

Why Is It Difficult To Say Whether Relative Prices Have Changed?

Price comparisons for foods at different times would be meaningful and the issue of whether healthy and unhealthy food prices have diverged would be easily resolved if the foods being priced remained the same. Significant changes have occurred in the quality of foods sold (Davis and Stewart, 2003; Variyam, 2005).² New attributes are constantly being added to foods sold at retail, so many foods are not the same product from one year to the next.

Consumers have more choices throughout the store. This is true for foods for which dieticians and nutritionists usually urge moderation, such as calorie-dense desserts and snack foods, as well as for foods usually recognized as healthy, such as fresh fruits and vegetables. Kaufman and others (2000) note that through the 1980s and 1990s, produce departments expanded in size. Produce departments took over larger shares of grocery store space, even as supermarkets became larger to accommodate additional departments such as service meat and seafood, prepared foods, and deli items. From 1987-97, produce departments nearly doubled the number of items sold (stockkeeping units), "...primarily to meet consumers' demands for added convenience, healthy diets, and gourmet and ethnic items." (p. 3)

Fruit and vegetable products that have only recently been offered for sale may be more expensive because they contain more value-added services. In fact, value added through transportation, processing, wholesaling, and retailing has grown to account for about three-fourths of the retail price of fruits and vegetables, on average, compared with about two-thirds in the early 1980s (Stewart, 2006). These services serve two purposes: increased convenience and variety.

Changing Produce Quality: Fruits and Vegetables Are More Convenient to Eat

Grocery store freezer cases increasingly contain partially or nearly prepared foods. Many grocery stores offer completely prepared foods to take away and some have added restaurants. In effect, retailers are selling items better described as meals than as foods. They are bundling foods with kitchen work the consumer would otherwise have to do.

Many newer fresh fruit and vegetable products have grown in popularity and now account for a significant portion of what households spend on produce. Table 1 shows expenditure shares for three types of vegetables that are partially or fully prepared. Partially or fully prepared spinach (such as washed and bagged spinach products), for example, accounted for 65 percent of what households spent at supermarkets and other retail foodstores for fresh spinach in 2003. Only 35 percent of consumers' expenditures on fresh spinach went to traditional, bunch spinach in 2003. Similarly, florets, crowns, chips, and other cut products accounted for 52 percent of spending on broccoli. And, finally, baby carrots, sticks, and other types of peeled and cut carrots accounted for 69 percent of households' expenditures for fresh

²Annual new food product introductions ranged from 9,000-17,000 from 1990-2000 (Harris, 2002).

Table 1

New products account for a significant share of household expenditures for fresh produce¹

Vegetable	Partially or fully prepared products' share of total spending
Broccoli ²	52%
Carrots ³	69%
Spinach ⁴	65%

¹The panel is a sample of 8,833 U.S. households that reported all of their grocery purchases at retail stores, including a detailed product description and quantity purchased.

²Total broccoli expenditures include spending for traditional heads as well for florets, crowns, chips, and other cut products. Excluded are products mixed with other vegetables like carrots and cauliflower. Thus, the expenditure share is underestimated.

³Total carrot expenditures include spending for the traditional product—unpeeled carrots with tops—as well as spending for baby carrots, peeled carrots, and shredded carrots. Excluded are cut carrots mixed with other vegetables like broccoli and cauliflower. Thus, the expenditure share is underestimated.

⁴To estimate the percentage, we first calculated the ratio of spending on traditional, bunch spinach with stems to total spinach spending. We then subtracted this ratio from one. Total spinach expenditures include spending for the traditional product—bunch spinach with stems—as well as for newer, more convenient products like bagged and washed leaf spinach. Excluded from the calculations are leaf spinach products mixed with other vegetables in a bagged salad. Thus, the expenditure share is underestimated.

Source: Calculated from Nielsen Homescan panel, 2003.

carrots. Mass marketing of these partially or fully prepared products began in the early 1990s. Clearly, many Americans purchase (and can afford) fresh products that require less cutting, chopping, peeling, and washing than traditional products.

Prices of partially prepared or ready-to-eat vegetables may be more expensive than unprepared vegetables. The price difference can be as large as the value consumers assign to what would otherwise be their own kitchen work. The added cost of washing, peeling, chopping, cutting, mixing, and bagging is incurred by marketers and, presumably, passed on to consumers in the form of higher prices. It is also possible that costs for these services might rise at a different rate than costs for the underlying agricultural commodity. For example, if processing costs and other marketing services have risen faster than farm prices, it would follow that retail prices may rise faster for value-added food than for more traditional (less value-added) fruits and vegetables.

It would not be very informative to compare the average price of carrots in 1980 with current average prices because 69 percent of current expenditures are for carrots that include washing, chopping, and peeling services. On average, the old and the new product are distinctly different.

Changing Produce Quality: Fruits and Vegetables Come in Greater Year-Round Variety

Although less abrupt than the 1990s introduction of bagged fresh vegetables, the variety of fruits and vegetables available to consumers has been increasing. Fruit and vegetable choices have increased as seasons disappear from retail grocery stores. Fruit and vegetable production is seasonal, but

plant breeders have long sought to breed varieties that yield crops that can be marketed early when supplies are typically short and prices high. Their successes are incremental but numerous. Improvements in storage technology have also made it possible to extend marketing seasons, as inventories can be carried longer. Improvements in transportation technology have made it possible to move produce from where it is in season, domestically or overseas, to where it is not.

Table 2 shows monthly U.S. city average retail prices for strawberries (dollars per dry pint deflated by the Consumer Price Index for all urban consumers, CPI-U). As also noted by Alston, Sumner, and Vosti (2006), in the early 1980s, BLS surveyors found strawberries often enough to report prices for 3-5 months during the spring each year. Presumably, outside spring months, sellers could supply strawberries only at prices above what consumers were willing and able to pay. In recent years, prices were reported all 12 months. Having strawberries available 12 months a year rather than just 3 months is clearly a quality improvement. Expanding access to strawberries during seasons other than spring means nonspring prices have fallen from levels few could afford to prices that many willingly pay. Other fruits and vegetables have undergone the same transformation. Strawberries are one of the more recent to do so. Such increases in access diversify consumers' diets.

Table 2

Average monthly retail prices for strawberries—U.S. city average (\$1982-84)¹

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1980				0.806	0.743	0.798						
1981			1.001	0.774	0.709	0.768	0.841					
1982			1.075	0.963	0.762	0.802	0.795					
1983				0.738	0.714	0.756	0.864					
1984			0.889	0.643	0.627	0.752	0.794	0.902				
1985			0.955	0.757	0.602	0.719	0.847					
1986			0.585	0.734	0.659	0.767	0.821	0.985				
1987				0.831	0.729	0.841	0.941	0.899				
1988			1.014	0.592	0.782	0.794	0.894	0.816	1.015			
1989			0.996	0.785	0.671	0.850	0.898	0.791	0.870			
1990		1.280	1.040	0.860	0.604	0.760	0.740	0.821	0.912			
1991		1.088	0.939	0.822	0.720	0.679	0.696	0.704	0.739	0.753		
1992		1.032	0.842	0.688	0.595	0.748	0.703	0.841	1.042	0.839		
1993		1.025	0.877	0.631	0.606	0.738	0.702	0.738	0.793	0.865		
1994		0.898	0.857	0.617	0.666	0.707	0.731	0.744	0.809	0.860		
1995		1.276	0.885	0.659	0.749	0.774	0.793	0.914	0.884	0.856		
1996	1.096	0.972	0.794	0.692	0.611	0.782	0.794	0.740	0.900	0.890		
1997		0.949	0.823	0.736	0.670	0.757	0.862	0.855	0.923		1.024	
1998	1.321	1.285	1.080	0.993	0.851	0.867	0.825	0.890	0.898	1.085		
1999		1.278	1.188	1.054	0.854	0.897	0.825	0.932	1.000	0.989	1.157	
2000	1.284	1.140	1.066	0.846	0.710	0.689	0.721	0.731	0.815	0.930		
2001		1.217	1.141	0.982	0.834	0.823	0.837	0.917	1.075	1.123	1.205	1.430
2002	1.411	1.202	1.086	0.863	0.849	0.863	0.858	0.938	1.035	1.039	1.227	
2003		1.176	1.016	0.959	0.914	0.854	0.966	0.997	1.072	1.214	1.306	
2004	1.340	1.252	1.133	0.884	0.884	0.974	0.860	0.959	0.971	1.362	1.668	1.893
2005	1.696	1.223	0.971	0.784	0.888	0.906	0.925	0.920	1.079	1.098	1.136	1.355
2006	1.216	0.997	0.909	0.848	0.856	0.813	0.864	0.885	0.995	1.192	1.147	1.437

¹Prices (dollars per dry pint, per 12 oz.) have been adjusted for inflation using the CPI-U for all items. A blank cell indicates BLS did not provide a price in that month.

Source: U.S. Department of Labor, Bureau of Labor Statistics, U.S. city average price data and CPI-U.

It is meaningless to compare prices at different times when an unhealthy food with unchanging quality is compared to a fresh fruit or vegetable that has become available in formerly out-of-season months. Changing relative prices might indicate changing price incentives to choose a healthy diet or might indicate that better quality produce is being marketed. It is impossible to exclude either possibility.

Further, some price statistics mask the benefits consumers realize from reduced seasonality and give the impression that fruits and vegetables are becoming more expensive. For example, reducing seasonality could make the average annual strawberry price higher than it would be in the absence of quality increases. The pattern of prices in table 2 shows that, during the course of a year, the first and last reported strawberry prices are typically higher than spring prices. That is, retail prices for strawberries are typically higher at a season's margin than at the height of the season. The difference may reflect shorter supply at the margin as well as the increased cost of transportation.³ Making strawberries available outside of spring months requires more attention to packaging, transporting fruit longer distances, and establishing new supply chains. All these changes add to the cost of making strawberries available at retail stores and raise retail prices.

Extending the marketing season means that tabulated average annual prices are higher than they otherwise would be if strawberries were available only in the spring. The price, however, is higher because consumers are eating foods that used to be largely unavailable. Rates of annual price inflation may also differ because strawberries at the season's margin embody more marketing inputs whose costs may rise independently of spring strawberry prices.

³For less fragile commodities, the difference could also include the cost of carrying inventories.