

Prospects for Food Localization in New Mexico

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Executive Summary

What are the potential benefits from localizing the food system in New Mexico? This report, commissioned by the Bioneers' Dreaming New Mexico Project and underwritten by the McCune Foundation, suggests the opportunities are huge.

A recent report of the New Mexico Climate Change Advisory Group estimated that only about 3% of food grown in state reaches the mouths of in-state consumers. Indeed, of the \$2.5 billion received by New Mexican farmers each year, 80% is earned either from exports of dairy products and cattle or from sales of the grains to support these animals. Most of the remaining agricultural products in the state, such as pecans, onions, and chile, are exported as well.

Localization means New Mexicans, while continuing their food-export industries, would consume more of the raw foodstuffs grown or raised in the state. Residents also would purchase more processed foods from local manufacturer, buy more of all kinds of food from local grocery stores, and eat out more selectively in local restaurants.

We calculate, using the IMPLAN input-output model, that were Dreaming New Mexico's goal of 25% food localization realized by 2020, it could generate \$1.4 billion in additional output, \$346 million in additional earnings, \$44 million in additional business taxes, and more than 10,000 additional jobs. Of these benefits, roughly 17% come from increased farming, 18% from the increased raising of fish, game, and meat, and the rest from value-added food manufacturing, distribution, retail, and restaurants. To put the jobs number in perspective, it's worth noting that 100% food localization would provide a job to more than half of all New Mexicans unemployed today.

By far, the biggest job-creating opportunity is to create new grocery stores in food deserts in the state and build an in-state distribution infrastructure to service them. Other major opportunities are: raising more chickens and pigs, and processing meat in state; growing fruit and other produce; expanding the state's nursery industry; increasing the number of bakeries; and expanding food manufacturing industries (particularly for soybean products, healthy snack foods, and pet foods).

Ten percent of food consumption in New Mexico is by institutions, about a third of which is by schools. Selective procurement of local food by government agencies could therefore be a significant driver of food localization.

Achieving 25% food localization by 2020 in New Mexico could prevent the emission of 1.1 million metric tons of carbon into the atmosphere—roughly 1-2% of all emissions in the state. More savings are possible if food localization is accompanied by more efficient distribution systems, with less refrigeration and packaging.

The study provides two dozen recommendations for public and private action, including overhauling the state's economic-development policies and creating a tax credit for residents who invest in local food businesses.

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The stakeholders I consulted represented widely divergent views, many at odds with one another, and it was made clear at the outset that the aim was not to produce a consensus document. Nevertheless, all the stakeholders were invited to review a draft, correct factual errors, and add nuance to the analysis. I'm especially grateful for the extensive comments I received from the DNM team as well as Connie Falk, Sarah Laeng-Gilliatt, Pam Roy, and Tawnya Leveta. All of these individuals made this analysis stronger, but ultimate responsibility for what appears here – and for the opinions represented – are my own.

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Introduction

What are the realistic opportunities for localizing the food system in New Mexico? What are the economic and ecological benefits of realizing these opportunities? What are the obstacles? What concerted actions, public and private, might overcome these obstacles? These are the questions being posed by Dreaming New Mexico (DNM), a new project of the Bioneers.

A generation ago, *Our Common Future*, sometimes called the Brundtland Report, defined sustainability as meeting the needs of the current generation without compromising the ability to meet the needs of future generations. Many now fault this definition for leaving out *place*. No state or community should achieve sustainability at another's expense. A better formulation might be that a community should meet its needs, whether current and future, without compromising the ability of any other community to meet its need, current and future. This modification places responsibility squarely on every community to develop an economy that maximizes self-reliance on the renewable use of local resources.

Under this formulation of sustainability, trade doesn't end. But it does become refocused. Localizing communities would seek to import only those goods and services that are not locally producible. They would also take care not to import items produced elsewhere in unsustainable ways.

Practically speaking, trade in a localized world will become a lot lighter. Rising oil prices mean that shipping will become increasingly expensive. And the huge potential costs of global climate disruption may well lead governments to enact policies, like carbon taxes, that raise shipping costs further.

In the world that lies ahead, regions that localize early and effectively will prosper. In this sense, localization is as much about securing economic success as ecological resilience.

There's no better place to see the opportunities and obstacles to localization than New Mexico. Purplish in its politics, diverse in its constituents, rich in its culture and history, and filled with world-renowned figures in the arts, science, and business, New Mexico is on almost everyone's short list of bellwether states. New Mexico is an important starting place for thinking about food localization for another reason as well – it is a state replete with human suffering, broken dreams, and huge challenges. By most measures, New Mexico leads nearly all 50 states in poverty. Were it not for a few pockets of wealth, such as Los Alamos, Santa Fe, and Taos, the state might well rank as the poorest in the nation.

Both a cause and an effect of this poverty is the state's inadequate food system. In the 2007 *Hunger Almanac*, New Mexico ranked dead last in the nation in food security. Hunger and malnutrition are widespread. Severe snowstorms can literally

empty out the shelves of many grocery stores for days. New Mexicans are so dependent on outside imports of food that a terrorist event 10,000 miles away could be devastating.

Yet New Mexico also has the beginnings of a robust, localized food system. The restaurants of Santa Fe, Taos, and Albuquerque, rooted in local crops like chile and Native American cooking traditions, are admired worldwide. Farmers markets throughout the state are thriving. A small, but growing cadre of consumers is trying to localize their food purchases, and a growing number of farmers are weighing whether to abandon commodity production to meet that demand. A new generation of grocery stores, like La Montanita Coop (with four stores in Albuquerque, Gallup, and Santa Fe) and the Toucan Market in Las Cruces, are carving competitive local niches. State and local officials are joining as well by embracing “farm-to-school” programs.

A recent report by the New Mexico Climate Change Advisory Group (hereafter Advisory Group), convened initially by Governor Bill Richardson, undertook a detailed analysis of opportunities and obstacles standing in the way of the state addressing one of the biggest environmental challenges of the 21st Century – climate disruption resulting from the steady atmospheric accumulation of carbon dioxide, methane, and other emissions from human activity. Among the focal points for action were state energy and food policies. Significantly, the Advisory Group urged the state to “adopt programs to increase the amount of locally produced food consumed in the state: From today’s approximate 3 percent consumption of local food (much of this in dairy products), by the year 2012, local food systems should be constructed to shift to 8% local food consumption, and to 25% by 2020. Reduction in greenhouse-gas (GHG) emissions should occur by offsetting imported foods with high embedded GHG (from transportation) with local foods that have significantly lower GHG.” (Recommendation A-10)

About This Report

Taking the Climate Change Advisory Group’s recommendation as a starting place, Dreaming New Mexico commissioned this report to answer the five questions:

- (1) *Opportunities* – What are the most promising opportunities for expanding the state’s ability to feed its own residents?
- (2) *Economic Benefits* – What are the potential economic benefits from 25% food localization by the year 2020? From 50% localization? 100%?
- (3) *Institutional Potential* – To what extent can public and private institutions serve as a driver for realizing the market potential of localization?
- (4) *Ecological Benefits* – How significant might be the reduction of the state’s annual contribution in greenhouse gases under these three scenarios for localization?

(5) *Implementation* – What are the biggest obstacles impeding these localization scenarios, and how might they be overcome?

This report answers these questions successively in five sections.

For some, the answers here will be tantalizing but unfulfilling, because so much more work on each question is needed. For example, every type of local food business opportunity itself deserves a detailed analysis to determine the extent to which it is plausible and which private initiatives and public policies could increase the plausibility. The scope of this study was limited. The calculations are based on existing federal and state databases, supplemented with meetings with some state experts in April 2008 – in Santa Fe, Albuquerque, and Las Cruces – and follow-up conversations with others via e-mail and phone.

But the basic message is this: If New Mexicans embark seriously on the quest for food localization, they can achieve an important home run not only for the state's food security and environmental stewardship but also for its economy.

Local Economies and Food

A growing body of evidence, much of it elaborated in *The Small-Mart Revolution*,¹ suggests that economic development works best when it focuses on businesses that are locally owned and import-substituting (LOIS). Local ownership means that working control of a company is held within a small geographic area. Import-substituting means that the company is focused first and foremost (though not exclusively) on local markets.

A large body of academic study and community experience suggests that local ownership matters for economic development in at least five ways:

- Locally owned businesses generally contribute more to the “economic multiplier” than non-local business – which means more income, wealth, jobs, and taxes – because the former spend more money locally.
- While absentee-owned businesses increasingly consider moving to Mexico or China, with little concern that their exit might throw an abandoned community into an economic tailspin, businesses anchored locally through ownership stay and produce wealth for many years, often many generations.²
- Because local businesses tend to stay put, a community with primarily local businesses can raise labor and environmental standards with confidence that its businesses will adapt rather than flee.³
- A region made up of small, locally owned businesses is better equipped to promote smart growth and walkable communities, draw tourists through unique attractions, and retain talented young people who seek entrepreneurial opportunities.
- Compared to economies dependent on absentee owned enterprises, local-business economies tend to have greater social stability, lower levels of

¹ Michael H. Shuman, *The Small-Mart Revolution: How Local Businesses Are Beating the Global Competition* (San Francisco: Berrett-Koehler, 2006).

² Of course, staying put does not ensure success. Cheap imports of chile, for example, may require local New Mexican farmers to move into new crops to survive.

³ For example, the state of Maryland is highly dependent on a poultry industry (dominated by two companies, Tyson and Perdue) that continually threatens to move to more “business-friendly” jurisdictions like Arkansas and Mississippi. Despite its impressive performance in other categories of sustainability like smart growth, the state has found it politically impossible to regulate the poultry industry’s practice of more than a billion pounds of manure into the Chesapeake Bay, the largest estuary in North America. Were the Maryland economy made up of locally owned businesses, officials could more easily raise environmental standards. At the same time, of course, jurisdictions like Maryland must be mindful that, even when local businesses prevail, ratcheting up standards too high can kill an industry.

welfare, and more political participation.⁴

Import substitution matters for economic prosperity as well. Every time a community imports a good or service that it could have cost-effectively produced for itself, it “leaks” dollars and loses critically important multipliers associated with them. Unnecessary imports – of petroleum, for example –subject a community to risks of price hikes and disruptions outside local control (the more energy self-reliant a community, the less outside prices matter). And they deny a community a diversified base of businesses and skills needed to take advantage of unknown (and unknowable) future opportunities in the global economy.

Import-substitution does not mean isolating a community from the global economy. To the contrary, as the late Jane Jacobs argued, promoting import-substituting businesses turns out to be the most effective way to develop export-oriented businesses.⁵ But instead of putting all of the community’s eggs in one export-oriented basket that results in complete dependence on fluctuating global markets, this strategy develops myriad small businesses, grounded (initially at least) in diversified local markets with many then becoming exporters.

This perspective does not carry a negative moral judgment about non-LOIS businesses. To the contrary, many global, export-led companies are terrific at creating wealth and jobs. But for every dollar of sales, the evidence suggests that the typical LOIS business produces more benefits for a given region than the typical non-LOIS business, because local ownership anchors the business to the community and because of the higher multiplier effect.

More than 100 communities throughout the United States have begun embracing the principles of LOIS, many as networks linked to the Business Alliance for Local Living Economies (BALLE) and the American Independent Business Alliance (AMIBA). Business networks in both Santa Fe and Albuquerque have close ties to both organizations. And these networks, like their brethren across the country, have prioritized local food. This reflects a wise judgment that people viscerally understand the value of knowing and trusting the producers of what they ingest every day. In New

⁴ C. Wright Mills and Melville Ulmer, “Small Business and Civic Welfare,” in *Report of the Smaller War Plants Corporation to the Special Committee to Study Problems of American Small Business*, Document 135. U.S. Senate, 79th Congress, 2nd session, February 13. (Washington, DC: U.S. Government Printing Office, 1946); Thomas A. Lyson, “Big Business and Community Welfare: Revisiting A Classic Study,” monograph (Cornell University Department of Rural Sociology, Ithaca, NY, 2001): 3; and Thad Williamson, David Imbroscio, and Gar Alperovitz, *Making A Place for Community: Local Democracy in a Global Era* (New York: Routledge, 2003), 8.

⁵ The argument is essentially this: Suppose North Dakota wished to replace imports of electricity with local wind-electricity generators. Once it built windmills, it would be self-reliant on electricity but dependent on outside supplies of windmills. If it set up its own windmill industry, it would then become dependent on outside supplies of machine parts and metal. This process of substitution never ends, but it does leave North Dakota with several new industries – in electricity, windmills, machines parts, and metal fabrication – that are poised to meet not only local needs but also export markets.

Mexico the growing interest in local food also reflects a passion for food tourism and concern about meeting residents' basic nutritional needs.

There is a emerging sense among hundreds of thousands of New Mexicans that another path is possible.

I. Opportunities for Localization

The first step in thinking about how to localize New Mexico's food system is to estimate how much is local already. This in turn requires a definition of what is meant by the "food system." Most equate the "food system" with farming and agricultural production, and that's where we begin as well.

An Overview of New Mexico's Agricultural System

Chart 1 presents data from the most recent edition (2006) of *New Mexico Agricultural Statistics*, published by the state Department of Agriculture. The story here is relatively simple. New Mexico produces about \$2.5 billion of agricultural goods each year.⁶ Some 72% of this output revolves around cattle and cows, about half from beef cattle grown in state and half from milk and dairy products from in-state cows. Another 8% of the output is the hay and corn grown in the state to support these animals (alfalfa also plays a role here, albeit smaller). Five other crops, primarily for export, account for another 10% of the state's agricultural production: pecans (\$85 million per year), greenhouse nursery plants (\$63 million), onions (\$46 million), chile (\$42 million), and cotton lint (\$35 million). Every other raw foodstuff accounts for less than 10% of total value of in-state production.

One way of looking at these data is to observe that nearly all the raw food grown in the state is for export. And very little of this food, save some cheese and other milk products, is converted into value-added goods. Economists have long understood that a region that primarily exports basic commodities usually remains stuck in poverty. (The state's other principal products, such as oil, gas, and coal, also follows this pattern.) Worse still, the enormous dependence of these agricultural industries on energy-intensive inputs, for fertilizers, pesticides, feed additives, farm equipment, animal transport, and so forth, means that they are vulnerable to rises in energy prices.

To put these numbers in perspective, consider the overall contours of the state economy. In 2006 – when most of the calculations in this study are made – that state had 1,955,000 people whose collective personal income was about \$58 billion. Total annual output was \$123 billion. Receipts for raw foodstuffs constituted a little over 4% of personal income, and 2% of overall state output—a tiny part of the overall economy.

⁶ The U.S. Department of Agriculture's estimates that in 2007 the market value of all agriculture products sold was about \$2.2 billion. *2007 Census of Agriculture*, Vol. 1, Part 51, updated September 2009, p. 281. The difference between federal and state data reflect slightly different accounting procedures and slightly different years. To make consistent calculations throughout this report, we use the state data.

Chart 1
Common View of NM Food System
(Source: 2006 NM Agriculture Statistics)

Yr 2006
Receipts (\$1000)

Meat Animals	Cattles & Calves	\$905,138
	Sheep & Lamb	\$5,888
	Hogs & Pigs	\$279
Milk	Wholesale Milk	\$911,614
Poultry & Eggs	Poultry & Eggs	\$19,835
Misc. Livestock	Wool & Mohair	\$1,022
	Other Livestock	\$17,323
Food Grains	Wheat	\$19,029
Feed Crops	Hay	\$156,698
	Sorghum Grain	\$7,074
	Corn for Grain	\$17,472
	Corn for Silage	\$56,700
Cotton	Cotton Lint	\$34,595
	Cottonseed	\$5,022
Peanuts	Peanuts	\$8,856
Vegetables	Dry Beans	\$4,850
	Onions	\$45,936
	Potatoes	\$11,376
	Chili	\$41,705
	Misc. Vegetables	\$26,000
Fruits & Nuts	Pecans	\$85,100
	Other Fruits & Nuts	\$5,345
All Other Crops	Greenhouse Nursery	\$62,270
	Other Seeds	\$300
	Other Field Crops	\$14,100

\$2,463,527

Chart 2
New Mexican Expenditures on Food
(Source: U.S. Consumer Expenditure Survey)

	Consumption
Food at Home	
Cereal & Bakery Products	
Cereals & Cereal Products	\$98,583,528
Bakery Products	\$208,007,815
Meats, Poultry, Fish, Eggs	
Beef	\$156,282,388
Pork	\$107,068,834
Other Meats	\$71,240,626
Poultry	\$92,963,878
Fish & Seafoods	\$76,908,956
Eggs	\$22,888,597
Dairy Products	
Fresh Milk & Cream	\$101,924,778
Other Dairy Products	\$158,593,129
Fruits & Vegetables	
Fresh Fruits	\$124,276,381
Fresh Vegetables	\$119,655,732
Processed Fruits	\$73,065,965
Processed Vegetables	\$61,877,241
Other Food at Home	
Sugar & Other Sweets	\$81,548,464
Fats & Oils	\$59,100,367
Misc. Foods	\$417,113,443
Nonalcoholic Beverages	\$209,961,326
Food Prepared on Trips	\$26,709,174
Food Away from Home	\$1,764,911,070
Alcoholic Beverages	\$285,371,917
TOTAL	\$4,318,053,607

Chart 2 summarizes the expenditures of New Mexicans on food each year, according to the U.S. Consumer Expenditure Survey.⁷ Total in-state consumer spending in 2006 was \$4.3 billion: \$2.3 billion on foodstuff purchases; \$1.7 billion on eating out; and \$285 million on alcoholic beverages.

A very rough comparison between Charts 1 and 2 suggests that New Mexico produces relatively little “local food.” In fact, nearly all the major food items produced are for export. Taking this approach, the New Mexico Climate Change Advisory Group estimated that local food production accounted for only about 3% of New Mexican’s consumption. Many of these raw foodstuffs, even if they find their way into the mouths of New Mexicans, are processed out of state. When cattle reach about 6 months of age, for example, an estimated 95% of the cattle are exported to feed lots in Kansas, Colorado, and elsewhere.⁸

But raw foodstuffs turn out to be a relatively small part of New Mexico’s overall food system.

The Broader New Mexico Food System

Charts 1 and 2 contain significant gaps. The production data in Chart 1 do not include any value-adding activity: food manufacture, shipping, wholesaling, retailing, and restaurant selling. The consumption data in Chart 2 cover household consumption of most foodstuffs, but exclude certain expenditures (e.g., pet foods) and don’t cover government or intermediate business consumption. To truly account for all consumption and production – that is, the entire food system – a better approach is to deploy an input-output model, since the modelers go to great lengths to make sure the data are comprehensive and consistent. This report uses the IMPLAN input-output model and its 2006 database for New Mexico.⁹

Even with IMPLAN, however, the exact meaning of a “food system” can be debated. Consider, for a moment, what a very broad definition might encompass. A “food and fiber system,” inclusive of all naturally grown products, might include logging and wood products, like lumber, building materials, and paper. It might include textiles, clothing, and linens. It might include biofuels and biochemicals derived from plant matter grown in the state. It might include key input suppliers to the farm sector like fertilizer, livestock, and machinery. It might include financial sectors lending to food

⁷ The calculations are based on national data about consumer expenditures, broken down by income quintiles. Multiplying by the number of households in each quintile yields the expenditure in each category.

⁸ Louise Pape, Personal Communication, 21 May 2008. Pape was the key researcher on the agricultural chapter in the Advisory Group’s report.

⁹ Even though IMPLAN is the best tool for this kind of analysis, it’s not necessarily a very good tool. Professor Michael Patrick at New Mexico State University is currently trying to update and improve the IMPLAN multipliers in the state’s agricultural sector. As noted later, IMPLAN’s imperfections tend to *understate* opportunities for localization.

industries or reinvesting profits generated by them. It might include key food distribution sectors like warehousing and transportation.

Including all these sectors of the New Mexico “food and fiber” system would encompass 295,000 jobs—15% of the state’s employment. The economic output associated with this is over \$28 billion, nearly a quarter of all output in the state and more than ten times the output suggested by the raw foodstuff data in Chart 1.

For purposes of this study, however, we narrow the definition of a food system to include only the following items:¹⁰

- raw foodstuffs, including crops, produce, nuts, and meats;
- value-added *food* production using these raw foodstuffs; and
- other categories in IMPLAN linked *primarily* to food, such as food stores and restaurants.

This definition of the New Mexico food system, as shown by Charts 3a and 3b, encompasses half the businesses of the broader definition. The total number of jobs is 117,442 and annual output is \$9.9 billion. Significantly, the level of output in this formulation is still four times greater than the raw foodstuff framework presented by the state Department of Agriculture.

The Potential for Localization

The next step in our analysis is to calculate the localization potential in each of these sectors. One method is to compare the number of jobs in each economic sector in New Mexico with those in the United States as a whole. (While localization, in principle, could be calculated on the basis of the sales and receipts of food businesses in New Mexico, local data in these categories either do not exist or are not published.¹¹)

¹⁰ Among the categories deleted with this narrowing are tobacco and cotton farming, logging, nurseries, general merchandise stores (like Wal-Marts), and hotels. Because there are opportunities for creating jobs through localizing the food parts of these categories, this choice makes our job potential calculations more conservative.

¹¹ The use of jobs as the principal measurement for localization is driven by the limits of existing economic databases. The government does not tally consumer expenditures at the local (zip code or county) level. Nor does it publish data on receipts of companies in specific industrial sectors at the local level. The only local data available on companies in specific industrial sectors is jobs.

Chart 3-a¹²
Narrower Definition of the New Mexico Food System

Implan Sector	Industry	Actual NM Industry Output* (\$ Millions)	Actual NM Employment (FTE)
1	Oilseed farming	0	1
2	Grain farming	56	960
3	Vegetable and melon farming	135	878
4	Tree nut farming	120	1,036
5	Fruit farming	2	29
6	Greenhouse and nursery production	62	595
9	Sugarcane and sugar beet farming	0	0
10	All other crop farming	562	3,215
11	Cattle ranching and farming	1,944	16,253
12	Poultry and egg production	49	105
13	Animal production, except cattle and poultry	32	760
16	Fishing	0	0
17	Hunting and trapping	41	333
18	Agriculture and forestry support activities	152	5,408
46	Dog and cat food manufacturing	12	11
47	Other animal food manufacturing	92	129
48	Flour milling	13	18
49	Rice milling	0	0
50	Malt manufacturing	0	0
51	Wet corn milling	0	0
52	Soybean processing	0	0
53	Other oilseed processing	0	0
54	Fats and oils refining and blending	0	0
55	Breakfast cereal manufacturing	183	201
56	Sugar manufacturing	0	0
57	Confectionery manufacturing from cacao beans	2	3
58	Confectionery manufacturing from purchased chocola	36	125
59	Nonchocolate confectionery manufacturing	50	184

¹² Charts that run over onto two or more pages are denoted, after their number, by a, b, c, etc.

**Chart 3-b
Narrower Definition of the New` Mexico Food System**

Implan Sector	Industry	Actual NM Industry Output* (\$ Mill)	Actual NM Employment (FTE)
60	Frozen food manufacturing	133	496
61	Fruit and vegetable canning and drying	320	803
62	Fluid milk manufacturing	167	283
63	Creamery butter manufacturing	0	0
64	Cheese manufacturing	634	855
65	Dry- condensed- and evaporated dairy products	71	98
66	Ice cream and frozen dessert manufacturing	0	0
67	Animal- except poultry- slaughtering	18	48
68	Meat processed from carcasses	167	387
69	Rendering and meat byproduct processing	5	10
70	Poultry processing	1	7
71	Seafood product preparation and packaging	0	0
72	Frozen cakes and other pastries manufacturing	0	0
73	Bread and bakery product- except frozen- manufactu	69	510
74	Cookie and cracker manufacturing	16	50
75	Mixes and dough made from purchased flour	0	0
76	Dry pasta manufacturing	0	0
77	Tortilla manufacturing	69	497
78	Roasted nuts and peanut butter manufacturing	82	176
79	Other snack food manufacturing	0	0
80	Coffee and tea manufacturing	0	1
81	Flavoring syrup and concentrate manufacturing	0	0
82	Mayonnaise- dressing- and sauce manufacturing	0	0
83	Spice and extract manufacturing	128	319
84	All other food manufacturing	168	692
85	Soft drink and ice manufacturing	152	244
86	Breweries	51	107
87	Wineries	56	182
88	Distilleries	0	0
405	Food and beverage stores	804	13,593
481	Food services and drinking places	3,256	67,840
		9,910	117,442

Chart 4a
Focused View of NM Food System
Possible Localization Potential

Implan Sector	Industry	Actual NM Industry Output* (\$ Millions)	Actual NM Employment (FTE)	Expected NM Employment w/Self Reliance	Current Degree of Self-Reliance	Extra Jobs with 100% Self-Reliance	Extra Output (\$ Millions) with 100% Self Reliance
1	Oilseed farming	0	1	790	0%	789	41
2	Grain farming	56	960	1,748	55%	788	46
3	Vegetable and melon farming	135	878	775	113%	0	0
4	Tree nut farming	120	1,036	175	591%	0	0
5	Fruit farming	2	29	1,674	2%	1,645	140
6	Greenhouse and nursery production	62	595	1,653	36%	1,058	111
9	Sugarcane and sugar beet farming	0	0	361	0%	361	13
10	All other crop farming	562	3,215	913	352%	0	0
11	Cattle ranching and farming	1,944	16,253	4,871	334%	0	0
12	Poultry and egg production	49	105	605	17%	500	231
13	Animal production, except cattle and poultry	32	760	3,666	21%	2,906	121
16	Fishing	0	0	1,885	0%	1,885	71
17	Hunting and trapping	41	333	181	184%	0	0
18	Agriculture and forestry support activities	152	5,408	5,472	99%	64	2
46	Dog and cat food manufacturing	12	11	120	9%	109	123
47	Other animal food manufacturing	92	129	199	65%	70	50
48	Flour milling	13	18	82	22%	64	46
49	Rice milling	0	0	20	0%	20	12
50	Malt manufacturing	0	0	5	0%	5	5
51	Wet corn milling	0	0	41	0%	41	52
52	Soybean processing	0	0	63	0%	63	180
53	Other oilseed processing	0	0	21	0%	21	44
54	Fats and oils refining and blending	0	0	47	0%	47	63
55	Breakfast cereal manufacturing	183	201	83	241%	0	0
56	Sugar manufacturing	0	0	100	0%	100	59
57	Confectionery manufacturing from cacao beans	2	3	41	7%	38	20
58	Confectionery manufacturing from purchased chocola	36	125	262	48%	137	39
59	Nonchocolate confectionery manufacturing	50	184	173	107%	0	0

Chart 4b
Focused View of NM Food System
Possible Localization Potential

Implan Sector	Industry	Actual NM Industry Output* (\$ Mill)	Actual NM Employment (FTE)	Expected NM Employment w/Self Reliance	Current Degree of Self-Reliance	Extra Jobs with 100% Self-Reliance	Extra Output (\$ Millions) with 100% Self-Reliance
60	Frozen food manufacturing	133	496	602	82%	106	29
61	Fruit and vegetable canning and drying	320	803	628	128%	0	0
62	Fluid milk manufacturing	167	283	355	80%	72	43
63	Creamery butter manufacturing	0	0	20	0%	20	10
64	Cheese manufacturing	634	855	242	353%	0	0
65	Dry- condensed- and evaporated dairy products	71	98	86	114%	0	0
66	Ice cream and frozen dessert manufacturing	0	0	151	0%	151	74
67	Animal- except poultry- slaughtering	18	48	883	5%	835	306
68	Meat processed from carcasses	167	387	764	51%	377	162
69	Rendering and meat byproduct processing	5	10	70	14%	60	28
70	Poultry processing	1	7	1,547	0%	1,540	309
71	Seafood product preparation and packaging	0	0	315	0%	315	89
72	Frozen cakes and other pastries manufacturing	0	0	91	0%	91	15
73	Bread and bakery product- except frozen- manufactu	69	510	1,372	37%	862	117
74	Cookie and cracker manufacturing	16	50	195	26%	145	48
75	Mixes and dough made from purchased flour	0	0	114	0%	114	48
76	Dry pasta manufacturing	0	0	49	0%	49	20
77	Tortilla manufacturing	69	497	96	518%	0	0
78	Roasted nuts and peanut butter manufacturing	82	176	60	295%	0	0
79	Other snack food manufacturing	0	0	227	0%	227	133
80	Coffee and tea manufacturing	0	1	92	1%	91	25
81	Flavoring syrup and concentrate manufacturing	0	0	75	0%	75	66
82	Mayonnaise- dressing- and sauce manufacturing	0	0	86	0%	86	34
83	Spice and extract manufacturing	128	319	135	235%	0	0
84	All other food manufacturing	168	692	459	151%	0	0
85	Soft drink and ice manufacturing	152	244	717	34%	473	295
86	Breweries	51	107	202	53%	95	46
87	Wineries	56	182	331	55%	149	46
88	Distilleries	0	0	77	0%	77	88
405	Food and beverage stores	804	13,593	19,476	70%	5,883	348
481	Food services and drinking places	3,256	67,840	66,428	102%	0	0
		9,910	117,442	121,971		22,602	3,847

Because the U.S. economy is relatively self-reliant (about 16% of GDP goes to imports¹³) and because the buying patterns of American families are very similar from region to region across the country, a self-reliant state economy should have a job composition that does not differ much from the national average. A truly self-reliant region would have equivalent representation of all the types of business found in the United States. Whether this is possible, or desirable, given the economic goals and natural endowments of the state – a desert economy like New Mexico could not hope to have much of a fishing sector, for example – is another question that *then* must be asked.

Where the state has a proportionally larger economic sector than the U.S. average,¹⁴ it probably is exporting. Where the state has a proportionally smaller economic sector, it probably is importing. This method provides a good “first cut” on the potential for import substitution in each food sector.

Charts 4a and 4b calculate how many additional jobs are possible in each of the food sectors in IMPLAN were each sector in the state to achieve 100% self-reliance. The more actual jobs in a sector fall short of the expected number, the larger the number of additional jobs possible through local production. In a sector where the state is a net exporter, these calculations assume that the number of additional jobs possible is zero.

The bottom line for Charts 4a and 4b is that 22,602 extra jobs are possible with total localization of all the IMPLAN food sectors. These jobs would generate another \$3.85 billion of output for the state.

From Potential to Plausible Localization

Mainstream economists are skeptical about localization studies, arguing that what exists today is the natural result of supply and demand efficiently intersecting. An agricultural economist at New Mexico State University, for example, wrote us:

The basic premise of “localization” is that local demand is greater than local supply. Closing the local supply “gap” becomes an economic opportunity (more production, more jobs, more income, etc). Indeed, supply “gaps” may be economic opportunities. But how much so? The profile of New Mexico agriculture today is the result of economic reality. Supply and demand constraints determine what can be produced and sold profitably in the state. Supply-side constraints include resource availability (climate, land, water, labor force, and capital) and their costs. Demand-side constraints include population (how many consumers are there? where do they live- rural/urban density?) and per capita income (how much money do they have to spend?) and preferences (what do they

¹³ This percentage would be considerably lower were the United States attentive to its trade deficit, and certainly will be lower if, as seems likely, the value of the dollar shrinks. Over the past two generations, this percentage has varied between 10% and 21%: 20% in 1960; 21% in 1970; 11% in 1980; 11% in 1990; and 15% in 2000. U.S. Census Bureau, *Statistical Abstract*, 2001, Table 640.

¹⁴ We determined the “expected” jobs in each food sector by taking the national number of jobs, deducting any percentage attributable to foreign exports, and adjusting the number to the population of New Mexico.

want?). On the supply side, much of what New Mexicans consume today can't be produced in the state because of climate, land, and water issues. So local production is not a possibility. In some cases, by reorganizing New Mexico crop portfolio (producing less of one crop and more of another), it may not be technically feasible, and it may not be economically feasible because available resources become less productive (and therefore more expensive) under cropping change. On the demand side...the local population may not be large enough for economies of scale in production that will result in prices that consumers can afford.

This kind of views the market as the perfect express of efficiency. It assigns no weight to the impacts of public policies, laws, and subsidies that have decidedly tilted markets against local business.¹⁵ It assumes that consumers have perfect information, while in fact they turn out to be relatively uninformed about goods and services from local businesses that tend to advertise poorly. It further assumes that businesses themselves have perfect information about how to structure themselves efficiently, while in fact innovation diffuses more slowly with local businesses (how many small business proprietors can afford to attend summer programs at Harvard Business School?). Perhaps most significantly, this view is purely retrospective – what exists is all that's possible. Looking ahead one can see at least four factors that could shake apart the old system.

First, there is an emerging understanding that the existing food system actually contains significant inefficiencies. For example, the best estimates now are that for every dollar that a consumer pays for a foodstuff, only 7 cents goes to the farmer and about 73 cents for distribution, including advertising, packaging, refrigeration, intermediaries, insurance, and transportation. To the extent that localization facilitates greater word-of-mouth marketing, less packaging and refrigeration, and more direct delivery, it will shrink the biggest part of the cost of food and potentially allow a greater percentage of every food dollar to be paid to farmers. The Oklahoma Food Coop, for example, a no-frills internet-based food distribution company has reduced distribution costs to 18 cents on the dollar.¹⁶

Second, foreseeable global trends are likely to increase this inefficiency. One of the most volatile factors affecting food distribution costs (as well as fertilizer costs) is fuel. The rising price of oil is, of course, the main culprit. A typical food item has about three or four times more weight per dollar of value than, say, electronics, which means that food imports are more likely to be adversely effected by rising oil prices. Growing concerns about global climate disruption, and policy initiatives to internalize the costs of

¹⁵ A forthcoming study by the author of the three largest state economic development programs in fifteen states, including New Mexico, finds that 90 percent of these programs spend most of their money – often well over 90 percent – on attracting or retaining nonlocal business.

¹⁶ One commenter noted that Sysco's has reduced net distribution costs to 9%. This, however, is applicable only to distribution to food businesses and institutions. The 73% number refers to the total costs of distribution *to the consumer*. Institutional deliveries comprise just a small component of total distribution costs. They exclude, for example, the packaging that producers must add and the insurance they must take out, and they exclude all retail expenditures.

energy, will further accelerate fuel price hikes. As distribution costs rise, once uneconomic local enterprises will become feasible.

Third, even without these price hikes, consumer demand is shifting toward local food already. Two years ago *Time* magazine duly noted the trend when its cover said, “Forget Organic, Eat Local!” A growing factor influencing consumers’ food purchases is health, both the dangers from untrustworthy remote producers and the possible benefits (greater nutrition, freshness, and tastiness) from a trusted local provider. Scares over the past year about e-coli in hamburger or spinach and about salmonella in tomatoes have motivated even low-income shoppers to become more discriminating local shoppers. The proliferation of “Local First” campaigns worldwide, such as those in Santa Fe and Albuquerque, have motivated many consumers to buy local in the name of community and economic development. These consumers understand that a greater diversity and strength of local business is consistent with smart growth, a thriving creative economy, greater social equality, more tourism, and a healthier civic sector and democracy.

Fourth, local entrepreneurs are making huge strides in overcoming these inefficiencies through cutting-edge local business models. In fact, in every food category of the North American Industrial Classification System, there are more examples of successful small business than examples of successful large business. Economists tend to focus on the *average* scale of an enterprise in a given area of food production. What matters, instead, is finding the appropriate scale food enterprises for New Mexican eaters. And even in relatively centralized sectors, like poultry production, there are compelling examples of small-scale success that one can find throughout the United States. As pointed out in a recent study on *Community Food Enterprise* funded by the Kellogg and Gates Foundations, locally owned businesses are deploying more than a dozen strategies – such as low-cost technology, the internet, vertical integration, consumer ownership – to compete effectively against large-scale players.¹⁷ This point underscores that the most important constraints on food localization in the state are *not* economic factors like labor, capital, or technology.

Nevertheless, we do judge some of the potential as implausible because of natural resource constraints like land, water, and weather, and we adjust the number of additional jobs in each sector accordingly.

- *Sugar Cane & Beets* – The growing of sugar cane or beets, which might create 361 jobs, is regarded as implausible, because of the state’s climate.
- *Fishing* – Creating 1,885 fishing jobs in a desert is implausible, though we estimate that 10% of local demand (189 jobs) could be met through aquaculture.

¹⁷ See Michael Shuman et al., *Community Food Enterprises* (Wallace Center, December 2009).

- *Seafood Preparation* – Similarly, creating 315 jobs through seafood preparation is implausible, but meeting 10% of local demand through preparation of aquaculture fish is possible. That creates 32 jobs.

We also make two other adjustments that reflect Dreaming New Mexico’s vision of food localization:

- *Vegetables* – Chart 2 shows that New Mexicans spend \$124 million on fresh vegetables, but well over 90% of all vegetables grown in the state are exported. Expanding the vegetable sector by 90% to meet local demand, while continuing to produce for export, would create another 700 jobs.
- *Soft Drink & Ice* – In as much as localization also seeks to move diets away from sugar soda and bottled water – the dominant items in this category – we eliminate any job additions in this category.

These five adjustments are summarized in Tables 5a and 5b. They lower slightly the projected number of new jobs from food localization to 20,490.

Among the food system experts we consulted there was no consensus about how difficult it would be to achieve this shift. Some, like the economist quoted earlier, believe that any shift from today’s “market equilibrium” is unlikely. Others believe that the systemic changes occurring in the industry now (mentioned above), coupled with available land, labor, and capital and with increasingly competitive small-business models, could make significant localization possible. Clearly, all these factors deserve greater study.

Chart 5-a
Plausible Extra Jobs from Localization

Industry	Current Jobs	Extra Jobs w/ Total Self-Reliance	Revised Extra Jobs
Oilseed farming	1	789	789
Grain farming	960	788	788
Vegetable and melon farming	878	0	700
Tree nut farming	1,036	0	0
Fruit farming	29	1,645	1,645
Greenhouse and nursery production	595	1,058	1,058
Sugarcane and sugar beet farming	0	361	0
All other crop farming	3,215	0	0
Cattle ranching and farming	16,253	0	0
Poultry and egg production	105	500	500
Animal production, except cattle and poultry	760	2,906	2,906
Fishing	0	1,885	189
Hunting and trapping	333	0	0
Agriculture and forestry support activities	5,408	64	64
Dog and cat food manufacturing	11	109	109
Other animal food manufacturing	129	70	70
Flour milling	18	64	64
Rice milling	0	20	20
Malt manufacturing	0	5	5
Wet corn milling	0	41	41
Soybean processing	0	63	63
Other oilseed processing	0	21	21
Fats and oils refining and blending	0	47	47
Breakfast cereal manufacturing	201	0	0
Sugar manufacturing	0	100	100
Confectionery manufacturing from cacao beans	3	38	38
Confectionery manufacturing from purchased chocola	125	137	137
Nonchocolate confectionery manufacturing	184	0	0

**Chart 5-b
Plausible Extra Jobs from Localization**

Industry	Current Jobs	Extra Jobs w/ Total Self-Reliance	Revised Extra Jobs
Frozen food manufacturing	496	106	106
Fruit and vegetable canning and drying	803	0	0
Fluid milk manufacturing	283	72	72
Creamery butter manufacturing	0	20	20
Cheese manufacturing	855	0	0
Dry- condensed- and evaporated dairy products	98	0	0
Ice cream and frozen dessert manufacturing	0	151	151
Animal- except poultry- slaughtering	48	835	835
Meat processed from carcasses	387	377	377
Rendering and meat byproduct processing	10	60	60
Poultry processing	7	1,540	1,540
Seafood product preparation and packaging	0	315	32
Frozen cakes and other pastries manufacturing	0	91	91
Bread and bakery product- except frozen- manufactu	510	862	862
Cookie and cracker manufacturing	50	145	145
Mixes and dough made from purchased flour	0	114	114
Dry pasta manufacturing	0	49	49
Tortilla manufacturing	497	0	0
Roasted nuts and peanut butter manufacturing	176	0	0
Other snack food manufacturing	0	227	227
Coffee and tea manufacturing	1	91	91
Flavoring syrup and concentrate manufacturing	0	75	75
Mayonnaise- dressing- and sauce manufacturing	0	86	86
Spice and extract manufacturing	319	0	0
All other food manufacturing	692	0	0
Soft drink and ice manufacturing	244	473	0
Breweries	107	95	95
Wineries	182	149	149
Distilleries	0	77	77
Food and beverage stores	13,593	5,883	5,883
Food services and drinking places	67,840	0	0
	117,442	22,602	20,490

The Impact of Shifting Business Ownership

At this point, the reader may notice that IMPLAN counts all in-state jobs alike, irrespective of ownership. Yet some of the existing restaurant jobs are in chains, and some food manufacturing jobs are provided by global companies. This introduces another question concerning the meaning of “local.” To a growing number of Americans and New Mexicans, local requires a close proximity not only between producers and consumers, but also between producers and the majority of owners.

Chart 6, below, consolidates the actual employment data from Chart 4 into four broad sectors of the economy: agriculture, manufacturing, retail, and restaurants. Recently published data from the Edward Lowe Foundation (available in www.youreconomy.org) reveals ownership patterns within each of these sectors.¹⁸ Roughly 27% of all existing jobs in the food system are in nonlocal firms.

Chart 6
Local vs. Nonlocal Jobs Currently in the NM Food System

Food Sector	All Firms	In-State Firms	Nonlocal Firms
Agriculture	29,573	26,433	3,140
Food Manufacturing	6,436	3,383	3,053
Food Retailing	13,593	7,304	6,289
Restaurants & Accommodations	67,840	53,186	14,654
	117,442	90,305	27,137

Conversion of existing nonlocal food businesses into local food businesses would not add jobs to the state directly, but would do so indirectly, since local businesses tend to spend more of their money locally. No calculation of this impact, however, has been made.

¹⁸ The data are derived from Dun & Bradstreet, which compile data on every business operating in the state, including their sectors of activities, sales, jobs, and headquarters location. While it is possible to fine-tune these estimates for each six-digit NAICS category of food business, it would require purchase of the Dun & Bradstreet database for New Mexican businesses at a cost greater than the budget of this study.

Biggest Food Localization Opportunities

Charts 7 and 8 show the largest job-creating opportunities for localization, by jobs (Chart 7) and by output (Chart 8). The rankings for these two charts differ slightly, since each sector as a different level of labor intensiveness and different magnitude of economic multiplier. But both suggest six especially job-rich areas for local expansion that deserve special study. We elaborate them briefly:

(1) Grocery Stores

The single greatest opportunity, whether by jobs or output, is grocery stores. This finding has several explanations. Many New Mexicans simply are not getting adequate nutrition, because they lack purchasing power. Moreover, much of the state is a food desert, where finding good, nutritional, and affordable food is virtually impossible and residents turn, instead, to convenience and corner stores. One interviewee said that in the four corners section of the state, there is not a decent place to buy food for 50 miles. Finally, some of the food purchases by New Mexicans in remote areas are occurring at big, general merchandise stores like Wal-Mart (which is a separate category in the IMPLAN data and one in which the state has more per capita jobs than the national average).

Many experts interviewed concur that the best way, strategically and economically, to drive localization is through more food-distribution businesses. Simply converting commodity crops to diverse local food farms or creating local foodstuff manufacturers – a supply-side solution – can exert only a limited effect. But spreading local-food grocery stores to meet the growing demand for local food, and putting in place the overall distributional infrastructure for getting food there from local farms and factories, would send clear and motivating signals to producers. Existing farmers and producers would see the profitable opportunities by shifting to local food. New farmers and manufacturers might see important gaps to be filled.

(2) Meat Production

The second greatest opportunity, again by both jobs and output, is the production of meat beyond cattle. Neither hogs nor chickens are grown in the state in anything approaching the numbers consumed. A small number of goats are raised but exported to Texas and Mexico. A modest market for mutton among the Navajo is being developed. Other native tribes are custom processing bison. There have been processing operations in the state from time to time – Pollo Real processes small batches of broilers on the farm in Socorro – but all of these represent a tiny portion of statewide demand.

Some of the reasons for these gaps are understandable. The state's limited water supplies and weather are not ideal for raising hogs. Even though the state historically has had a world-class sectors producing lamb (e.g., Talus Wind Ranch) and wool (the Wool Growers Association is strong), some claim that predators impede expansion. Consolidation in the meat and packing industry has moved processing into a few high-

volume processing centers outside the state. But other factors are changing this calculus, such as rising oil prices and growing consumer distrust of commodity meats.

What's really needed to facilitate more in-state processing, however, is regulatory reform. Many interviewees complained bitterly about the USDA inspection systems for slaughtering facilities because it favors larger producers. Greater exemptions for intrastate meat producers, whether they are running processing plants and small mobile units, could be key. Lorentz Meats in Minnesota is an example of a successful small processing facility that has secured a USDA license for multispecies processing and developed a successful labor-intensive business that matches local producers and local consumers for quick, just-in-time processing.¹⁹

This is not a recommendation that the state embrace the large-scale CAFOs and meat-processing operations, many of which have terrible environmental and labor records. The “dream” here, in DNM’s vernacular, is to spread smaller scale methods like grass-fed beef, modest-sized farms raising poultry and growing feed, and middle-scale processing plants like Lorentz Meats—all of which can be locally owned. The key might be multi-product farms. Since they can contribute substantially to hog nutrition, can be a complementary enterprise to cheese production. Similarly, small-scale poultry works well as a pest reduction technique in vegetable production, or when the chickens follow behind cows on pasture. Creating in-state demand for and appropriate infrastructure for New Mexico branded beef and value-added dairy would help localize industries that now go almost exclusively for export.

(3) Targeted Farming

The rising cost of food shipping also opens new opportunities for the growing of a wide variety of fruits, vegetables, and grains in the state. As one interviewee noted, “This is what the land of the state is crying out to deliver.” Converting existing commodity farms to diversified local crops also opens economic opportunities for young farmers and for agro-tourism.

Historically, the state has had a much more diversified agriculture system than it does today. Growing carrots, for example, was once common and now isn’t. A number of farms in the state are demonstrating how to overcome the challenges of limited water and desert weather. Covering crops with specialized tarps, while labor intensive, can improve yields and growing speed while eliminating pests. The largest farming opportunity, at least from a job perspective, is growing fruit. Citrus and tropical fruits cannot be grown well in New Mexico, but many other kinds can be. Ron Walser has been introducing new fruits to the state at his farms in Alcalde and Los Lunas, and Don Bustos has made these fruits part of his diversified operations.

Seasonal variations impose important limits on potential localization of raw foodstuffs. Grain harvests are typically in the autumn, except winter wheat (June

¹⁹ Shuman et al., *supra* note 17.

harvest) and hay and alfalfa (May through October harvest). Most fruits and vegetables are harvested in the late summer and early autumn, except onions, which are harvested early in the summer. It is unrealistic for any localization program to bring fresh grains and produce to New Mexicans year round. Instead, consumers must be educated about how to eat and cook with in-season produce, and how to process these items for out-of-season eating and cooking.

But even these limitations may not be absolute in the southern part of the state. The OASIS project has demonstrated the viability of growing organics vegetables, flowers, and herbs there year round—not only for New Mexican markets but also for Juarez and El Paso.²⁰ Over time, a greater degree of localization of produce statewide is possible. Don Bustos, for example, is demonstrating the viability of solar-power greenhouses in Espanola. In more populated areas of the state, solar or biomass-fueled buildings or industries could share waste heat with adjacent greenhouses and hydroponics facilities.²¹

All these innovations will be speeded along by developing more local grocery stores selling New Mexican produce. A value-chain approach would aim to sharpen signals to farmers to shift into crops serving local demand by improving in-state processing, storage, and distribution infrastructure.

(4) Bread and Bakeries

New Mexico once had a robust baking sector, but this was outsourced to other states. Now that transportation prices are rising, the economics of reviving this sector are looking better. Even if the state cannot produce enough of its own grains, it's no more expensive to truck in outside grains than finished bread products. Certainly the state has a growing critical mass of talented chefs who are placing New Mexican taste signatures on world-class breads and pastries.

(5) Greenhouse and Nursery Production

Greenhouses, of course, not only can expand seasonal availability of produce but also of plants and shrubs. These flora ultimately serve multiple environmental purposes. They can reduce erosion, absorb carbon dioxide, replace wasteful lawns, bring down ambient temperatures of communities (and thereby shrink air conditioning loads), beautify and restore habitats, and improve the performance of farms. Care needs to be taken to use renewable energy sources for greenhouses, lest the carbon benefits be lost (or worse).

²⁰ See Constance L. Falk, Pauline Pao, Christopher S. Cramer, and Erin Silva, "OASIS: A Campus-based, Organic Community Supported Agriculture Farm," NMSU Research Report 760.

²¹ Aquaponics, which grow fish and plants together, is prohibited by the state's antiquated food-safety laws.

(6) Value-Added Manufacturing

Tables 4a and 4b reveal that even in the vast majority of food-manufacturing categories, there are opportunities for expanding production for local markets. Four categories would be particularly good job creators: soybean products like tofu and soy milk (derived from imports of soy beans); healthy snack foods; and dog and cat food. Again, as in the case of bakeries above, even if inputs like soy beans sometimes need to be imported, it will make increasing sense to import the raw material instead of the value-added products. This way the value-adding activity remains in state.

The economic rationales for global-scale manufacturing plants are collapsing with escalating energy prices. *It's worth noting that in almost every food manufacturing category in the United States, there are more examples of successful small business than large business.* The challenge for economic developers in the state, therefore, is to identify models of small-scale success and help bring them to the attention of existing food manufacturers or food entrepreneurs.

Chart 7
Focused View of NM Food System
Top Localization Opportunities (by Jobs)

Top Localization Opportunities	Extra Jobs with 100% Self-Reliance
Food and beverage stores	5,883
Animal production, except cattle and poultry	2,906
Fruit farming	1,645
Poultry processing	1,540
Greenhouse and nursery production	1,058
Bread and bakery product- except frozen- manufactu	862
Animal- except poultry- slaughtering	835
Oilseed farming	789
Grain farming	788
Vegetable and melon farming	700
Poultry and egg production	500
Meat processed from carcasses	377
Other snack food manufacturing	227
Fishing	189
Ice cream and frozen dessert manufacturing	151
Wineries	149
Cookie and cracker manufacturing	145
Confectionery manufacturing from purchased chocola	137
Mixes and dough made from purchased flour	114
Dog and cat food manufacturing	109
Frozen food manufacturing	106
Sugar manufacturing	100
Breweries	95
Coffee and tea manufacturing	91
Frozen cakes and other pastries manufacturing	91
Mayonnaise- dressing- and sauce manufacturing	86
Distilleries	77
Flavoring syrup and concentrate manufacturing	75
Fluid milk manufacturing	72
Other animal food manufacturing	70
Agriculture and forestry support activities	64
Flour milling	64
Soybean processing	63
Rendering and meat byproduct processing	60
Dry pasta manufacturing	49
Fats and oils refining and blending	47
Wet corn milling	41
Confectionery manufacturing from cacao beans	38
Seafood product preparation and packaging	32
Other oilseed processing	21
Rice milling	20
Creamery butter manufacturing	20
Malt manufacturing	5
Tree nut farming	0

20,490

Chart 8
Focused View of NM Food System
Top Localization Opportunities (by Output)
(\$ millions)

Top Localization Opportunities	w/Total Self-Reliance
Food and beverage stores	348
Poultry processing	309
Animal- except poultry- slaughtering	306
Poultry and egg production	231
Soybean processing	180
Meat processed from carcasses	162
Fruit farming	140
Other snack food manufacturing	133
Dog and cat food manufacturing	123
Animal production, except cattle and poultry	121
Bread and bakery product- except frozen- manufactu	117
Greenhouse and nursery production	111
Seafood product preparation and packaging	89
Distilleries	88
Forest nurseries & forest products	77
Ice cream and frozen dessert manufacturing	74
Fishing	71
Flavoring syrup and concentrate manufacturing	66
Fats and oils refining and blending	63
Sugar manufacturing	59
Wet corn milling	52
Other animal food manufacturing	50
Mixes and dough made from purchased flour	48
Cookie and cracker manufacturing	48
Other accommodations	47
Wineries	46
Grain farming	46
Breweries	46
Flour milling	46
Other oilseed processing	44
Fluid milk manufacturing	43
Oilseed farming	41
Confectionery manufacturing from purchased chocola	39
Mayonnaise- dressing- and sauce manufacturing	34
Frozen food manufacturing	29
Rendering and meat byproduct processing	28
Coffee and tea manufacturing	25
Confectionery manufacturing from cacao beans	20
Dry pasta manufacturing	20
Frozen cakes and other pastries manufacturing	15
Rice milling	12
Creamery butter manufacturing	10
Malt manufacturing	5
Agriculture and forestry support activities	2

3,664

II. Economic Benefits from Localization

What would be the economic benefits of locally substituting for New Mexico's biggest food imports? As noted earlier, the direct effects of 100% self reliance in food include nearly 21,000 new jobs and \$4 billion of additional output. These, however, are only the *direct* impacts.

With the IMPLAN model, we also can calculate the number of *indirect* jobs generated by the new local purchasing, and the number of *induced* jobs generated by the expenditures of the new employees (both direct and indirect). Chart 9 shows what the total results would be: \$5.5 billion in additional output, \$1.4 billion in additional earnings, \$175 million in additional business taxes, and more than 41,000 additional jobs.

Chart 9
Impacts of 100% Food Localization

	Direct	Indirect	Induced	Total
Output	\$3,109,494,228	\$1,527,398,415	\$860,901,412	\$5,497,794,055
Earnings	\$726,278,033	\$397,944,806	\$258,642,217	\$1,382,865,056
Business Taxes	\$65,079,325	\$57,468,214	\$52,540,051	\$175,087,590
Jobs	20,492	12,259	8,529	41,280

To put these numbers in perspective, consider that 100% food localization would expand the state's job base by 4%. It would provide more than one out of every two unemployed New Mexicans with a job (official unemployment in September 2009 was about 71,000). With additional business taxes, it could more than double the annual budget of state spending on "Agriculture, Energy, and Natural Resources."²²

Even if this effort falls short, the impacts of 50% food localization or 25% are profound, as shown in Chart 10. Simply tapping a quarter of the opportunity available would increase output by \$1.4 billion, earnings by \$345 million, state revenues by \$44 million, and jobs by over 10,000. It would be hard to point to any economic development program in the state, past or current, that has generated as many benefits.

Chart 10
Impacts of 25%, 50%, and 100% Food Localization

	25%	50%	100%
Output	\$1,374,448,514	\$2,748,897,028	\$5,497,794,055
Earnings	\$345,716,264	\$691,432,528	\$1,382,865,056
Business Taxes	\$43,771,898	\$87,543,795	\$175,087,590
Jobs	10,320	20,640	41,280

²² The smarter policy option, however, discussed later, would be to replace business taxes altogether with revenue-neutral carbon taxes.

These results probably understate the potential benefits from localization, for several reasons:

- First, as noted in the previous section, this study does not take into account the conversion of nonlocal businesses into local ones. IMPLAN itself does not account for distinctions in ownership; the multipliers of each sector represent the aggregate of all businesses, local and nonlocal. Were some chain businesses replaced by local ones – a likely eventuality if the state embraced a comprehensive plan for localization – the economic benefits would be much higher.
- Second, no effort has been made here to model the impacts of a growing population by 2020. A larger population will mean that, in absolute numbers, the benefits of localization will be proportionally larger as well.
- Third, the model has not been adjusted for the probable price increases of nonlocal foods. These rises, already front-page news over the past year worldwide, are likely to accelerate, as will the benefits of localization.

At the same time it's worth noting other factors that could reduce the benefits from localization:

- As various economic factors such as labor, land, and capital are increasingly put to use in the state, their factor prices will rise. This could lead to local pockets of inflation and reduced spending power for residents.
- Some economic factors, such as land and water, might simply be unavailable to achieve the levels of self-reliance sought with a larger state population. Even with a stable population diverting water to agriculture could harm communities and ecosystems.
- Increasing economic benefits envisioned here will likely attract more people to move into the state could bring down per capita income.

In the end, any economic projections over a generation or two are inherently uncertain. On balance, however, we believe that food localization, *if it can happen or be made to happen*, is likely to generate substantial economic benefits.

III. The Institutional Potential of Localization

Both a challenge and opportunity for food localization in New Mexico are the many institutions, both public and private, that buy foodstuffs in bulk. These entities tend to bypass retail stores and buy food direct from producers, shippers, or intermediaries like Sysco or Bon Appetit.

Chart 11 gives a sense of the size of institutional purchasing in New Mexico. Recall, from Chart 2, the calculation that New Mexicans households consume \$4.3 billion in food annually – about \$2.6 billion from stores and the rest eating out. Those data can be found under “household” expenditures.

Chart 11
Relative Role of Institutional Demand
 (Source, CEX 2005, ERS 2003, Authors Calculations)

		\$ Millions
Household	Store Bought Food	2,269
	Store Bought Alcohol	285
Commercial	Full Service Restaurants	1,173
	Limited Services Rest's	1,333
	Other Eating Places	54
	Drinking Establishments	16
	Lodging Places	136
	Retail Hosts	126
	Recreation & Ent'ment	101
	Schools	
	Elementary & Secondary	124
	Colleges & Universities	99
Institutions	Military	27
	Plants & Offices	49
	Hospitals	31
	Nursing Homes	63
	Vending	28
	Transportation	41
	Associations	11
	Correctional	60
	Daycare Ctrs	54
	Elderly Feeding	1
	Other	47

Commercial expenditures are significantly higher than just the eating-out expenditures of New Mexican households, since the former include tourists and business travelers. School purchases constitute 3.6% of total food consumption in the state, and all other institutions about 6.7%. The largest institutional purchasers, besides schools, are nursing homes, prisons, and daycare facilities. All together, about one in ten dollars spent on food in the state is an institutional purchase.

Only some of these institutions, however, are controlled by the state: namely, the schools, some colleges, the prisons, and of course state offices. The military is under federal control, and “other” institutions are run by private companies and nonprofits. School food is federally funded. Some of these, like hospitals and day care centers, are highly regulated by the state. Were the state to make a concerted effort to source its institutional food purchases in state, and use its regulatory powers to nudge other institutions in the same direction, it probably could shift about five percent of all food purchasing. Thanks to the work of Farm-to-Table, the Albuquerque cluster schools are receiving state money to purchase fresh local fruits and vegetables.

A five percent shift, while modest, could have enormous repercussions. It would send signals to businesses up and down the food chain to shift to local food. Local distributors would expand to meet institutional needs and start to think more seriously about direct delivery to households. Statewide distributors like Sysco would invest more in intrastate trucking. Food processors would expand operations in the state to take advantage of the new demand. And farmers would begin shifting crops for local sales.

Farm-to-school programs are particularly important, since they not only provide good nutrition to young people but also educate them about the state’s food system. Roughly two thirds of New Mexican children are eligible for subsidized school lunch programs and would experience changes in state-procurement policy. These changes are already in small ways in Albuquerque, Santa Fe, Taos, and other school districts, as well as at the University of New Mexico. But dramatic expansion is needed and possible.

The state could ramp up local food procurement by providing an across-the-board discount to all bids coming from local food providers. About two dozen cities across the country currently give bidding preferences, typically about 5%, to local vendors. The legality of these policies, however, is unclear, since most state, national, constitutional, and treaty (like the WTO and NAFTA) mandates on procurement outlaw discrimination in the bidding process, particularly if it disadvantages nonlocal bidders.

There is another, more legally sound way to frame local procurement. A state or local agency could insist that any bidder estimate the percentage of the contract that would be spent in New Mexico. Based on the submissions, officials could calculate the state internal multipliers and resulting tax collections, and adjust the bid downward. The greater the percentage spent locally, the greater the adjustment. The legal strength of this framework is that it is nondiscriminatory. Any firm, local or nonlocal, could get a bidding boost by committing to local expenditure.²³

²³ Moreover, unlike other preferences which arbitrarily (and some might say unfairly) award local firms a uniform percentage discount, this procedure actually calculates the real price of the contract to the jurisdiction. In this sense, an initial bid should only be considered the *nominal* price of a contract.

IV. The Greenhouse Gas Benefits from Localization

One benefit from localizing food is the reduced emission of greenhouse gases (GHG), since many foodstuffs are transported more than a thousand miles (some several thousand miles) before they reach a New Mexican consumer. Direct production and delivery would reduce the energy and emissions associated with “food miles.” Additionally, localization could lower GHG emissions by reducing packaging and refrigeration, by replacing grocery stores with low-overhead direct delivery, and by eliminating the unnecessary intermediaries in today’s centralized food system.

The New Mexico Climate Change Advisory Group provides useful data on potential GHG savings. Total carbon-dioxide emissions in state right now are roughly equivalent to 75 metric tons (MMtCO_{2e}) per year. (From here on, we’ll simply use the shorthand Mt for metric tons per year and MMt for million metric tons per year.) The “equivalent” takes into account the relative climate-disruption potential of various greenhouse gases. By 2020, emissions are expected to increase a fifth to 90 MMt.

Three segments of these emissions are linked closely with the food system. First, nearly 21 MMt is removed from the atmosphere each year because of the forests and other state ecosystems. Thus, improving land-use practices, such as farmers shifting to organic growing, can pull more carbon out of the atmosphere. Second, agriculture itself in the state is expected to generate 6.7 MMt in 2020, a third from the application of fertilizers and two thirds from methane emitted by the enteric fermentation in cattle. Finally, there are energy uses associated with freight – 7.9 MMt for diesel fuel for trucks and 2 MMt for jet fuel for all airplanes (cargo and passenger) – though only a small portion of these are linked to food.

The Advisory Group laid out a series of recommendations for eliminating nearly 40% of emissions by 2020. In the agriculture sector a 4.9 MMt reduction per year was deemed plausible through eleven initiatives, ranging from ethanol production to better forest management practices. Promoting “Local First” programs and raising local consumption of raw foodstuffs from 3% to 25% were estimated to result in a 1.1 MMt reduction per year. To put this in perspective, this would reduce carbon emissions in the state by about 1.2% in the base case, or 2% of the Advisory Group’s target case.

Whether a greater degree of localization could save even more carbon emissions is unclear. The entire science of counting and assessing carbon-equivalent emissions is fraught with uncertainty. Consider the contradictory conclusions of just three recent studies:

- A 2007 study at the University of Washington in Seattle found that a local plate with four food items – salmon, apples, asparagus, and potatoes – had about two thirds the total carbon emissions of an equivalent nonlocal plate.²⁴

²⁴ Daniel Morgan et al., University of Washington Program of the Environment, “Seattle Food System Enhancement Project: Greenhouse Gas Emissions Study” (monograph) (2007).

The heavy fuel use involved in salmon production, both local and nonlocal, dominated the overall equation. Remove the fish and transportation dominates -- 60% of the carbon emissions of an apple from New Zealand, 63% of the emissions from asparagus from Peru, and 58% of the emissions from a potato from Idaho.

- Another study completed in 2007 by two professors at Carnegie Mellon, looking at the total emissions of foodstuffs over its lifetime, found that transportation as a whole accounts for only 11% of the carbon emissions, and final delivery costs from producer to retailer only 4%.²⁵ They argue, "Shifting less than one day per week's worth of calories from red meat and dairy products to chicken, fish, eggs, or a vegetable-based diet achieves more GHG reduction than buying all locally sourced food." The strengths of the study include its attention to the impacts of farm equipment, fertilizers, and other supplies, as well as similar inputs of food manufacturers. A weakness, however, is that it reflects the relative impact of *existing* practices, many built around cheap oil and nonlocal inputs. Serious localization would reduce the embedded energy costs not only in food but in all nonfood inputs. Plus, even the study's own data suggest that food localization would result in modest reductions in GHG.
- A third study, published by a team of researchers in Belgium, suggest two other big factors can dominate the overall carbon emissions.²⁶ One is how someone shops. Taking an inefficient SUV on two or three special trips to the CSA or farmers market is enormously wasteful. So is the decision to consume any produce if it is out of season or if it comes from local greenhouses heated by fossil fuels. Shopping for in-season produce by bicycle, in contrast, is a carbon-minimizing home run.

A big problem that bedevils all these studies is that they assume that carbon emissions from international ocean shipping are relatively benign. A new study from the United Nations Intergovernmental Panel on Climate Change, however, suggests that the actual carbon emissions from ships is three times greater than previously estimated.²⁷ This would mean, for example, that the Carnegie Mellon study would show a greater percentage of carbon emissions linked with transportation and a greater advantage from localization.

Generalizations about carbon savings from food localization are therefore inherently unreliable. Still, some order-of-magnitude numbers are possible.

²⁵ Christopher L. Weber and H. Scott Matthews, "Food-Miles and the Relative Climate Impacts of Food Choices in the United States," *Environmental Science & Technology*, 42:10, pp. 3508-3513.

²⁶ Annelies Van Hawermeiren et al., "Energy Lifecycle Inputs in Food Systems: A Comparison of Local versus Mainstream Cases," *Journal of Environmental Policy & Planning*, 9:1, March 2007, pp. 31-51.

²⁷ John Vidal, "True Scale of CO2 Emissions from Shipping Revealed," *The Guardian*, 13 February 2008.

The Carnegie Mellon researchers estimated that food consumption by the typical household in the United States is 8.1 Mt. Given that there were 745,688 households in New Mexico (2006 data), the total carbon emissions associated with all food in the state would be 6 MMt. Under the Carnegie Mellon calculations, all transportation would amount to 0.7 MMt, and they would argue that only a small fraction of that could be saved through localization. If allowances are made for data uncertainties and for potential reductions of refrigeration and packaging through localization, then perhaps 1 MMt reduction might be achievable – about a quarter of the assessment of the New Mexico Climate Change Advisory Group.²⁸

The Carnegie Mellon analysis also suggests that the biggest contribution the food system in New Mexico could make to GHG reduction would be to phase out and replace its heavy dependence on export-oriented cattle and dairy products. These industries represent nearly 80 percent of agriculture in the state. It's important to note, however, that 'unilateral disarmament' cannot accomplish much. As long as demand for these products remains outside of New Mexico, simply moving these industries elsewhere will have no net impact on planetary carbon emissions. What's ultimately required are significant shifts in national and global eating habits that naturally lead producers to move into different food-growing practices.

To realize even the 1 MMt goal laid out here, localization initiatives should follow some of the following guidelines:

- Encourage residents to buy, cook, and eat seasonally available produce. (The ICAN Program at New Mexico State University does some of this already.)
- Introduce nonnative growing in greenhouses only if they are passively heated.
- Revamp *intrastate* hauling with vehicles fueled from locally available biomass, preferably using agriculture and forestry waste products as feed stocks for cellulosic conversion.
- Integrate localization efforts in different parts of the state so that consumers need less driving to reach food stores.
- Make it easier for people to bike and walk, through smart-growth measures for example, so that local food systems can reduce overall energy consumption.

²⁸ While the savings are the same, the Advisory Group considered only 25% food localization.

V. Obstacles and Next Steps

However challenging one views the goal of the state achieving 100% localization, it will be made more manageable through concerted action. Discussions with various stakeholders in the state suggested some of the following obstacles and initiative to overcome them.

- (1) *Farmer Resistance* – Farmers who have spent their lifetimes ranching, raising dairy cows, and growing commodity crops cannot easily shift to other local products. The typical farmer is nearly 60 years old and not eager to redesign his or her business, especially when change often requires new expensive equipment and new lines of credit to finance it. The state has a good agriculture extension program and other university-based programs that could be tapped to educate farmers about local food opportunities, but right now most of the state’s educational resources support existing, export-oriented agriculture.
 - *Recommendation:* Increase state investment in agriculture extension programs that promote local production for local markets.
- (2) *Farmer Shortage* – Some argue that expansion of local food systems in the state will require more farmers and ranchers, professions whose shrinking numbers and slim profit margins have deterred newcomers for more than a generation. While “ag schools” in the state were built to train farmers, today’s graduate is more likely to be an analyst or a professor. Anecdotal evidence suggests that agricultural production is expanding faster in New Mexicans’ backyards than their farms.
 - *Recommendation:* Revamp the state’s ag schools to train farmers in organic, sustainable, and four-year programs. The two-year programs should be beefed up to include technical skills like irrigation, tractor operation and maintenance, season-extension technologies, small-scale biofuel production, solar applications in agriculture, and other appropriate technologies.
 - *Recommendation:* Create incubators on land adjacent to the ag schools for new farmers to get started.
 - *Recommendation:* Set up a statewide fund, a homestead program of sorts, that can help provide new farmers purchase land.
 - *Recommendation:* Create better mentorship and internship programs for new farmers, especially young ones.
- (3) *Farm Inputs* – To the extent that localization requires increased farming, there will need to be greater supplies of various scarce inputs like land, water, and energy. (To the extent that existing export agriculture is converted to local

agriculture, the need for new inputs will be minimal.) Many state and local policies concerning these inputs are outdated.

- *Recommendation:* Reform land-use policies to promote more smart growth, fewer sprawling subdivisions, and more agricultural land.
 - *Recommendation:* Create a state-run land trusts into which residents, businesses, and others could donate or sell food growing rights on their own property.
 - *Recommendation:* Improve the state’s capacity to “bank” native seeds and to protect landraces from destruction by genetically-modified seeds.
 - *Recommendation:* Investigate diversified farm designs, such as Joel Salatin’s Polyface Farm in Virginia, that maximize recycling of water, energy, and nutrients.
 - *Recommendation:* Increase the price of water to reflect its true replacement cost, and use the funds gathered from higher prices to help farmers finance and implement water efficiency measures (mindful that seepage and some other “inefficiencies” actually can be environmentally beneficial). Stop transferring water rights from agriculture to sprawling residential and commercial development.
 - *Recommendation:* As is now done in Germany and elsewhere in Europe, require utilities to buy electricity from small power producers in long-term contracts, with prices set at the anticipated higher long-term cost of alternative supplies. The “feed-in tariff” concept goes beyond running a meter backwards and would actually pay small-power producers for net increases to grid capacity.
 - *Recommendation:* Develop a statewide education program to revive Native American and other low-water, low-energy growing methods.
- (4) *Value-Added:* The New Mexican Department of Agriculture currently sees its mandate as largely about growing raw foodstuffs and farming and developing markets for these producers out of state. This is too narrow. It should be reorganized as the Department of Agriculture and Food Security, and undertake some of the following actions:
- *Recommendation:* Help each county in the state identify specific food leakages and opportunities for localization. Promote more in-state food markets, hubs, cold storage, and distribution systems—beyond farmers markets and school purchasing programs.

- *Recommendation:* Convene meetings, conferences, and online networks to facilitate more awareness and joint planning among food producers, buyers, and distributors.
 - *Recommendation:* Focus on the creation of cooperatives, associations, holding companies, and other locally owned intermediaries that can help farmers and ranchers gather, sort, grade, process, and distribute their products. The intermediaries also should focus on getting farmers involved in wind and biomass energy production.
- (5) *Education:* The pockets of awareness about advantages of local food – taste, nutrition, health, economic, environmental – are still relatively modest, confined to residents with more income, education, and political awareness.
- *Recommendation:* Accompany any comprehensive statewide local-food procurement program (discussed above) with a primary and secondary education program about local food. Curricula should incorporate more information about food systems in the state, supplemented with field trips and hands-on experiences.
- (6) *Finance:* Expansion of existing farms and food businesses, and creation of new ones will require new capital. The supply of lending capital in the state has expanded over the past generation thanks to the Community Reinvestment Act and a variety of creative small-business loan programs. Equity capital for small businesses, however, remains in very short supply, even though the state leads the nation in making it inexpensive and easy for small businesses to raise capital from unaccredited (roughly 98% of New Mexicans are “unaccredited”) investors. A number of simple reforms could change this:
- *Recommendation:* Create a statewide electronic stock exchange to facilitate initial and secondary offerings of securities offered from small, local businesses in the state.
 - *Recommendation:* Provide New Mexicans with a 5-10% tax credit for every dollar invested in a local farm or food business in the state. (One effect will be to encourage mainstream investment advisors, brokers, dealers, and venture and hedge fund managers to invest in the legal work necessary to help their clients take advantage of this credit.)
 - *Recommendation:* Mandate that the State Investment Council, currently presiding over \$16 billion of funds (almost none invested locally), place 10 percent of the money in locally owned New Mexican businesses immediately, and expand this commitment by one percentage point per year.
 - *Recommendation:* Reform state investments laws to permit major institutions in the state – such as churches, pension funds, foundations, local governments,

cooperatives – to place up to 25% of their corpus in local businesses. (Such investments, for example, might be declared as presumptively meeting their fiduciary responsibilities.)

(7) *Taxes* – Like other states in the country, New Mexico has a crazy quilt of taxes on personal income, sales, property, visitors, and business assets that wind up infuriating residents, depressing economic activity, and enriching tax attorneys and accountants. The home-run reform that would stimulate food localization is to phase out all these taxes and replace them with green taxes on pollution and energy, perhaps with a small income or wealth tax to correct its regressive features.²⁹ A carbon-tax, for example, would increase the competitiveness of foods with minimal shipping, packaging, and refrigeration.

- *Recommendation:* Enact a modest carbon tax (as British Columbia recently did), sufficiently large to cut other taxes by 5% and pledge to make the tax revenue neutral, with a special emphasis on cutting taxes on small business. Expand in later years.

- *Recommendation:* Exempt from the carbon tax any fuel uses that are carbon neutral or better. This would facilitate the expansion of biomass, solar, and wind energy in the state.

(8) *Economic Development:* The vast majority of economic-development dollars in the state are pouring into large, nonlocal, export-oriented businesses (like the “space port” near Truth or Consequences)—exactly the opposite of the LOIS priorities that could generate the highest statewide benefits. These programs need to be overhauled.

- *Recommendation:* Create disclosure requirements, on all public authorities (including counties and municipalities), so that the state has an easily accessible inventory of every economic-dollar invested, which companies received them, whether they are locally owned, and what the job impacts were.

- *Recommendation:* To prevent deals that are foolish or corrupt, create a bidding process for any public business-support programs and help local businesses to apply. Discount bids from businesses that invest public dollars locally by deploying the same process outlined earlier for public procurement.

- *Recommendation:* Focus state economic-development money on assisting local food businesses in creating stronger “value chains” with in-state suppliers, shippers, purchasers, manufacturers, and other value-adding businesses.

²⁹ It is not at all clear, however, that a carbon tax would be any more regressive than existing sales and property taxes. Even business taxes are regressively skewed against small and medium size businesses that are ill-equipped to find and exploit loopholes.

- *Recommendation:* Integrate local food more comprehensively with other approaches of economic development, including promoting tourism, farmers markets, and the creative economy.

- *Recommendation:* Recognize that spiraling health-care costs are imposing one of the fastest growing (and nerve-wracking) burdens on the bottom line of farms, ranches, and small businesses. Devise statewide policies for managing and reducing health care costs as a critically important *economic-development* policy, and make the provision of healthy, nutritious, local food throughout the state a critical priority for improving public health.