

More than counting beans: Adapting USDA data collection practices to track marketing channel diversification

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Abstract

In order to differentiate their products, agricultural producers are expanding and diversifying their use of marketing channels. Increasingly, these channels convey farm-level information to the final purchaser. However, the Census of Agriculture, the longest-running U.S. farm survey, tracks only three forms of market differentiation: direct-to-consumer sales, organic sales, and the number of community supported agriculture farms. Current Congressional proposals to increase data collection

on market channel diversification rely on “follow-on” surveys and the Agricultural Resource Management Survey (ARMS) conducted by the U.S. Department of Agriculture. Both of these surveys are more limited than the Census of Agriculture in observing farm-level trends; the follow-on survey is particularly limited in providing results that are comparable to all farms and even farms within the same sector. This paper will show that administrative reporting changes in the 2012 census and the introduction of new questions for the 2017 census can improve both farm-level and sector-level observations on marketing channel usage — with greater precision than tracking local and regional food systems. Such data is needed to assist policy-makers, technical assistance providers, and farm lenders in providing resources to the relatively high portion of young, beginning, and full-time producers involved in market channel differentiation.

Keywords

agricultural marketing, census, diversification, farm policy, local food systems, marketing channels, organic

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Introduction

There is significant evidence that producers involved in organic agriculture, farmers' markets, community supported agriculture (CSAs), direct-to-retail (e.g., direct sales to restaurants and schools), and other marketing activities are responding to increasingly diverse consumer preferences (Blisard, Lin, Cromartie, & Ballenger, 2002; Dimitri & Oberholtzer, 2008, 2009; Harris, Kaufman, Martinez, & Price, 2002; Martinez, 2007, 2010; Martinez & Davis, 2002; Martinez et al., 2010; 2002; Sherrick, Barry, Ellinger, & Schnitkey, 2004; Steidtmann, 2005; Stewart & Martinez, 2002). Further, the U.S. Bureau of Labor Statistics observes that of all sectors of agriculture, "small-scale, local farming, particularly horticulture and organic farming, offer the best opportunities for entering the [farming] occupation" over the next decade (Bureau of Labor Statistics, 2009). Additional evidence shows that producers involved in direct-to-consumer sales and organic agriculture, particularly producers who are younger than average, are more likely to be engaged in agriculture as a primary occupation (Hunt, 2006; Hunt & Matteson, 2010; Low & Vogel, 2011). However, marketing channel usage is poorly tracked and reported in USDA sources (K. Meter, Crossroads Resource Center, personal communication, August 31, 2011; Hunt & Matteson, 2010/2012; Low & Vogel, 2011). A lack of information on how these farmers use a diversity of marketing channels to differentiate their products could limit investments in farms using those practices and could hinder the success of young and beginning farmers.

The USDA has been proactive in tracking some of these trends, such as organic agriculture (Dimitri & Oberholtzer, 2008, 2009; Greene, 2012; Greene, Dimitri, Li, McBride, Oberholtzer, & Smith, 2009; National Agricultural Statistics Service, 2010b). In the same year the organic standard was implemented, the 2002 Census of Agriculture included questions and dedicated reporting tables on organic agriculture (National Agricultural Statistics Service, 2004). By comparison, direct-to-consumer marketing was used by *six times* the number of farms as organic agriculture in 2007. Yet, since direct-to-consumer-

sales was added in 1978, the USDA has introduced only one new question regarding marketing channels: community supported agriculture in 2007 (Low & Vogel, 2011; National Agricultural Statistics Service, 2009a). While a new census question on intermediated marketing has been proposed for the 2012 Census of Agriculture (Lohr & Buysse, 2012), as well as a local food system follow-on survey (Advisory Committee on Agriculture Statistics, 2009), this will barely address the minimum of 17 different marketing channels used by farmers. Furthermore, it does not address the fact that the number of farmers' markets doubled between 1994 and 2004, from 1,755 to 3,137, and more than doubled between 2004 and 2011 to 7,175 (Market Services Division, 2010a). Data collection by the USDA on a wide range of marketing channels has lagged despite the fast growth of channels, such as farmers' markets, and the popularity of direct-to-consumer marketing. Attention to data collection is necessary now as the next farm bill debate is underway and modifications to the Census of Agriculture have not been included in Congressional proposals to date ("Local Farms, Food, and Jobs Act of 2011," 2011a, 2011b).

Also, quantifying trends in local and regional food systems, as proposed in the census follow-on survey (Advisory Committee on Agriculture Statistics, 2009), when there is not a consensus on how local and regional should be defined or measured is problematic (Duram & Oberholtzer, 2010; Hand & Martinez, 2010; Lev & Gwin, 2010). A substitute focus, that of marketing channels, would capture much of local and regional marketing activity (e.g., direct-to-consumer, farmers' markets, farm-to-school, etc.) with less complicated methods — replacing methods with which even USDA analysts have had difficulty (Low & Vogel, 2011).

Underinvestment: A Potential Outcome of an Information Gap

An information gap can exert a negative influence on farm business performance and financing availability (Brophy, 1997; Brush, Ceru, & Blackburn, 2009; Davidsson, Achtenhagen, &

Naldi, 2005; Felsenstein & Fleischer, 2002; *Hearing to review access to healthy foods for beneficiaries of Federal nutrition programs and explore innovative methods to improve availability*, 2010; Lerner, 1999) and lack of sector information can be exacerbated by a firm's rural location (Barry & Ellinger, 1997; Felsenstein & Fleischer, 2002; Hou, 2006; Temkin, Theodos, & Gentsch, 2008). Some evidence suggests that this situation may exist. The USDA Rural Business and Industries Loan Guarantee program has exceeded its 5 percent set-aside for local and regional food enterprises (*Hearing to review Rural Development programs in advance of the 2012 Farm Bill*, 2010). As a loan guarantee program is designed to get banks "over the hump" in making a commercially viable loan, nonfinancial risks may be driving lenders to request local and regional food businesses to apply for the USDA loan guarantee. However, without more information, the scope of credit demand and availability cannot be assessed.

Compounding the lack of data on marketing channel usage is a reliance on sales as an indicator of growth; variables other than sales are necessary to assess a business's or sector's current and future viability (Davidsson et al., 2005). For example, marketing and management practices are significant factors affecting a business's development (Brush et al., 2009; Haber & Reichel, 2007). In a review of research on small firm growth, Davidsson and colleagues indicate that "if only one indicator were used," of assets, employment, or sales, "results would be weak and possibly distorted" (Davidsson et al., 2005, p. 7). They argue that to measure growth, indicators such as sales or volume present only part of the picture. Growth could also be considered in terms of employment, such as the number of farmers engaged in farming as primary occupation (for an example see Hunt & Matteson, 2010/2012). Davidsson, Achtenhagen, and Naldi also argue that growth does not always lead to profitability: focusing on sales growth without a measure for production or management costs could be a false indicator (Davidsson et al., 2005). "This is strong reason," they say, "to caution against a universal and uncritical growth ideology and for small firm owner managers—whenever possible—to secure profitability before they go for growth" (Davidsson et al., 2005, p. 17). From the

perspective of Davidsson et al., a small firm does not necessarily need to "get big" to be profitable. Assessing a factor of farm management — marketing decisions — is likely to be a better indicator of farm viability and profitability, especially if related to production, marketing, and distribution costs, than relying on sales data.

Overview

We indicate the limits of current USDA data collection practices, limits of the proposed expansion of the ARMS and the use of the local food system follow-on study, and make recommendations for the 2012 and 2017 Censuses of Agriculture and related USDA data-collection activities.

Introducing a Marketing Channel Perspective

Defining Marketing Channel Differentiation

Marketing channel differentiation is a term based on two business terms: differentiation and marketing channel. Differentiation is defined by the Cambridge Business English Dictionary as "the process of showing how a product is different from similar products and what its advantages are, especially in order to attract a particular group of consumers" (BusinessDictionary.com, 2012c, para. 1; Cambridge Dictionaries Online, 2011b, para. 1). A marketing channel is defined by the BusinessDictionary.com as the "means employed to distribute goods or services from producers to consumers" (BusinessDictionary.com, 2012a, para. 4) and in the Cambridge Business English Dictionary as "a way in which products or services are made available to customers" (Cambridge Dictionaries Online, 2011a, para. 1). The term distribution channel is used interchangeably with marketing channel (Cambridge Dictionaries Online, 2011c, in header). We use the term "marketing channel differentiation" to characterize how agricultural producers, at the farm level, seek to distinguish their products from commodities through marketing and distribution practices. For example, direct-to-consumer sales is a marketing channel, as are direct-to-restaurant sales and wholesaling. It is important to note that no marketing channel is local or regional by default.

Also, “differentiation” exists on a spectrum where both products of high differentiation (e.g., heirloom products produced with certified organic methods and sold through a CSA where purchasers share in production risks) and low differentiation (e.g. organic milk sold through a wholesaler and destined for national distribution under a generic label) are different from a commodity product (Burchfield, 2004; BusinessDictionary.com, 2012b). Further, a variety of production, marketing, risk-sharing, geographic, and other characteristics can be layered, creating highly differentiated products. Importantly, certified organic products are differentiated by both production practice and marketing channel. Certified organic products are distinguishable from other commodities because their supply chain is separate from nonorganic products and the organic label informs potential purchasers of this difference (Dimitri & Oberholtzer, 2009; National Agricultural Statistics Service, 2010d). At the sector level, we use the term market-channel diversification to characterize the expanding number of channels and the growing use of marketing channels as a way to distinguish farm products.

While the marketing channel framework may be less familiar than the local and regional food systems terminology, the former is less variable in meaning and thus more precise than the latter. A key advantage to using the term marketing channel is that it meshes with the existing business and agricultural economics terminology used in the Census of Agriculture and USDA (Low & Vogel, 2011).

Background

The Census of Agriculture is the largest, longest-running, publically available data source on American agriculture. It has its roots in the 1820 decennial population census, became a separate agricultural census in 1840, and listed over two million farms in 2007 (National Agricultural Statistics Service, 2009a; U.S. Census Bureau, 2012). The USDA describes the Census of Agriculture as “the leading source of facts and figures about American agriculture” and “the only source of uniform, comprehensive agricultural data

for every state and county in the United States” (National Agricultural Statistics Service, 2012, para. 1). As a result, USDA indicates that “Census data is used to make decisions about many things that directly impact farmers, including: community planning, store/company locations, availability of operational loans and other funding, location and staffing of service centers, and farm programs and policies” (National Agricultural Statistics Service, 2012, para. 3). Given its central role in providing information used in service provision, including farm lending services, we focus our analysis on the Census of Agriculture. As a result, our analysis is primarily based on the three marketing channels currently tracked in the Census of Agriculture: direct-to-consumer sales, CSAs (a form of direct-to-consumer sales), and organic sales. We argue that other indicators, beyond sales data, are needed to understand producer use of marketing channels. However, because sales data is the most widely available, our analysis, like many of the USDA analyses we reviewed, is often confined to reporting sales data.

Current Data on Marketing Channel Differentiation

Breadth of marketing channels

Seventeen marketing channels under three categories, direct-to-consumer sales, direct-to-retail, and wholesale markets, were identified in the 2008 Organic Production Survey (OPS) (National Agricultural Statistics Service, 2010d). Despite being the only two regularly conducted surveys, the census and ARMS track far fewer marketing channels.

Understanding the scale of marketing channels:

Reporting sales versus number of farms

Marketing channel differentiation has typically been analyzed by sales and farm size. From a resource-provider perspective, presenting data in terms of the number of farms and their location may be just as valuable as understanding their sales level. As new sectors often start small, focusing on sales may inadvertently allow an increasingly popular agricultural activity to be overlooked by policy-makers and resource-providers, including

farm lenders. USDA studies have interpreted that direct-to-consumer sales are “small” (Martinez et al., 2010, p. 18), that “locally grown food accounts for a small segment of U.S. agriculture” (Low & Vogel, 2011, p. iii), that direct-to-consumer sales are concentrated on the coasts and urban influenced-areas (Diamond & Soto, 2009; Low & Vogel, 2011; Martinez et al., 2010), and that produce growers are the primary users of these markets (Low & Vogel, 2011).¹ Focusing on sales as well as reporting direct-to-consumer sales separately from a farm’s total sales can obscure the role of direct-to-consumer sales as a complement to other farm income.

To illustrate this point, we contrast two USDA studies conducted one year apart. Martinez et al. (2010) analyzed 2007 Census of Agriculture data on direct-to-consumer sales and found that it is often used to complement other marketing activities. A year later, two other USDA Economic Research Service researchers presented direct-to-consumer sales data differently: “Over the 1978–2007 period, farms with direct-to-consumer food sales represented an average of 5.5 percent of all farms, and the total direct-to-consumer sales accounted for 0.3 percent of total farm sales” (Low & Vogel, 2011, p. 2). Using the data provided in Martinez et al. (2010), Hunt and Matteson (2010/2012) estimated that a total of USD8.7 billion in farm sales (3 percent of all farm sales) were made from farms with direct-to-consumer sales (about USD1.2 billion) in 2007. Further, Hunt and Matteson indicate they were only able to make this estimate because Martinez et al. published data in their report which is not currently published in the Census of Agriculture tables. The reliance on sales data as a measure to report farm performance is partly an artifact of how the question asked in the census (direct-to-consumer sales) and partly because sales is often a default, yet potentially inaccurate, indicator of performance (Davidsson et al., 2005).

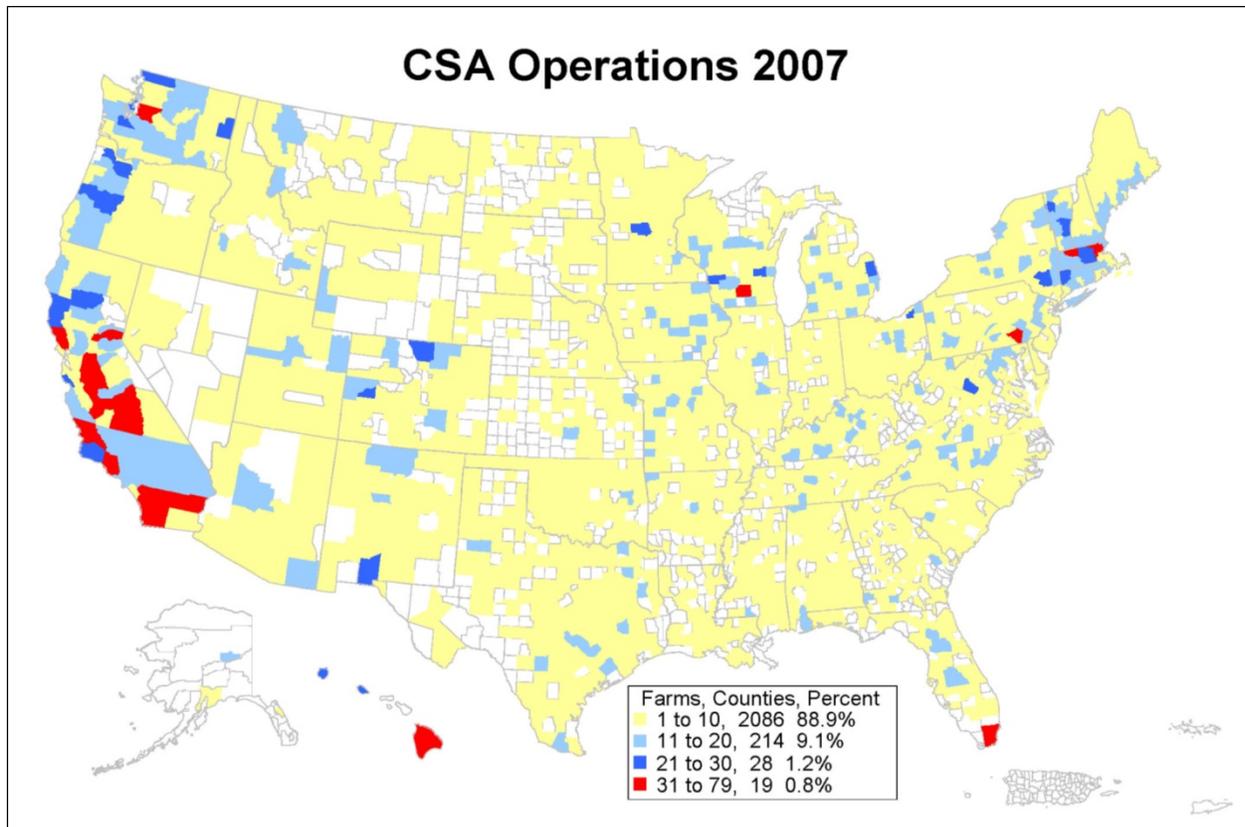
¹ Martinez et al. (2010) found that livestock producers used direct-to-consumer-marketing more than produce growers, by number of farms, in contrast to the finding made by Low and Vogel (2011), who focused on sales.

This style of sales-centric reporting can lead to headline conclusions, such as “Most Farms that Sell Directly to Consumers Are Small” (Martinez et al., 2010, p. 18), that also obscure the segment of farms using direct sales above USD50,000, which USDA historically considered “commercial” sales (Newton & MacDonald, 2011, para. 25). Hunt and Matteson (2010/2012) showed that total sales from diversified marketing channels (direct and organic) can equal or exceed sales of some major commodities, such as rice and cotton. They also found that direct-to-consumer sales, by number of farms, would constitute the fifth most popular form of agricultural activity if it were a commodity type (Hunt & Matteson, 2010/2012). Further, three studies identified high-sales farms engaging in direct-to-consumer sales (Low & Vogel, 2011; King et al., 2010; Martinez et al., 2010), and the study by Hunt & Matteson (2010/2012) showed that these high-sales farms can exceed the average sales level of all farms.

Also, a geographic focus on reporting high-sales counties may have inadvertently turned attention away from the geographic dispersal of some forms of direct-to-consumer marketing. Hunt and Matteson (2010/2012) used 2007 census data to show that three in four counties have at least one farm utilizing community supported agriculture (figure 1). Also, the Agricultural Marketing Service reported in 2010 that the states with the fastest-growing number of farmers’ markets were in the central regions of the U.S. (Wasserman, 2010). While sales per county, number of farms per county, and the area of counties differ by region, from the perspective of a farm service provider, such as a farm lender, it is important to know the location of farm activities to provide services efficiently.

More data is available than what is published in the Census of Agriculture. For example, if direct-to-consumer sales had a dedicated summary table in the Census of Agriculture, as organic agriculture does, then factors such as the share of total farm sales made through direct-to-consumer channels, producer age, production expenses, and portion of organic products sold directly to consumers could also be reported. A wider variety of indicators would be better suited to understanding both

Figure 1. Number of Farms with CSA Operations by County in 2007 from Census of Agriculture Data^a
(republished from Hunt & Matteson, 2010)



^a The table inside the figure indicates percentages calculated only from counties with CSA farms, not all U.S. counties.

farm-level and market-level trends in market differentiation than sales alone.

The problem with tracking local and regional food sales

Tracking local and regional food sales based on farmer surveys is difficult, as one needs to define the relationship between point of production, point of sale, and any intermediary stages.² For example, Low and Vogel's 2011 study relies on data from questionnaires that do not collect distance between

farm and regional distributor, and distributor to point of sale. Yet, they classified farm sales to regional distributors as part of local food sales. Without information about the points of final sale made through a regional distributor, it is possible that some "local" product sales were destined for national markets. An example is the Indian Springs Farmers Association in Mississippi, whose farmers sell products through their regional distribution center directly to buyers in Chicago, Toronto, and Boston as well as to national distributors (Wallace Center at Winrock International & Business Alliance for Local Living Economies, 2009). Farm sales to such a cooperative would be included as "local" using Low and Vogel's methods. Also, Lev and Gwin (2010) have indicated that direct-to-consumer sales are not necessary local sales: national sales can be made direct from a producer

² We use the term "relationship" as distance is one of many potential measures of identifying food as locally or regionally produced. Transport times, in-state production and retailing (Managers on the Part of the House and the Senate for H.R. 2419, 2008a), foodshed (Kloppenborg, Hendrickson, & Stevenson, 1996), bioregion (Nabhan, 2002), or other relationship can be used.

via the Internet. Combining sales through direct and intermediated channels, including regional distributors, to make up “local and regional food sales” informed two of their main conclusions: (1) the estimate of USD4.8 billion in local food sales,³ and (2) that larger-sales farms make up most of the sales volume in intermediated channels, including sales through regional distributors.

These shortcomings illustrate some of the challenges and limits when working with questionnaires and data sets that were not designed to capture marketing channel usage. Also, with a wide range of meanings associated with local and regional food, there seems to be a high chance of getting a meaningful, national definition wrong rather than getting it right, especially if stakeholders are not involved in the definition process. Further, asking producers questions about where their products are processed and sold is likely to produce unreliable results as some producers may have limited knowledge of their product’s final point of sale, especially in intermediated channels. A marketing channel perspective may offer a similar level of information to distance-based measures, but with more accurate results, less complicated questions, and less risk of respondent error.

Alternatives to the Census of Agriculture

Can the ARMS Build a Reliable, Time-series Data Set?

While the census has relatively robust data-collection practices, it tracks only a few forms of farm-level market differentiation (Lev & Gwin, 2010). These limits are expanded on by Low and Vogel, who utilized both census and ARMS data in their study:

If we were to try to tease out the value of

³ Additionally, Low and Vogel did not publish their calculations for their estimate of USD4.8 billion in local food sales. This is a concern because they related data from two very different sources: 2007 Census of Agriculture data and 2008 Agricultural Resources Management Survey (ARMS) data. Nor did they indicate their distance cut-off for “local” sales at farmers’ markets — data that is collected in the 2008 Agricultural Resource Management Survey (Low & Vogel, 2011).

local food sales by marketing channel, we would encounter problems with double counting, confidentiality, and statistical reliability. For those farms using both types of marketing channels, the data did not allow us to quantify the contribution each type of marketing channel makes to overall farm performance. (Low & Vogel, 2011, pp. 19–20)

Some of these issues can be addressed by modifying existing questions to track sales by marketing channel, a practice used with direct sales in the 2007 and 2010 ARMS (National Agricultural Statistics Service, 2007, 2010a). A benefit of the annual ARMS is its flexibility to modify existing questions and try out new questions. However, flexibility comes with a cost: the wording of the question about direct sales used in the ARMS during 2006–2010 changed four times, excluded value-added products from direct sales in 2007 and 2010, and included items not for human consumption (e.g., cut flowers) in 2008 (National Agricultural Statistics Service, 2006, 2007, 2008, 2009d, 2010a). This inconsistency does not allow for comparisons over time. These inconsistencies were so severe that Low and Vogel’s report on local food sales had to omit the 2008 ARMS data on direct sales (Low & Vogel, 2011, pp. 18–19).

Even if the ARMS and census used the same question formats for direct-to-consumer sales, the census and ARMS will almost always differ because they use different sampling methods (Hunt & Matteson, 2010; Low & Vogel, 2011). Because the ARMS randomly selects farms to respond to the survey, it cannot develop a multiyear database of farm data. Repeated observation of the same farms is needed to identify trends in beginning farmer development (Ahearn & Newton, 2009; Low & Vogel, 2011), farm entry and exits (Hoppe & Korb, 2006), and other types of farm transition, such as organic conversion and junior partners becoming farm owners.

Another drawback to the ARMS is its relatively small sample size. For example, Low and Vogel’s study on local food sales relied on about 3,000 respondents (Low & Vogel, 2011, p. 30). This small sample size introduces concerns about

statistical reliability and restricts geographic reporting levels (Low & Vogel, 2011). By contrast, the census can report data to the ZIP code or county level because its larger survey population reduces the risk of breaching respondent confidentiality. Also, the census has a statutory mandate to report at least to the state level and requires participation by law or producers risk a fine (“Authority of Secretary of Agriculture to conduct census of agriculture”). The census has a higher, statutory priority for generating high response rates and generates more consistent, reliable data than the ARMS.

Limitations of a Follow-on Survey

An alternative to modifying the census is to conduct an in-depth survey of a group of census respondents. The targeted group is identified through “trigger questions” (e.g. direct-to-consumer sales) and sent a detailed questionnaire the year after the census (hence the name “follow-on” survey). The survey is paid for through special appropriations from Congress. An example is the 2008 Organic Production Survey (OPS). These surveys can reach a larger number of targeted producers, allowing more detailed geographic reporting than the ARMS can provide. For example, the OPS was reported to the state level (National Agricultural Statistics Service, 2010d).

Drawbacks of follow-on surveys include that they are often conducted once (National Agricul-

tural Statistics Service, 2011) and are unable to build the time-series data set need to identify beginning farmers, new farmer entry, and other forms of farm transition over time. Also, the one-year time lag prevents the comparison of results between the follow-on survey group and all other farms surveyed the year before (see table 1). This limitation is apparent with organic sales data collected from the 2007 census and the 2008 OPS. The 2008 OPS identified total organic sales at a level 42 percent *higher* than the 2007 census, even though the OPS reported data from 4,435 *fewer* organic farmers. The NASS explains that the differences are due to response rates (National Agricultural Statistics Service, 2010c). However, this explanation seems inadequate as NASS also indicates the OPS had a response rate of 87 percent, two percentage points higher than the 2007 Census of Agriculture (National Agricultural Statistics Service, 2011). With a follow-on survey delivering dramatically different results from the prior year’s census, the follow-on option needs further scrutiny if it is to be implemented in the 2012 census (Advisory Committee on Agriculture Statistics, 2009) or in later years as proposed by some Members of Congress (“Local Farms, Food, and Jobs Act of 2011,” 2011a, 2011b). Thus the benefit of a rich level of detail is offset by limited comparability within the same sector, no comparability with all other farms, and infrequent — and potentially one-time — observations.

Table 1. Comparison of the 2008 Organic Follow-on Survey Results with 2007 Census of Agriculture Organic Data (Hunt & Matteson, 2010/2012)

Farms Sales Class	2008 OPS Farms	2008 OPS Sales (USD)	2007 Census Farms	2007 Census Sales (USD)	Farms — Percent Difference OPS vs. Ag. Census	Sales — Percent Difference OPS vs. Ag. Census
<USD10,000	4,862	15,581,000	10,220	26,056,000	-52%	-40%
USD10,000–USD49,999	3,218	81,428,000	3,833	90,483,000	-16%	-10%
USD50,000 and over	5,696	3,067,985,000	4,158	1,592,573,000	37%	93%
Average sales	—	229,747	—	93,850	—	145%
Average sales over USD50,000	—	538,621	—	383,014	—	41%
Total	13,776	3,164,994,000	18,211	1,709,112,000	-31%	42%

The move to follow-on surveys appears influenced by the National Agricultural Statistics Service's concern about the visibility of the Census of Agriculture's budget.⁴ Shifting new data collection activities to the year after the census may reduce the visibility of new data collection costs. However, as indicated, the resulting one-year time lag limits the usefulness of a follow-on survey. If follow-on surveys lack comparability and cannot be used to build time-series data sets, is this the best use of census resources, NASS effort, and producer time spent on completing such questionnaires?

Recommendations for Tracking Farm Level Data on Marketing Channel Differentiation

The 2012 census is already in development, so new questions cannot be introduced until the 2017 census. However, changes in the 2012 census's reporting practices are still possible. This section profiles a minimum of politically feasible changes to both censuses.

Reporting Changes for the 2012 Census of Agriculture

Cross-tabulating direct, organic, and CSA sales

Cross-tabulations across marketing channels are needed to identify sales by marketing channel, as well as to make accurate comparisons between channels and with all U.S. farms. This would address the issues of marketing channel overlaps and double-counting identified by Hunt and Matteson (2010/2012), Vogel (2011), and Low and Vogel (2011) by reporting farms that use a combination of marketing practices. These cross-tabulations should include data for organic products and can be reported in existing census summary tables or in new tables.

Dedicated summary tables for direct and CSA sales

NASS could increase public access to the information by publishing dedicated summary tables that summarize the portion of total farm sales

made through direct-to-consumer, CSA, and organic channels (for an example of this, see National Agricultural Statistics Service (2010e)). The necessary data is already collected (Martinez et al., 2010). However, it is only accessible to the public through special, in-person access to the NASS data lab. Reporting this data in summary tables, like those used for organic agriculture in 2007, can provide data such as age, farm size, and product diversification by marketing channel while still protecting confidential data. Further, reporting historical values from two or three previous censuses in the summary table is possible and a relatively common practice. This would facilitate longer-term analyses of market channel usage.⁵

Increase farm sales ranges

Currently, maximum sales class ranges for direct-to-consumer and organic sales in the census are set at USD50,000 and above. This is much lower than sale ranges used for other forms of agriculture, which include ranges up to USD5 million and above. Further differentiation of commercial sales ranges should increase the visibility of high-sales farms identified by Hunt and Matteson (2010) and Low and Vogel (2011).

New Data Collection for 2017 Census of Agriculture

Stakeholder engagement

Ultimately, space limitations in census questionnaires will limit the number of new questions. Priorities should be identified through stakeholder engagement. One vehicle is the NASS Advisory Committee on Agriculture Statistics, which informs the census's development. Yet input by the Farm Credit Council to the Advisory Committee on Agriculture Statistics in 2009 only led to a local food system follow-on survey (Advisory Committee on Agriculture Statistics, 2009; J. Hays,

⁴ In a review of the Advisory Committee on Agriculture Statistics, costs and budgetary concerns appear in each of the meeting summaries from 1999 to 2011 (Advisory Committee on Agriculture Statistics, 2011).

⁵ Direct-to-consumer sales can be reported back to 1978. Reporting data as far back as possible to the greatest level of geographic specificity possible would allow researchers to analyze market differentiation trends over a much longer period of time. Even with the changes to Census reporting methods in the 1990s, these changes affected all farms, so historical comparisons between farms with direct-to-consumer sales and other farms in the same year are still possible.

personal communication, February 25, 2009).⁶ Increasing input from a broader number of stakeholders to the Advisory Committee, or through other means such as legislation, may be necessary for more substantial changes. Non-governmental organizations representing farmers engaged in marketing channel differentiation, such as the Farmers Market Coalition, and census users, including policy organizations and consultants, should be consulted as marketing channel diversification is a new field for USDA researchers.

Further, the USDA conducting research on local and regional food systems *without* stakeholder engagement has had shortcomings. For example, stakeholder input could likely have improved the Low and Vogel study (2011) by indicating the need to identify point of production, point of sale, and the location of intermediaries in their definition of “regional distributor” or identified the ARMS questionnaire’s inconsistencies on direct-to-consumer sales.

Modifying existing questions

Current questions on direct-to-consumer sales for human consumption should remain unchanged to maintain their historical integrity. However, new questions on direct sales of products not for human consumption, such as live plants, Christmas trees, wool, and bee products would help identify a large segment of local food sales (Low & Vogel, 2011). Improving question specificity also may reduce reporting ambiguities.⁷ In addition, the current CSA question could be placed below the direct-to-consumer sales question and include a field for sales value. Such changes would make better use of existing questions and may stay within current space availability.

⁶ John Hays is senior vice president for Policy Analysis & Development at the Farm Credit Council and a member of the Advisory Committee on Agricultural Statistics.

⁷ For example, 42 farms with direct-to-consumer sales were classified as cotton farms. This could be an artifact of the North American Industrial Classification System requirement of classifying farms by their largest product, but this cannot be determined from the data as presented (National Agricultural Statistics Service, 2009a, p. 191).

Introducing new questions

Introducing new questions to track local and regional sales will be problematic due to the issues noted above. Consequently, questions based on marketing channel usage may be more accurate and reliable than questions based on local and regional food sales. This is why we propose introducing new questions on marketing channels. A practical step for introducing new questions is to group marketing channels by channel type.

The marketing channel categories used in the 2008 OPS may serve as an initial starting point for such discussions. The OPS reports 17 marketing channels under three major categories: direct-to-consumer, direct-to-retail, and wholesale (intermediated) (National Agricultural Statistics Service, 2010d). The minor categories used in the OPS are listed in table 2, with the addition of auction (*italicized*) from Diamond, Barham & Tropp (2008) which was not included in the OPS (National Agricultural Statistics Service, 2009c). By including at least three major channel types and placing CSA under direct-to-consumer sales, the 2017 census would provide a framework for introducing future questions.

Pre-testing new questions and data entry methods

Pre-testing pilot questionnaires with the new questions would help ensure their validity and feasibility, a standard step in questionnaire design (Rea & Parker, 1997). It is likely that pre-testing surveys all the way through to data entry could have identified the differences between the ARMS and census question formats on direct-to-consumer-sales.

Political considerations

There is political risk involved with introducing new questions to the census as they can potentially increase survey costs or displace existing questions. Additionally, a marketing channel perspective represents a shift in mindset from more familiar indicators of sales, size, demographics, and product type. A combination of these factors may explain why follow-on surveys and changes to the ARMS have been pursued in place of new census Statistics, 2009; “Local Farms, Food, and Jobs Act

Table 2. Marketing Channels Included in the OPS Questionnaire, with the Addition of Auction

Direct-to-consumer	Direct-to-retail	Wholesale
On-site (e.g., farm stand)	Natural food stores	Natural food store chain buyer
Farmers' markets	Conventional supermarkets	Conventional supermarket chain buyer
Community supported agriculture	Restaurants or caterers	Processor, mill, or packer
Mail order or Internet	Institutions	Distributor, wholesaler, broker, or repacker
Other	Other	Sales to other farm operations
		Grower cooperative
		Other wholesale
		<i>Auction</i>

Sources: National Agricultural Statistics Service, 2009c; Diamond, Barham, & Tropp, 2008.

of 2011," 2011a, 2011b).

Yet political risk can come with funds being applied to activities with limited benefit: neither a follow-on survey nor ARMS can build a time-series data set that tracks farm transition or beginning farmer development as effectively as the Census of Agriculture. Further analysis of these trade-offs may be necessary prior to the next Farm Bill.

Tracking Market-level Characteristics of Market Channel Diversification

By tracking both farm-level data by marketing channel and retail sales by marketing channel, researchers can develop retail price spreads, also called more colloquially the producer's share of the retail food dollar, for each marketing channel by stage (e.g., production, processing, distribution, retail). This indicator can be used to identify the relative share of food prices retained by a producer, and when related to production, marketing, and distribution costs, can provide a more meaningful indication of farm viability than gross sales.

Currently, this data has only been developed in case studies, such as in King et al. (2010). However, we can make some inferences that retail price spreads differ by marketing channel through an examination of organic sales data from USDA and industry. By analyzing retail organic sales and farm-level organic sales, we were able to estimate the producer's share of the organic food dollar as 9 percent in 2007 and 12 percent in 2008 (National Agricultural Statistics Service, 2009a, 2010b; Organic Trade Association, 2009a, 2009b). These levels are less than the average retail producer's

share of 19 percent (Elitzak, 2008).⁸ Our estimate varies depending on whether we used the 2007 census or the 2008 OPS data, which highlights how survey methods influence data analysis. Both our estimate and the percentage we cite from USDA are averages, and can vary by product, season, market prices, and other factors. Consequently, retail price spreads are best tracked over time by both product and marketing channel. While our estimate is rough, it indicates that retail price spreads and the share of a product's price retained by a producer can vary by marketing channel. Our estimate challenges the conventional wisdom that high organic retail prices are due primarily to higher farm-level costs for organic producers or price premiums charged by organic farmers, although more data and further analysis are needed to verify our estimate.

Further exploration of questions like this are limited because farm-level and retail sales data are unavailable by marketing channel. Retail sales can come from private sources, such as the commercial survey company ACNielsen, or through public sources. However, private data, such as that from the Organic Trade Association used above, may not allow the same level of public access and scrutiny enjoyed with public sources.

Currently, the USDA does collect some retail and wholesale market data. The USDA Agricultural

⁸ The retail price spread also varies widely by product. The lowest reported producer share of the retail price was 3 percent for corn flakes and the highest was 52 percent for eggs (Elitzak, 2008). Thus, tracking retail price spreads by channel also implies tracking sales of main product types within each channel.

Marketing Service Market News tracks and publishes retail and wholesale prices from more than a dozen wholesale and terminal markets nationwide (Agricultural Marketing Service, 2011). These reports are published two to three times a week and include organic prices. The existing data could be supplemented with prices collected from selected producer-only farmers' markets, CSAs, and food hubs, which are increasingly important in intermediated food sales (Barham, 2011). The USDA Agricultural Marketing Service is well positioned to carry out this work: it administers both the Market News Service and the Market Services Division, which has relationships with many farmers' markets, food hubs, and industry service organizations ("Farmers Market Consortium," 2011).⁹

Conclusion

In response to consumer demand, producers have diversified into direct-to-consumer, direct-to-retail, and wholesale marketing activities. Several analysts have indicated that farmers who are younger than average are pursuing diverse strategies in relatively high proportions (Bureau of Labor Statistics, 2009; Hunt, 2006; Hunt & Matteson, 2010/2012; Low & Vogel, 2011). While USDA sources like the census indicate limited sales growth (Lev & Gwin, 2010), other sources, including NGOs, the private sector, and other government agencies, indicate that farm sales to food service, schools, restaurants, and retailers are increasing (Bureau of Labor Statistics, 2009; Franchise Direct, 2010; Jones-Ellard, 2010; Market Services Division, 2010b; National Farm to School Network, 2010; National Restaurant Association, 2010; Packaged Facts, 2007; School Nutrition Association, 2009). The perception of marketing channel diversification as a "small" trend is based upon analyses using sales data and is reinforced by a lack of other indicators. As a result, a lack of data may be perpetuating an information gap.

⁹ The Market Services Division also manages the USD10 million Farmers Market Promotion Program with the same staffing level as when the program budget was only USD1 million. Allocating funds for data collection may require authorization in the Farm Bill.

Aware of this information gap, Congress directed the USDA to increase collection of organic data and study local and regional food systems in 2008 (Managers on the Part of the House and the Senate for H.R. 2419, 2008a, 2008b; National Agricultural Statistics Service, 2009b, p. 689). This led to the reports by Martinez et al. (2010), King et al. (2010), and Low and Vogel (2011). While some members of Congress have proposed changes to the ARMS and the use of a follow-on survey to increase data collection on local and regional food systems ("Local Farms, Food, and Jobs Act of 2011," 2011a, 2011b), we have shown these surveys are poorly suited to track trends over time at both the farm and national levels. Also, the farm-level data collected by the Census of Agriculture is necessary to track farm transitions, such as new farmer entry (Gale, 2002), beginning development (Ahearn & Newton, 2009), and switching between marketing channels. While the USDA indicates the Census of Agriculture is "the only source of uniform, comprehensive agricultural data for every state and county in the United States" (National Agricultural Statistics Service, 2012, para. 1), neither Congress nor the USDA has identified a strategy to improve time-series data collection on marketing channel differentiation in the Census of Agriculture.

Further, the desire to track local and regional food marketing, while important, is complicated (Low & Vogel, 2011), especially as distribution systems evolve into intermediated channels (Barham, 2011; Barham & Bragg, 2010; Market Services Division, 2011). Analyzing marketing channels, including those used in local and regional food systems, may be a less complicated and more practical way to close the information gap.

These changes are long overdue. By 2017, three censuses will have passed since the number of farmers' markets doubled in 2004. The 2012 Farm Bill represents an opportunity to increase data collection and reporting on marketing channel diversification. These recommendations represent a minimum of meaningful actions to track marketing channel diversification. More substantial changes are possible, but may have limited political feasibility. Our modest recommendations seek to

conserve census resources while at the same time providing policy-makers, resource providers, and farm lenders with a better understanding of how marketing channel differentiation relates to farm viability and community economic development over time (Gale, 1997).

Let's hope these challenges can be overcome. Otherwise the Census of Agriculture will continue to perpetrate an information gap as marketing channel diversification increases from 6 percent of farms in 2007 to perhaps 10 percent of farms in 2012. With an increasing worldwide demand for food, it's time to count more than beans; we need to know how they are marketed and sold. 

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