



Local Food Systems in Florida: Consumer Characteristics and Economic Impacts

ALAN W. HODGES* AND THOMAS J. STEVENS

*Food and Resource Economics Department, University of Florida, PO Box 110240,
Gainesville, FL 32611*

ADDITIONAL INDEX WORDS. marketing, market channel, value, household survey

Consumption of local foods has developed rapidly over the past 10 years in response to concerns about food safety and quality; however, consumer behavior for purchasing local foods has not been widely studied. In a 2012 survey of 7,500 Florida households, a majority of respondents defined “local” foods as originating within a radius of 100 miles of home or within the state of Florida, while a minority defined it as within my county, city, or town. A majority of respondents purchased local foods at retail grocery stores or farmers’ markets. The total value of all foods purchased annually through local market channels in Florida was estimated at \$8.314 billion, averaging \$1,114 per household, or 20.1% of total food purchases for at-home consumption. Fruits and vegetables were the most commonly purchased types of local foods. These values are much higher than has been reported previously in the literature, and suggest that local food systems in Florida are better developed than most other areas of the United States. The total economic impacts of local food purchases in Florida, including indirect multiplier effects calculated with a regional economic model, were estimated at 183,625 jobs and \$10.47 billion in GDP.

Sales of locally produced foods have dramatically increased over the last 10 years. This is in response to public concerns over food safety and quality, and local economic development. Although the characteristics of local food systems have not been broadly evaluated from the consumer side, a number of recent studies have found significant changes in local food consumption in America (Low and Vogel, 2011; Martinez et al., 2010). The USDA’s Agricultural Resource Management Survey in 2008 found that there were 107,200 farms in the United States engaged in direct-to-consumer or intermediated marketing of local food products with a value of \$4.8 billion that year, with one-half to two-thirds of these local-food sales occurring through grocery stores or restaurants (Low and Vogel, 2011). Earlier government data collection efforts on locally produced food sales focused primarily on direct farmer-to-consumer sales. In 2007, direct-to-consumer food sales represented 0.4% of total agricultural product sales, and 0.21% of total at-home food consumption in the U.S. (Martinez et al., 2010). Between 1994 and 2011, the number of farmers’ markets in the U.S. increased from less than 2,000 to over 7,000 (USDA–AMS). The number of farm-to-school food programs in the U.S. increased from only 2 in 1996 to over 2,000 in 2009 (National Farm to School Network). In January of 2012, the LocalHarvest.org website had 4,571 Community Supported Agriculture (CSA) organizations listed in their directory.

Local food systems that are more highly developed are found in New England, the upper Midwest, Mountain Southwest and Pacific coast regions. In the southern U.S., however, local food systems have been less developed in spite of favorable climatic

conditions (Low and Vogel, 2011). Direct-to-consumer sales in Florida in 2007 were valued at only \$19.36 million by the Census of Agriculture (UDSA–NASS, U.S. Census of Agriculture).

In examining consumer participation and expenditures on local foods, there have been numerous intercept surveys of local food consumers at farmers’ markets over the years, but relatively few surveys that randomly sampled local food purchasers from the general population, and even fewer that included local food purchases through intermediate market channels. In a literature review, the largest general population study covering all types of local food purchases conducted interviews with 1,500 randomly selected Ohio residents about their purchases of locally produced food during 2007 (Smith and Sharp, 2008). The survey was limited to consumers who had purchased local foods directly from farmers, not grocery stores that carried local foods. It was found that 96% of Ohio respondents had purchased locally grown foods during 2007, and 79% did so either occasionally or frequently. The median annual expenditures on local foods in this survey were \$68 per household.

In a 2007 telephone survey of 412 primary shoppers in Chittenden County, Vermont, it was found that for all possible venues, from wholesale clubs to farmers’ markets, 58.5% of respondents had purchased local foods within the last 7 d. Over 60% of these respondents made these purchases at grocery stores, while only 6% did so at farmers’ markets (DeSisto et al., 2009). This result was likely due to the survey being conducted during the month of November when fewer farmers’ markets were operating in Vermont. On average, respondents spent \$16 on local foods during the previous week. This would be equivalent to \$64 monthly, or \$768 annually, if the week chosen was representative.

In a statewide random telephone survey of 953 Michigan residents in 2008, 61% of primary food buyers had visited farmers’ markets in the last year, averaging four visits in the most recent month, and three-quarters of these respondents purchased locally grown food in the last year (Conner et al., 2010). In addition,

This project was made possible by a Specialty Crop Block Grant from the U.S. Department of Agriculture through the Florida Department of Agriculture and Consumer Services to the Florida Specialty Crop Research Foundation. Supplemental funding was provided by the University of Florida–Office of Sustainability and Alachua County, Florida Sustainability Program.

*Corresponding author; phone: (352) 294-7674; email: awhodges@ufl.edu

55% of respondents from the same survey had purchased local foods at farmers' markets during the previous month and their expenditures averaged \$14.75 (Ross et al., 2010).

A total of 703 primary household shoppers from nine counties in western North Carolina were interviewed by telephone in April of 2011 regarding their food purchase habits (TJH Research and Strategy). A majority of consumers (60%) reported purchasing locally grown food weekly when in season, and an additional 23% bought local food monthly. These included purchases made directly and indirectly from local producers. The average expenditure for local food was estimated at \$53.81 monthly or \$646 annually.

The economic impacts of local food systems have been assessed in a few studies. Local food production and marketing is generally believed to generate greater employment impacts, as smaller farms are typically more labor intensive than conventional large scale production and wholesale marketing operations. Fruit and vegetable farms with local food sales employed significantly more persons than farms without local food sales: 13 vs. 3 full-time equivalent persons per million dollars sales, respectively (O'Hara, 2011). A study of 152 farmers' markets in Iowa showed that these markets generated increased employment of 576 jobs and \$17.8 million in personal income (Otto, 2010). A study of farmers' markets in West Virginia found that they generated an increase of \$1.1 million in gross output and 82 jobs, net of reductions in volume for traditional food retailers (Hughes et al., 2008). In a study of the potential impact of locally sourced fruit and vegetable production on farms within 150 miles of large metropolitan areas in six midwestern states, it was estimated that there would be a net increase of 4,802 jobs and \$710 million in gross output (Swenson, 2010).

While there is mounting evidence of the increasing interest and importance of local food sales in the U.S., a review article by Martinez et al. (2010) documented a variety of behavioral, institutional, and economic issues, both for consumers and producers, that are limiting the development of these market channels, including:

- Unavailability or limited selection of foods
- Seasonality (i.e., some foods available only certain times of year)
- Higher costs for low volume production
- Inconvenience of market outlet times and locations
- Uncertainty of origin of food
- Lack of knowledge for preparation of raw foods
- Lack of storage capacity for large quantity purchases
- Access to capital
- Diseconomies of small-scale operations
- Greater labor requirements
- Lack of market power for small producers
- Food safety regulations
- Time requirements for direct-to-consumer marketing
- Centralized purchasing for larger intermediary markets

Against this background, a survey of Florida consumers was undertaken to document consumption patterns, economic values, and attitudes towards locally produced food. The goal of this research was to provide insights into how the development of local food systems could be better promoted.

Materials and Methods

A mail survey was conducted in the summer of 2012 with a random sample of 7,500 households in the state of Florida to document local food purchasing patterns and economic impacts,

and attitudes toward local foods. Usable survey responses were received from 1,599 respondents, representing a 21.4% response rate. Survey respondents were predominantly female, middle aged, middle income, and well educated, compared to the overall Florida population (Fig. 1). Survey sample data were weighted based on location (county), age, education, and income factors to account for differences in sampling intensity. The value of local food purchases reported by survey respondents was expanded to estimate the total annual value for all Florida households.

The total economic impacts of locally produced food purchases in Florida were estimated using a regional economic (IMPLAN) model of the State. The total value of local food purchases through direct-to-consumer market channels (farmers' markets, roadside stands, U-pick, CSA, and special arrangement with growers) were assigned directly to farm or food manufacturing producer sectors, while local foods purchased at retail stores were margined (split) between producers, retailers, wholesalers, and truck transportation firms. Purchases from restaurants were split between producers, food services, wholesalers, and transportation. The producer margins were considered as new final demand to the region, by displacement of competitive international and domestic imports, and therefore subject to direct, indirect, and induced multiplier effects. The retailer and food service sector gross margins were treated as regional economic contributions and subject only to direct multiplier effects.

Results and Discussion

The weighted share of respondents who reported purchasing food through local market channels included 52.8% at retail grocery stores, 61.7% at farmers' markets, roadside stands or self-harvest ("U-pick") operations, 1.1% from Community Supported Agriculture (CSA) organizations, 4.3% purchasing directly from producers by special arrangement, and 27.9% at restaurants or other food service establishments (Fig. 2). Respondents reported shopping at farmers' markets or roadside stands on a weekly basis (10.6%), twice weekly (1.5%), every other week (8.3%), monthly (20.6%), or at other or irregular intervals (17.3%), and the remainder didn't know or gave no answer (41.7%).

There was no standard accepted geographic definition of "local" foods among survey respondents. Nearly 30% of respondents considered local food as produced "within a radius of 100 miles of home." A substantial number (27.3%) of other respondents defined local as "within the state of Florida" or even within the southeastern U.S. (3.9%). A smaller percentage of respondents thought of "local food" as grown "within my county" (14.6%) or "within my own city or town" (11.4%) (Fig. 3).

The total value of all foods purchased annually in 2011–12 through local market channels in Florida was estimated at \$8.314 billion, including \$6.079 billion from grocery stores, \$1.813 billion from farmers' markets, roadside stands and U-pick operations, \$320 million from restaurants and food services, \$91.2 million by special arrangement with producers, and \$11.4 million from CSA organizations (Fig. 4). The total value of local food purchases averaged \$1,114 per household annually. The total value of local foods purchased for at-home consumption through retail stores, farmers' markets, roadside stands, U-pick, special arrangement, and CSAs but excluding restaurants, amounted to \$7.995 billion, and total direct-to-consumer purchases of local food (excluding restaurants and retail stores) were valued at \$1.916 billion. The total value of all foods purchased for at-home consumption, including non-local foods purchased at retail stores, was estimated

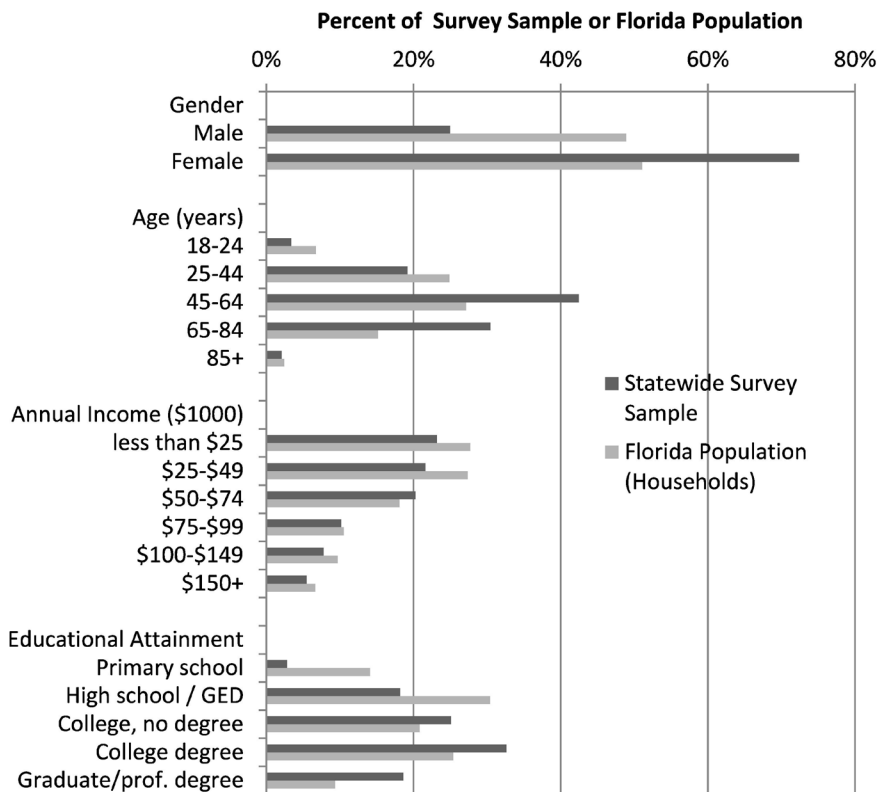


Fig. 1. Summary of survey respondent demographic characteristics compared to the Florida population.

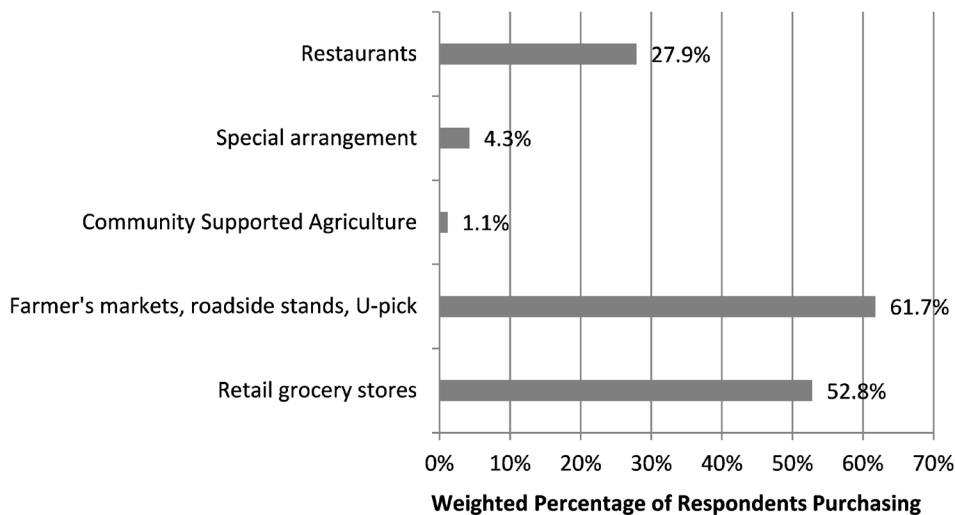


Fig. 2. Summary of participation in local food marketing channels in Florida.

at \$39.840 billion. Thus, local foods are estimated to represent 20.1% of total food purchases for at-home consumption, and 16.0% of total food purchases at retail stores in 2012. These values are much higher than has been reported in the literature, and suggest that either local food systems in Florida are better developed than most other areas of the United States, or that local food consumption has grown substantially in recent years, or both.

Survey results on the types of local foods being purchased from all sources in 2012 indicate that the largest food category

was vegetables, valued at \$1.699 billion, representing 20.4% of the total. Vegetables were followed closely by fruits at \$1.574 billion or 18.9% of the total. Other categories with significant consumption include: fish [\$686 million (M), 8.3%], beef (\$641M, 7.7%), poultry (\$569M, 6.8%), beverages (\$541M, 6.5%), prepared foods, jams or jellies (\$530M, 6.5%), dairy (\$489M, 5.9%), honey (\$439M, 5.3%), pork, lamb and other meats (\$393M, 4.7%), eggs (\$372M, 4.5%) and nuts (\$315M, 3.8%), as shown in Fig. 5.

Regionally within the state of Florida, the largest value of local

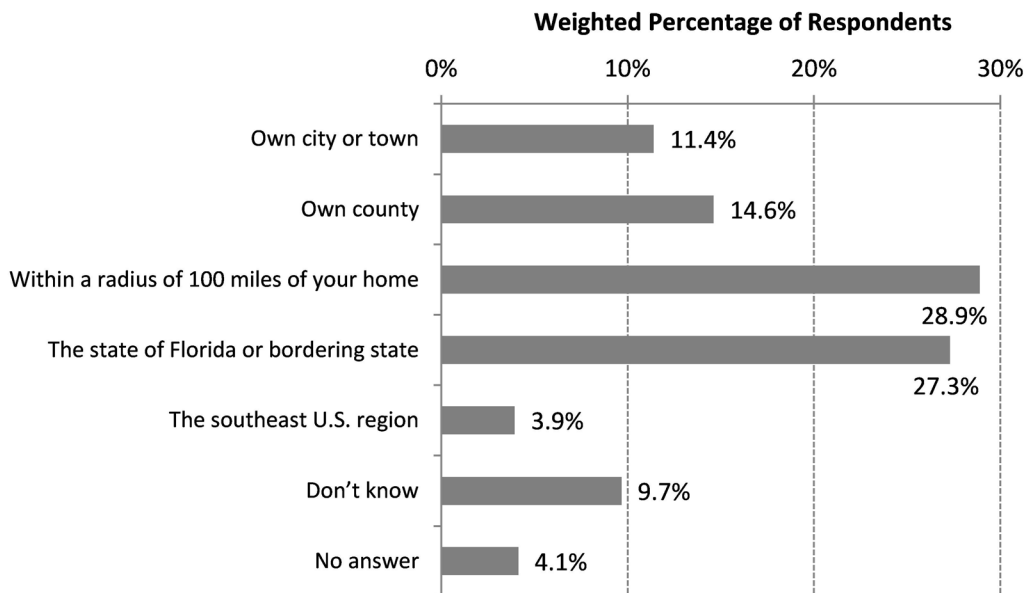


Fig. 3. Area in which foods are considered to be “local” reported by survey respondents in Florida. Values represent weighted percentages of survey respondents for largest area chosen.

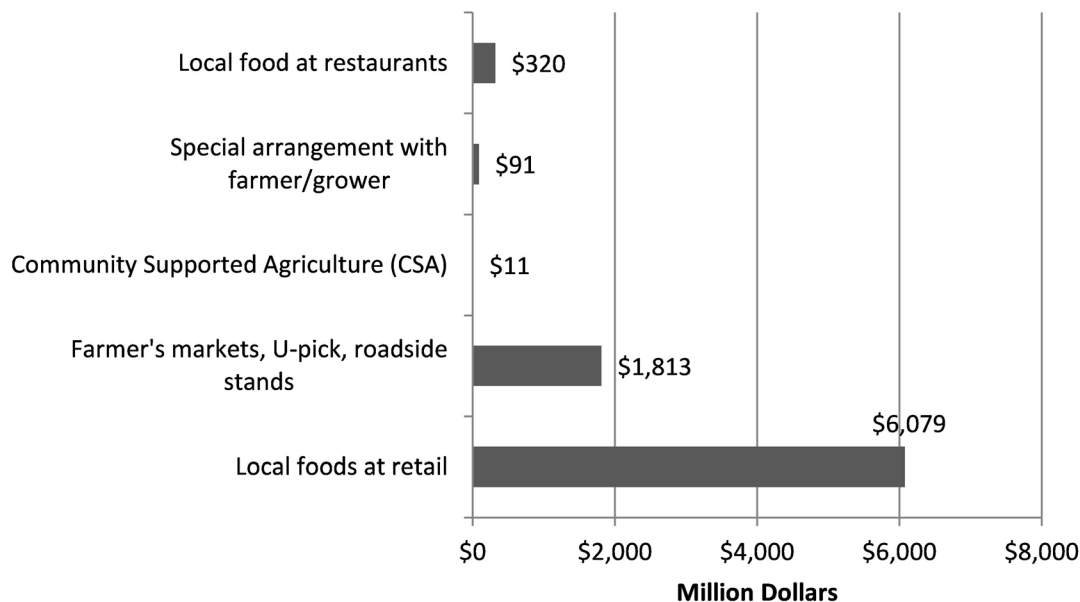


Fig. 4. Summary of foods purchased through local market channels in Florida in 2011–12. Values represent weighted and expanded purchases reported by survey respondents.

food purchases took place in the major urban areas of Orlando (\$2.611 billion) and Miami–Ft. Lauderdale (\$2.357 billion), followed by Tampa–St. Petersburg (\$1.143 billion), Sarasota–Bradenton (\$728M), Jacksonville (\$643M), Pensacola (\$267M), Gainesville (\$265M), Tallahassee (\$258M), and Panama City (\$18M) (Fig. 6). The areas of the state where local food purchases as a share of total food purchases for at home consumption were highest were Tallahassee (36.2%), followed by Gainesville (26.4%), Orlando (21.8%), and Miami–Fort Lauderdale (20.8%).

The total economic impacts of local food purchases in Florida for 2011–12 were estimated at 183,625 full-time and part-time

jobs, \$6.46 billion in labor income (employee wages, salaries, and benefits), \$10.47 billion in value added contribution to Gross State Product, \$19.20 billion in industry output or revenues, and \$851 million in indirect business taxes to local, state, and federal governments, expressed in 2013 dollars (Table 1).

The attributes of local food systems that were indicated by respondents as “very important” were “freshness” (90.1%), “food safety” (78.2%), and “nutrition” (67.7%), followed by “price” (60.8%), “food security” (56.7%), “pesticide free” (49.7%), “shelf life” (44.0%), “reduced transportation” (24.7%), and “having relationship to producer” (13.8%) (Fig. 7).

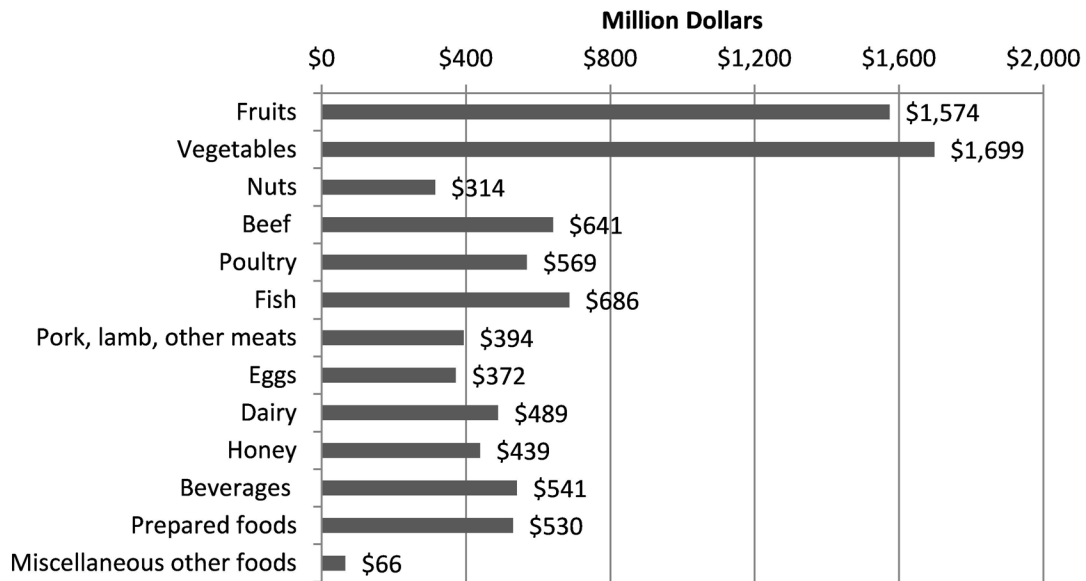


Fig. 5. Summary of types of foods purchased through local market channels in Florida in 2011–12.

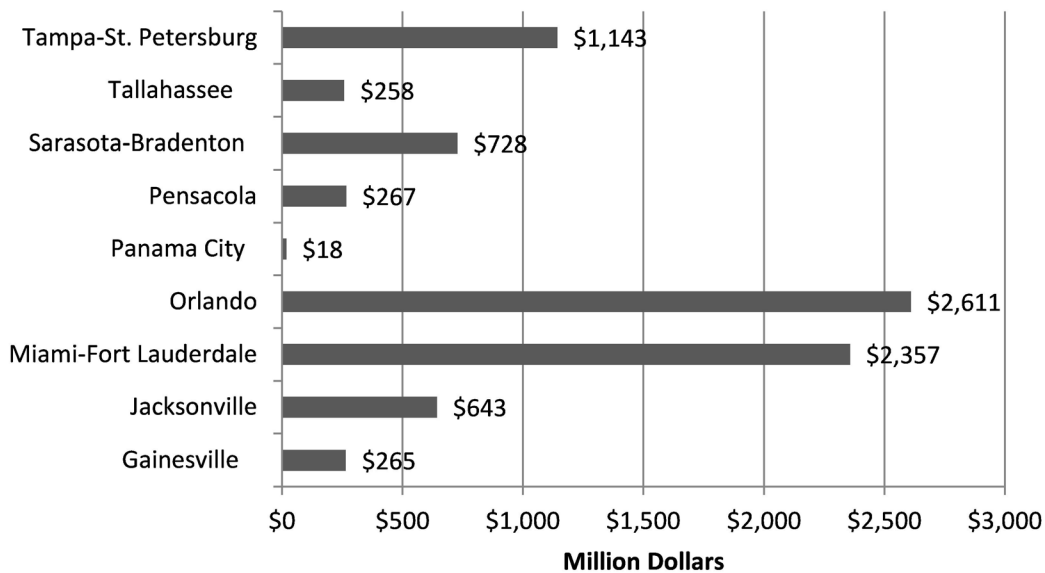


Fig. 6. Summary of local food purchases in Florida regions in 2011–12.

Table 1. Summary of total economic impacts of local food purchases in Florida in 2011–12.

Impact type	Employment	Labor income	Value added	Output	Indirect business taxes
	--- Jobs ---	----- Million dollars -----			
Producer margin direct effect	55,656	\$1,182	\$2,270	\$5,511	\$14
Indirect effect	23,423	\$775	\$1,213	\$2,662	\$75
Induced effect	66,854	\$3,213	\$5,178	\$8,286	\$407
Total effect	145,933	\$5,170	\$8,661	\$16,459	\$496
Retailer margin direct effect	34,045	\$1,189	\$1,672	\$2,496	\$338
Restaurant margin direct effect	3,648	\$96	\$138	\$245	\$18
Total all industries	183,625	\$6,455	\$10,470	\$19,200	\$851

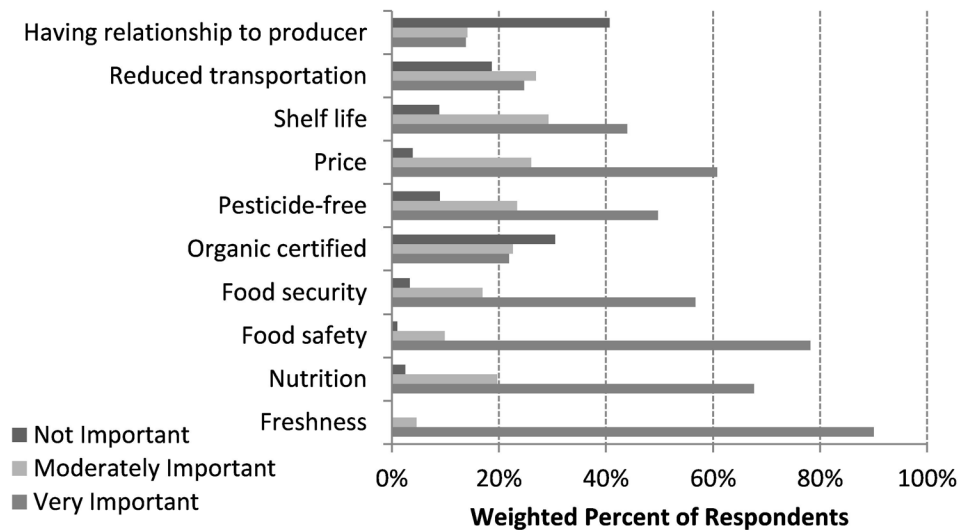


Fig. 7. Summary of important attributes for local food systems in Florida.

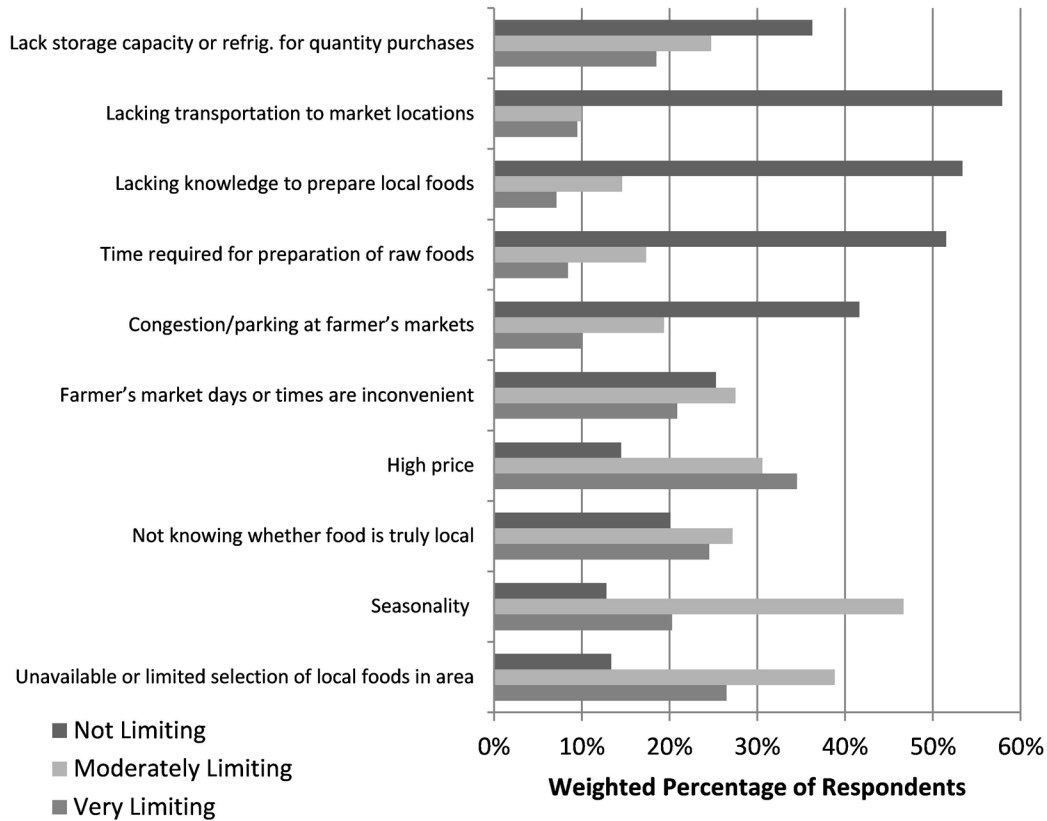


Fig. 8. Summary of factors limiting purchases of local foods in Florida.

The factors that were regarded as potentially “very limiting” for local food systems by at least 20% of weighted respondents were “high price” (34.5%), “unavailability or limited selection of local foods in your area” (26.5%), “not knowing whether food is truly local as labeled” (24.5%), “farmers’ market days or times are inconvenient” (20.9%), and seasonal availability only certain

times of year (20.3%) (Fig. 8).

Statistical analysis of the survey data revealed that several demographic variables were significantly related ($P < 0.05$, F test) to the total value of local food purchases, including respondent age, gender, household income, educational attainment, number of persons in the household, and the two factor interactions of

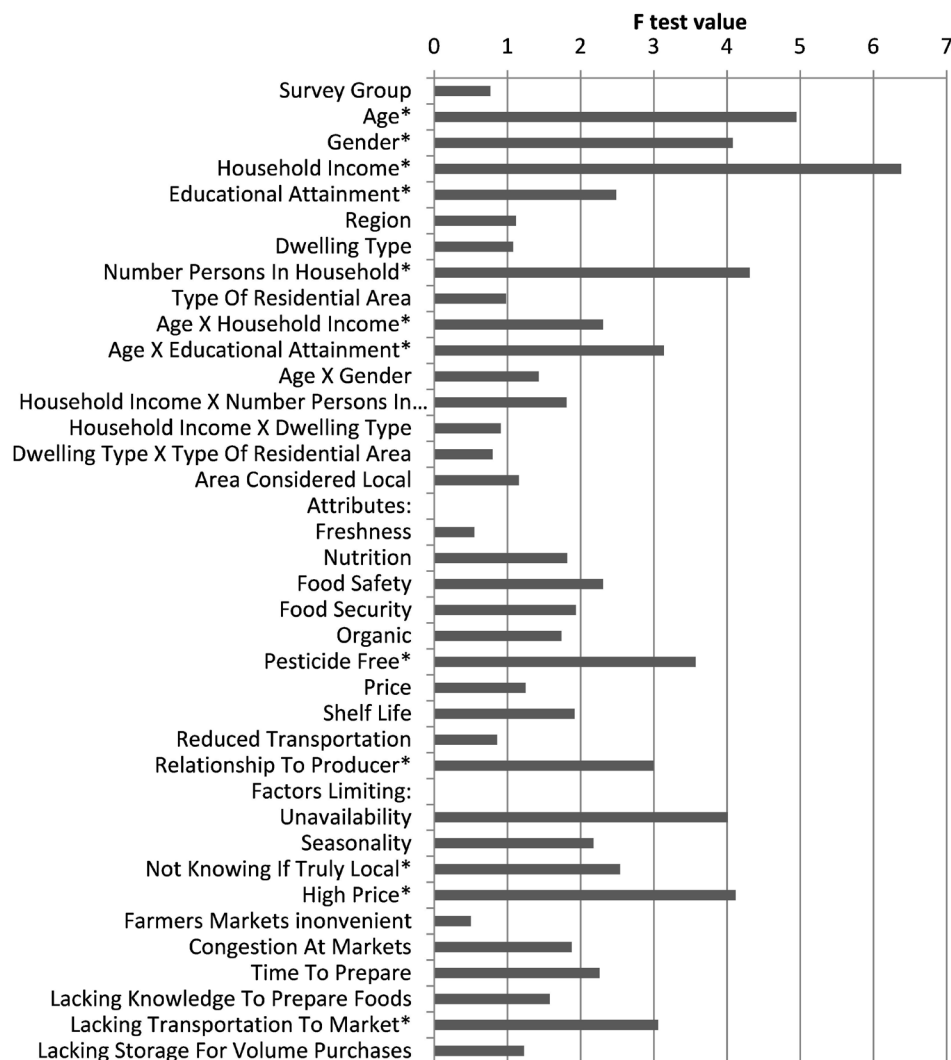


Fig. 9. Summary of regression model effects for annual purchases of local foods in Florida. Statistically significant factors ($P < 0.05$, F test) in model are indicated by an asterisk.

age–household income, age–educational attainment, and household income–number of persons in household. Demographic factors that were not significant were Florida region, type of dwelling (single family vs. multifamily), and type of residential area (large city, small city, town, rural). In addition, respondent ratings of the importance of some attributes of local food were significant predictors of local food purchasing behavior, including “Pesticide free” and “Having a relationship to producers,” while the potentially limiting factors that were significant predictors of local food purchasing were “Unavailability or limited selection of local foods in your area,” “Not knowing if foods are truly local as labeled,” “High price,” and “Lacking transportation to market locations” (Fig. 9).

Weighted average local food purchases per household were evaluated for various demographic factors. Respondents 18 to 24 years in age were found to have greater local food purchases than for those aged 85 or over. Purchases were higher for females than for males, although not statistically significant. Local food purchases were also greater for households with two or three to five persons than for single-person households. Surprisingly,

average local food purchases per household were not consistently related to annual household income or educational attainment, factors that have been identified in previous research. Although there were apparent differences in local food purchasing across dwelling types (single-family vs. multifamily), Florida region, and type of residential area, these differences were not statistically significant. Further research should examine local food purchases in relation to demographic factors and consumer attitudes.

Conclusions

As found in previous studies, there was no consensus on the definition of “local food” among nearly 1,600 Florida consumers responding to a survey in 2012. The total value of all local foods purchased in Florida during 2011–12 was estimated at \$8.314 billion, or about 20% of total household food purchases for at-home consumption. Local foods also represented 16.0% of total household food purchases at retail stores, and represented nearly three-fourths of all local food purchases in the State. This was significantly higher than anticipated, and indicates the degree to

which local foods have penetrated retail food markets. Freshness, safety, and nutrition were the three most cited reasons that respondents favored local foods. The total economic impacts of local food purchases in Florida for 2011–12 were estimated at 183,625 full-time and part-time jobs, \$6.46 billion in labor income, and \$10.47 billion in value added contributions to the Gross State Product. Clearly, local foods are a significant and growing component of food markets in Florida.

Literature Cited

- Conner, D., K. Colasanti, R.B. Ross, and S.B. Smalley. 2010. Locally grown foods and farmers markets: Consumer attitudes and behaviors. *Sustainability* 2:742–756. <<http://www.mdpi.com/2071-1050/2/3/742/pdf>>.
- DeSisto, T.P., M.C. Schmidt, and J.M. Kolodinsky. 2009. Consumption patterns and demand for local food in Chittenden County, Vermont. *Ctr. for Rural Studies, Univ. of Vermont, Burlington*. <<http://mysare.sare.org/mySARE/assocfiles/9022843.%20Consumption%20Patterns%20Final%20Report%20%282009%29.pdf>>.
- Dunne, J.B., K.J. Chambers, K.J. Giombolini, and S.A. Schlegel. 2010. What does 'local' mean in the grocery store? Multiplicity in food retailers' perspectives on sourcing and marketing local foods. *Renewable Agr. Food Systems* 26(1):46–59.
- Hand, M.S. and S. Martinez, 2010. Just what does local mean? *Choices Mag.* 25(1). <<http://www.choicesmagazine.org/magazine/article.php?article=108>>.
- Hughes, D.W., C. Brown, S. Miller, and T. McConnell. 2008. Evaluating the economic impact of farmers' markets using an opportunity cost framework. *J. Agr. Appl. Econ.* 40(1):253–265.
- LocalHarvest Inc. 2013. <www.LocalHarvest.org>. PO Box 1292, Santa Cruz, CA.
- Low, S.A. and S. Vogel. 2011. Direct and intermediated marketing of local foods in the United States. *USDA–Econ. Res. Serv., Econ. Res. Rpt.* 128. <http://www.ers.usda.gov/media/138324/err128_2_.pdf>.
- Martinez, S., M. Hand, M. Da Pra, S. Pollack, K. Ralston, T. Smith, S. Vogel, S. Clark, L. Lohr, S. Low, and C. Newman. 2010. Local food systems: Concepts, impacts and issues. *USDA–Econ. Res. Serv., Econ. Res. Rpt.* 97. <<http://www.ers.usda.gov/Publications/ERR97/ERR97.pdf>>.
- National Farm to School Network, Community Food Security Coalition, and School Food FOCUS. 2009. *Nourishing the nation one tray at a time, farm to school initiatives in the child nutrition reauthorization*. Los Angeles, CA; Washington, DC; New York City, NY. <http://www.farmtoschool.org/files/publications_192.pdf>.
- O'Hara, J. 2011. 2011. Market forces: Creating jobs through public investment in local and regional food systems. *Union of Concerned Scientists, Aug.* 2011. <http://www.ucsusa.org/food_and_agriculture/solutions/big_picture_solutions/market-forces.html>.
- Otto, D. 2010. Consumers, vendors, and the economic importance of Iowa farmers markets: An economic impact survey analysis. *Iowa Dept. of Agr. and Land Stewardship*.
- Ross, R.B., A. Shanoyan, D.K. Conner, and K. Colasanti. 2010. Consumer participation and expenditure at Michigan farmers markets: Implications for agri-food entrepreneurs. Working Paper, Dept. of Agr. Food, and Resource Econ., Michigan State Univ., East Lansing. <https://www.ifama.org/events/conferences/2010/cmsdocs/156_paper.pdf>.
- Smith, M.B. and J.S. Sharp. 2008. A current and retrospective look at local food consumption and support among Ohioans. *Social Responsibility Initiative Topical Rpt.* 08-02. Dept. of Human and Community Resource Dev., Ohio State Univ. <<http://ohiosurvey.osu.edu/pdf/2008-local-foods-topical-report.pdf>>.
- Swenson, D. 2010. Selected measures of the economic values of increased fruit and vegetable production and consumption in the upper Midwest. *Leopold Ctr. for Sustainable Agr., Iowa State Univ.*
- TJH Research and Strategy. (no date given). A survey of consumer behavior and perceptions: Findings from a spring 2011 survey of primary household food shoppers in western North Carolina. *Appalachian Sustainable Agr. Project*. <<http://www.asapconnections.org/ASAP2011ConsumerSurveyWeb.pdf>>.
- USDA, Agricultural Marketing Service. 2012. Farmers market growth: 1994–2012. <<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateS&navID=WholesaleandFarmersMarkets&leftNav=WholesaleandFarmersMarkets&page=WFMFarmersMarketGrowth&description=Farmers%20Market%20Growth&acct=frmrdirnkt>>.