



## **True Cost Pricing at Certified Farmers' Markets**

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## **Introduction:**

It is ten o'clock on a Saturday morning in Berkeley, California, and already hundreds of people have gathered together for the first hour of the farmers' market. Vendors are piling their final luscious stacks of carrots and peaches, the market manager is hauling signs and helping with last minute set up questions, and customers of every age and ethnicity are selecting produce and greeting their friends. This is a typical day at the farmers' market, to be repeated three times per week, rain or shine, fifty-one weeks of the year. If you look between the fruits and vegetables, you can observe a radical economic model at work. The model is "true cost pricing." If it were to be used throughout the global marketplace, it would have an incredible potential to drive our production and purchasing mechanisms toward sustainability.

True cost pricing looks at the upstream and downstream, positive and negative impacts of a product at each stage of its life cycle of production, transportation, distribution, retail, consumption, and waste absorption. It aims to reveal hidden costs, mostly in the form of negative impacts to the consumer, to the community surrounding the production of the good, and to the broader ecological commons. In our current economic system neither the consumer nor the producer pay for these externalities in the price tag for the product, but we must pay the price in other ways. In the production and consumption of industrial foods, for example, the price is paid in environmental cleanup, the cost of a war to maintain American access to petroleum, medical bills due to diet-related disease, the destruction of rural communities, etc. True cost pricing also looks at the positive effects of a product at each stage of its life cycle and counts these benefits as a reduction in true cost. Personal happiness, healthy ecosystems, and community security are among the benefits that contribute to the lower true cost of a good.

Using true cost pricing as an economic model drives systems toward sustainability: when the true costs of goods and services are reflected in the price, consumers are fully informed and fully accountable. Currently, consumers make cost-benefit analyses in their purchasing decisions without full knowledge of the costs, or necessarily the benefits. Given the power of knowledge, they will either choose to pay a high price for goods with a high true production cost because they consider those goods important or necessary for their quality of life, or they will choose to pay a lower price for goods with a lower true cost, out of frugality and/or a social value for lower negative impact production.

In this paper I explore true cost pricing as it plays out at Certified Farmers' Markets. Using the Berkeley Farmers' Markets as a case study, I argue that the food at farmers' markets has a very low true cost compared to food grown and sold in other systems. I focus on Berkeley because I am intimately involved with the Berkeley markets from three years as the Berkeley Farmers' Markets Operations Manager, and four prior years as a vendor for one of the farms selling at the markets. Also the Berkeley Farmers' Markets are also appropriately in the locality of the Sustainable Ventures headquarters.

The concept of true cost pricing is already part of the farmers' market dialogue, with a focus on reduction of cost, especially negative environmental costs, and increase in benefits, particularly in terms of personal health and community cheer (happiness). Farmers' markets are a "win-win" marketing system, where farmers receive a higher price for the goods they produce than they would in wholesale marketing strategies, and consumers receive a higher value item for the price they pay than they would at a grocery store. Farmers' markets present a convincing argument for the movement that advocates for the use of true cost pricing throughout the economic system.

## The Case Study:

The Berkeley Farmers' Markets serves as an excellent case study for many reasons. They are long lasting—in continuous operation for over 20 years—and therefore the visible trends at the markets are proven to be stable. The markets are in the urban Bay Area, where many other farmers' markets thrive, and thus the data for the Berkeley Markets is similar to that of a large number of farmers' markets. Like other Bay Area cities, Berkeley is strategically located at the cross-section of many of California's unique farming regions, and the markets bring together a large, diverse array of California's small farms. This allows for a comprehensive look at the playing field of the farming practices under discussion. The customers at the Berkeley Farmers' Markets represent a large cross-section of the Berkeley and East Bay population. The customers bring a broad, diverse base of qualitative values to the farmers' market, though they are probably more outspoken and strong-minded than farmers' market shoppers in general (it is Berkeley after all!).

The Berkeley Farmers' Markets has many unique qualities that lead to a low true cost of the food, even in comparison to other farmers' markets. These features will be explored in depth later in this paper.

### Background:

The Ecology Center, a multi-issue environmental organization in existence since 1969, has run the Berkeley Farmers' Markets since 1987. There are currently three farmers' markets per week in Berkeley: the Tuesday Market on Derby Street, in operation since 1987, the Saturday Market on Center street, in operation since 1989, and the Thursday Market on N. Shattuck Avenue, in operation since 2003. Collectively these markets are called "The Berkeley Farmers' Markets," and operate as one entity. Each of the markets runs year round, rain or shine, only closing for the holiday week at the end of December. Over ten thousand customers attend the markets weekly at peak season, with around 5,200 on Saturdays and 2,600 on each of the two weekday markets. Between 2006 and 2007 customer attendance rose by 20%, an astounding increase after several years of stable customer counts. The Berkeley Farmers' Markets currently has +/- 90 vendors, some that sell at all three markets, some that sell at two, and some that sell at only one market. At peak season the Tuesday Market has 45 vendors, the Saturday market 65 vendors, and the Thursday market 25 vendors. About 60 of the total vendors are farmers. The other vendors sell locally produced prepared foods, such as bread, pickles, hot lunch items, ice cream, etc. For the purposes of this paper, I will be looking only at the farmers, though the Ecology Center's strict sustainability requirements assure that the prepared food vendors also have a low true cost for their goods.

About 35 farmers attend the market year round, while the rest attend during the months of their productive harvest season. Due to California's excellent growing conditions and gentle climate, each season bears significant harvests and thus the market is able thrive year round. About 80% of the farmers selling at the Berkeley Farmers' Markets are Certified Organic to USDA standards by a third party certifying organization. The Berkeley Farmers' Markets carefully examine incoming applicants to the Markets to ensure they meet a standard of sustainability, whether or not they are Certified Organic. Many other vendors use organic or biodynamic<sup>1</sup> growing practices, but do not certify, due to cost prohibition, political protest of what many farmers view as watered-down organic standards, or the irrelevance of certification to maintain the trust and

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<sup>1</sup> A sustainable farming method founded by the anthroposophical thinker Rudolf Steiner.

business of regular customers. The farmers at the Thursday Market are 100% Certified Organic or in the process of becoming certified within the coming year.<sup>2</sup>

### **Section 1: Key Terms and Concepts:**

The following definitions provide background to the discussion of sustainable agriculture, farmers markets, and the Berkeley Farmers' Markets specifically.

#### **Sustainable:**

There is no consensus on the definition of this popular word. For the purposes of this paper, in specific reference to agriculture, it means: farming practices and processes that can be maintained indefinitely because they do not exhaust the very conditions on which they depend. Inherent to this definition is environmental stewardship, farm profitability, and social and economic equity. "Sustainable agriculture" is in contrast to "industrial agriculture," a term that for the purposes of this paper encompasses cultivation practices that require large industrial inputs, large machinery, and large acreage, at the cost of long-term viability of the people and places vital to the farming. I specifically avoid the term "conventional agriculture," as this industrial model has only been practiced for a little over 100 years. This is hardly conventional in compared to agriculture's 10,000-year history!

Agriculture is a complex human art, with a wide continuum of growing practices that can't easily be shoveled into two camps. In reality most farms use some practices that would be considered sustainable and some practices that wouldn't. A more detailed explanation of specific production practices in use by growers at the Berkeley Farmers' Markets is given in Section 2, and a discussion of specific Berkeley Farmers' Market policies on production is given in Section 4.

#### **Small-scale:**

At the Berkeley Farmers' Markets farms range in size from ½ acre to 300 acres, with only a few farms at each extreme of the spectrum. Typically, orchards have more acres under production than farms with ground crops. The farms growing strictly vegetables average up to 20 acres, whereas orchards average 40-100 acres (keep in mind that less than the total acreage is in crop production). The largest farms selling at the markets produce a mix of orchard fruit, ground crops, and livestock.

The majority of California farms actually fall within this same scale, but with a couple significant differences. Most farms don't grow diverse crops on their land (see discussion of production practices below). Also, because most farms sell wholesale to large, conglomerate companies, the produce seen at stores is mostly under a few labels. In the organic food market, the industry is dominated by a few large agribusinesses—Earthbound, Lakeside Organics, and CalOrganics—who practice large-scale industrial growing with organic inputs.

#### **Local:**

At the Berkeley Farmers' Markets, farms range from ½ mile from market site to 500 miles. The vast majority of farms are within 60-100 miles of Berkeley. Two farms, Brokaw Nursery with avocados and Flying Disc Ranch with dates, travel from Southern California. In the case of Flying Disc Ranch, traveling the farthest from Thermal, California, the farmer's employees live

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<sup>2</sup> The Thursday Market was among the nation's first 100% organic farmers' markets.

in the Bay Area and he brings up new product every few weeks for them to sell (dates aren't perishable like other farm products).

### **Subsidies and the Farm Bill:**

The federal government has granted agricultural subsidies for specific crops since the implementation of the first New Deal Farm Bill by Franklin D. Roosevelt's Administration in 1933.<sup>3</sup> Originally a brilliant solution to help bring American farmers out of the Great Depression, over the last 75 years the Farm Bill, renewed every five years, has done as much harm as good. It has bolstered unsustainable growing practices, encouraged the overproduction of crops that are used to produce unhealthy foods, and has had a profound negative effect on world agricultural trade and labor. Most Farm Bill funding subsidizes large-scale, industrial monoculture of twenty "commodity crops," particularly corn, soybeans, and cotton. As a result subsidized crops are overproduced and must find an outlet: thus the wide prevalence of unnaturally cheap, highly processed foods based on corn, soy, and cotton in the form high-fructose corn syrup and hydrogenated oils. The hidden cost of these foods—both the actual production cost without the government subsidies and the cost on consumers' health—are not accounted for.

In contrast to the subsidized commodity crops, the United States Department of Agriculture considers all fruits, vegetables, tree nuts, dried fruits, and nursery crops "specialty crops": basically the majority of foods found at farmers' markets and grown in California in general.<sup>4</sup> So while the market price of processed foods has remained unnaturally low, the true cost of growing healthy fruits and vegetables has risen over time.

The Farm Bill also funds agricultural research and technical assistance to farmers. Here organic farmers specifically suffer discrimination because the vast majority of the funding goes to industrial research and assistance, despite the fact that the organics is the fastest growing segment of the food market. Organic farmers also have to pay a 5% surcharge on the Farm Bill's Crop Insurance Program since organic farming is considered more "risky," and, in the case of crop loss, get reimbursed at (lower) industrial rather than (higher) organic prices.

At the time of writing, the final combined House and Senate 2007 Farm Bill is on the verge of being passed. Sustainable agriculture and food security activists, including the Ecology Center, rallied much energy around the 2007 Farm Bill, advocating for increasing funding for organic research, organic conversion support, and land conservation programs, as well as addressing the negative incentive to grow and process unhealthy foods. Activists also encouraged legislation to support agricultural workers and address world trade issues. Currently the Senate version of the Bill takes into account more pushes toward sustainability, though both versions show ample improvements over the 2002 Farm Bill. We shall soon see the final results.

The big elephant in the field, so to speak, is the government's subsidy of petroleum. This is not addressed by the Farm Bill, but is probably the biggest factor in the cost difference between sustainable, local food systems and industrial food systems. Industrial fertilizers and pesticides are made from petrochemicals: organic amendments are biologically derived (from plants, animal byproducts, and naturally occurring minerals). The unnaturally low price of petroleum means the industrial inputs cost as low as 1/10 their organic counterparts. Petroleum subsidies

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<sup>3</sup> See the Institute for Agriculture and Trade Policy's clear, concise discussion of the Farm Bill and issues at stake in the 2007 renewal at <http://www.agobservatory.org/library.cfm?refid=97623>.

<sup>4</sup> California does have large-scale rice and cotton production that benefit from the commodity subsidies.

also create an incentive to transport agricultural products all around the country and world with the added miles having little affect on the price tag of the food item.

Needless to say, the true cost of petroleum is paid through the lives of so many Iraqi citizens and American soldiers, environmental damage in Iraq, the threat to American national security that participation in the Iraq War entails, and the loss in other government services American suffer, due to copious spending on the War. Many other countries around the world are also adversely affected by American oil dependence.

### **California Code of Regulations Article 6.5 on Direct Marketing:**

The Direct Marketing Law, as Article 6.5 of the California Code of Regulations is called, was a groundbreaking legislative act passed in 1977 to establish the existence of farmers' markets.<sup>5</sup> It allows farmers to sell their produce directly to the public, and removes most of the weight, packaging, and labeling standards required of retailers. Direct marketing and the exemptions from standardization are crucial to the lower true cost of food being sold at farmers' markets, as will be explored in the sections on Processing, Transportation, and Retail below.<sup>6</sup>

### **Certified Farmers' Markets:**

A Certified Farmers' Market is a location authorized by a County Agricultural Commissioner where Certified Producers (see definition below) may sell their Agricultural Products under the guidance of the Direct Marketing Law. Technically, a Certified Farmers' Market only encompasses the area of the market where farmers sell. Prepared food vendors are not allowed to sell within a Certified Farmers' Market. Acknowledging the positive role locally prepared artisan foods plays in the vibrancy of a farmers' market economy, most Certified Farmers' Markets maintain an area adjacent to the Certified section for prepared food vendors. The Berkeley Farmers' Markets encompass both the Certified and adjacent non-Certified sections of the market.

### **Certified Producer's Certificate:**

The Direct Marketing law requires that every grower selling at a Certified Farmers' Market must acquire a Certified Producer's Certificate (CPC) from the Agriculture Department of the county or counties where the crops are produced. A farmer holding a CPC is a Certified Producer. An agricultural inspector examines the farm and lists on the CPC all the crops a farmer produces, along with approximate quantities and harvest time. The CPC is a crucial regulation in the farmers' market model, as it guarantees that the crops coming to market are indeed grown by the farmer selling them. The requirement of a CPC cuts out middlemen from selling at farmers' markets, and thus contributes to the low true cost of the food found at markets.

### **Farmers' Market Governance:**

The California Direct Marketing Law requires that Certified Farmers' Markets be governed by a group of farmers, a non-profit organization, or a local government. In practice most farmers'

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<sup>5</sup> See [www.cafarmersmarkets.com/legislation](http://www.cafarmersmarkets.com/legislation) to read the complete California State Laws that govern farmers' markets, specifically the applicable sections of the California Code of Regulations and the Food and Agriculture Code.

<sup>6</sup> On-the-farm produce stands are also governed by the Direct Marketing Law. Community Supported Agriculture projects also rely on the exemptions offered by the Direct Marketing Law, though incidentally, there is no official approval of CSAs anywhere on the legal books, and the California Department of Agriculture doesn't consider them legal. As the CSA movement grows, it will be interesting to see how the state limits this unique retail distribution system.

markets are run by non-profits, as is the case of the Berkeley Farmers' Markets. The Berkeley markets are unusual in that they are run by a multi-issue environmental organization. Most markets are run by farmers' market associations that run multiple markets across a region. In the Bay Area three main farmers' market associations run the majority of the markets, with the largest, Pacific Coast Farmers' Market Association, managing more the 40 markets in multiple cities. The Ecology Center's broader environmental focus is the backbone that supports many unique features of the Berkeley Farmers' Markets, contributing to the lower true cost of the food being sold at the markets. This is explored in Section 4.

## **Section 2:**

### **The Life Cycle Analysis of Food at the Berkeley Farmers' Markets: Quantitative Costs**

The Life Cycle Assessment Model suggests that we can divide the costs of food at farmers markets into the life cycle stages of production, processing, transport, retail, and waste absorption systems.<sup>7</sup> At each stage the costs are profoundly lower for sustainable farms selling at farmers markets than at industrial farms selling in other economic systems. We could quantitatively measure the costs of sustainable vs. industrial farming, and direct-marketing vs. retail distribution. This paper does not attempt to measure the quantitative costs, but rather discusses in broad terms the significant details at each stage of the life cycle of food at farmers markets. An actual life cycle assessment could be undertaken to put numeric values on these concepts.

#### **Production:**

For a food item to have a low true cost, its production cannot charge high costs to communities surrounding its production site, to the communities supplying the inputs for its production, or to future communities that are affected by a farm's actions today. Sustainable farming aims to neutralize each of these potential costs. Fundamental to all sustainable production practices is utilizing a systems approach to farming. Rather than looking at farming as a series of inputs to create maximum outputs, sustainable farmers view the farm as a living ecosystem, one that exists within an ever-expanding circles of larger ecosystems. These systems require innovative and integrated practices to maintain their health and productivity. The terms organic, alternative, natural, biodynamic, biointensive, and permaculture have all been applied to sustainable farming practices. Each of these terms represents specific methods and/or philosophies.

"Organic" is the most widely recognized of these terms. In 2002 the United States Department of Agriculture adopted specific standards to which all farmers must be third-party certified in order to use the term organic. Ongoing debate rages as to whether the federal standards are true to the spirit of "organic," and to what extent the creation of a national "bottom line" has co-opted the core beliefs of the sustainable agriculture movement. Both the Ecology Center and many individual farmers at the Berkeley Farmers' Markets are constantly pushing both the public and the government to maintain high and comprehensive organic standards.

No two farms at the Berkeley Farmers' Markets have the exact same production practices, which indicates another fundamental element of sustainable agriculture: to create and support systems that are specific to a farm's particular configuration of environmental, social, and economic conditions. That said, the following components are essential to the sustainable farming

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<sup>7</sup> We will look at the consumption aspect of this life cycle under the discussion of "qualitative values" for consumers in Section 3.

strategies employed in some individual manner by each of the farms selling at the Berkeley Farmers' Markets.

**Biodiversity:**

Most of the vendors selling at the Berkeley Farmers' Markets run mixed production farms, with anywhere from 20 to 300 different crops for sale throughout the year. In a monoculture system, where large acreage of the same crop is grown year after year, the soil becomes easily depleted of the specific nutrients the crop needs and the farm is a tasty attractant to pests that infest that particular crop. In contrast, biodiversity contributes to a healthy, balanced farm ecosystem. Farmers who rotate crops, companion plant, and grow nitrogen-fixing cover crops enrich their soil, suppress weeds, and protect against pests. Some farms also integrate animals—commonly poultry, livestock, or bees—into their farm system. Not all the farms sell the direct products of these animals at the farmers' markets, but the animals' contributions of manure, mowing, and pollination benefit the farm economically.

Planting diverse crops also creates economic resiliency, in that if a single crop fails one year due to particular weather or pest issues, the farm's entire income doesn't plummet. Income is therefore also less dependent on price fluctuations or popularity of a specific crop.

Even for the few farmers at the Berkeley Farmers' Markets that produce a single cash crop, the principle of diversity informs their farming practices. At Sierra Cascade Blueberry Farm, for example, the farmers plant surrounding trees and allow other plants to flourish under the blueberry bushes. These additional plants create an ecosystem for pollinators and beneficial predators to thrive.

**Water, Air, Soil:**

In the view of farm-as-ecosystem, the water, air, and soil are considered as important as the cash crops. Sustainable farmers conserve water by planting appropriate crops for their growing conditions, using efficient watering systems, and capturing and storing rain water in innovative ways. Additionally they are conscious of the quality of water exiting their farms and don't contaminate it with chemical fertilizers and pesticides. Sustainable farmers protect their health, and the health of their families, workers, and surrounding communities by minimizing the dust and chemical particles they contribute to the air through use of cover crops, low tillage, and natural fertilizers and pest control. Toxic runoff and low air quality are serious issues facing the communities surrounding industrial farms, whether or not these communities consume the products grown on the farms. These "externalities" are not accounted for in the price consumers pay for the products of industrial farms.

It is commonly said among sustainable farmers that if you want to grow good crops you have to grow good soil. They make great efforts to allow soil to maintain its own complex structure and micro-ecosystem: minimal tillage and allowing weeds to grow—thus holding the soil in place—are two such efforts. Sustainable farmers also feed the soil by adding compost and trace minerals, planting nitrogen-fixing cover crops, and avoiding the "junk food" of chemical fertilizers. The focus on feeding soil is where a lot of the expense of sustainable farming lies. As mentioned earlier, the price of petroleum-derived chemical fertilizer is a fraction of the price of organic nutrients. Additionally, planting cover crops means that not all one's fields are in production of a cash crop at all times. An industrial farmer will pump fields full of fertilizer to keep them in continuous production, leading to a higher short term yield, and thus lower price. The long term and hidden costs are of course much higher, including topsoil depletion and erosion. In stark contrast, sustainable farmers consistently report that their topsoil increases over their years of farming.

**Genetically Modified Organisms (GMOs):**

Sustainable farms do not grow genetically modified organisms. In fact, to become Certified Organic a farmer is not allowed to use any GM seeds. GMOs have a high cost for several reasons. Private companies own the patent on GM seeds, literally taking our ability to produce food out of the public's hands. Once they have been introduced to a field, GMOs have unforeseen and unpredictable repercussions on the surrounding ecology, potentially wreaking havoc on other crops and wild plants. GMOs also haven't been proven safe for human consumption. In fact, many have caused allergies in laboratory tests. By choosing not to use genetically modified seeds, sustainable farmers exercise the moral and economic belief that without proof otherwise, it is better not to do something that has potentially irreversible harmful consequences.<sup>8</sup>

**Scale:**

As mentioned earlier, the farms selling at the Berkeley Farmers' Markets range in size from ½ to 300 acres, with most well under 60 acres in production. The benefits of small-scale farming—including location-specific farming practices, local job creation, and ecosystem diversity—contribute to the low true cost of production. In our skewed economy, smaller farms, particularly with diverse crops, have higher expenses than large industrial farms because they do not benefit from the economy of scale. A 1000-acre farm growing a single crop can buy inputs in bulk, invest in labor saving equipment, and streamline harvest methods. However if you account for the hidden costs of this industrial model, small scale-farming comes out having a lower true cost.

**Energy and Inputs:**

Agriculture accounts for 20% of the petroleum usage in the United States (including food processing and transport).<sup>9</sup> Though most small farms have tractors and other petroleum dependent tools, and many have refrigerated storage units and electricity-dependent processing facilities, the energy input on sustainable farms is much lower than on industrial farms. Sustainable farms do not use natural gas and petroleum-derived chemical fertilizers or pesticides. In encouraging diverse plant life within orchards and fields, a farmer uses a tractor fewer times each season. Additionally, many of the farms at the Berkeley Farmers' Market have on-farm energy generation systems. For example Carl Risato of Woodleaf Farm generates all his electricity with solar panels in his orchards. Greg Massa of Massa Organics Rice Farm built his energy efficient straw bale house out of his own waste material. Happy Boy Farms grow and process their own biodiesel.

**Labor:**

The farms at the Berkeley Farmers' Markets have a variety of labor schemes, from the smallest farms operated by one farmer, to all labor being provided by the family, to hired seasonal or year round workers, to the farms providing educational and room/board trades for intern laborers. Farm labor is historically the worse paid segment of the working population. A truly sustainable farm pays close attention to providing right livelihood to farm workers, knowing that a living wage is necessary to continue the system into perpetuity. Though I do not have statistics of the average wages of laborers working for the farms at the Berkeley Farmers' Market as compared to other farm workers, many of the farms make specific statements about the labor issue. Swanton Berry Farm, for example, was the first unionized organic farm in the country. Annabelle Linderhink of La Tercera Farm has a written statement at her market booth saying that she pays her workers far beyond industry average. Blue Heron Farm also makes a statement about the

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<sup>8</sup> This belief is called "The Precautionary Principle."

<sup>9</sup> Pollan, Michael. *The Omnivore's Dilemma*. New York: The Penguin Press, 2006, p. 183.

importance of their farm workers. In general organic farms require higher levels of human labor than industrial farms because they do not use herbicides to kill weeds. The absence of toxic chemicals means organic farms are healthier work environments than industrial farms.

### **Processing:**

According to author Michael Pollan, only 20% of the energy used to make food is in the growing: the bulk is spent in the processing and transport of items once they leave the farm.<sup>10</sup> Here the farmers' market model offers a solution to radically reduce the other 80% of energy expenditure.

The California Direct Marketing Law cuts the true cost of goods sold farmers' markets in two ways: by exempting weight, size, and packaging standards, and by limiting how much farm items may be processed. By allowing farms to sell the full spectrum of their crop in one place—rather than, for example, one size of a specific weight apple as “number ones” and everything else as juice grade or unsellable—farmers save a tremendous amount of time in sorting their produce, and also greatly reduce the amount of edible produce that is wasted. (This factors into the lower cost of waste as well.)

The Direct Marketing Law allows farmers to only minimally process their produce to make “value-added” items. The law specifies that farms can sell their agricultural products that have gone through the simple processes of drying, grinding, roasting, smoking, salting, pickling, fermenting, or pasteurizing, or made into jams with only the addition of sugar. For minimally processed foods, the equipment needed to support the processing—whether done on-farm or in a nearby facility—is low-input compared to highly processed foods. If one was to do a true cost analysis for each individual item added in the processing of products for sale at farmers' markets and added it to the true cost of the original item, the cost only goes up minimally. Compare this to an analysis of the energy intensive process behind highly processed foods—with the cost of growing, transporting, refining, and combining multiple ingredients. By purchasing minimally processed products at the farmers' market compared to the highly processed products at most grocery stores and restaurants, consumers acquire products with a significantly lower true cost.

Another value of minimally processed foods is their healthful qualities. Whole foods contain more nutrition than refined foods, and in forms that our bodies recognize from thousands of years of co-evolution. Two of most expensive and deadly diseases in the United States—heart disease and diabetes—are directly linked to consuming a diet high in chemically altered, low-nutrient processed food. If medical expenses and reduction in quality of life were accounted for in the pricing of foods, foods at the farmers' market would clearly be cheaper.

### **Transportation:**

There is an oft-quoted statistic that the average American meal has traveled 2500 miles from farm to table.<sup>11</sup> If one were to prepare a meal of foods purchased strictly from the Berkeley Farmers' Markets, the number of miles would be cut to around 100!<sup>12</sup> When food is passed from the hands

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<sup>10</sup> Pollan, Michael. *The Omnivore's Dilemma*. New York: The Penguin Press, 2006, p. 183. See Sections 1 and 2, specifically Chapter 9 on “Big Organic.”

<sup>11</sup> See [www.worldwatch.org/node/1749](http://www.worldwatch.org/node/1749).

<sup>12</sup> Due to the huge variety of goods available at the market, this meal can easily be made: every component—from protein, to grain, to vegetable, to fat—can be found in multiple variations at the market.

of the farmer to the hands of the consumer, miles and miles of transportation costs are cut from the equation. Farmers directly sell their produce in a region that is reasonably close to the farm, to consumers that are reasonably close to the location of purchase. It wouldn't be cost effective for farmers to drive to sell their produce in regions more than a few hours from their farms, nor would it make economic and temporal sense for a consumer to shop far from her/his own community. Alternately, when farmers sell produce wholesale, they bring it to a distribution center that is within a cost effective distance of their farms, but the produce may travel from there to locations all across the state, country, or world. In the case of large retail chains such as Whole Foods, even if the produce ends up being sold at a store in relatively close proximity to the farmer, it will have traveled to a central distribution center and come back to the region, rather than staying there in the first place!

### **Retail:**

In a direct marketing system both the distributor and retail store are eliminated from the marketing scheme. This indicates a significant reduction in cost, because each time a product is transferred to a new outlet costs are accrued in infrastructure, human labor, and profit markup. In a direct marketing system almost the whole dollar amount spent on the product goes to the farmer—minus small amounts to the farmers' market association and in the cost of obtaining a Certified Producers' Certificate—thus encouraging the grower to continue practicing sustainable agriculture, which is the basis of the whole low true cost system.

The farmers' market association handles the retail costs of running the market, paid for through weekly stall fees collected from the vendors. The association pays for an agricultural permit for the market site, a health permit, and whatever rental and traffic permits are required for the market location.<sup>13</sup> The association's main cost is in staffing. Other costs include promotion and equipment. As far as retail outlets go, a farmers' market has very low infrastructure costs. An outside, temporary market does not require electricity for lighting and refrigeration. (For the four winter months vendors use rechargeable lamps to light up the last couple hours of the weekday evening markets.) The cost of a few canvas tents, transportable signage, barricades, and road closure cones is minuscule compared to construction, lease, and upkeep of a building. A farmers' market association must maintain an office space, but even that is minimal compared to the amenities of a retail food store. In the case of the Berkeley Farmers' Markets, office space is shared with other Ecology Center programs in low impact building in the final stages of becoming a "Certified Green Business."<sup>14</sup>

### **Waste:**

Inherent to the definition of sustainable is a responsibility for the waste by-products a farm creates. Wastewater toxicity is a dire issue facing American agriculture, yet the cost is hidden in the industrial agriculture model. Pesticide drift and fertilizer run-off from industrial farms poisons many watersheds, leading to numerous health problems in the surrounding communities, regardless of whether these communities are directly consuming the farms' products. Farms using organic growing practices simply don't create high levels of toxic output.

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<sup>13</sup> These vary from market to market: the Ecology Center pays a nominal yearly rental fee for weekly use of three city blocks. Because the City of Berkeley views the farmers' market as economically and socially beneficial to the city, they do not charge high rental fees.

<sup>14</sup> See [www.greenbiz.ca.gov](http://www.greenbiz.ca.gov).

On sustainable farms plant material leftover from crop production is typically cycled on the farm into compost piles. This not only creates new fertility for the farm in the form of organic humus, it eliminates the need to carry materials off the farm, thus cutting down on transportation costs. In addition, soil doesn't become waste on sustainable farms, as it tragically does on industrial farms. Their use of compost, careful assessment of trace minerals, and crop rotation methods build the soil and keeps it on the farm.

The Ecology Center takes several unique measures to assure that the farmers' market itself properly loops its waste back into production. Leftover food at the markets is picked up by Food Not Bombs, a social justice food security organization that cooks daily meals for homeless people in Berkeley. The Ecology Center provides recycling and compost bins for consumers to use for waste generated at market. The City of Berkeley itself offers curbside compost pickup for residents to recycle their food scraps. Many Berkeley residents do their own backyard composting. For those that use the City service, the food scraps are turned into compost and then distributed for civic use.

The Ecology Center is currently researching and piloting a complete "zero-waste" conversion of the Berkeley Farmers' Markets. The goal is to have no waste from the market end up in the landfill. Not only will all food waste be recycled, plastic bags and utensils will be eliminated from the market. The markets currently have reusable bag exchange stations and several vendors are testing the use of compostable nonGMO cornstarch bags and utensils. Eliminating the hidden costs of waste greatly adds to the low true cost of the food sold at them market. Becoming a truly zero-waste market is a complex long term project that the Ecology Center is undertaking with diligence.

### **Cost Into Price:**

The discussion of the quantitative costs at each stage of the life cycle of food sold at the Berkeley Farmers' Markets shows that there are very few costs left uncounted in this sustainable system. With low harmful externalities on the environment, labor, and non-consumers in the surrounding area or areas where inputs are produced, we can say that the costs at each life cycle step are close to the "true cost." Therefore the farmer can tally these costs and put a price tag on the food that reflects the true cost.

It is no secret that food at the farmers' market costs more to consumers than food at a typical grocery store. If the true cost of the food is lower, why is the price higher? The reasons are explained in the production practices described above and are summarized as follows:

- **Economy of scale:** Smaller farms cannot buy inputs in bulk nor utilize large-scale labor saving machinery.
- **Labor:** Sustainable, diverse farms require more human labor. Instead of artificially low-cost pesticides, weeding is performed by humans. Harvesting diverse crops requires more attention and crop-specific skills and cannot all be done by machine.
- **Cost of inputs and seeds:** Natural inputs cost up to ten times more than petroleum-based chemical inputs because the petroleum industry is so heavily subsidized. For all the same reasons that organic farms have higher expenses, organic seeds cost more.

- **Building the soil with cover crops:** Using cover crops rather than chemical fertilizer to build soil fertility requires leaving the field out of production of a cash crop for several months.
- **Cost of certification:** Organic certification is an expensive and time-consuming process that must be repeated annually.

### **Section 3:**

#### **Consumers at the Farmers' Market:**

##### **The Qualitative Values**

We now turn to the Berkeley Farmers' Markets consumers and analyze why they are interested in purchasing food at the farmers' market. The farmers' market involves many costs that could deter customers: the prices are higher than at a typical grocery store; the markets only run three days a week for a few hours each day, and may not be close to a customer's home; and the selection is limited to what is locally in season. For farmers' market customers the market's benefits far outweigh these substantial costs. Here we must consider the "nonmarket" or "qualitative" values of food at the farmers' market. Farmers' market consumers have a high Willingness To Pay (WTP) for the values they believe in. Their WTP is built on the essential belief that the pricing is honest and that the transaction reflects their values. Shoppers trust that farmers are charging a fair price to account for their production costs.

It is harder to measure the quantitative costs and benefits of the values consumers bring to the farmers' market, but we can identify them. Customers have both personal and political reasons for shopping at the farmers' market. These reasons include:

##### **Health and Nutrition:**

Farmer' market consumers believe that sustainably produced food is better for their personal health because it does not have chemical additives, contains no genetically modified organisms, and is minimally processed. There is evidence that pesticide build up in the body is linked to cancers, hormone disruption, and other illnesses. The adverse health effects of GMOs are still under investigation but include allergies. Highly processed food is associated with numerous diseases, including diabetes, high blood pressure, heart disease, and cancers.

Not only is sustainably produced food free of harmful additives, it has the added benefit of higher nutrient content. Produce grown in nutrient-rich soil is nutrient-rich itself. Organic foods have higher trace mineral content than industrially produced foods. Food at the farmers' market is also much fresher than food found in grocery stores, regardless of growing practices. Produce at the market is typically harvested the day before or morning of the market: that is less than 24 hours from field to consumer. At a grocery store, produce is waylaid in transport, distribution, and stocking. The nutrition content of produce steadily deteriorates as soon as it is cut from the plant. The sooner it gets into the consumer's mouth, the more nutritious it is.

Customers are also concerned with the health of the farmer, laborers, farm family, and community surrounding the farm. Each of these groups are adversely affected by chemical pesticide and fertilizer use and GMOs. By choosing sustainably produced food, consumers express their interest in the larger community's health as well.

**Taste:**

Food at the farmers' market just taste better. Freshness is essential to good taste. Farmers can harvest produce, especially soft fruits, at their peak of flavor because they do not have to worry about the hazards and delay of the transport and distribution system. The Berkeley Farmers' Markets is also full of unusual and heirloom varieties that taste better but are typically not grown commercially because of their unstandard sizes or inability to transport well. In addition, the produce displays at the farmers market are sensuous and inviting. Since taste starts with the eyes, it is no wonder that beautiful, fresh, unusual food is more delicious!

**Happiness:**

Perhaps the hardest of all values to measure, personal happiness plays a huge role in many consumers' choice to shop at the farmers' market. The Berkeley Farmers' Markets is one of the city's premier community gathering spaces, rich in social capital. It is a place where you see your friends and neighbors, get to be outside in the sunshine, hear music, and shop in a leisurely atmosphere. Customers thoroughly enjoy the farmers' market as a festive social event. Furthermore, they treasure the direct connection to the farmers who grow their food. Many of the same farmers and customers have been attending the Berkeley Farmers' Market for the length of its twenty-year history. The customers experience deep satisfaction in knowing exactly where and who their food comes from. Food is not only a source of sustenance: it is tied into friendship with the grower, the personal story of the farm, and a fun weekly interchange. Customers consider the farmers' market to be integral to their quality of life; the City of Berkeley website boasts the farmers' market as one of the top reasons for living in Berkeley.

**Education:**

The farmers' market is a learning environment. Customers learn about new varieties of produce, growing practices, seasonality, and cooking methods. The growers offer information to customers through their booth signage and one-to-one conversations. Customers also interchange with each other. Dozens of local high-end chefs and caterers shop at the market and share their knowledge through Ecology Center facilitated demonstrations and personal interchanges with customers. The Ecology Center also offers a wealth of information through personal dialog with customers and printed fact sheets. The Ecology Center provides information not only on food and farming but a diverse array of other environmental and social issues. Customers value the education that comes with their food and many make a point to bring their children to the market to participate in this learning process. Families invest the future by facilitating the passing on of agricultural knowledge to their children.

**Trust and Security:**

In a global economy it is very difficult for customers to obtain honest and accurate information about the products they consume. As "organic" becomes more mainstream and mimics the industrial model of production, distribution, and retail, consumers lose faith in the word's meaning. Furthermore, the United States does not require labeling for genetically modified foods. In contrast, customers trust the food at the Berkeley Farmers' Markets. They talk to farmers' directly week after week and ask them about their growing practices. Customers also trust the Ecology Center, with its forty-year history as Berkeley's prominent environmental organization, to provide the highest level of integrity at the market. The Ecology Center publishes Farm Fact Sheets for each grower to display at her/his booth that describe in detail the farmer's growing practices, any certifications, growing season, soil type, water source, number of workers, and distance from the Berkeley Farmers' Markets. Each fact sheet also provides a statement by the farmer and a photograph. Farmers' markets provide a high level of "labeling": the label "Certified Farmers' Market" is a guarantee that the produce is grown by the farmers selling it; "Certified Organic" is a label of certain growing practices. But the best labeling is the

free flow of information and trust established by the Ecology Center, and the long-term exchange between vendors and customers.

**Participation In a Local Economy:**

Customers value spending their money regionally. Supporting local farmers and small businesses keeps dollars in the local area, which benefits everyone living in that region. Evidence that the system works is seen in the following anecdote: Didar Singh of Guru Ram Das Orchards has been selling at the Berkeley Farmers' Markets for over fifteen years. He recently purchased a new pickup truck, in cash, at Berkeley Toyota. He told me that since most of his income comes from Berkeley shoppers, he wanted to support a Berkeley business with his large purchase.

**Voting With Your Fork:**

Berkeley Farmers' Markets customers view their consumer choices as politically powerful in a capitalist economy. While citizens can make a certain amount of change through the electoral process, where they spend—and don't spend—their money has a strong effect on the political system. Customers express their social and environmental values through shopping at the market. These values include: protesting the global economy with its unfair labor practices and unsustainable dependence on petroleum (and thus protesting the wars that the United States government is fighting for control of its oil supplies); protesting governmental food and farming policies that hurt farmers and consumers alike; supporting agricultural practices that don't have harmful environmental externalities; and supporting the vitality of rural communities and agricultural knowledge.

**Food Security:**

As the fossil fuel infrastructure behind the global economy deteriorates and tensions build between world governments, many customers view the vitality of local farmers as essential for the future security of our nation's food supply. Integral to protecting local food production is assuring the preservation of regional agricultural knowledge. Customers do not want to be heavily dependent on foreign food and foreign inputs used in the production of domestic food. September 11, 2001, catalyzed the federal government into funding research on how to protect the nation's food supply against a terrorist attack, including the threat of contamination of imported food. What better protection than to create thriving local food economies?

**Eating Seasonally and Locally:**

By committing to shop at the farmers market, consumers are choosing to sacrifice the volume of product choices available in other retail markets, mainly supermarkets. They give up both the variety of choices available and the convenience of a particular item's year-round availability, regardless of local season. The choice to eat seasonally and locally is a top value for many consumers at the market. They see the benefits—connecting with their local food system, living “in-touch” with the earth's cycles, supporting a local economy—as far outweighing the costs of lost choice and convenience. These costs are much lower for Berkeley Farmers' Markets customers than a customer in almost any other part of the country, as Northern California's diversity of farmers and mild growing conditions allows for a high level of choice of products available year round. Though both vendor and customer attendance drops noticeably in the winter months—vendors due to lack of available product and customers due to lowering of product choice and inconvenience of outdoor shopping in the cold, rainy season—a solid majority of shoppers continue to patronize the market year round, reflecting their Willingness To Pay for seasonal and local produce.

### **True Cost Pricing:**

In conclusion, whether they have heard the phrase “true cost pricing” or not, most farmers’ market consumers beliefs reflect an interest in true cost issues. They want to purchase food without hidden externalities. Each of the qualitative values they express as their reasons for shopping at the market—be it environmental, health related, community oriented, or politically driven—speak of the fact that they value the low true cost of the food they buy, even as they pay a relatively high price for it.

### **Section 4:**

#### **The Uniquely Low True Cost of Food at the Berkeley Farmers’ Markets**

The Ecology Center’s mission is to promote practices that are environmentally sound and socially just through programs and projects that educate, demonstrate, provide direct service, and affect policy change. The Ecology Center is unique among farmers’ market associations in that it is multi-issue, broad based organization working in five major areas of urban environmental impact: Food and Farming, Waste and Consumerism, Water Quality and Water Conservation, Energy and Energy Conservation, and Transportation and Alternative Fuels. Therefore the Berkeley Farmers’ Markets really work to address a whole matrix of issues simultaneously and holistically through on the ground, practical efforts, and by joining in coalition to support policy and advocacy work.

The Berkeley Farmers’ Markets have a Community Advisory Committee made up of dedicated customers and vendors that advises the staff on policies and directions for the farmers’ market. The Committee is deeply invested in the market being a low true cost environment. The Committee’s efforts help the Ecology Center frame and enact their innovative practices.

As the Ecology Center staff explained in a speech at a the November 2007 Berkeley Farmers’ Markets 20<sup>th</sup> Anniversary Dinner, “Our markets offer lots of information and resources for customers, bringing the knowledge and resources of the whole Ecology Center out to market where we help folks with issues from turnips to transit, cherries to climate action and apples to ants and recycling to rutabagas. Other markets just do not have this.”<sup>15</sup> This dispersal of information enables customers to make informed decisions about their purchasing choices.

The Berkeley Farmers’ Markets are truly farmer focused. A higher percentage of the vendors are farmers than at most farmers’ markets. As the Ecology Center staff says, “Many other markets are used for tourism and business district development, whereby the farmers selling produce become iconic sideshows to arts and crafts and prepared food vendors.”<sup>16</sup> In addition, the farmers at the Berkeley Farmers’ Markets stay in the market for many years. Farmer longevity adds to a lower true cost of food, in that the market provides long-term economic viability to a farm using sustainable growing practices, which also contributes to the health of rural communities. Farmer longevity also contributes to the sense of community, and long-term friendships add value to the product for consumers.

The Ecology Center’s support for sustainable agriculture is evident not only in the choice of farmers present in the market, but in specific incentives and regulations. Certified Organic

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<sup>15</sup> Speech by Martin Bourque, Kirk Lumpkin, Rosalie Z. Fanshel, Ben Feldman, Joy Moore, Geraldo Marin, and Tiffany Golden at the Berkeley Farmers’ Markets 20<sup>th</sup> Anniversary Celebration Dinner, November 2, 2007.

<sup>16</sup> Ibid.

farmers pay lower stall fees than non-certified farmers. When the Pesticide Action Network was campaigning to ban the ultra-toxic fumigant methyl bromide in 1996, the Ecology Center decided to ban it from the farmers' markets, feeling that rather than just signing a letter of support it was important to have an on-the-ground demonstration that farmers can have highly successful businesses without this horrible poison. In 2000 they also became the nation's first farmers' market to ban Genetically Modified Organisms. The Ecology Center puts serious, active effort into enforcing this ban, educating both vendors and consumers on the insidious presence of hidden GMOs.<sup>17</sup>

One of the latest hot topics in the sustainable agriculture movement is meat and dairy production. Over the past several years the Community Advisory Committee has worked to figure out how to incorporate fish and meats into the markets in a way that is consistent with the Ecology Center's environmental goals. Since the organic standards for meats do not address issues of land stewardship and the humane treatment of animals, the Berkeley Farmers' Markets are forging their own path. Knowing that industrial meat production, even if done with organic grain, is a horrible and unacceptable industry, they seek wild caught seafoods, and open pasture and free range meats raised on traditional diets without hormones and antibiotics. This year they are entering formal language into their policies to govern the sale of meats at the markets.

The Ecology Center has also been a leader on the social justice side of the sustainable agriculture movement. In looking at the true cost of food, it is essential to consider the societal costs of unequal access to healthy food. In 2002 when food stamps changed from paper to a debit card called the Electronic Benefits Transfer (EBT), it became very difficult for farmers' markets to take food stamps without each vendor having a credit card terminal. The Berkeley Farmers' Markets took the initiative to purchase the wireless terminal and pioneered a system of in-market wooden currency so each vendor could continue to accept food stamps. They were the first market in the country to invent this system and now they have an Ecology Center staff position that helps other markets across California make EBT accessible.

The Berkeley Farmers' Markets vendors are a truly diverse lot: among 90 vendors 35 languages are spoken. The Ecology Center prioritizes diversity and specifically supports farms that were started by farm workers transitioning to farm owners.

In the late 1990's the first Berkeley Health Status Report came out showing dramatic disparities in many diet-related health indicators in the community based on race and class distinctions. From low birth weight and child onset diabetes to heart disease and hypertension, the Latino and African American communities live significantly shorter lives and suffer the personal, social, and intergenerational costs of preventable disease tied to poor diet. The Ecology Center decided to address these issues. They launched Farm Fresh Choice, a food justice program dedicated to addressing health issues by overcoming historical barriers in the food system. They found that four major barriers had to be overcome to reach the families suffering most: cost, location, cultural relevance, and choice.

In order to overcome some of these barriers, Farm Fresh Choice partners with four after-school programs attended by children of low-income families. Farm Fresh Choice established produce stands at the after-school centers, where they sell at-cost food purchased from culturally

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<sup>17</sup> See [www.ecologycenter.org/bfm/gmo-free\\_zone.html](http://www.ecologycenter.org/bfm/gmo-free_zone.html) for a full article by Rosalie Z. Fanshel on the implications of the GMO ban at the Berkeley Farmers' Markets.

appropriate farmers at the Tuesday Farmers' Market. These produce stands are run by young people who receive significant training and mentorship, and thus become strong community advocates of healthy food choices.

The Ecology Center has gone on to advise and support the development of numerous other markets and produce stands aimed at overcoming food access disparities, including the Kaiser Markets, People's Grocery mobile market, Spiral Gardens' produce stand and the Local, a new produce stand on the UC Berkeley campus.

From creating specific environmental policies to addressing food security issues, the Ecology Center focuses on the complex whole of the sustainability question. This has a profound positive impact on the true cost of foods sold at the Berkeley Farmers' Markets. The Ecology Center sets a high bar for the farmers' market movement that other farmers' market associations can look to for inspiration. The Berkeley Farmers' Markets serves as a working model of an economy based in true cost pricing.

## **Appendix:**

### **Statistics on National, State, and Regional Farmers' Markets**

- In 2006 there were 4385 farmers' markets nationally. This represents an 18.32% increase since 2004. (A census is undergone every two years.)<sup>18</sup>
- By latest count there are 488 Certified Farmers' Markets in California.<sup>19</sup>
- By latest count the Bay Area has 82 Certified Farmers' Markets.<sup>20</sup>

### **Quick Statistics on the Berkeley Farmers' Markets:**

- There are 90 vendors at the Berkeley Farmers' Markets, about 60 of which are farmers.
- At peak season the Tuesday Market has 45 vendors and 2600 customers.
- At peak season the Thursday Market has 25 vendors and 2600 customers.
- At peak season the Saturday Market has 65 vendors and 5200 customers.
- Customer attendance, measured by a count held every June, increased 20% between 2006 and 2007.
- 80% of the farmers are Certified Organic, with 100% of the Thursday Market's farmers being certified. (The Ecology Center also requires Prepared Food Vendors to use ingredients that are 80% organic and/or purchased from the farmers' market. Five of the Prepared Food Vendors are Certified Organic businesses.)
- The majority of the farms selling at the Berkeley Farmers' Markets are located 60-100 miles from Berkeley. The closest farm is in Berkeley, at ½ mile from the market, and the farthest is around 500 miles.
- Four of the current Berkeley Farmers' Market farmers have been with the market since the very beginning, 12 more have been in the markets 15-20 years, 14 for 10-15 years, 12 for 5-10 years, and 16 joined the markets in the last 5 years. The Thursday Market started in 2003, allowing for a total increase in number of farmers at the markets.

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<sup>18</sup> See the United States Department of Agriculture Marketing Service: [www.ams.usda.gov/farmersmarkets/FarmersMarketGrowth.htm](http://www.ams.usda.gov/farmersmarkets/FarmersMarketGrowth.htm). Note that not all states have a Direct Marketing Law and the concept of Certified Farmers' Markets. Therefore this statistic does not guarantee that all items sold at the farmers' markets are grown by the vendor selling them.

<sup>19</sup> See the California Federation of Certified Farmers' Markets: [www.cafarmersmarkets.com/findMarkets](http://www.cafarmersmarkets.com/findMarkets)

<sup>20</sup> Ibid.