

Milk Consumption Study

Price, Health Concerns Yield Strongest Influence

Editor's Note: In the Jan. 3 issue, Dr. Kirkland presented the theories concerning milk consumption he based his study on. Below are the results of his extensive study.

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The price of whole milk and the prices of the other fluid products have a significant influence on the per capita consumption of whole milk in Pennsylvania. As the price of whole milk increases one percent, the per capita consumption of whole milk decreases about 0.97 percent. The response was as expected.

However, the magnitude is larger than was found in past studies. One, which reported the largest negative relationship, found a 0.73 percent decrease in whole milk consumption with a 1 percent increase in the price of whole milk.

The prices of 2 percent, 1 percent and skim milk had a significant influence on whole milk consumption but they had the opposite relationship than was expected. Instead of being substitutes, the study suggests that they are complements. In other words, as the prices of the three fluid products decrease, more whole milk will be consumed and consumers will not switch whole milk for one of the lowfat products.

The influence of the price of cola, income, the proportion of females in the population, the percentage of the population under 19 and season of the year did not have a significant influence on the per capita consumption of whole milk.

Consumption of 2 Percent Milk

The price of 2 percent milk had a significant influence on the consumption of 2 percent milk, with

per capita consumption decreasing 0.99 percent with a one percent increase in the price of 2 percent milk. The prices of the other fluid products had significant, but the opposite than was expected, influence on the consumption of 2 percent milk.

A complementary relationship between the four milk products was indicated, where, as the price of the other products decreases, more 2 percent milk will be consumed. Consumers will not switch to one of the other products.

As the proportion of females increases, the consumption of 2 percent milk decreases. This was the expected relationship, although it was thought the impact of females on the lowfat milks would be less in magnitude than for whole milk.

The effects of the price of cola, income, the percentage of the population under 19, and season of the year had no significant influence on the consumption of 2 percent milk.

Consumption of 1 Percent Milk

The price of 1 percent milk had a significant, but positive, influence on the consumption of 1 percent milk. As the price of 1 percent milk increases 1 percent, the consumption of 1 percent milk increases about 1.4 percent. This is contrary to economic theory.

It is hard to believe that as the price of 1 percent milk increases consumers are going to buy more of it. It may be that tastes and preferences and/or the health concern for fat in milk causing consumers to purchase more 1 percent milk, may be overriding the effect of price. Consumers may be purchasing more 1 percent milk regardless of the changes in its price and the study make be picking up this fact.

Again the effects of the price of

the other milk products show that a significant and complementary relationship exists between the four milk products. The prices of the other products were significant and had the opposite relationship than was expected.

The proportion of females in the population had a significant and positive influence on the consumption of 1 percent milk. As the proportion of females increases, the consumption of 1 percent milk increases. This seems to indicate that perhaps 1 percent milk is the choice of the female population if they decide to consume a fluid milk beverage.

The price of cola, income, the percentage of the population under 19 and the season of the year did not have a significant influence on the consumption of 1 percent milk.

Consumption of Skim Milk

The price of skim milk had a significant but positive influence on the consumption of skim milk. However, the influence was very weak; a 1 percent increase in the price of skim milk results in a 0.03 percent increase in the consumption of skim milk. Again, as in the case of 1 percent milk, factors other than price must have a dominant influence over price in consumer's decisions to buy skim milk.

The prices of the other fluid milk products had a significant influence on the consumption of skim milk. However, as in the case of the other three products, a complementary relationship was indicated in which increases in the prices of those other fluid milks results in decreases in skim milk consumption.

The proportion of females had a significant, but negative, influence on the consumption of skim milk. The findings of the study indicate that as the proportion of the

females in the population increases, consumption of skim milk decreases.

Results also indicate that period of lowest skim milk consumption is the period from May through August.

The price of cola, income, and the percentage of the population under 19 did not have a strong influence on the consumption of skim milk.

Interpretation of The Results

The overall effects of price on milk consumption are not completely clear from this study. However, the effects of the prices of fluid milks on consumption were significant in all cases. Though, they did not always have the expected effect on consumption.

The greatest changes in consumption occurred in whole and 2 percent milks while consumption of 1 percent and skim milk had only a slight change.

Price indeed may be an important consideration in consumer's decisions regarding purchases of whole and 2 percent milk. The study does indicate that consumers respond logically to changes in price for these two milk products.

However, for 1 percent and skim milk, consumers react in the opposite manner than economic theory and logic would lead us to expect. Perhaps, in the case of 1 percent and skim milk consumption, consumers base their decision to purchase these products on some factor other than price (such as tastes and preferences and health considerations).

The findings of the study were consistent in that it appeared that there was no substitution among the four products based solely on changes in their relative prices. It did not appear that consumers

switched one product for another when one became relatively cheaper. Instead of being substitutes, the study suggests that they are complements.

As the prices of the other three fluid milks decrease, more of the other milk will be consumed and consumers will not switch products. This effect may be due to the inability to use actual market prices for these products in the study.

By using the minimum prices, which not only move in the same direction but proportionately, the study was not able to capture the effects of relative price changes between the fluid products. However, it is suggested that the actual market prices also exhibit this relationship.

Retail market prices are very close to the established minimum prices probably due to the intense competition in the dairy industry in Pennsylvania. Furthermore, they move pretty much in the same fashion as those minimum prices.

So, it may be that consumers experience actual market prices that do not change relative to each other.

If this were the case, Pennsylvania consumers do not have the choice to switch products based solely on relative changes in fluid milk prices. If product switching occurs, and the figures seem to indicate that it certainly did between whole and 2 percent milk, it does so due to factors other than changes in relative prices.

Other Interpretations

The price of cola and per capita income did not have a significant influence on the consumption of any of the fluid milks. Whatever the relationship between the prices of cola and fluid milk, consumers do not appear to substitute between them.

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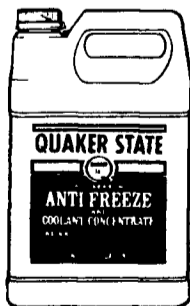
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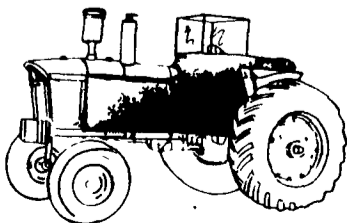
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