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Updated Supermarket Shrink Estimates for Fresh Foods and Their Implications for ERS Loss-Adjusted Food Availability Data

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What Is the Issue?

In the past decade, advances in food technologies, food preparation practices, and procedures to safely transport, package, and market fresh foods, as well as changes in consumer demand and the supply of fresh foods, may have affected the supermarket shrink percentage for individual fresh commodities. Therefore, the 2005-06 supermarket shrink assumptions currently used as food-loss estimates for fresh foods at retail in the Loss-Adjusted Food Availability (LAFA) data series of USDA's Economic Research Service (ERS) need to be updated. Estimates of loss-adjusted food availability are popular proxies for actual consumption. Shrink is a term used in the food industry for wholesale and retail losses. Here, shrink is a proxy for food loss in handling and display that also captures some unknown amount of theft, accounting error, and other factors. If updated supermarket shrink estimates are adopted in LAFA, this would affect ERS estimates of the loss-adjusted amounts of fresh foods available for consumption in the United States.

What Did the Study Find?

In comparing the average shrink estimates for fresh items in 2011-12 with the 2005-06 averages from an earlier ERS study, the authors found that the 2011-12 shrink averages were higher by 1.2 percentage points for fresh fruits, roughly 2 percentage points for fresh vegetables, and 8.2 percentage points for fresh meat, poultry, and seafood. The average annual supermarket 2011-12 shrink rates for individual fresh fruits, vegetables, meat, poultry, and seafood at the retail level varied from 2.2 percent for sweet corn to 62.9 percent for turnip greens. Average fresh fruit shrink was in a narrower range: 4.1 percent for bananas to 43.1 percent for fresh papayas. Average shrink for fresh meat, poultry, and seafood ranged from 5.9 percent for turkey to 24.1 percent for shellfish.

Although individual supermarket shrink estimates in 2011-12 often varied considerably from the corresponding average estimates for 2005-06 in an earlier ERS study (Buzby et al., 2009)

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and were in general higher, the relative position of individual foods in terms of low or high shrink levels remained similar (i.e., weighted by commodity volume of sales). For example, estimated shrink for turnip and mustard greens was highest in both studies of all fresh vegetables. The average shrink estimate for total fresh fruit in 2011-12 (12.6 percent) was 1.2 percentage points higher than the 2005-06 average (11.4 percent). The average shrink estimate for total fresh vegetables in 2011-12 (11.6 percent) was roughly 2 percentage points higher than the 2005-06 average (9.7 percent). The difference between the two averages was much greater for fresh meat, poultry, and seafood, where the average shrink in 2011-12 (12.7 percent) was almost three times higher than the 2005-06 average (4.5 percent).

If ERS replaced the 2005-06 estimates currently used in the LAFA data series to represent retail food loss with the 2011-12 estimates, the impact on per capita availability estimates would vary relatively little among individual fresh fruits (a 1.6-pound decrease for apples to a 1-pound increase for bananas) and fresh vegetables (a 0.7-pound decrease for romaine and leaf lettuce to a 0.6-pound increase for onions), but more so with the fresh protein items (a 4.9-pound decrease for chicken in 2012 to a relatively small 0.01-pound increase in veal). Adopting the new shrink estimates would decrease LAFA loss-adjusted estimates of per capita retail availability in 2012 of fresh fruit by 4.7 pounds (4.3 percent), of fresh vegetables by 1.7 pounds (1 percent), and of combined fresh meat, poultry, and seafood by 12.4 pounds (7.3 percent). The new shrink estimates had relatively little impact on average food-loss rates for the fruit and vegetable groups in the LAFA data series or on total per capita estimates of the quantity of these food groups available for consumption at the retail level because the newer shrink estimates were generally close to the earlier loss assumptions, whereas the impacts for fresh meat, poultry, and seafood were relatively greater. However, dividing these annual changes in per capita estimates by 365 days results in very small daily per capita decreases—.01 pounds per day for fresh fruit, .005 pounds per day for fresh vegetables, and .03 pounds per day for fresh meat, poultry, and seafood. In short, even the relatively larger changes in availability for the meat, poultry, and fish group are not large when measured on a per capita per day basis.

How Was the Study Conducted?

ERS commissioned Nielsen Perishables Group to obtain 2011-12 shrink data for fresh fruits, vegetables, meat, poultry, and seafood for use as retail-level food-loss assumptions in the LAFA data series. The sample included 1 large national and 4 regional supermarket retailers from Nielsen's proprietary database, which provided data from roughly 2,900 stores in 45 States and the District of Columbia. The sample did not include convenience stores, megastores, club stores, and mom-and-pop grocery stores. To identify a shrink percentage for each retailer, fresh commodity, and study year (2011 and 2012), the total supplier shipment data were paired with the corresponding total point-of-sale data (aggregated across all stores for each retailer in the sample).

Average shrink rates were then calculated for each commodity by weighting equally the estimates by those retailers providing estimates for that commodity. For fresh meat, poultry, and seafood, data were available for case-ready items with a universal product code (UPC, roughly two-thirds of that market) but not for random-weight items (i.e., loose items sold by weight, roughly one-third of that market)—unlike the fresh fruit and vegetable data, which included both UPC-coded and random-weight items. ERS then analyzed how the data on loss-adjusted food available for consumption would change if the new 2011-12 shrink estimates were adopted to replace the 2005-06 shrink estimates currently used in LAFA. It is important to note that the 2005-06 shrink estimates for fresh meat, poultry, and seafood products were from interviews with executives, rather than being calculated by estimating the difference between supplier shipment and sales data for each item, as was done for all fresh items in the current study and for fresh fruits and vegetables in the study that provided the 2005-06 estimates. The LAFA data series is considered *preliminary* because ERS continues to improve the underlying loss assumptions. The estimates presented in the study are a convenience sample and are not nationally representative.