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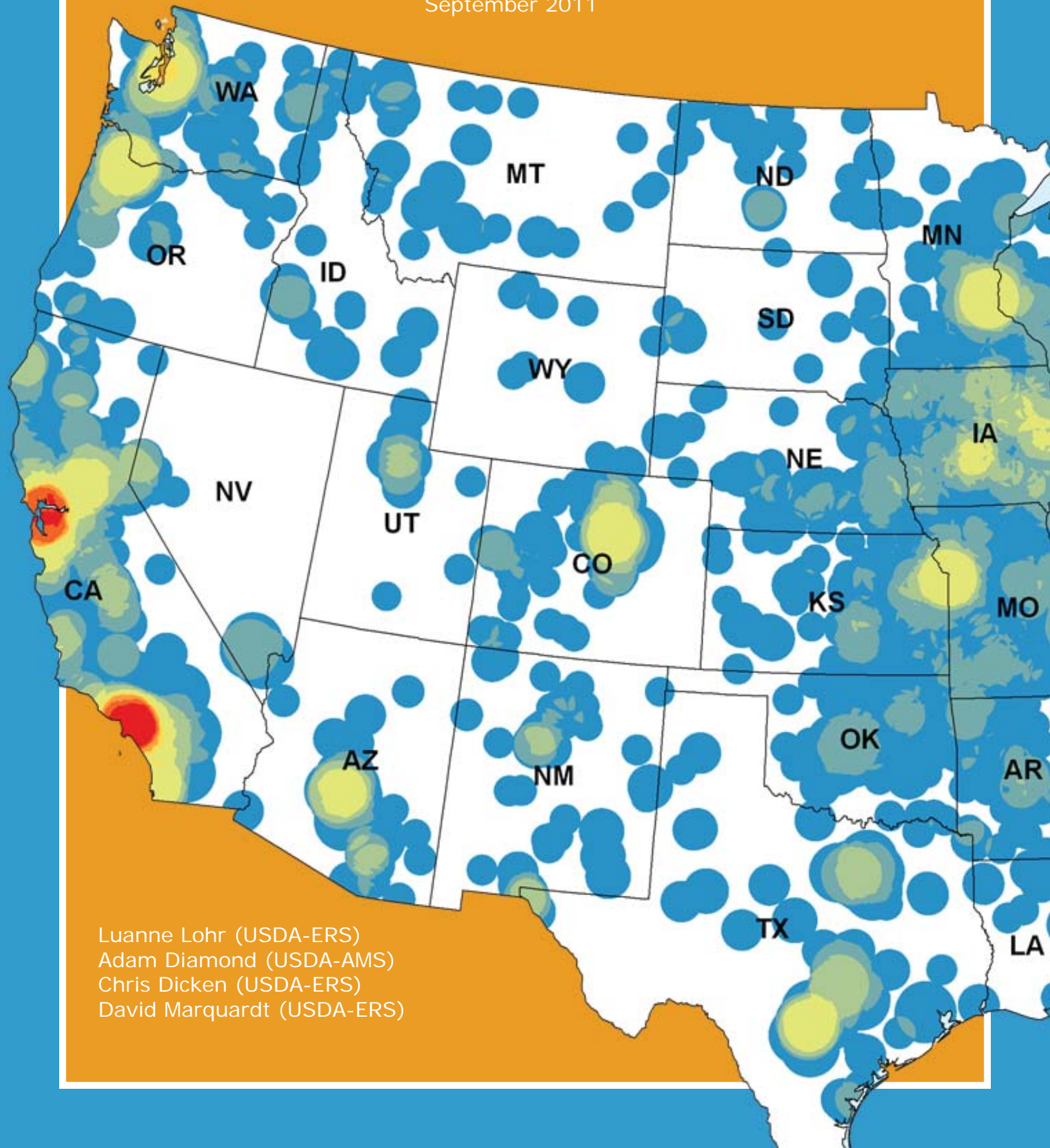
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Mapping Competition Zones for Vendors and Customers in U.S. Farmers Markets

September 2011



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Preferred Citation

Lohr, Luanne, Adam Diamond, Chris Dicken, and David Marquardt. Mapping Competition Zones for Vendors and Customers in U.S. Farmers Markets. U.S. Dept. of Agriculture, Agricultural Marketing Service. September 2011. Web. <<http://dx.doi.org/10.9752/MS042.09-2011>>

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What is the Issue?

Farmers markets are an important market channel for farmers who want to sell their products directly to consumers. This sector has grown dramatically in the last 10 years, more than doubling from 2,863 markets in 2000 to 6,132 in 2010. However, the increasing number of markets obscures the number of failed markets. For example, the Oregon State University Extension Service, in a study funded by the USDA Initiative for the Future of Agriculture and Food Systems, noted that between 1998 and 2005, 62 farmers markets opened in the State and 32 closed, with little variation in the number of closures per year. A net gain of 30 markets for 62 openings signals a significant level of risk associated with new market ventures. The risk of failure may increase with intensity of competition among markets for vendors and customers.

The viability of individual markets depends on attracting sufficient numbers of vendors and customers. Farmers markets must attract enough

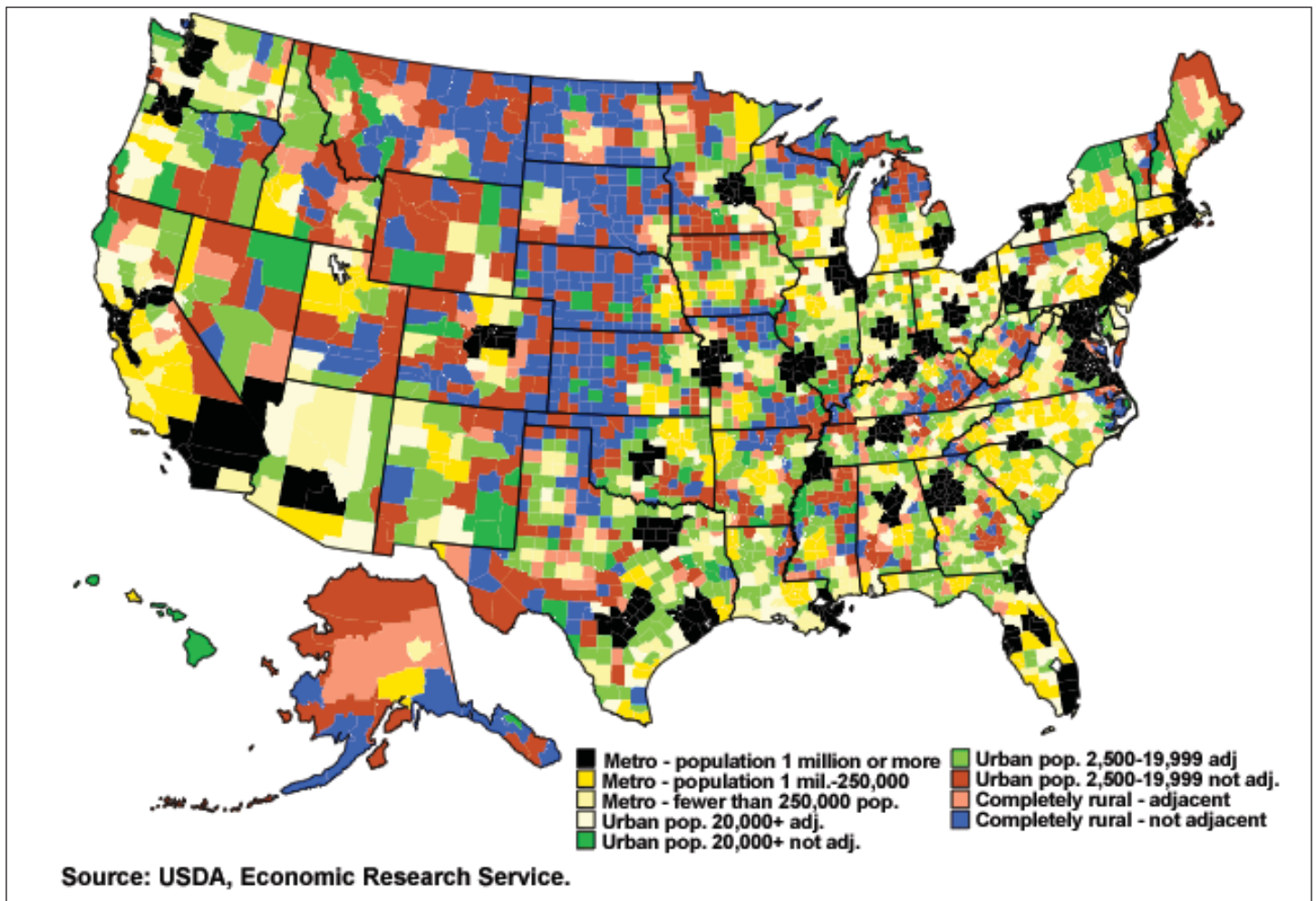
vendors to offer the quantity and variety of products needed to retain customer interest. At the same time, the markets must also attract enough customers to maintain vendor interest and participation. Ideally, managers use planning and marketing to attract adequate numbers of both customers and vendors to sustain continued operation. However, as the number of markets grows, there is greater likelihood of any given market overlapping with other markets in reaching out to potential customers and vendors. Greater potential competition among markets for vendors and customers presents both opportunities and challenges for market managers, planners, and policymakers. Failure to take account of this potential competition for vendors and customers can be a serious problem for many farmers markets. Consequences could include declining or stagnant economic performance, possibly forcing some markets to leave the industry altogether.

How Was the Research Conducted?

The maps that display the competition zones for U.S. farmers markets are generated from the weighted average distance traveled by vendors and customers to each market, based on responses to the 2006 USDA National Farmers Market Managers Survey, administered by USDA Agricultural Marketing Service (AMS) in partnership with Michigan State University. Market managers were asked to estimate the percentages of vendors and customers by distances traveled. To do this, managers estimated the relative share of vendors traveling 0 to 10 miles, 11 to 20 miles, 21 to 50 miles, 51 to 100 miles, or more than 100 miles to the market. For customers, the categories were 0 to 5 miles, 6 to 10 miles, 11 to 20 miles, 21 to 50 miles, or more than 50 miles traveled to market. The weighted distances for vendors were calculated by multiplying the percentage of vendors in each mileage category by the greatest distance for that category (10, 20, 50, or 100 miles, or 150 miles for the 100-plus category) and summing these five weighted distances to account for all vendors traveling to each market. The same procedure was followed for customers (percentage multiplied by 5, 10, 20, or 50 miles), except that 75 miles was used as a multiplier for the 50-plus category.

To obtain a national picture of farmers' market competition zones, the average weighted distances calculated from the sample in the USDA National Farmers Market Managers Survey had to be extrapolated to the entire United States. How far vendors and customers travel to a farmers' market tends to correspond to the population density of the market location. The relative population density of each market examined in the study was classified by its county location, using USDA Economic Research Service (ERS) Rural Urban Continuum Codes (RUCs), a classification scheme that distinguishes three metropolitan county categories by population and six nonmetropolitan county categories by size of urban population and proximity to metro areas. The RUCs are shown geographically in Figure 1. The legend in Figure 1 gives the population and proximity values used to define each RUC. Visit <http://www.ers.usda.gov/briefing/rurality/ruralurbcon/> for details.

Figure 1. Rural-Urban Continuum Codes, 2003



Average distances traveled for vendors and customers for markets within each RUC category were calculated using the weighted average distances of all markets within each RUC. Each of the 4,364 markets in the 2007 USDA Farmers Market Directory was assigned the appropriate RUC based on the county in which it was located. The corresponding vendor distance and customer distance for the RUC were assigned by county location to the markets in the Directory. Table 1 shows the average travel distances calculated by RUC.

Each market was coded according to its geographic coordinates (i.e., latitude and longitude). Circles representing distance traveled to market by customers and vendors were created for each market. Two circles were constructed for each market in the Directory, one representing the zone

from which the market draws most of its customers, the other for vendors. Areas where either customer or vendor trade zones overlap with other markets represent *competition zones*. Separate maps were created to illustrate vendor competition zones and customer competition zones, with all markets plotted on each of the maps.

More overlapping customer or vendor areas around a market imply that the market has more competitors. More overlap suggests that more markets are competing in the same zones for vendors or customers. The maps show the number of overlapping spaces as ranges across a heat-gradient color ramp from a low level of competition (blue) to a high level of competition (red). Dark blue shading indicates the lowest number of overlapping zones, and dark red represents the greatest number of overlapping zones.

Table 1. Average Vendor and Customer Travel Distances Calculated Markets in the 2007 USDA Farmers' Market Directory by Rural Urban Continuum (RUC) Code

Code	Description	Vendor Distance (mi.)	Customer Distance (mi.)	Number of Markets	Percentage of Markets
RUC1	Metro – population ≥ 1 million	46.8	10.4	1,532	35%
RUC2	Metro – population 250,000 - 1 million	33.1	12.0	845	19%
RUC3	Metro – population < 250,000	32.4	12.0	531	12%
RUC4	Urban – population ≥ 20,000, adjacent to Metro	25.6	11.9	316	7%
RUC5	Urban – population ≥ 20,000, not adjacent to Metro	35.6	14.6	192	4%
RUC6	Urban – population 2,500 - 19,999, adjacent to Metro	24.2	12.3	442	10%
RUC7	Urban – population 2,500 - 19,999, not adjacent to Metro	24.3	10.2	320	7%
RUC8	Rural – adjacent to Metro	24.7	12.9	84	2%
RUC9	Rural, not adjacent to Metro	23.2	19.2	101	2%

The intensity of competition faced by a market, measured by the number of other markets' trade zones overlapping with a particular market's vendor or customer trade zone, is a function of several factors – vendor and customer travel distance, number of markets in an area, and proximity of markets to each other. For example, vendors travel farthest to markets in RUC1 (the largest metropolitan areas), nearly 47 miles on average, and there are generally more markets located closer together in the large urban core counties classified as RUC1. The likelihood of two or more trade

zones overlapping with one another is greater when vendors and customers travel longer distances, because the circles drawn around each market will be larger. Markets only have to be within 47 miles in an RUC1 county to share overlapping space. Alternatively, with more markets located closer together, there are likely to be more overlapping spaces even if distance traveled is not great. Thus, if customers travel an average of 10 miles in RUC1, intensity of competition would still be great if there are many markets within 10 miles of a reference market.

What Did the Study Find?

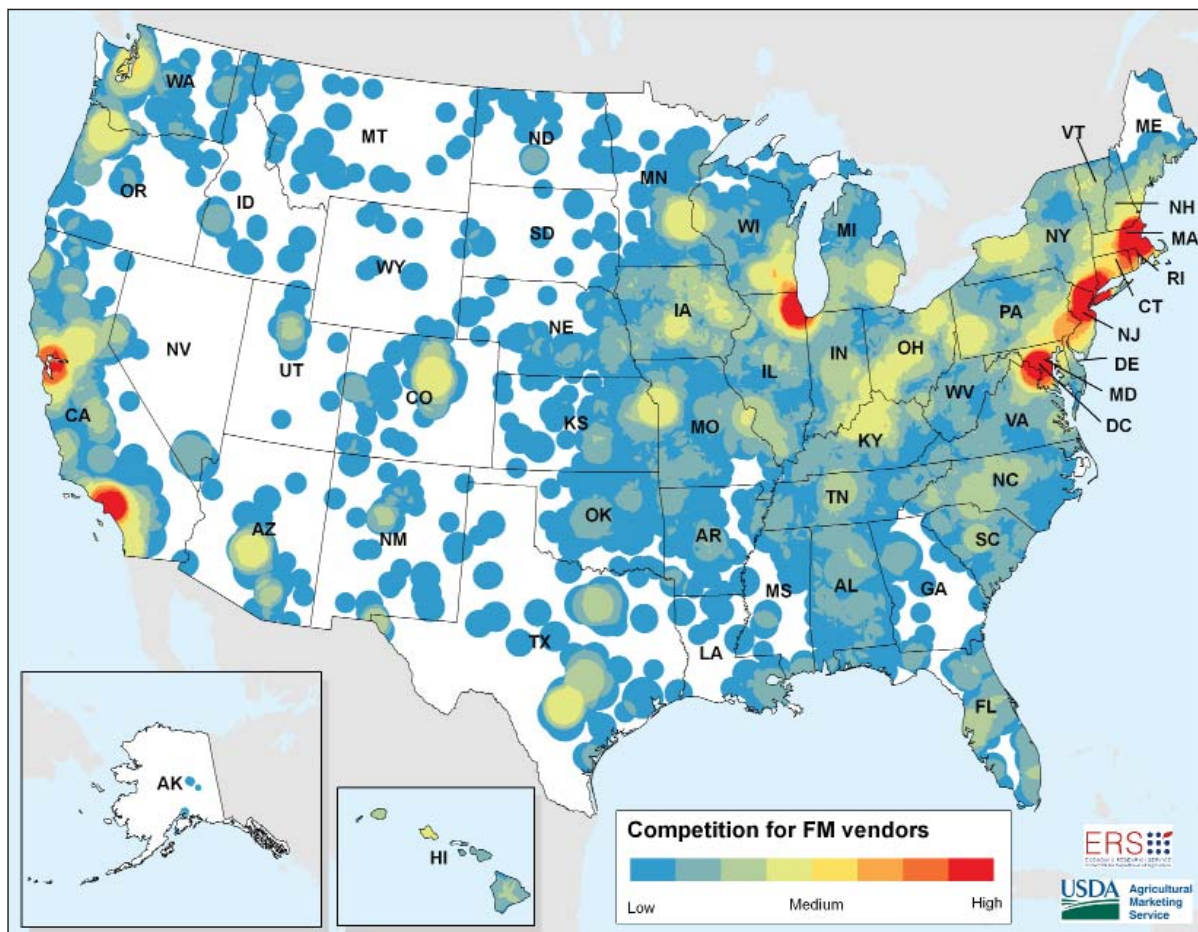
The results of the study show that competition can be intense in urban core areas where farmers markets compete intensely for both vendors and customers. The zones of most intense competition are larger for vendors than for customers because vendors travel farther than customers to participate in farmers markets. The most accurate indicator of high-intensity competition for vendors and customers appears to be location of the market. Farmers markets in urban cores face the most intense competition, and those in peri-urban regions adjacent to the largest metropolitan counties experience medium to high competition.

Competition Zones for Vendors

The competition zones for vendors are shown in Figure 2.

Figure 2 shows that farmers markets in a few large, metropolitan areas—Los Angeles, San Francisco, Boston, New York, Washington DC, Chicago, and to a lesser extent Philadelphia— have intense competition for vendors. These are metropolitan areas with more than 1 million people, all in RUC1-coded counties. The average vendor distance traveled of 47 miles for farmers markets in these counties produces more overlapping areas and hence more competition compared to other RUC counties with the same spatial density (number per unit area) of farmers markets. The high intensity of competition (many overlapping areas) indicates large numbers and clustering of farmers markets. This suggests that vendors within the red zones have more markets from which to choose. These vendors can be more discriminating about the markets in which they choose to participate.

Figure 2. Vendor Competition Zones for Markets Listed in 2007 USDA Farmer's Market Directory



Vendors may be willing to travel farther to markets they perceive to be more profitable, and market managers may have to compete more aggressively for limited numbers of vendors.

These high-intensity vendor competition areas are surrounded by medium competition zones, represented on the map as yellow and yellow-green zones. In these peri-urban zones, there are fewer overlapping spaces where markets are competing for vendors. These zones are located in metro counties in RUC2 (250,000 to 1 million people) and RUC3 (up to 250,000 people), and in urban counties adjacent to metro counties in RUC6 (2,500 to 19,999 people), where vendors travel much shorter distances to farmers markets than in the highly urbanized RUC1 counties (1 million or more people) as shown in Table 1. In these lower intensity competition areas, there are fewer markets competing for the same vendors than in the RUC1 counties. The shorter distances traveled by vendors in these counties reflect the tradeoffs vendors make between travel time and sales potential. For example, vendors from medium-intensity competition zones might be able to make more money at a farmers' market in a highly urbanized area a bit farther away from their home location, but may resist the opportunity because they do not want to incur more transportation and transactions costs, both in terms of time and money.

Figure 2 also shows that farmers markets in several RUC1 counties have only moderate competition for vendors, indicated by yellow zones. These medium competition zones are in large and mid-sized metro areas throughout the United States, such as Seattle (WA), Phoenix (AZ), Denver (CO), Detroit (MI), and Pittsburgh (PA). These metro areas have a substantial number of farmers markets, but the markets are dispersed more across the city, leaving more space between clusters of farmers markets and reducing the intensity of overlap. Compared with the larger cities in RUC1 counties, these smaller population centers require fewer farmers markets to serve them, and fewer markets per unit area, resulting in fewer overlapping zones.

The dark blue areas in Figure 2 represent the lowest intensity vendor competition zones. Many of the farmers markets in areas of low competition are in rural areas (RUC6 and RUC7 counties) in the Midwest, the South, and the Great Plains. However, some areas classified as small urban counties adjacent to metro counties (RUC6) and even smaller metro counties (RUC3), such as in central Washington, also contain low-intensity vendor competition zones. With fewer farmers markets per town and greater distances between towns in some of these areas, the number of overlapping zones is lower. Farmers markets in the RUC6 counties that are adjacent to metro areas with fewer than 250,000 people, such as in south-central North Carolina, do not face as much competition for vendors as those in RUC6 counties adjacent to large urban cores with more than 1 million people.

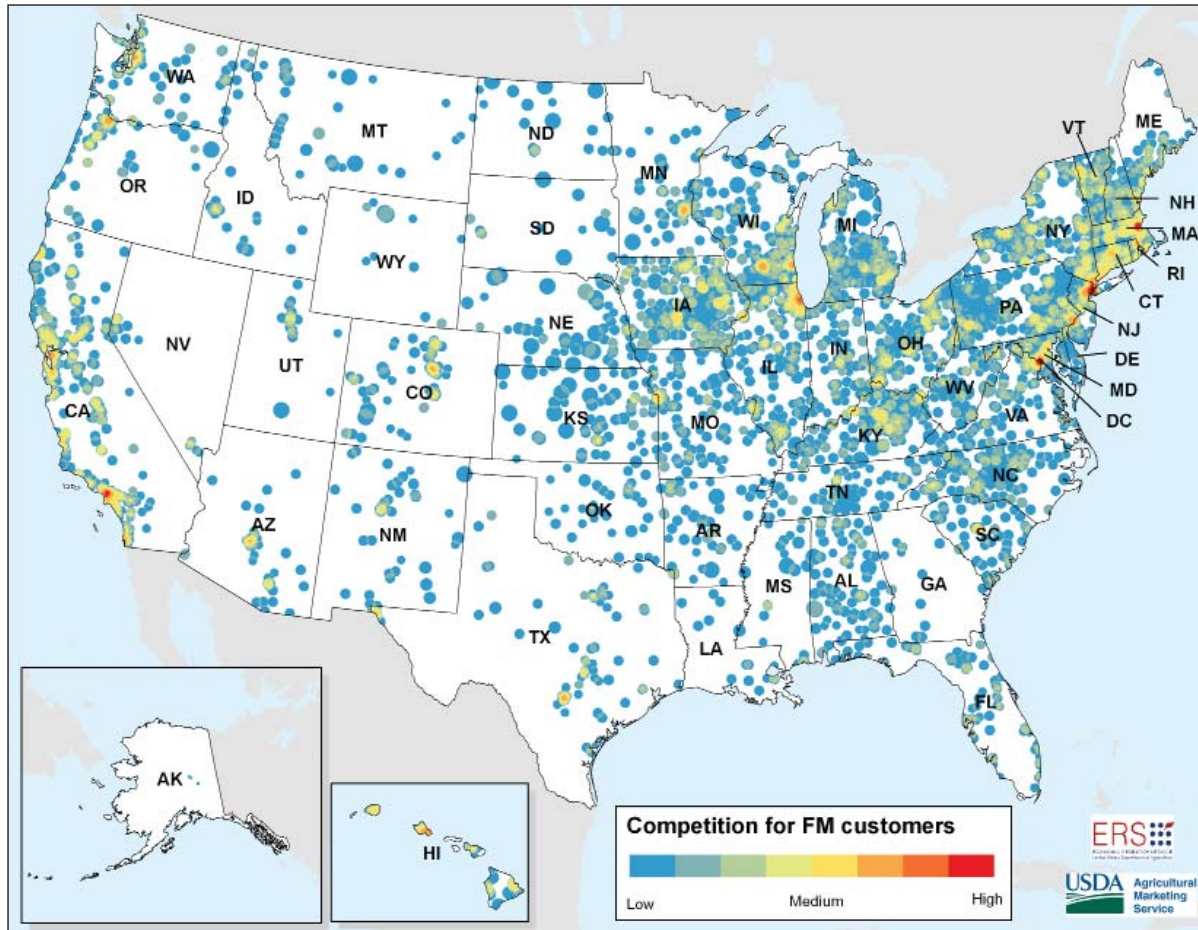
Competition Zones for Customers

The competition zones for customers are shown in Figure 3.

Figure 3 shows the same farmers' market locations as Figure 2, but customers travel shorter distances than vendors, so the zones of competition around each market are smaller. Most farmers markets located in RUC1 counties have areas of medium to high customer competition, with the areas of highest intensity competition (red zones) in urban cores. The highest concentrations of overlapping customer zones occur in the largest metro areas - Los Angeles, San Francisco, Washington DC, New York, Boston, Chicago, and Philadelphia. Medium to high levels of competition for customers are also evident in other smaller metropolitan areas in RUC1 counties in many areas.

Many, if not most, farmers markets in Figure 3 face limited competition for customers, which might signal that customers are not willing to travel far to participate in a farmers' market. While farmers' market managers may not have to worry about customers deserting them in favor of more distant markets, the smaller zones for customer traffic mean that managers may find it difficult to draw customers from outside of these relatively small zones. Managers may need to focus on drawing more customers from within their existing trade zones.

Figure 3. Customer Competition Zones for Markets Listed in 2007 USDA Farmer's Market Directory



The customer competition map in Figure 3 more closely reflects the density of farmers markets (number per unit area) than the vendor competition map in Figure 2. Vendors travel an average of 24 miles (RUC6) to 47 miles (RUC1) for 76 percent of farmers markets (Table 1), while customers travel only 10 miles (RUC1) to 12 miles (RUC6) for the same markets. The weighted average vendor travel distances for large metro county farmers markets in RUC1 are significantly higher than for smaller metro and non-metropolitan counties (RUC2, RUC3, and RUC6). This results in more vendor zone overlap around large metro areas, as travel patterns of vendors are more likely to overlap.

For customer travel distances the pattern is reversed. Customers typically travel farther in smaller metro areas and nonmetro areas to farmers markets than in urbanized metro areas. Road congestion, access to urban public transit, and expectations of finding amenities within shorter distances may be reasons urban consumers do not travel as far as customers in lower density areas. Attention to the intensity and size of customer competition zones is important to market health and survival. Farmers markets in areas with small populations may see cannibalization of their customer base when new markets open or existing ones expand nearby. Customers will typically visit only one market in a day or week and may not return to markets that do not offer the desired selection or experience.

What Are the Implications for Managers and Planners?

Vendors situated in medium- and high-intensity competition areas have more farmers markets to choose from when deciding where to market their products, even allowing for the fact that not all the markets are the same size. If road congestion increases, vendors may need additional incentives to travel longer distances to more urban markets. Such incentives could include amenities such as electrical outlets, free use of tables and canopies, or refrigeration units and community kitchens to store and prepare value-added items. With customer numbers that are high and stable, urban markets often have waiting lists for vendors. Such limits protect price levels, which may encourage vendors to travel beyond nearby peri-urban markets to more distant urban markets. Even if higher prices are not evident, urban markets tend to have consistently higher customer traffic, which is a strong draw for vendors who must commit a day or more preparing for and selling through farmers markets.

The relatively small customer travel distances suggest that managers will probably need to focus their marketing efforts on getting a greater share of food spending within the zones from which they already draw customers. Managers may need to garner support for their markets to see them through competitive pressures, either by working cooperatively with other market managers or

by developing customer loyalty to an individual market. Identifying the preferences of potential and existing buyers in the customer base may help managers attract new customers and increase spending by existing customers. Regular customer surveys using onsite interviews or questionnaires can provide insights into buying trends over the season for both regular and infrequent shoppers. Direct incentives such as coupons and discounts can be part of this marketing effort. Improving the market functioning, from the quality of the shopping experience to the convenience of using the market to the weekly range of product offerings also can make the market more attractive to current and new customers.

Differentiation from competitors may improve market survival. Operating on different days from nearby markets or on multiple days or for longer seasons, developing a unique marketing mix of items, and focusing on location specific amenities such as parks, water features, and complementary shopping outlets are all ways to distinguish a market from its rivals and appeal to a broader range of customers. On the other hand, cooperative efforts among managers to coordinate operating schedules and market features may also be used to encourage vendors and customers to support a group of farmers markets in a region.

