teach case-study research would be an interdisciplinary graduate course taught for social scientists (agricultural education, leadership, communication, public affairs, and sociology) and physical scientists (agriculture and food) in which a methodology class is still common for masters level students.⁴ This could be taught in a three- to five-week module in such a course. While an agribusiness history course, such as that taught by Professor Wayne Broehl, Jr. at the Tuck School, Dartmouth College, no longer exists, a doctoral program seeking to work with graduate students in case-study research would benefit from such a course and a course in case-study research methodology.⁵

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⁴ The University of Missouri, Penn State University, and University of Minnesota (there may be others) have common administrative oversight for social science departments in colleges of agriculture including agricultural and applied economics, agricultural education, agricultural communication, rural sociology, and similar departments. While their academic programs are separate, departments administered in this fashion would likely lend themselves to teaching such a case-study research class.

⁵ Broehl wrote a trilogy of books on the history of Cargill and a business history of John Deere.

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