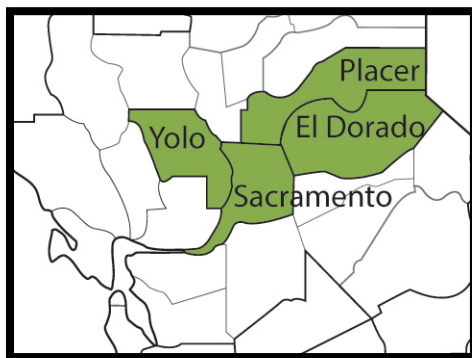




Economic Impact of Local Food Producers in the Sacramento Region



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ECONOMIC IMPACT OF LOCAL FOOD PRODUCERS IN THE SACRAMENTO REGION

Executive Summary

Consumers often cite supporting the local economy as a reason why they purchase locally produced foods. To find out whether there is such an impact, and if there is, how much it amounts to, our University of California Cooperative Extension team interviewed producers engaged in direct marketing to measure the economic impact of local food marketing in the Sacramento Region (El Dorado, Placer, Sacramento and Yolo counties). Our key findings indicate that, for every dollar of sales, Sacramento Region direct marketers are generating twice as much economic activity within the region, as compared to producers who are not involved in direct marketing.

- Sacramento Region direct market producers averaged \$164,631 in sales per producer, ranging from \$2,141 to \$4,620,000. Sales for producers in the region who were not engaged in direct marketing averaged \$568,105, which is more than triple that of the region's direct marketers.
- Of the direct market producers' total revenues, 44 percent were generated through direct channels, 55 percent through wholesale channels, and one percent in commodity markets.
- Sixty-five percent of the producers' direct-to-consumer sales were generated in the Bay Area, 30 percent in the Sacramento Region and five percent in other parts of the state or outside of California.
- Seventy-three percent of the direct marketers also sold through wholesale channels. Overall, their largest revenue channel was distributors with 30 percent of total sales, followed by farmers markets (16%), Community Supported Agriculture (14%), grocers (13%), and farmstands (9%). Similarly to direct-to-consumer most of the wholesale activity was in the Bay Area.
- The direct market producers' annual production and marketing expenses averaged \$155,235 in 2013. Expenses of the producers in the Sacramento Region who are not engaged in direct marketing averaged \$214,486, which is 39 percent higher.

- Eighty-nine percent of the inputs used by the region's direct marketers were purchased within the region. Meanwhile, 45 percent of the inputs used by producers in the Sacramento Region not engaged in direct marketing were purchased within the region.
- The regional output multiplier for the direct marketers is 1.86, compared to 1.42 for the region's producers who were not involved in direct marketing. This means that the direct marketers generate \$0.44 additional output within the Sacramento Region for every dollar of production, when compared with producers not engaged in direct marketing. **The greater economic impact of direct market producers is primarily attributable to the much larger percentage of their inputs being purchased within the region (89 percent versus 45 percent).** The direct marketers' indirect effect is .41, compared to only .09 for the producers not engaged in direct marketing.
- The Sacramento Region direct marketers' total output multiplier of 1.86 is relatively high. Other industries in the region competing for land have multipliers ranging from 1.61 to 1.77 (1.61 for auto dealers, 1.77 building material/garden supply retailers).
- The Sacramento Region direct marketers have a job effect of 31.8, compared to 10.5 for the producers who were not involved in direct marketing. This means, that for every \$1 million of output they produce, the direct marketers are generating a total of 31.8 jobs within the Sacramento Region, while producers not engaged in direct marketing only generate 10.5 jobs. The difference is partially due to the fact that hired labor expenses comprised 54 percent of the direct marketers' operating expenses, compared to only 25 percent for the other producers.
- We created a scenario in which grocery stores in the Sacramento Region increased their purchases of produce grown by the region's direct marketers from an estimated \$4.6 million to \$5.6 million, with a matching decrease in their purchases of produce grown by producers who are not engaged in direct marketing. Because the grocers purchase the produce from distributors, the Region's direct marketers would increase their sales by \$700,000. The resulting net economic impact is an additional \$1.3 million of output within the Sacramento Region, including 22.3 jobs.

ECONOMIC IMPACT OF LOCAL FOOD PRODUCERS IN THE SACRAMENTO REGION

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Growing interest in local foods has raised questions about the extent to which local and regional food systems promote regional economic development. Consumers often cite supporting the local economy as a reason why they purchase locally produced foods. To find out whether there is such an impact and if there is, how much it amounts to, our University of California Cooperative Extension team interviewed producers engaged in direct marketing to measure the economic impact of local food marketing in the Sacramento Region (El Dorado, Placer, Sacramento and Yolo counties).

We collected economic information through interviews with 88 local farmers and ranchers (referred to as producers) regarding their purchases of inputs such as fuel, packaging materials and labor, services such as insurance and bookkeeping, and the revenues generated from selling their products both direct to consumers and through other channels. We measured their sales and expenses during 2013, both within and outside of the Sacramento Region. In Table 1, we present the overall population of producers involved in direct marketing and response rates to our survey by county.

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Table 1. Survey Responses by County

County	Survey respondents	Total direct market farmers in county ^a	Response rate
El Dorado	33	126	26%
Placer	17	118	14%
Sacramento	9	95	9%
Yolo	29	95	31%
Total	88	434	20%

^aTotal direct market farmers in the county are the actual number who responded to the USDA-NASS 2012 Census of Agriculture.

We incorporated these data into an economic modeling program to estimate the economic impacts of producers engaged in direct marketing. Additionally, we assessed the community members' perceptions about whether they thought there were any impacts of local food systems in their communities and what those impacts were. Between January and June 2015, we interviewed 50 people with various connections to the local food system in the Sacramento Region. Twenty-two of these interviews were in Yolo County, 10 in Placer County, and nine each in El Dorado and Sacramento County. We targeted government/ policymakers, educators, the food-related social services, food service directors, and community-based organizations that work with the local food system. The purpose was to understand what community stakeholders believe are the biggest impacts of local food systems in their communities and how these impacts can be expanded and supported.

General Results

For our quantitative economic analysis we limited our interviews to producers in the Sacramento Region who generated at least \$1,000 from marketing direct to consumers¹⁰ during 2013. We measured their sales in different market channels, and also the amount and location of their

¹⁰ We interviewed producers engaged in direct marketing because they are intentionally involved in marketing some or all of their production within the Sacramento Region. In El Dorado County, we also interviewed wine grape and apple growers who sell some or all of their production to wineries or juicers in the Sacramento Region; these wineries and juicers are an integral part of the region's food system. We recognize that other producers who sell exclusively through wholesale channels could have some of their production marketed locally; however, they are not doing this intentionally and are not the focus of this study.

production expenses. This report relates to interviews with producers — 31 vegetable producers, 48 orchard producers and nine livestock producers (Table 2).

Table 2. Survey responses by production type

Production type	Survey respondents	Total direct market farmers by production type in Sacramento Region	Response rate
Vegetable	31	102	30%
Orchard/Vineyard	48	189	25%
Livestock	9	143	6%
Total	88	434	20%

During 2013, the 88 direct market producers in the Sacramento Region averaged \$164,633 in total sales, ranging from \$2,141 to \$4,620,000. Sixty-five of them had sales under \$100,000 (which for the purposes of this report, we classify as a “small” farm), 13 of them had sales between \$100,000 and \$250,000 (“medium” farm), and 10 had sales over \$250,000 (“large” farm). Producers in the region not engaged in direct marketing tended to be larger; they averaged \$568,105 in total sales.

Fifty-seven percent farmed full time. Most of these producers (72 percent) did not have any year-round employees, but these same producers hired an average of 3.2 seasonal employees. The remaining 28 percent of producers with year-round employees hired an average of 9.4 year-round employees and 7.3 seasonal employees.

The size of their operation varied significantly, from half an acre to over 544 acres, with an average of 37.3 acres. Thirty-four percent of farms are conventional, another 34 percent of farms indicated that they were not certified organic but were using organic practices, 28 percent are organic certified, and the remaining three percent is transitioning to organic or indicated other production practices. Over half have been farming for at least eight years. Most operations (81 percent) are structured as sole proprietorships.

Overall, direct market producers in the Sacramento Region earned 44 percent of their total revenues through direct marketing, 55 percent from the wholesale channels, and one percent from commodity markets. Individually, the farms generated between 0.75 percent and 100

percent of their revenues through direct marketing; 22 of the 88 producers sold only direct to consumers. Farmers markets are traditionally the most popular direct market channel; they accounted for 18 percent of total sales and 42 percent of all direct sales. Community Supported Agriculture programs (CSAs) generated 39 percent of direct market revenues, followed by on-farm farmstands (17 percent).

The direct market producers in the Sacramento Region generated 30 percent of their revenues in the region, while 65 percent of their revenues were from sales in the Bay Area and the remaining five percent from other parts of the state or outside of California. The high sales volume in the Bay Area was due primarily to Yolo County producers' marketing practices. Of the 46 producers who sold at farmers markets, 31 sold only at farmers markets in the Sacramento Region, and eight sold only at farmers markets in the Bay Area; the remaining seven sold at farmers markets in both the Sacramento Region and in the Bay Area or in other parts of the state.

Seventy-three percent of the direct market producers also sold through wholesale channels. Like farmers market sales, wholesale activity occurred primarily in the Sacramento Region and the Bay Area. Twenty-six percent of all wholesale activity was in the Sacramento Region, 66 percent was in the Bay Area and nine percent were in other parts of the state or outside the state. All sizes of farming operations sold wholesale; however, wholesale revenues tended to comprise a higher share of total revenues as their total revenues increase. For direct market producers in the Sacramento Region, fruit and nut sales dominated, generating 54 percent of the total revenues, followed by 31 percent from vegetables and herbs, and the remaining revenues from livestock, poultry, agritourism, and processed food products.

Direct market producers in the Sacramento Region averaged \$155,235 in total operating expenses, ranging from \$1,770 to \$5,000,000. Their average gross margin was \$9,396, which was calculated by subtracting total operating expenses from gross revenues; depreciation, loan interest payments and income taxes were not included as expenses. Their average gross margin rate was 5.7 percent, calculated by dividing the gross margin by total revenues. The average gross margin varied by county; Placer County had the highest at 25.5 percent, followed by Sacramento County at 9.7 percent, Yolo County at 1.3 percent, and El Dorado County the lowest at -9.2 percent. We attribute much of El Dorado County direct marketers' negative gross margin

to the fact that all but one of the 33 producers are small farms; small farms are financially challenged by their lack of economies of scale. In addition, most of the El Dorado County direct market producers were wine grape growers; some of their wine grape acreage may not yet be fully bearing; eight of the 14 vineyards had operating expenses that exceeded their total revenues. These deficits should diminish as the vines mature.

IMPLAN Model

IMPLAN is a software program that uses input-output (I-O) analysis. It is the most widely used software for economic impact analysis. I-O models measure how sales in one specific industry impact a region's output value and labor income, based on spending patterns previously established between the industry and other industries in the region. The "region" is a critical factor. It can be defined as a county, a cluster of counties, the state, or even a larger geographic area. For this study, we defined the Census Bureau's four-county Sacramento Metropolitan Area (consisting of El Dorado, Placer, Sacramento and Yolo counties) as the region. Therefore, only expenses and sales that are made within the region are considered to be local.

There are three levels of economic impact related to local food marketing that we can measure: *direct*, *indirect* and *induced*. To explain these concepts it is useful to consider an example. Imagine a customer goes to the Davis Farmers' Market in Yolo County and spends \$10 on produce. The *direct* effect is the \$10 in revenue for that farmer. Direct effects take place only for the industry immediately affected, which in this analysis are Sacramento Region producers who sold at least \$1,000 of product direct to consumers.

There are also ripple effects from the \$10 farmers market sale. Indirect effects occur when the producer purchases inputs from other industries within the region to produce that \$10 of vegetables. For example, the farmer spends \$0.42 on irrigation materials and utilities within the Sacramento Region to produce \$10 of vegetables. When the producer purchases goods and services from suppliers within the region, these local suppliers, in turn, generate demand for additional goods and services within the region. With the example of irrigation supplies and services, increased demand at the local hardware store requires that the store purchase more

irrigation materials from its supplier. This additional demand is called the *indirect effect*; only the demand that is generated locally is counted.

The second ripple effect is called the *induced effect*. It occurs when households spend their income on goods and services within the region. In this example, the producer spends money to hire labor and purchases inputs. Her spending generates income for her farm, her employees, her suppliers, and the employees of her suppliers—including the sales person at the hardware store. The *induced effect* occurs when these households spend some of their income on goods and services within the region, such as food, clothing, health care, dining out, recreational activities and other products and services.

In our qualitative interviews, stakeholders stressed the importance of these indirect and induced effects attributed to the food system. Several participants spoke to the importance of the local food system in bringing together groups that do not usually work together. The shared involvement in the food system from different perspectives provides a rich foundation for future work together. One example was the links between agricultural producers and artists and how together, these groups are educating consumers and policymakers about the importance of a local food economy, and at the same time creating new and exciting business opportunities.

Using IMPLAN to assess economic impacts

As part of our analysis of the economic impact of direct market producers in the Sacramento Region, we compare their total expenses with that of other producers in the region. The expense information for the producers who are not engaged in direct marketing was accessed through IMPLAN, which derives its estimates from the United States Department of Agriculture’s Agricultural Census and the Bureau of Economic Analysis. These production expenses were aggregated to include only vegetable, fruit, tree nut and livestock operations for the entire four-county region. For lack of a better term, we refer to producers who do not engage in direct marketing as “nondirect marketers”. The Sacramento Region direct market producers’ average annual production and marketing expenses averaged \$155,235 in 2013 (Table 3).

Table 3. Average Production Expenses and Local Purchasing Ratio by Category^a

EXPENSES	Sacramento Region Direct Marketers			Sacramento Region Nondirect Marketers		
	% local	total (\$)	% of total expenses	% local	total (\$)	% of total expenses
Hired labor	100	69,938	45.1	100	52,739	24.6
Contract labor	99	12,013	7.5	100	11,408	5.3
Fuel, oil, grease	99	6,559	4.2	4	5,586	2.6
Vehicle, equipment and building repairs	97	7,150	4.6	21	2,831	1.3
Machinery hire/commercial trucking	97	1,751	1.1	77	5,193	2.4
Bookkeeping & tax services	98	1,005	0.6	78	237	0.1
Sales, property, excise taxes	97	3,001	1.9	100	9,293	4.3
Real estate rental/lease	78	5,782	3.7	97	1,806	0.8
Insurance	97	3,543	2.3	92	402	0.2
Irrigation and utilities	90	6,515	4.2	57	1,569	1.0
Fertilizer and soil amendments	80	5,530	3.6	5	784	0.4
Pest and weed control materials	42	3,453	2.2	9	2,094	0.8
Crop advising services	64	282	0.2	-	-	-
Seeds and plants	15	4,497	2.9	-	55,242	25.8
Livestock feeding and bedding	65	2,758	1.8	3	48,883	22.8
Veterinary & medicine	10	195	0.1	69	979	0.5
Breeding	56	13	0.0	-	-	-
Processing and other expenses	36	1,349	0.9	-	-	-
Certification, inspections, licenses and permits	67	1,300	0.8	-	-	-
Marketing costs and services	54	8,607	5.5	77.7	5	0.0
Office supplies	100	1,552	1.0	71.0	114	0.1
Other operating expenses	92	8,442	5.4	78.5	15,321	7.1
Total Expenses	89	155,235		45	214,486	

^aA dash indicates that information about the particular expense category could not be broken out from existing IMPLAN data.

The expense proportions are critical data used in IMPLAN to calculate the indirect and induced effects for both production systems. According to IMPLAN, expenses of the nondirect marketers in the Sacramento Region averaged \$214,486, which is 38 percent greater than direct market producers; it reflects larger operations. Another stark contrast is that 89 percent of the direct market producers' expenses were incurred in the Sacramento Region, compared to 45 percent for

the nondirect marketers.

Hired labor was the highest expense category for direct marketers. It averaged \$69,938 and comprised 45 percent of total expenses, compared to 25 percent for the region's nondirect marketers. All of the employees resided in the Sacramento Region. When compared with the region's nondirect marketers, several other expense categories also comprised a noticeably higher proportion of total expenses for the region's direct market producers. They included contract labor, marketing costs and services (such as farmers market fees, certifications and packaging), fuel, oil, and grease, repairs, irrigation and utilities, real estate rental, fertilizer and soil amendments, insurance, pest and weed control, insurance, and office supplies.

Compared to the Sacramento Region's direct marketers, livestock feeding and bedding expenses represented a significantly higher proportion of the Sacramento Region nondirect marketers' total expenses (23 vs. 2 percent). This difference is attributable to the fact that livestock operations comprised only 10 percent of the direct marketers in our sample of Sacramento Region producers, compared to 44 percent of the nondirect marketers in the Sacramento Region.

IMPLAN Results

Using IMPLAN, we estimated a total output multiplier of 1.86 for the Sacramento Region direct marketers. This implies that every dollar of sales generated by these producers creates an additional \$0.86 of output produced in the Sacramento Region. It includes \$0.41 of indirect effect, from the additional demand for inputs from other industry sectors that supply the Sacramento Region direct marketers. It also includes \$0.45 of consumer goods and services purchased (induced effect) which is generated by household spending within the Sacramento Region by the direct marketers, their employees and their suppliers' owners and employees. Both the indirect effect and induced effect involve only purchases made within the Sacramento Region.

According to IMPLAN, the Sacramento Region nondirect marketers have a smaller output multiplier of 1.42, consisting of an indirect effect of \$0.09 for additional input purchases and an induced effect of \$0.33 for additional household spending in the Sacramento Region. Therefore, each additional dollar of sales generated by a Sacramento Region producer engaged in direct

marketing creates \$0.44 more economic activity in the Sacramento Region, when compared with an additional dollar of sales generated by a Sacramento Region nondirect marketer. **The higher economic impact of the direct marketing farms is due primarily to their extensive purchasing of inputs within the region (89 percent) for all inputs, compared to the 45 percent local purchasing rate for inputs by the nondirect producers.** Thus, the direct marketers' indirect effect is .41, compared to only .09 for the producers not engaged in direct marketing.

The following example illustrates the implications of the differences between the direct marketers' total output multiplier with that of the nondirect marketers. Assume that Farmer Green, an El Dorado County farmer, had sales totaling \$200,000 in 2013; she generated 80 percent of her sales at farmers markets, and 20 percent selling to restaurants. Applying the 1.86 multiplier, her \$200,000 of production generated \$372,000 of economic activity in the Sacramento Region. Meanwhile, her neighbor, Farmer Brown does no direct marketing; she sells all of her crops to a produce distributor for \$200,000 in 2013. Applying the 1.42 total output multiplier, Farmer Brown's production generated \$284,000 of economic activity in the Sacramento Region. The economic activity generated by Farmer Green is \$88,000 greater than that generated by Farmer Brown.

There are also large differences in the job effect IMPLAN generates for the two producer groups. The Sacramento Region direct marketers have a job effect of 31.8; this means that for every \$1 million of output produced by the direct marketers they are generating a total of 31.8 jobs within the Sacramento Region. These jobs include on-farm labor, as well as jobs related to the farms' indirect effects, which involve the farms' suppliers, and jobs created by the direct marketers' induced effects involving household spending. The Sacramento Region nondirect marketers have a job effect of 10.5. The difference is partially due to the fact that hired labor expenses comprised 45 percent of the direct marketers' operating expenses, compared to only 25 percent for the nondirect marketers.

Another difference between these two producer groups is related to their gross margin, which is used to cover the producers' depreciation and loan interest expenses, income taxes and profit. For the direct marketers, only 5.7 percent (average of \$9,396) of their revenues remain in their

pockets beyond the wages they potentially paid themselves, compared to 62.2 percent (average of \$353,529) for the Sacramento Region nondirect marketers. Economic theory tells us that the proportion of disposable income spent by households decreases as disposable income increases; the rest goes into savings. Therefore, the household spending in the Sacramento region created per dollar of output generated by higher income nondirect marketers is less than that generated by the direct marketers.

Nevertheless, the resulting difference in the induced effects between the two producer groups-- .45 for the direct marketers compared to .33 for the nondirect marketers--has a relatively small impact on the difference between their total output multipliers. The much larger difference is between their indirect effects--.41 for the direct marketers compared to .09 of the nondirect marketers. This is due to the direct marketers' much higher local purchasing rate for inputs--.89 for the direct marketers and .45 for the nondirect marketers.

While supporting the local economy is often cited by consumers as a primary reason for buying locally grown foods, only two other economic impact studies in the United States are known of that also used data collected from producers engaged in direct marketing. The differences between the output multipliers for direct and nondirect marketers in these studies were not as large as that in our study, but the values of their direct marketers' output multipliers were similar to ours. One study was conducted in upstate New York by Schmit et al. (2013). Their total output multipliers were 1.87 for small-scale direct marketers and 1.94 for the larger-scale direct marketers, compared to 1.90 for the nondirect marketers. The other study involved producers throughout the state of New York marketing through a food hub (a business that aggregates and distributes local food) with a 1.75 output multiplier, compared to the nondirect marketers with a 1.68 output multiplier (Jablonski et al. 2016).

The Sacramento Region direct marketers' total output multiplier of 1.86 is relatively high compared to that of other industries in the Sacramento Region (Table 4). IMPLAN's total output multipliers in the four county region range from a high of 2.91 associated with local government passenger transit to a low of 1.0. Various nonresidential construction sectors have multipliers ranging from 1.50 to 1.66, while single-family residential has a 1.71 multiplier. Other industries

in the region competing for land have multipliers ranging from 1.61 (auto dealers) to 1.77 (building material/garden supply retailers).

Table 4. Total Output Multipliers in the Sacramento Region for Selected Industries, 2013

Industry	Multiplier
Farming-vegetable, fruit, nuts and livestock--direct market	1.86
Restaurants-full service	1.76
Retail-building materials/garden supplies	1.77
Retail-general merchandise	1.75
Construction-single family	1.71
Hotels and motels	1.70
Construction-various nonresidential	1.50-1.66
Restaurants-limited service	1.61
Farming-vegetable, fruit, nuts and livestock-- nondirect market	1.42

Readers should be cautioned that these results, the multipliers and other economic impacts that were estimated in this report only apply to the Sacramento Region. Other regions would need to conduct their own survey of direct marketing producers to determine their expense proportions and local sourcing purchasing practices, and use these data when running their IMPLAN models.

The two groups of Sacramento Region producers, direct and nondirect marketers, have very different approaches to growing, distributing, and marketing their products. Those engaged in direct marketing tend to be smaller operations, are more labor-intensive, and source more of their inputs locally. According to the USDA’s 2012 Census of Agriculture, direct market producers only account for 19 percent of the region’s farms and four percent of its agricultural production. However, for every dollar of product they sell, they generate double the impact on the Sacramento Region’s economy as compared to the impact of an additional dollar of product sold by the nondirect marketers.

Thus, an additional dollar in sales generated by a direct marketer creates a larger economic ripple effect when compared to other industries that are often identified as key to regional economic development and that compete with agriculture for land, such as new housing developments and big box stores. On a per acre basis, the direct marketers’ higher multiplier effect is offset by the “big box” retailers’ higher revenues. Walmart stores (fitting the retail-general merchandise

category in Table 4) have annual sales averaging about \$400 per square foot of store space. But this square foot measure is misleading because the stores need large parking lots. Currently, there is a 155,000 square foot Walmart store planned in Auburn on an 18.6 acre parcel. Since there are 43,560 square feet per acre, a 155,000 square foot store produces approximately \$62 million in sales annually. The store averages \$3.33 million of sales per acre, which is still considerably higher annual revenues than any farm is likely to produce (of legal crops!)

On the other hand, many residents believe that farmland is more esthetically pleasing than a Walmart store and its parking lot. We can also cite the findings from our qualitative survey; participants stressed that the economic impacts of direct market producers are not isolated. When speaking of local economic benefits and examples interviewees said that the local food system creates connections by building social networks and relationships and/or building a sense of place.

Another interconnection with quantitative economic implications is the incidental impact that farmers market customers create by shopping at other businesses during their visit downtown to the farmers market. Researchers in Oregon found that the proportion of customers spending outside of a farmers market to inside of a farmers market ranged from .31 to .92 based on customer surveys at Oregonian five farmers markets. Of the 4,200 farmers market shoppers in Kirkland, Washington surveyed by Washington State University, 57 percent came downtown primarily for the farmers' market, and spent an average of \$13.47 at the farmers market and \$16.03 at downtown businesses. Similar results were obtained for farmers market shoppers in New Orleans, Wisconsin and Idaho. In a study of three farmers markets in three cities (Baltimore, Cleveland, and Los Angeles), the estimated annual economic impact of the farmers market on nearby businesses ranged from \$19,900 to more than \$1 million per market. No such studies are known to have been conducted in Northern California. However, we can conclude that the 1.86 multiplier understates the economic activity in the Sacramento Region generated by the region's direct marketers.

Looking Into the Future

Participants in our qualitative interviews most frequently identified the positive economic impact of direct market producers in their communities and stressed that these impacts could be greater. To build on past success, participants highlighted financial investment and education as key drivers to expanding the positive impacts of direct market agriculture in the region. Thus, we developed a scenario to illustrate the economic impact of additional financial investment and education in the form of greater demand at grocery stores for locally grown food.

Our sample of 88 direct marketers in the Sacramento Region reported selling \$940,000 of produce to grocers in the Sacramento Region. According to IMPLAN, sales of food and beverage retailers in the Sacramento Region totaled \$1.528 billion in 2013. Assuming a five percent share of grocery store sales for produce as a modest estimate, the grocery store sales of produce were an estimated \$76.4 million in 2013. Therefore, a \$1 million increase in local grocers' annual sales of produce grown by direct marketers in the Sacramento Region seemed like a realistic scenario to assess.

In this scenario, we assumed that these local produce sales would be sourced through distributors because of the relatively small volumes provided by individual producers. We used a 30 percent standard industry margin used to cover a distributor's operating costs and service fees; therefore, the additional \$1 million in local purchases would result in an increase of \$700,000 in total output for the region's direct marketers. These increased sales would also displace existing purchases by the grocery stores for products that are not grown in the Sacramento Region. IMPLAN estimates that 2.5 percent of the state's total output of vegetable, fruit, tree nut, beef, poultry and other animal products is produced within the Sacramento Region. Therefore, we also reduced the region's net demand by \$17,500 to offset the sales lost by the region's nondirect producers. We used the expense ratios and purchasing practices listed in Table 3 for the Sacramento Region direct market producers to measure the impact of the region's increased output and demand.

As a result of the high multiplier for direct market agriculture, the influx of \$700,000 in sales by direct market producers adjusted for the sales lost by the region's nondirect producers, would generate approximately \$1.3 million of economic output within the Sacramento Region,

including 22.3 jobs. The total effect is a combination of direct, indirect, and induced effects. The indirect effect is \$280,000 and 2.7 jobs, and the induced effect is \$307,000 and 2.4 jobs.

Conclusions

The two groups of Sacramento Region producers, direct marketers and nondirect marketers, are clearly very different. Those who are engaged in direct marketing tend to be smaller, more labor-intensive and source more of their inputs locally. The direct market producers are a small segment of the total agricultural sector; they only account for 19 percent of the region's farms and four percent of its agricultural production. However, when the sums of the indirect and induced effects for the two producer groups are compared, the direct marketers generate ripple effects on the Sacramento Region's economy that are double that of the nondirect marketers.

This analysis assesses the impact that Sacramento Region producers who are engaged in direct marketing have on the region's economy. For every dollar of product that the direct marketers sell, their 1.86 output multiplier generates ripple effects on the Sacramento Region's economy that are double that of the nondirect marketers' 1.42 output multiplier. The direct marketers' multiplier also fares well when compared with the multipliers for other industries in the region, such as general merchandise retailers and building materials/garden supplies retailers that compete with agriculture for land.

We recognize that direct marketers comprise a relatively small part of the Sacramento Region's agricultural sector. Nevertheless, they do generate both economic and qualitative benefits for the Sacramento Region, and warrant policymakers' support to nurture their growth.

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References

- Brown, C., and S. Miller. 2008. "The Impacts of Local Markets: A Review of Research on Farmers Markets and Community Supported Agriculture (CSA)." *American Journal of Agricultural Economics* 90, no. 5: 1298–302.
- Bubinas, K. (2011). Farmers Markets in the Post-Industrial City. *City & Society*, 23(2), 154-172.
- Corum, Vance. 2003. Kirkland Wednesday Market Rapid Market Assessment. August 20, 2003. Small Farms Program, Washington State University.
<http://www.nwdirect.wsu.edu/markets/KirklandRMAaug20-2003.pdf> (accessed 9/14/15)
- Gunter, A., and D. Thilmany. "Economic Implications of Farm to School for a Rural Colorado Community." *Rural Connections*, no. May (2012): 13–16.
- Jablonski, B.B.R., T.M. Schmit, and D. Kay (2016). Assessing the Economic Impacts of Food Hubs on Regional Economies: A Framework that Includes Opportunity Cost. *Agricultural and Resource Economics Review*. 45(1): 143-172.
- Lev, L., L. Brewer and G. Stephenson. 2003. *How Do Farmers' Markets Affect Neighboring Businesses* (No. 16). Oregon Small Farms Technical Report.
- Lev, L. and J. Potter. 2003. Moscow Farmers' Market Rapid Market Assessment. July 19, 2003.
<http://www.nwdirect.wsu.edu/markets/MoscowRMA2003.pdf> (accessed 9/14/15).
- marketumbrella.org. 2012. Measuring the Financial Impact of a Public Market. Crescent City Farmers Market (X3) 2012.
http://www.crescentcityfarmersmarket.org/uploads/file/Crescent_City_Farmers_Market_x3_2012-20121021.pdf (accessed 9/19/15)
- marketumbrella.org. 2012. News: Farmers Markets Contribute Millions to Local, Regional Economies.
<http://www.marketumbrella.org/index.php?mact=News,cntnt01,detail,0&cntnt01articleid=163&cntnt01returnid=83> (accessed 3/9/16).
- Polson, Burt. 2013. The Simplicity of Sales per Square Foot. Napa Valley Register. December 9, 2013. <http://www.fool.com/investing/general/2015/05/12/the-largest-retailer-in-history-how-walmart-sales.aspx> (accessed 3/9/16).
- Schmit, T.M., B.B.R. Jablonski, and Y. Mansury. (in press). Assessing the Economic Impacts of Local Food System Producers by Scale: A Case Study from New York. *Economic Development Quarterly*.
- The Motley Fool. 2015. The Largest Retailer in History: How Walmart Sales Reached \$500 billion. <http://www.fool.com/investing/general/2015/05/12/the-largest-retailer-in-history-how-walmart-sales.aspx> (accessed 3/9/16).

Thomson, Gus. 2015. North Auburn Walmart Still a Go as Costco Falters. Auburn Journal. 2/15/15. <http://www.auburnjournal.com/article/2/13/15/north-auburn-wal-mart-still-go-costco-falters> (accessed 3/9/16)

US Department of Agriculture-National Agricultural Statistics Service. 2012 Census of Agriculture. https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_County_Level/ (accessed 7/12/15).