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# Consumers, Vendors, and the Economic Importance of Iowa Farmers' Markets: An Economic Impact Survey Analysis

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# Consumers, Vendors, and the Economic Importance of Iowa Farmers' Markets: An Economic Impact Survey Analysis

## **Abstract**

This analysis found that Iowa's 160 farmers' markets attracted at least 135,000 people and generated \$20 million for the Iowa economy in 2004.

## **Keywords**

Community-based food systems, Market research and feasibility studies

## **Disciplines**

Agribusiness | Agricultural Economics | Agriculture | Economics | Marketing

# **Consumers, Vendors, and the Economic Importance of Iowa Farmers' Markets: An Economic Impact Survey Analysis**

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## Executive Summary

The results of a 2004 survey of Iowa farmers' markets are presented, with the goal of supporting the continued success of these popular markets through the assessment of market participation and the resulting overall economic impact. Demographic and market participation information was collected from over 4500 consumers and over 780 vendors, representing a large sample of Iowa markets, during the 2004 market season.

Total sales resulting from Iowa's bustling 2004 market season were estimated through analysis of the survey data. The economic impact of the total statewide sales was then estimated using the IMPLAN Input-Output (I-O) model. Approximately \$20 million in sales were estimated through consumer reporting, while a more conservative estimate of \$9.8 million originated with vendor reports. Although the former estimate may be somewhat liberal due to the nature of consumer reports and market attendance estimates, this estimate (\$20 million in sales) was based on a larger sample, and is taken as the more accurate estimate of the two. This \$20 million in sales was used to assess the overall economic impact of Iowa farmers' markets. Because there is a greater incentive for vendors to misrepresent sales information, and because the estimation of total statewide sales was relatively more complicated, use of the latter estimate may have resulted in a relatively less accurate assessment of the economic impact. Overall, an estimated \$31.5 million of gross sales (using the total sales estimate from consumer reports) and \$12.2 million of personal income effects were directly or indirectly related to farmers' market activity, according to the I-O model; based on these estimates, the calculated multipliers were 1.58 and 1.47 respectively. Over 140 full employment positions within the economy were indirectly attributed to farmers' market activity, according to the I-O model.

Though findings regarding consumer and vendor characteristics may be no surprise, they may reveal opportunities for increased marketing toward certain participants. Approximately 55,000 consumers and 1600 vendors gathered for at least one weekly market session. The typical market consumer was 51-65 years of age, buying mostly fruits, vegetables, and baked goods. Evidence suggested that consumers patronizing the largest markets were slightly younger, traveled farther, and spent more. Markets benefited from much repeat business; the average consumer made approximately 13 market visits per season. The average vendor was also 51-65 years of age, and received the most revenue from produce and baked goods. Evidence suggested that market participation might be increased through the targeting of urban consumers and participants approaching retirement age, as well the development of new strategies to attract younger consumers and those who have little experience with farmers' markets.

According to consumer reports, approximately 72 percent of all sales were generated by five urban market areas. Evidence that Iowa farmers' markets are largely an urban phenomenon is further provided by mapping of markets and market participants; this indicates that within Iowa, as within other states, these markets are an important place for rural producers and urban consumers to come together to exchange goods and information.

## Background

Interest in farmers' market activity has increased in the past few years as consumers' apparent desire for fresh, locally-produced food has led them to shop the markets in increasing numbers. Within the State of Iowa alone, the number of farmers' markets has increased more than 60 percent over the past ten years.<sup>1</sup> With over 180 markets in operation in 2004, Iowa boasted the greatest number of markets per capita in the nation.<sup>2</sup>

Various reasons, both social and economic, for increased market participation may exist. For instance, in a 1999 survey of Iowa farmers' market vendors, over 85 percent of surveyed vendors assigned much importance to the satisfaction derived from providing quality foods and interacting with consumers and fellow vendors [4]. More than half of surveyed vendors assigned at least some importance to the net profits earned through market participation; almost half indicated that the closure of the surveyed market would mean a significant loss to their businesses. Consumers benefit from interaction with food producers and a break from the ordinary shopping experience [1,2,5], as well as the availability of locally-produced food; reportedly, demand for farmers' market goods may be out-pacing the supply [3].

The goal of this study was to assess both market participation and the local economic impact that can be credited to market activity; some of the many relevant questions that arise are addressed, as the results of a 2004 statewide survey of market participants are presented. Who is the typical market consumer and what do consumers buy? What characterizes the typical Iowa vendor, and how far and how often do vendors travel to sell goods at these markets? What are the overall economic benefits of farmers' market activity, and what factors determine market success? The importance of farmers' markets as a link between rural, production-centered areas, and urban centers has been noted [2]. Iowa markets are no exception; what evidence is there to suggest this importance?

Both market consumers and market vendors were the subject of the statewide survey; the following discussion aims to characterize both market consumers and vendors using the resulting data. Included are estimates of the total statewide farmers' markets sales, as well as estimates of the impacts of Iowa farmers' market activity on the local economy, based on total market sales estimated from consumer reports.

Few previous estimates of the total dollar sales from Iowa's lively farmers' market scene are available. A widely known estimate of Iowa farmers' market sales was produced at least ten years ago; at that time, an extension estimate put total statewide sales at \$5 to 5.5 million.<sup>3</sup> A useful indicator of farmers' market sales may be the Census of Agriculture report of direct sales to consumers; the 2002 Census of Agriculture puts this value at approximately \$11.7 million [6]. However, not all these sales are likely to take place at farmers' markets.

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<sup>1</sup> A 1994 Iowa Farmers' Market Directory, compiled by the Iowa Department of Agriculture and Land Stewardship (IDALS), listed 116 operating markets for that year. The current directory lists 189 operating markets for 2004.

<sup>2</sup> Reported in the Iowa State Legislature, and noted in the Des Moines Register Legislative Report: February 17, 2005.

<sup>3</sup>This estimate was cited in [2]: Farmers Market Survey Report, July 1996, but may have originated earlier. The methods used to calculate this sales figure are unknown.

Estimation of farmers' market sales using market participant reports may be problematic. More liberal estimates of sales may arise from the analysis of consumer reports, while vendors may underreport sales for strategic reasons. Because of these acknowledged concerns, collection of sales information from both consumers and vendors, and two separate estimates of Iowa farmers' market sales using each of these two data sets, were performed. Discrepancy between the two estimates is not unexpected.

## **Methods**

### *Consumer Survey*

The 2004 statewide survey of Iowa farmers' market consumers was conducted by the Iowa Agricultural Statistics Service; a large sample of markets was selected from a list of all operating markets which was provided by the Bureau of Horticulture and Farmers' Markets for IDALS. The method of survey was interview by trained enumerator; the interview was based on a set of questions suggested by the authors and sponsors. The total number of customers interviewed at each market equaled one tenth of the estimated average per session consumer attendance at each market.<sup>4</sup> Interviews were conducted during three points of the 2004 market season: early-season, mid-season, and late-season. For most markets, interviews were conducted during all three seasonal periods with equal representation across all seasonal periods; because consumers may spend differing amounts of money per seasonal period, this equal representation across seasonal periods ensures greater accuracy when dollar purchases are averaged for the entire season.

### *Vendor Survey*

The 2004 statewide survey of Iowa farmers' market vendors was also conducted by the Iowa Agricultural Statistics Service; the markets selected for customer interviews were also selected for the vendor survey. The managers of the selected markets were given copies of paper surveys to distribute to the vendors who had been in regular attendance at the market; the survey was based on a set of questions suggested by the authors and sponsors. The vendors were asked to return the survey to the manager for submission. The surveys were distributed once at the end of the 2004 season, to allow respondents to accurately estimate income and expense information for the entire season. It was possible for a vendor who attends more than one Iowa market to receive more than one survey; however, it is assumed that vendors took, at most, one opportunity to respond.

### *Estimation of Total Farmers' Markets Sales*

One estimation of Iowa farmers' markets sales involved the use of consumer survey information, estimates of the average per session consumer attendance at each of the markets, and information

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<sup>4</sup> Estimates of the average per session consumer attendance at each market were provided by the Bureau of Horticulture and Farmers' Markets for IDALS. Most of these estimates originated with market managers.

on the number of sessions per season for each market.<sup>5</sup> The estimate of total 2004 sales per market, for markets with all information available, was simply a product of the midpoint of the average range of dollar purchase per session reported by consumers interviewed at that market, the average number of consumers per session, and the number of sessions during 2004. Two points regarding this estimation should be noted: (1) the range of dollar purchase per consumer per session was averaged across three different points in the season to account for any variation in purchasing, and (2) the use of a single estimate of per session consumer attendance may result in a liberal estimate of overall sales if this estimate does not account for relatively low consumer numbers during early season market sessions. For the markets not included in the survey or markets for which average attendance was not available (57 markets, or 30 percent of all markets), total sales per market for 2004 were estimated using a regression model incorporating the market locale population and income, and a binary variable indicating if the market appeared to be a relatively small market within the associated city. Total Iowa farmers' market sales, for 2004, are a summation of the market sales estimates.

A second estimation of total farmers' market sales involved the use of vendor survey information, and estimates of the average vendor attendance per market provided, as well as other market and market locale information. For markets with vendor survey information and an estimate of the average vendor attendance, the estimate of total revenue for 2004 was simply a product of the midpoint of the average range of dollar sales reported by vendors surveyed at that market and the average vendor attendance at that market. For markets not included in the survey, markets for which there were no responses, or markets for which average vendor attendance was not available (about 93 markets, or 49 percent of all markets), total revenue per market for 2004 was estimated using regression models incorporating the market locale population and income, and a binary variable indicating if the market appeared to be a relatively small market within the associated city. Total Iowa farmers' market sales are a summation of the market sales estimates. Two points regarding this estimation should be noted: (1) vendors may tend to underreport sales for strategic reasons, and (2) although estimation of total statewide sales using vendor reports was accomplished by tying vendor sales to markets (because the use of market locale variables was instrumental in estimating sales), this method was complicated by the finding that half of vendors do not obtain their revenue from one market exclusively.

## **Findings**

### *Total Sales, Participants, and the 2004 Iowa Farmers' Markets*

During the 2004 Iowa farmers' market season, thousands of consumers were received at both new and established outdoor markets which averaged over a dozen vendors. Iowa markets (for which information is available), were open an average of 1.4 days for an average of 21 weeks, and featured an average of 13 vendors. Twelve new markets emerged for 2004, while over half of established markets were over ten years old.<sup>6</sup> Nearly 55,000 Iowans attended at least one

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<sup>5</sup> Number of sessions was obtained from current market directories provided by the Bureau of Horticulture and Farmers' Markets for IDALS.

<sup>6</sup> Information gathered from market directories and estimates compiled by the Bureau of Horticulture and Farmers' Markets. Estimates include three markets open six days a week, three markets open year-round, and the Downtown Des Moines Farmers' Market, which features approximately 180 vendors. Information on season length was

weekly session of these numerous markets; approximately 135,000 consumers overall patronized the markets at some point during the season, receiving goods and information from approximately 1600 vendors.<sup>7</sup> All this commerce added up. According to the analysis previously described, a little over \$20 million in sales occurred during the 2004 market season, according to market consumer reports.<sup>8,9</sup> A more conservative estimate of \$9.8 million originated from 2004 market vendor reports.<sup>9</sup> Both consumers and vendors appeared to participate in mostly local markets, with urban centers accounting for much of the statewide market activity. Appendix I includes a series of maps which show the location of market survey participants by indicated zip code of residence, and the location of Iowa markets by zip code or incorporated area. Approximations of the total and per capita sales for the major Iowa urban areas were generated; see Table 1. Nearly \$14.4 million, or 72 percent of the \$20 million in total sales estimated with consumer reports, is generated by these urban markets.

**Table 1: Estimated Total and Per Capita Market Sales per City or Urban Center**

City	Estimated Sales (\$1000's)	Population	Per Capita Sales (\$)
Waterloo	760	68,747	11
Sioux City	340	85,013	4
Davenport/Bettendorf	3,300	129,634	25
Cedar Rapids	480	120,758	4
Des Moines Area	9,500	274,157	34
<b>Total</b>	<b>14,380</b>		
Des Moines Area includes West Des Moines and Urbandale			

### *Consumer Summary*

Iowa farmers' market consumers were asked for demographic characteristics as well as market participation information. Consumer observations resulting from this survey totaled 4, 519 and represented 161 different markets (85 percent of the estimated 189 operating markets). Responses from markets that are held year round and from markets that feature bulk sales were eliminated, although these observations were used in determining the above sales estimate. The following is a summary of the survey results.<sup>10</sup> For some of the following purchasing analysis, market goods were assigned to groups A through F as follows:

- *A: Fruits/Vegetables*

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available for 174 markets, information on average vendor attendance available for 141 markets, and market age was available for 177 markets.

<sup>7</sup> Rough approximations based on the estimated per session consumer and vendor attendance at farmers' markets, the length of the market season, the finding that half of vendors attended more than three markets, and the finding that consumers visited markets an average of 13 times per season.

<sup>8</sup> \$8.45 million in sales were estimated for the Downtown Des Moines Farmers' Market

<sup>9</sup> Much of the difference between the two estimates (\$20 million versus \$9.8 million) arose from the Downtown Des Moines Farmers' Market, although the exact difference in the two estimates for this market cannot be estimated because vendors were reporting total sales for two or more markets, on average.

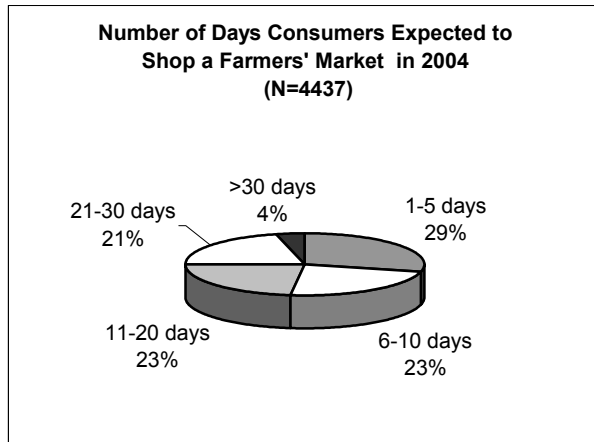
<sup>10</sup> A similar summary of the 2004 consumer survey data was released by the Iowa Agricultural Statistics Service URL: <http://www.nass.usda.gov/ia/misc/2004CustomerSummary.pdf>



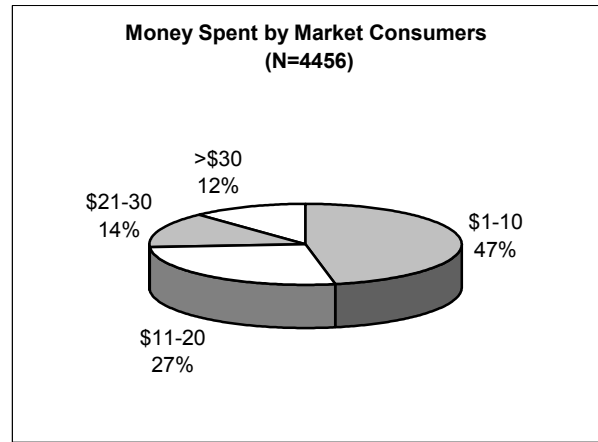
- *B: Meat/Fish/Poultry/Dairy/Eggs*
- *C: Crafts*
- *D: Flowers*
- *E: Baked Goods*
- *F: Honey/Jam/Wine/Prepared Foods*

Consumers reported shopping at farmers' markets an average of 13 times per season (Figure 1), and traveling an average of eight miles to get to a market. Consumers reported spending an average of \$11-20 per market visit (Figure 2).

**Figure 1**

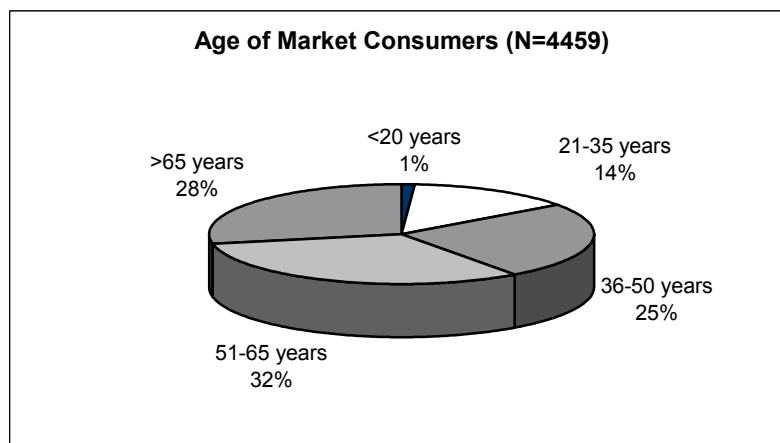


**Figure 2**



The average reported age of market consumers is 51-65 years (Figure 3). The average reported number of visits to a market, miles traveled, expenditure per visit, and age of consumers varied by the size of the farmers' market at which interviews were conducted (Table 2).

**Figure 3**



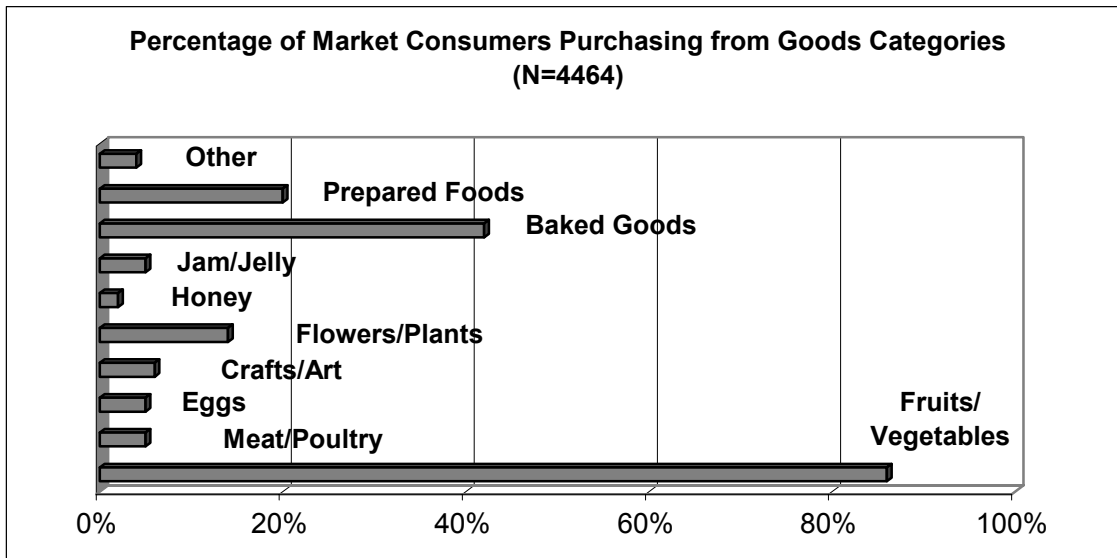
**Table 2: Consumer Characteristics by Market Size**

Market Size	N	Visits	N	Miles	N	Expenditure	N	Age
1-9 Vendors	613	13	599	5	618	\$1-10	618	51-65 Years
10-20 Vendors	938	14	907	6	940	\$1-10	942	51-65 Years
21-40 Vendors	997	19	912	5	1003	\$11-20	1000	51-65 Years
>40 Vendors	1659	10	1601	13	1664	\$21-30	1668	36-50 Years

*Consumer Purchasing*

Most consumers bought fruits and vegetables, and over 40 percent purchased baked goods (Figure 4).

**Figure 4**



Most consumers reported that they purchased goods from one (1) or two (2) of the groups A through F (Table 3: Less than one percent of consumers indicated that they purchased only from the ‘Other’ category). More than one third of consumers reported buying only fruits and vegetables, another nine (9) percent also reported buying exclusively from one group (Table 4).

**Table 3: Number of Groups Purchased**

Total Groups	Percentage of Consumers
1	46
2	32
3	16
4	5
5	1
6	<1

**Table 4: Single Group Purchasing**

Group	Percentage of Consumers
A	37
B	<1
C	<1
D	1
E	5
F	2

Approximately one third of consumers purchased both produce and baked goods, while 19 percent purchased both produce and prepared items (Table 5).

**Table 5: Consumer Purchasing by Group Pairs**

Group 1	Group 2	Percentage of Consumers
A	B	9
	C	5
	D	12
	E	33
	F	19
B	C	<1
	D	2
	E	5
C	F	3
	D	2
	E	4
D	F	3
	E	7
E	F	5
	F	11

*Vendor Summary*

Vendors were surveyed through paper questionnaires covering demographic and market participation information. Vendor observations resulting from this survey totaled 784 and represented 116 different markets (61 percent of the estimated 189 operating markets). For all markets surveyed, vendor response rate was approximately 57 percent.<sup>11</sup> For some markets included in the sample, vendor response rate was zero (0). Responses from markets that are held year round or featured bulk sales were eliminated, although these observations were used in determining the above sales estimates. The following is a summary of the survey results.<sup>12</sup> For some of the following analysis, market goods were assigned to groups A through F as follows:

- *A: Fruits/Vegetables*
- *B: Meat/Fish/Poultry/Eggs*
- *C: Crafts*
- *D: Flowers*
- *E: Baked Goods*
- *F: Honey/Jam/Wine/Salsa/Prepared Foods*

<sup>11</sup> Using estimates of average vendor attendance per market provided by the Bureau of Horticulture and Farmers' Markets for IDALS, and the finding that half of all vendors attend more than three markets. Estimates of vendor attendance originated with market managers.

<sup>12</sup> A similar summary of the 2004 vendor survey data was released by the Iowa Agricultural Statistics Service URL: <http://www.nass.usda.gov/ia/misc/2004VendorSummary.pdf> Results are very similar to some of those reported in [4]: The Experiences and Views of Iowa Farmers' Market Vendors: Summary of Research Findings

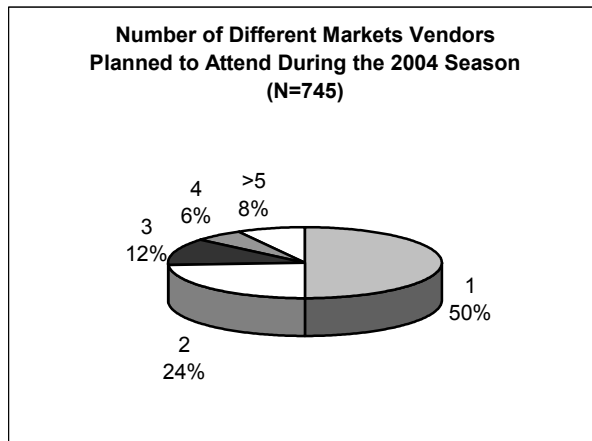
Market vendors planned to sell at a market an average of 2 days per week, or 25-49 days during the 2004 season (Table 6).

**Table 6: Frequency of Vendor Attendance**

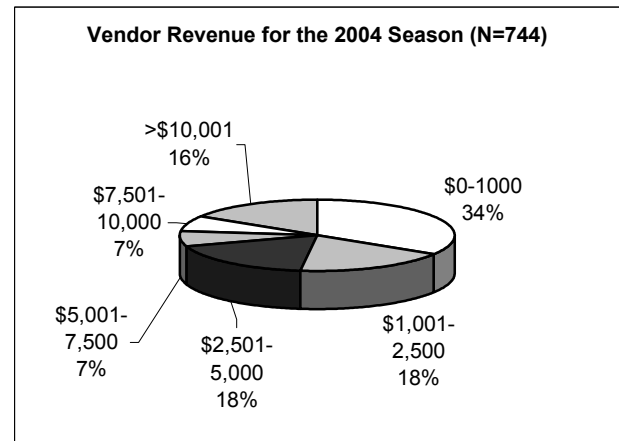
Attendance	Percentage of Vendors (N=754)
0-24 days/1 day per week	48
25-49 days/2 days per week	31
50-75 days/3 days per week	10
75-100 days/4 days per week	11

Market vendors planned to attend two different markets during the season, on average (Figure 5). The expected per vendor sales over all markets attended during the 2004 season were \$2,501-5,000 (Figure 6), with associated expenses (including goods production and salaries) of \$1,001-2,500. Vendors reported participating an average of eight years in farmers' markets, and reported an average age of 51-65 years. Evidence suggested that the average age, years of participation, revenues and expenses varied by the size of market for which the survey was completed (Table 7).

**Figure 5**



**Figure 6**



**Table 7**

Market Size	N	Age	N	Years	N	Sales	N	Expenses
1-9 Vendors	215	51-65 Years	214	8	44	\$2,501-5,000	44	\$1,001-2,500
10-20 Vendors	247	51-65 Years	246	7	93	\$2,501-5,000	93	\$1,001-2,500
21-40 Vendors	128	51-65 Years	124	11	46	\$2,501-5,000	46	\$1,001-2,500
>40 Vendors	105	36-50 Years	106	10	17	\$10,001-15,000	18	\$7,501-\$10,000

Sales and expenses were averaged per market size only for vendors reporting 25-49 days of market attendance for the season, which is the overall average range of attendance

## Goods Sold

Almost half of vendor income came from sales of fruits and vegetables, and 21 percent of vendor income came from the sale of baked goods (Table 8).

**Table 8: Percent Revenue from Different Goods**

Goods Sold	Percent of Revenue (N=756)
Fruits/Vegetables	49
Meat/Fish/Poultry	2
Eggs	1
Crafts/Art	7
Cut Flowers/Plants	4
Jam/Jelly	3
Wine	<1
Honey	2
Baked Goods	21
Prepared Goods	3
Salsa	1
Other	5
Due to rounding, percentages do not add to one (1).	

Most vendors sold goods from one (1) or two (2) groups (Table 9: Three percent of vendors indicated they sell only from the ‘Other’ category). Most vendors who sold from only one (1) group sold fruits and vegetables (Table 10).

**Table 9: Number of Groups Sold**

Total Groups	Percentage of Vendors
1	44
2	28
3	17
4	5
5	3
6	0

**Table 10: Single Group Selling**

Group	Percentage of Vendors
A	23
B	2
C	4
D	1
E	10
F	4

## Economic Impact of Farmers’ Market Activity

An estimate of total statewide farmers’ market sales was used to estimate the economic impact resulting from market activity; details are provided below. Recall that two different estimates of total sales were generated; \$20 million in sales were estimated using consumer reports, while a much more conservative estimate originated with vendor reports. Although the consumer estimate may be somewhat liberal due to the nature of consumer reports and market attendance estimates, this estimate (\$20 million in sales) is taken as the more accurate of the two, and was used to assess the overall economic impact of Iowa farmers’ markets. Because there is a greater incentive for the survey subjects to misrepresent sales information, and because the estimation of

total statewide sales was relatively more complicated, use of the latter estimate may have resulted in a relatively less accurate assessment of the economic impact.

The estimation of the total economic impact of Iowa farmers' market activity involved the production of three different estimates:

- The estimated effect of sales on the total value of economic transactions in the Iowa economy
- The estimated effect of sales on the overall level of household income in the Iowa economy
- The estimated effect of sales on the number of jobs in the Iowa economy

These estimates were derived with the help of the IMPLAN Input-Output (I-O) model. An I-O model is basically a matrix of a number of economic sectors. Sectors along one axis represent industrial inputs or suppliers to the industries on the other axis, which represent industrial users or demanders. Each of the cells of the matrix is mathematically linked to all of the other cells by production functions. Changing the values of goods supplied or demanded by any of the industries causes the model to rebalance the matrix, showing how that initial change affects all of the industries that supply inputs to or demand outputs from the industry altered. See Appendix II for more discussion of how the I-O model works.

Tables 11A-C present economic effects associated with farmers' markets sales; the total sales figure used was that estimated from the consumer survey results. The initial in-state expenditures of just over \$20 million are identified in Table 11A as the total "Direct" economic transactions. These are the input to the I-O model that then rebalances to estimate the value of linkages to the rest of the Iowa economy. Table 11A shows the "Indirect" and "Induced" effects, in terms of the value of economic transactions that result from this rebalancing. "Indirect" effects measure the total value of supplies and services supplied to vendors by the chain of businesses which serves market vendors. "Induced" effects accrue when market vendors and workers in the indirect industries spend their earnings on goods and services in the region. "Induced" effects are also often called household effects. "Total" effects are the sum of direct, indirect, and induced effects. They are the total of transactions attributable to the direct activity that we are measuring.

Take, for example, a hypothetical group of vendors (Group A) who generate  $x$  amount of sales at farmers' markets. In generating this  $x$  amount of sales (the "Direct" effects), Group A uses vegetable seed and fertilizer, among other inputs. The chain of businesses (Group B) that provide this seed and fertilizer to Group A benefit from an increased level of sales due to market vendors' demand for goods. These increased sales can be traced back, with the use of an I-O model, when the end result - Group A's  $x$  amount of sales - is known. The values of the seed, fertilizer, and associated inputs from Group B are the "Indirect" effects. Workers in Groups A and B spend the earnings attributable to Group A's  $x$  amount of sales to buy household and other goods; the value of these goods are the "Induced," or consumer-related, effects. The sum of these "Direct," "Indirect," and "Induced" effects are the "Total" effects linked to the market vendors'  $x$  amount of sales.

Overall, an estimated \$31.5 million of gross sales transactions are directly or indirectly related to Iowa farmers’ market activity, implying an output or gross sales multiplier of 1.58 (\$31.5 million/\$20 million). Nearly \$4.3 million of these effects are “Indirect,” meaning that they represent the wholesale or supply transactions that support market vendors. Approximately \$7.2 million of these effects are “Induced,” meaning that they are the result of personal purchases made by the market vendors and workers (payroll recipients) in the businesses that directly serve vendors.

Industry	Direct	Indirect	Induced	Total
Agriculture	12,440,000.0	775,690.0	76,647.0	13,292,337.0
Mining	0.0	1,159.0	132.0	1,291.0
Utilities	0.0	208,145.0	178,158.0	386,304.0
Construction	0.0	81,143.0	48,276.0	129,418.0
Manufacturing	0.0	590,836.0	622,314.0	1,213,150.0
Transportation & warehousing	0.0	744,731.0	559,575.0	1,304,306.0
Retail trade	7,610,000.0	76,169.0	987,844.0	8,674,013.0
Information services	0.0	173,539.0	186,281.0	359,820.0
Finance, insurance & real estate	0.0	872,800.0	1,005,441.0	1,878,241.0
Professional and technical services	0.0	417,374.0	1,660,580.0	2,077,954.0
Other services	0.0	126,538.0	785,622.0	912,160.0
Government	0.0	180,595.0	1,098,128.0	1,278,723.0
<b>Total</b>	<b>20,050,000.0</b>	<b>4,248,719.0</b>	<b>7,208,998.0</b>	<b>31,507,717.0</b>

Source: IMPLAN model for Iowa

Tables 11B and 11C show these impacts in other terms. Table 11B translates these effects from market purchases into personal or household income. The dollar values in Table 11B are substantially smaller than those in Table 11A, because personal income is only one of the components of any transaction price. Even so, Table 11B shows that the personal income component of the \$20 million in “Direct” expenditures is over \$8.3 million. Added to \$1.5 million in “Indirect” and \$2.3 million in “Induced” personal income, this gives a total personal income component effect of over \$12.2 million in the form of payrolls resulting from market-related expenditures and the back-office transactions that support these expenditures. This implies an income multiplier of 1.47.

Similarly, Table 11C translates these expenditure and income effects into an estimate of the number of jobs in the Iowa economy that are tied to farmers’ market activity. Fifty-five “Indirect” and nearly 91 “Induced” jobs are linked to this activity. Because vending of goods at farmers’ markets is a primarily seasonal, often secondary, occupation, the estimate of “Direct” jobs linked with farmers’ markets – and the associated multiplier effect - should be interpreted cautiously. “Direct” jobs refers to employment positions in the economy that are generated directly by the measured activity (see Appendix II). The direct employment due to farmers’ markets, namely vending, often cannot be characterized as employment directly generated by

farmers’ market activity. Market vendors are more often otherwise employed; market activity is often a residual use of time. Accordingly, the equivalent of 135 full-time “Agriculture” jobs and almost 190 “Retail trade” jobs are directly attributed to the combined activity of approximately 1600 seasonal vendors<sup>13</sup> – vendors who sell unprocessed agricultural goods like vegetables and plants, and retail goods like baked items. The calculated jobs multiplier is approximately 1.45 (470.8/324.8); this effect applies to the combined activity of four to five market vendors.

Tables 11A-C show that while the “Direct” expenditure effects are concentrated in the service and trade sectors, the results of rebalancing the model show effects that are widely distributed across all sectors of the economy. This reflects the interdependence of all sectors in the industrial supply chain that serves the market vendor.

Industry	Direct	Indirect	Induced	Total
Agriculture	4,818,841.0	440,896.0	9,687.0	5,269,424.0
Mining	0.0	380.0	45.0	424.0
Utilities	0.0	45,008.0	37,071.0	82,079.0
Construction	0.0	37,899.0	20,147.0	58,046.0
Manufacturing	0.0	153,209.0	115,550.0	268,759.0
Transportation & warehousing	0.0	313,316.0	227,787.0	541,102.0
Retail trade	3,541,135.0	34,953.0	448,798.0	4,024,887.0
Information services	0.0	48,347.0	49,266.0	97,613.0
Finance, insurance & real estate	0.0	179,169.0	246,167.0	425,337.0
Professional and technical services	0.0	217,708.0	854,906.0	1,072,614.0
Other services	0.0	42,476.0	281,736.0	324,212.0
Government	0.0	27,722.0	25,048.0	52,770.0
<b>Total</b>	<b>8,359,975.0</b>	<b>1,541,084.0</b>	<b>2,316,207.0</b>	<b>12,217,266.0</b>

Source: IMPLAN model for Iowa

<sup>13</sup> These “Direct” jobs estimates were calculated using approximate sales per full-time producer, which indicated \$92,148 in sales per worker in the agricultural sector, and \$40,000 in sales per worker in the retail sector. These sales approximations were checked against data reported by the Census of Agriculture.



Industry	Direct	Indirect	Induced	Total
Agriculture	135.0	22.7	0.7	158.4
Mining	0.0	0.0	0.0	0.0
Utilities	0.0	0.5	0.4	1.0
Construction	0.0	1.1	0.6	1.6
Manufacturing	0.0	3.5	2.7	6.2
Transportation & warehousing	0.0	7.4	5.2	12.5
Retail trade	189.9	1.7	22.2	213.7
Information services	0.0	1.2	1.2	2.4
Finance, insurance & real estate	0.0	7.0	7.5	14.6
Professional and technical services	0.0	7.0	28.8	35.8
Other services	0.0	2.3	21.1	23.4
Government	0.0	0.6	0.6	1.2
<b>Total</b>	<b>324.8</b>	<b>55.1</b>	<b>90.9</b>	<b>470.8</b>

Source: IMPLAN model for Iowa

### *Summary/Conclusions*

The results of a 2004 statewide survey of Iowa farmers' markets were presented, along with an assessment of the economic impact of statewide market activity. Demographic and market participation information was collected from over 4500 consumers and over 780 vendors.

Total sales, and the associated economic impact, were estimated for Iowa's farmers' markets. Approximately \$20 million in sales were estimated through consumer reports, while a more conservative estimate of \$9.8 million originated with vendor reports. Although the former estimate may be somewhat liberal due to the nature of consumer reports and market attendance estimates, this estimate (\$20 million in sales) is taken as the more accurate estimate, and was used to assess the overall economic impact of Iowa farmers' markets. Because there is a greater incentive for market vendors to misrepresent sales information, and because the estimation of total statewide sales was relatively more complicated, use of the latter estimate may have resulted in a relatively less accurate assessment of the economic impact. Overall, an estimated \$31.5 million of gross sales (using the total sales estimate from consumer reports) and \$12.2 million of personal income effects were directly or indirectly related to farmers' market activity, according to the IMPLAN I-O model; based on these estimates, the calculated multipliers were 1.58 and 1.47 respectively. Over 140 full employment positions within the economy were indirectly attributed to farmers' market activity, according to the I-O model.

Findings regarding consumer and vendor characteristics may be no surprise, but may reveal opportunities for increased marketing toward certain participants. The typical market consumer was 51-65 years of age, buying mostly fruits, vegetables, and baked goods. Evidence suggested that consumers patronizing the largest markets were slightly younger, traveled farther, and spent more. The average vendor was also 51-65 years of age, and received the most revenue from produce and baked goods. The relative popularity of city-based markets was apparent; approximately 72 percent of all sales were generated by five urban market areas. Evidence that Iowa's farmers' markets are largely an urban phenomenon is further provided by mapping of

markets and market participants. Those that patronized farmers' markets apparently shopped frequently throughout the season (the average consumer visited a market approximately 13 times during the 2004 season); this high level of repeat business may indicate that consumers are satisfied by their shopping experiences and are dedicated farmers' market participants. This high level of repeat business may also reveal opportunities to increase market participation by developing new strategies to encourage more visits by those who typically shop infrequently, and to encourage those unfamiliar with the markets to give them a try. Consumer data indicated that an increase in market activity may also be achieved through efforts to attract younger consumers, while targeting urbanites and those approaching retirement age. Because the typical consumer is a city resident and not necessarily familiar with local agriculture and the types of goods available throughout the season, greater market participation might result from increased marketing (including market and agriculture-related education) in urban areas. Efforts to increase the amount and variety of produce and other goods offered (through the participation of more vendors) would be complementary to increased marketing, as well as encouragement of the purchase of a greater variety of goods.

As an established feature of the Iowa spring and summer, farmers' markets continue to blossom. Greater appreciation of this valuable seasonal activity, and increased participation, may be supported through improved knowledge of current market participants and the approximate impact of market activity.

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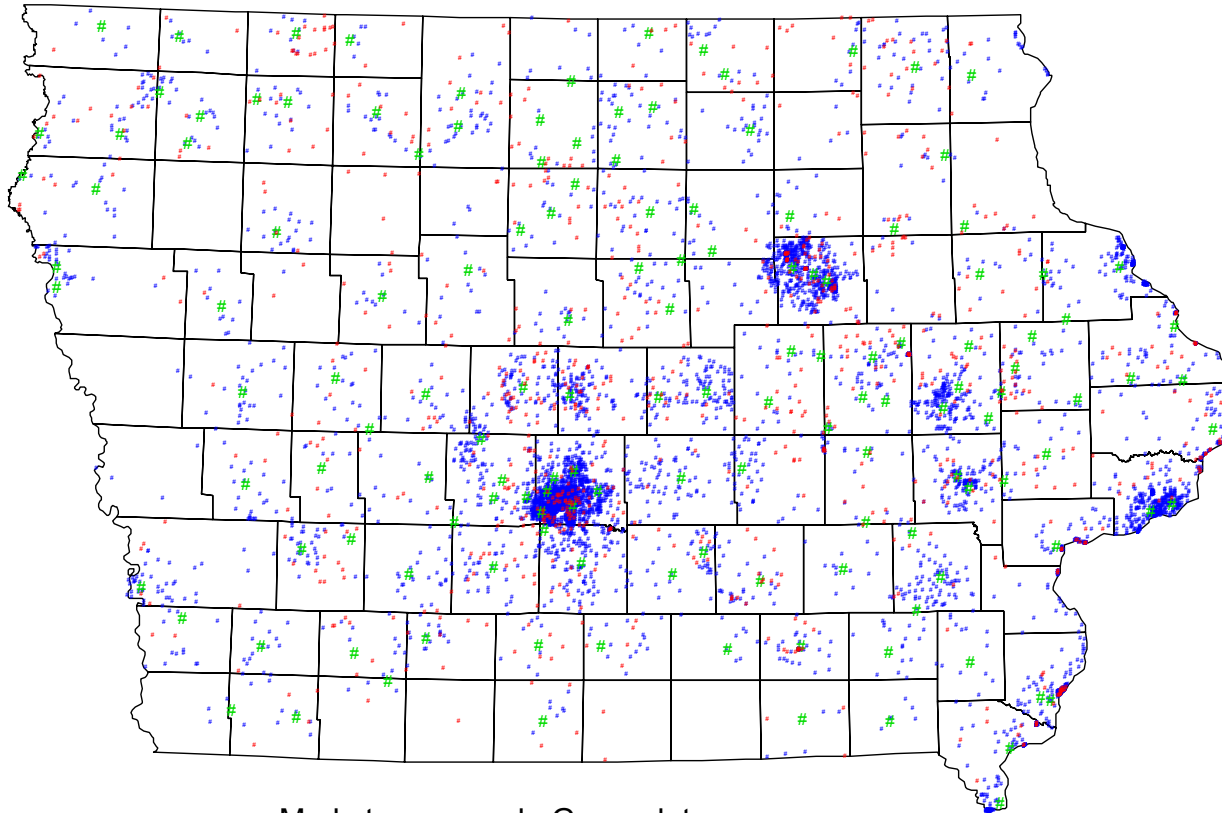
## **Appendix I: Markets and Market Participants: GIS Mapping**

Included are a series of Global Information Systems (GIS) maps indicating the location of surveyed market participants, and the location of markets included in the 2004 statewide survey of Iowa farmers' markets. Market participants are placed randomly within the indicated zip code of residence. Markets are placed according to zip code or incorporated area.

A single map of the entire state is included, as well as a series of maps which show in detail the farmers' market activity occurring for each of nine regions. Also included is a single map indicating the locations of markets that were not surveyed.

One customer was surveyed for every ten customers in regular attendance at the Iowa farmers' markets included in the sample. Because of this survey design, every customer indicated on the following maps represents ten per-session consumers overall.

# Iowa Farmers' Markets

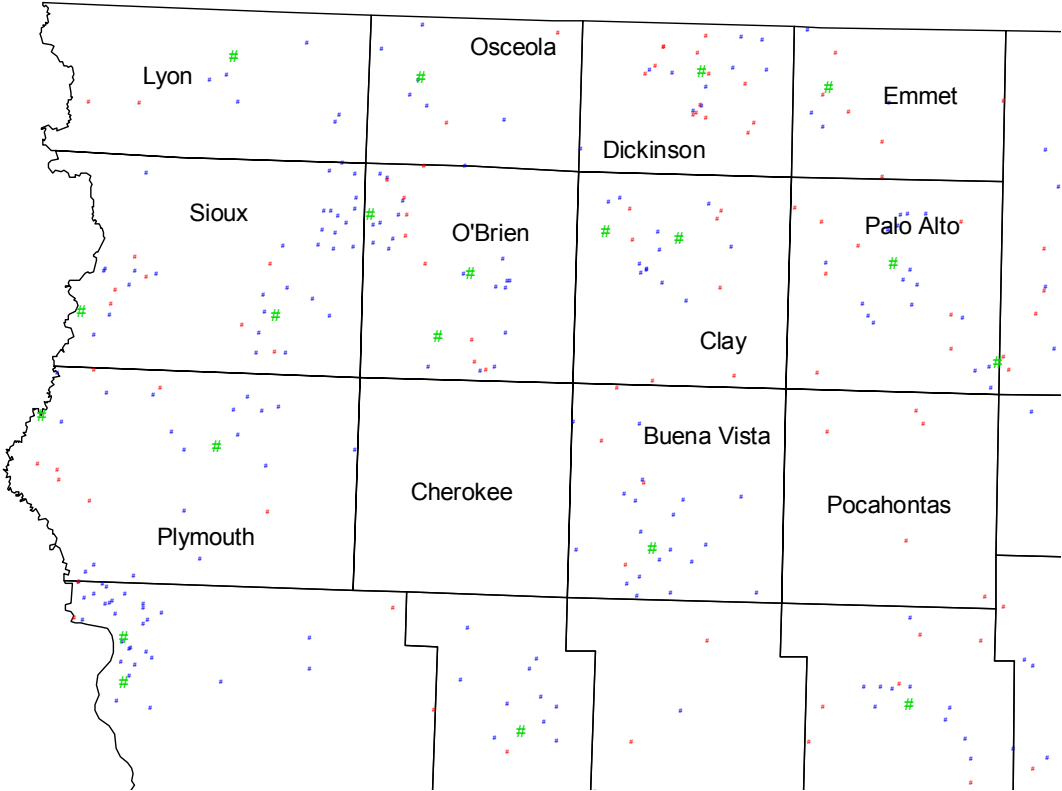


Markets surveyed: Green dots

Vendors: One red dot for each vendor response

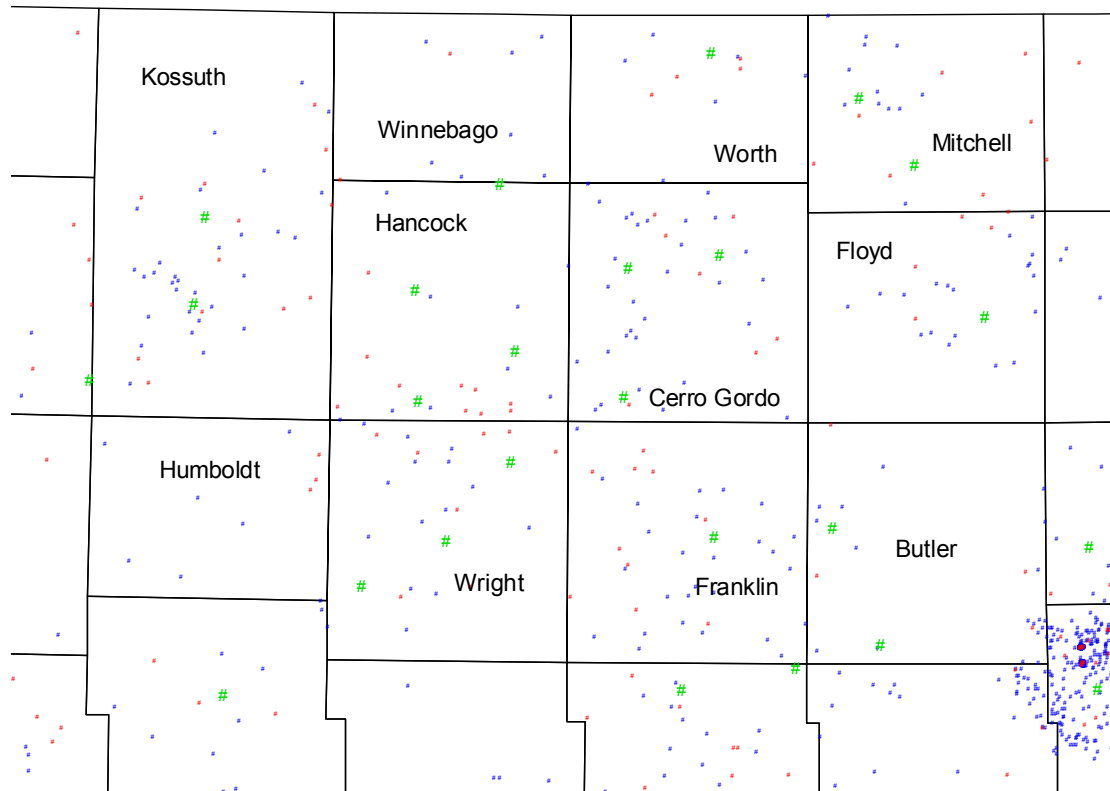
Customers: One blue dot represents 10 customers

# Northwest Iowa Farmers' Markets



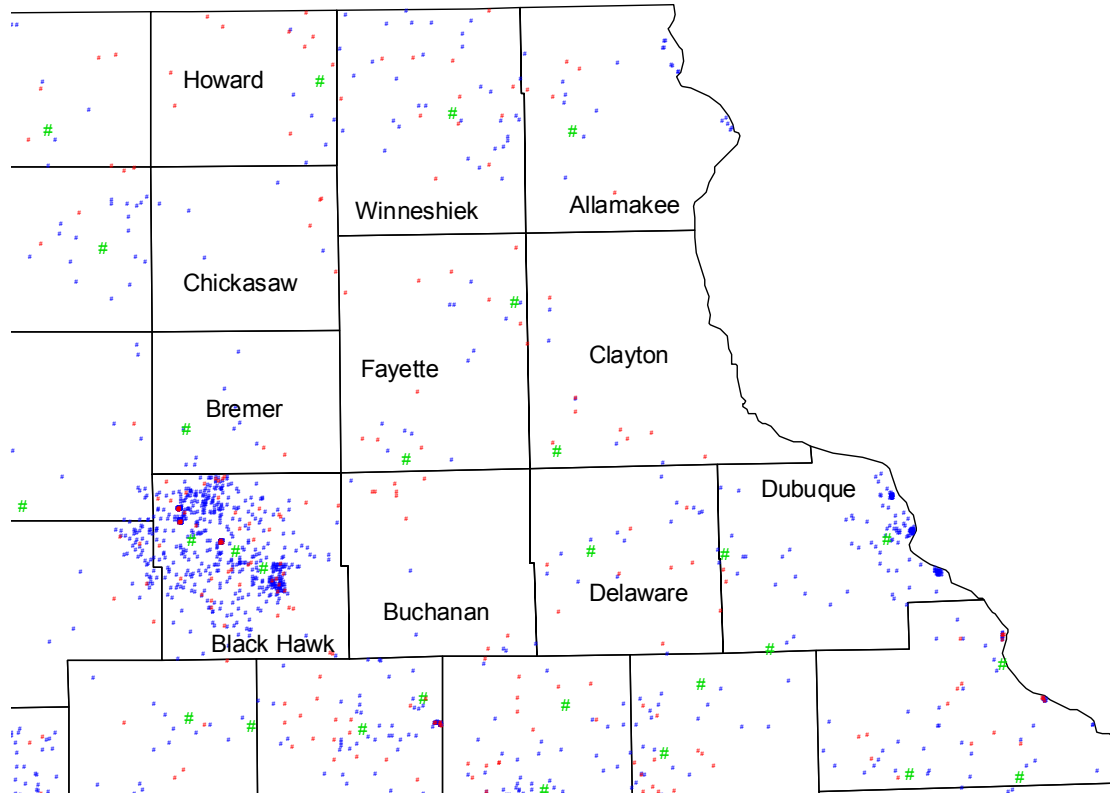
Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

# North-central Ia. Farmers' Markets



Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

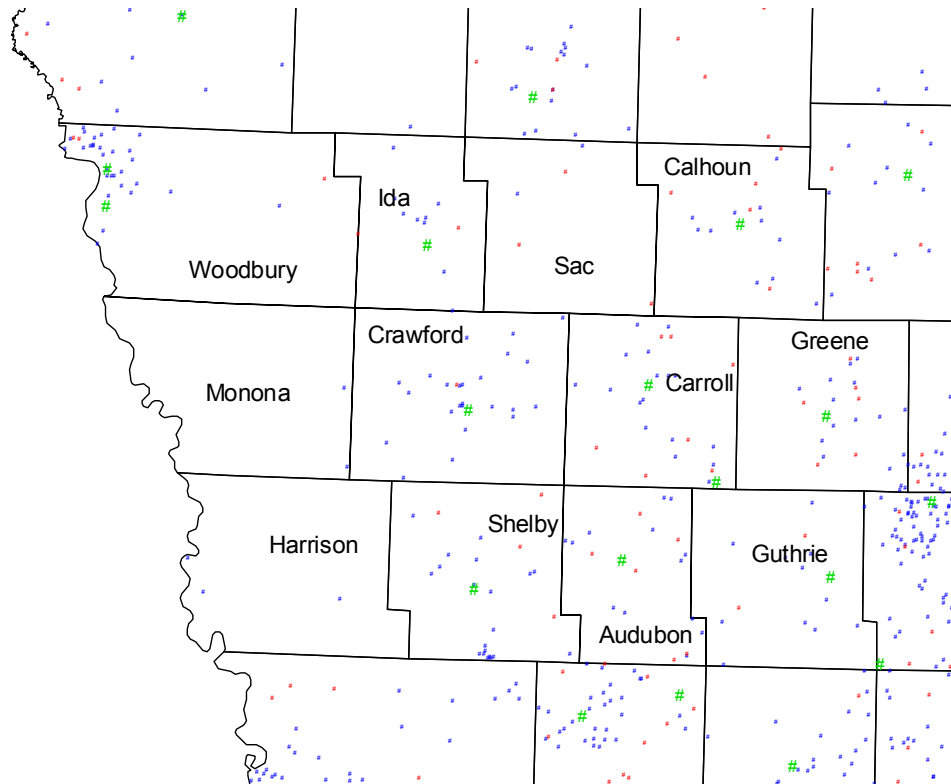
# Northeast Iowa Farmers' Markets



Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

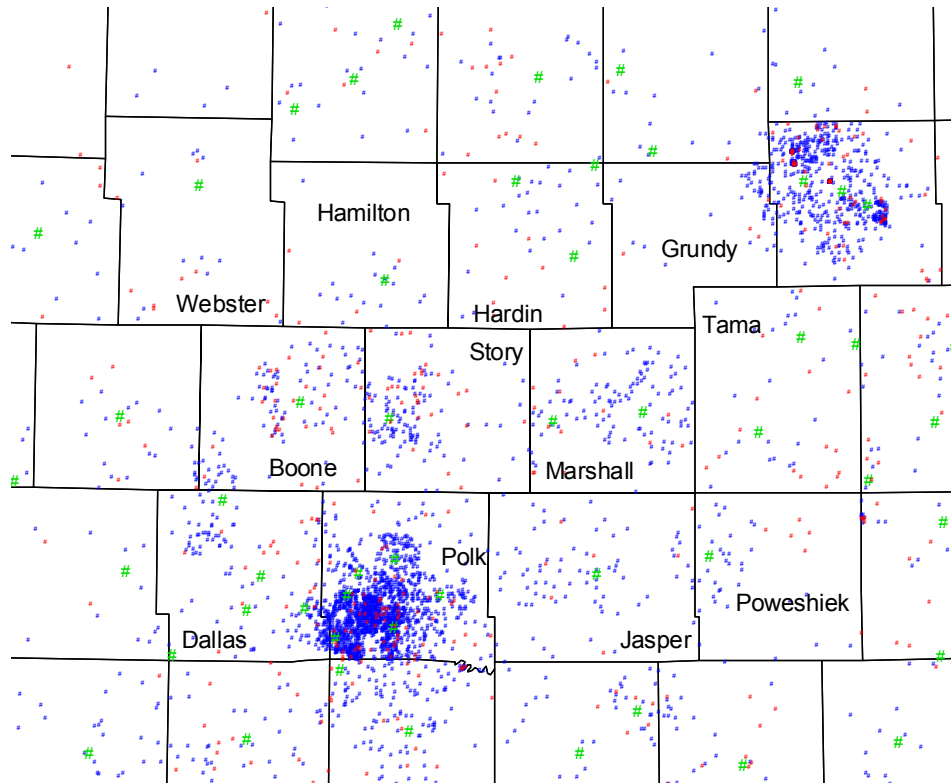


# West-central Ia. Farmers' Markets



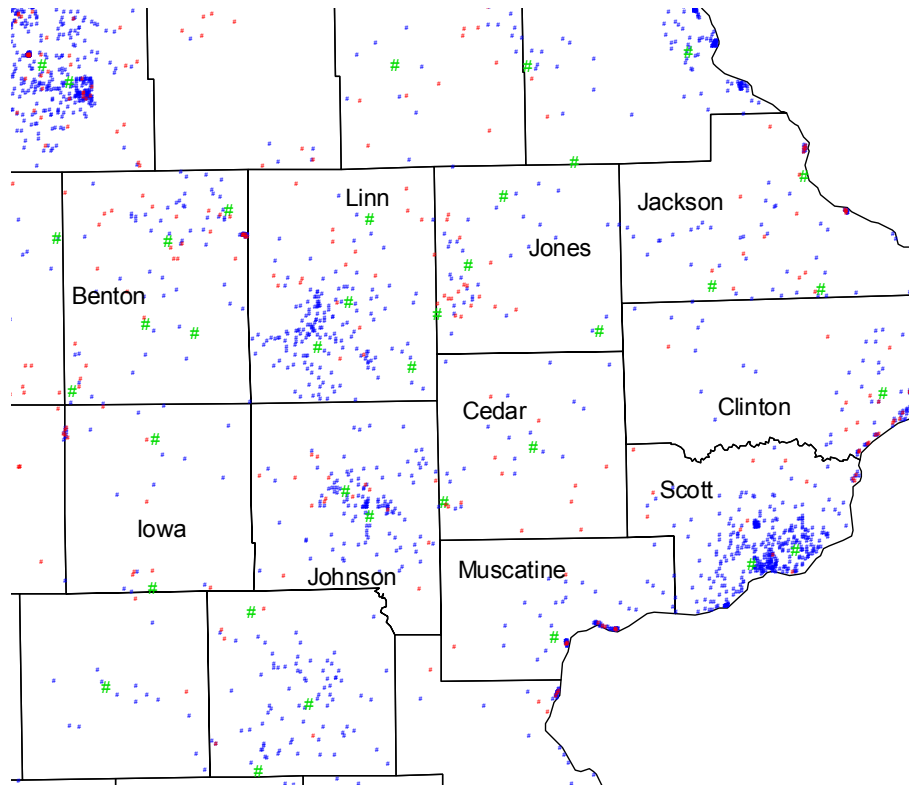
Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

# Central Iowa Farmers' Markets



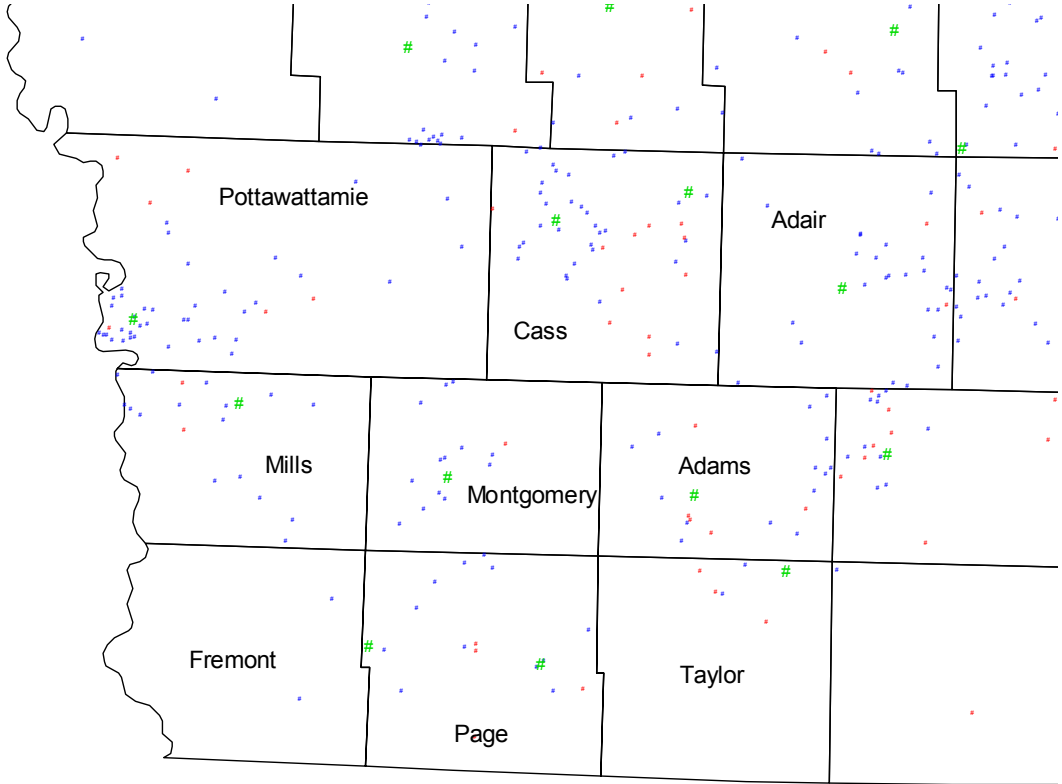
Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

# East-central Iowa Farmers' Markets



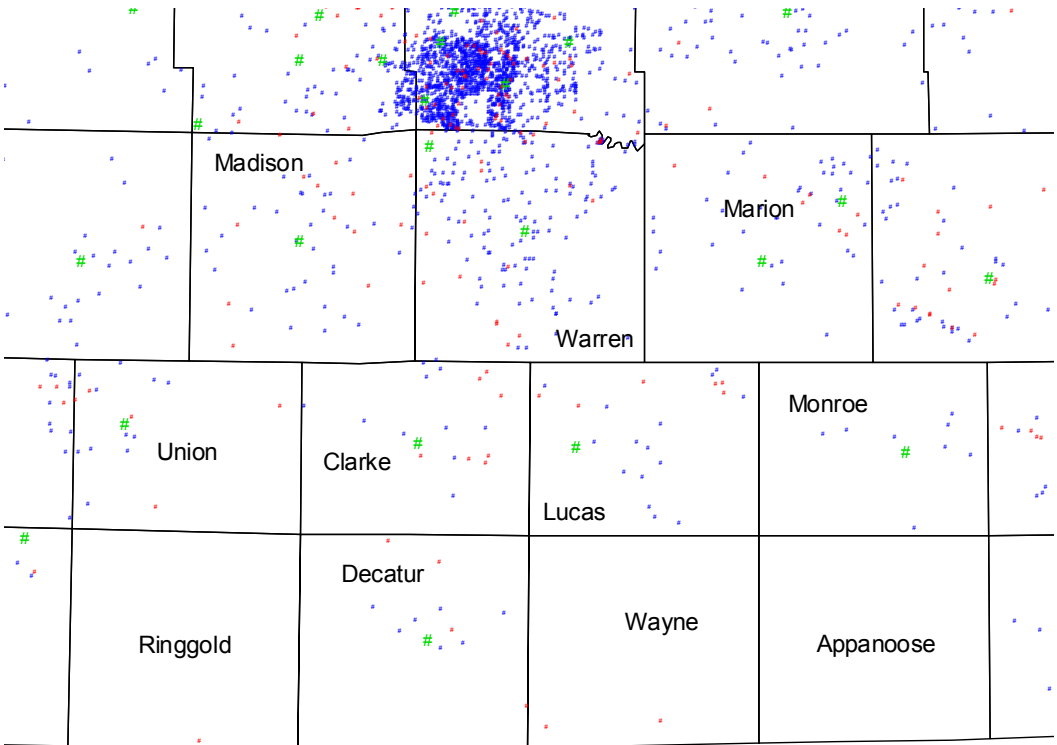
Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

# Southwest Iowa Farmers' Markets



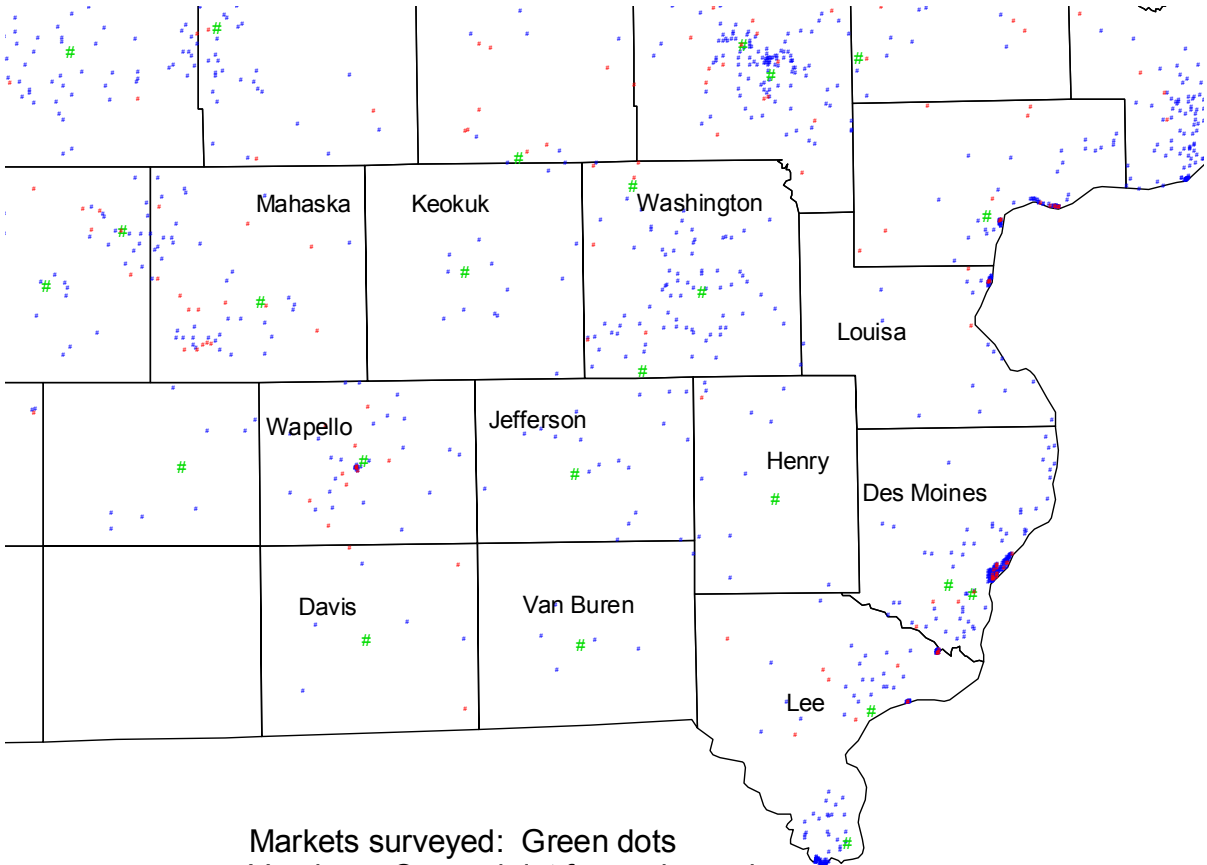
Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

# South-central Ia. Farmers' Markets



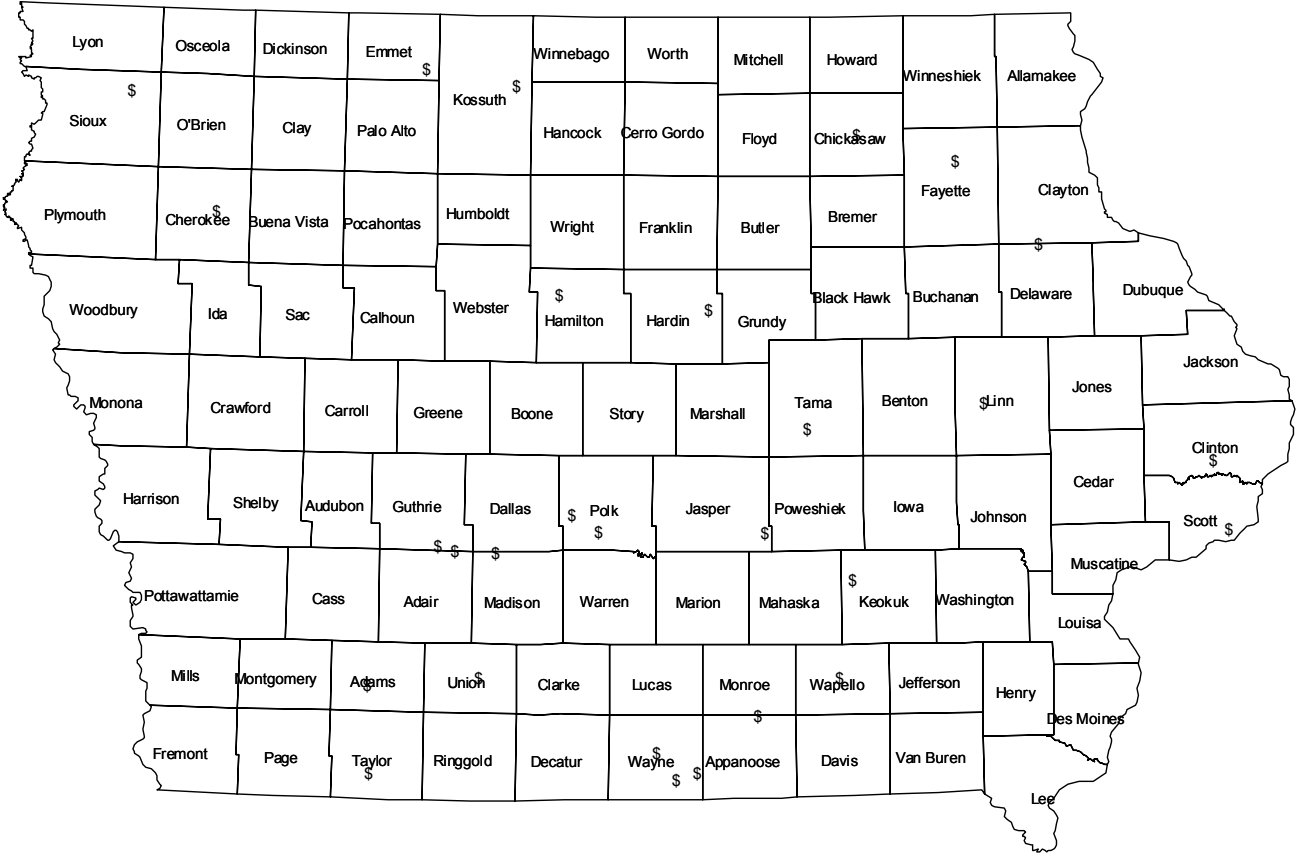
Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

# Southeast Iowa Farmers' Markets



Markets surveyed: Green dots  
Vendors: One red dot for each vendor response  
Customers: One blue dot represents 10 customers

# Farmers' Markets Not Surveyed



## Appendix II: The Input-Output Model

An Input-Output (I-O) model is essentially a generalized accounting system of a regional economy that tracks the purchases and sales of commodities between industries, businesses, and final consumers. Successive rounds of transactions stemming from the initial economic stimulus (such as a new plant or community business) are summed to provide an estimate of direct, indirect, induced (or consumer-related) and total effects of the event. The impacts are calculated using the IMPLAN Input-Output modeling system, originally developed by the US Forest Service and currently maintained by the Minnesota IMPLAN Group (<http://www.IMPLAN.com/index.html>). This modeling system is widely used by regional scientists in the United States and worldwide to estimate economic impacts.

Input-Output models are capable of providing many types of reports on regional data and interactions among sectors. For economic studies, three of the more important indicators are: (1) total output, (2) personal income, and (3) jobs. Total output for most industries is simply gross sales. For public institutions we normally include all public and private spending, all direct sales and subsidies received in order to isolate the economic value of their output. Personal income includes the wages and salaries of employees, along with normal proprietor profits. Value added is another appropriate measure of economic effects. Jobs, the fourth measure, represent the number of positions in the economy, not the number of employed persons.

We also get detailed breakdown of this data into direct, indirect, induced, and total economic effects. **Direct effects** in this case refer to the set of expenditures made by market consumers. **Indirect effects** measure the value of supplies and services that are provided to market vendors in order to meet consumer demand. **Induced effects** accrue when market vendors and workers in the indirect industries spend their earnings on goods and services in the region. Induced effects are also often called household effects. **Total effects** are the sum of direct, indirect, and induced effects. They are the total of transactions attributable to the direct activity that we are measuring.

The term **multiplier** is also often used when referring to economic effects or economic impacts. A multiplier is simply the total effects divided by the direct effects. It tells how much the overall economy changes per unit change in the direct effects (a dollar of output, a dollar of personal income, a dollar of value added, or a job). Multipliers help us to anticipate the potential change in the regional economy attributable to a change in direct activity in a particular industry. Firms with strong linkages to area supplying firms or that pay relatively high earnings may yield high multipliers. Firms that are otherwise without strong local connections or that pay lower than average wages will have lower multipliers. Urban areas with their more developed economies have, on the average, much higher multipliers than rural areas.