SECTION: 1 INTRODUCTION

The per capita consumption of fluid milk by Americans has fallen steadily over the past few decades. The level has fallen by over one-quarter since 1970, according to the USDA. The consumption of fluid milk by school-age children has followed a similar trend. The average per-capita consumption of milk by children age 13-17, for example, fell by over 20 percent between 1996 and 2001.

Declining milk consumption among children has a number of adverse nutritional and health consequences. As the principal source of calcium and a leading source of several other nutrients, dairy products play an especially important role in reducing the risk of a wide range of health conditions including bone fractures, hypertension, osteoporosis, and possibly, obesity. Calcium intake early in life is especially important for attainment of peak bone mass.

The downward trend in milk consumption among school children is being driven by a combination of factors. Inferior product quality, unattractive packages that are difficult to open, poor control of product temperature, and a limited variety of flavors are among the reasons why school milk has a negative image among many students. For processors, the very low margin earned on school milk contracts has discouraged product innovation and marketing efforts. In contrast, suppliers of competing products, particularly soft drinks, have aggressively targeted the school market as a means of establishing brand loyalty among young consumers.

During School Year 2001/02, the National Dairy Council and the American School Food Service Association sponsored a pilot study designed to improve the attractiveness of fluid milk products offered to students enrolled in public schools. The findings from that study (1) provided the basis for the analysis reported in this paper. The purpose of this analysis is to estimate the impact of implementing nationally the measures that were tested in the pilot schools.

In the remainder of this Section, we first describe the purpose of the impact analysis in greater detail. This is followed by a brief description of the methods and sources of information that were used in estimating impacts.

1.1 Purpose

The School Milk Pilot Test (SMPT) was conducted in 146 schools selected from 18 school districts located in different parts of the United States. Of the schools taking part in the pilot, product and merchandising changes were made in 99 “test” schools while the remaining 47 schools served as “control” schools without change from their traditional product offerings. The changes that were introduced in the test schools are described in the next section.

The purpose of this analysis is to use the findings of the pilot study as a basis for estimating the impact of implementing these changes in all public schools participating in the National School Lunch Program (NSLP) throughout the nation. More specifically, the analysis estimates the impact on:

- Total milk consumption in primary and secondary public schools participating in the Federal school meals programs,
- The rate of student participation in these school meals programs,
- The number of children benefited by the improved nutrient content of their diets,
- Potential changes in the incidence of major diet-related illnesses as a result of changes in the nutrient intake of students,
- Potential healthcare cost savings as a result of the reduced incidence of these diet-related illnesses,
- Federal costs associated with changes in participation in the school meals programs, and
- The added costs of packaging, and distributing fluid milk products in the tested forms through the Federal school meals programs.

1.2 Methodology

Results of the pilot study were reported in terms of the volume of milk sales and average daily participation in the school meals programs. These measures provide the basis for this analysis. Prior to making impact estimates, characteristics of the sample were compared to national measures to determine the sample's representativeness. To the extent the sample differed from all schools nationally, adjustments would have been required. As indicated in the Section that follows, sample schools were found to be similar in most respects to all primary and secondary schools.

As the administrating agency for the National School Lunch Program (NSLP) and the School Breakfast Program (SBP), the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture has conducted numerous studies of these programs. The findings of several of these studies were used here. More particularly, they were used in estimating the national impact on school meals participation rates, the quantity of milk consumed, and the dietary consequences of changes in the quantity of milk consumed. Two recent national studies sponsored by FNS (2, 3) have examined the dietary intake of children participating in the school meals programs. An earlier study conducted for FNS (4) estimated the composition of school food acquisitions in SY 1996/97. This study provided a baseline measure of fluid milk utilization by public schools participating in the NSLP. The findings of these studies were supplemented by information from a variety of other sources, as indicated in the references that appear in Sections 3 and 4.

As a first step in estimating the impact of changes in school milk consumption on health care costs, those medical conditions known to be influenced by dietary intervention were identified. Estimates of the effect of dietary intervention on each of the medical

conditions were assembled from the literature. Finally, the economic consequences of changes in the incidence of these medical conditions due to dietary intervention were estimated, again based on evidence assembled from past studies.

There is an extensive body of literature reporting on the findings of studies examining the relationship of nutrient intake to major medical conditions. Several types of studies are represented including: observational studies, randomized controlled intervention trials, and prospective longitudinal surveys. Not surprisingly, the techniques and circumstances used in these studies vary widely. We have reviewed past studies that have examined the link between diet and health and have based our estimates of health effects on what we interpret to be the "consensus" findings from this broad cross-section of the medical literature. These sources are identified in the report and in the list of references that appears at the end of the report.

The economic consequences of ill health have received less research attention, though with the sharp increase in healthcare costs, that is beginning to change. There are three separate cost components to be estimated for each condition: a. costs of treatment, b. loss of productivity, and c. costs associated with premature death.

Estimates of these costs were generally obtained from the major national organizations devoted to the treatment of these diseases, e.g. the American Heart Association (5), the American Cancer Society (6), the American Diabetes Association, and the National Osteoporosis Foundation. National healthcare expenditures were obtained from the Centers for Medicare & Medicaid Services (CMS) of the Department of Health and Human Services. Findings from Economic studies by researchers at Georgetown University (7), Harvard University (8), USDA's Economic Research Service (9), and Clark Atlanta University (10), were used in estimating the impact on health care costs.

Most of the estimates appearing in this report are dependent in varying degree on key assumptions. Throughout the report we have sought to identify these assumptions, to document their basis, and to note their implications.