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Economies of Scale, the Lunch-Breakfast Ratio, and the Cost of USDA School Breakfasts and Lunches

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What Is the Issue?

Through USDA's National School Lunch Program (NSLP) and School Breakfast Program (SBP), schools receive financial support to assist them in serving nutritious meals to students. At the local level, the NSLP and SBP are administered by a school food authority (SFA), usually a unit of the school district. SFAs are reimbursed by USDA for the breakfasts and lunches they serve on the basis of students' financial need, allowing schools to provide free or reduced-price healthful meals to low-income students. Reimbursement rates are set nationwide, yet variations in school location, size, and other factors may affect the costs to schools for providing meals. Previous ERS research found school per-meal costs varied by location, but the analysis did not separate breakfast and lunch costs. This study builds on that previous research by examining how the costs of school breakfasts and of lunches are affected differently by economies of scale; the balance in the number of breakfasts and lunches served by a given SFA (lunch-breakfast ratio); factor (food, labor, and supplies) prices; and SFA characteristics. A better understanding of the extent of cost variation across SFAs for each type of school meal—breakfast and lunch—may benefit policy and program officials because schools have the option of choosing to serve breakfasts and/or lunches, and costs may influence that decision.

What Did the Study Find?

Based on a nationally and regionally representative sample of SFAs serving both breakfasts and lunches, SFAs served more lunches than breakfasts in 2002-03, with breakfasts making up only 25 percent of school meals served. However, the proportion of school breakfasts served in 2002-03 varied considerably across locations. For example, SFAs in the suburban Mountain Plains served 8 times as many lunches as breakfasts, whereas SFAs in the urban Southwest served 1.7 times as many. Generally, suburban SFAs served the smallest proportion of breakfasts to lunches. Other findings include the following:

- Consistent with findings in USDA's School Lunch and Breakfast Study II, the average cost per breakfast for schools in 2002-03 exceeded reimbursement rates, but costs per lunch were less than the reimbursement rate.
- For both breakfasts and lunches, the average cost to schools declined as the number of meals served increased. This effect of economies of scale was much stronger for break-

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fasts than for lunches. For SFAs serving the largest number of breakfasts, per-breakfast costs were estimated to be 51 percent of those for SFAs serving the lowest number of breakfasts. For SFAs serving the largest number of lunches, per-lunch costs were 81 percent of those for SFAs serving the lowest number of lunches.

- Differences in factor prices (for food, labor, supplies) across SFA locations, as well as in SFA characteristics such as use of foodservice management companies, influenced per-meal costs. However, their importance relative to economies of scale differed for breakfasts and lunches. For breakfast costs, scale effects were relatively stronger—more than two times the effects of factor-price differences and SFA characteristics. For lunch costs, the effects of factor prices and SFA characteristics were stronger—three times greater than those of scale effects.
- Within an SFA, the balance between breakfasts and lunches served had a large effect on breakfast costs. In areas with the highest imbalance, such as most suburban areas, the decline in per-meal breakfast costs is substantial, with per-meal breakfast costs potentially declining by about 50 percent if the number of breakfasts served were to equal that of lunches.

How Was the Study Conducted?

The study uses a translog multiproduct cost function that is adjusted for quality to examine the costs of preparing a school meal. The model accounts for a number of characteristics of school food authorities, including region and urbanicity of location; mix of elementary, middle, and high schools; and use of a foodservice management company. It calculates the costs of breakfasts and lunches and the contributions of economies of scale, factor prices (for food, labor, and supplies), and SFA characteristics. The model was also used to estimate the effect on costs accounted for by the balance between the number of breakfasts and lunches served.

Data were obtained from the School Food Authority Characteristics Study (SFACS), a nationally representative survey of public SFAs that was stratified to allow estimates by region and urbanicity. The survey was administered by USDA's Food and Nutrition Service. Operations and cost data were collected from a written survey for the 2002-03 school year. During the intervening years, breakfast participation rose from one-quarter to one-third of meals served. Some other operational characteristics were obtained in a fax-back survey for the 2003-04 school year. More recent data on school meal costs and numbers of breakfasts and lunches served by SFAs from a sufficiently large national and regionally representative dataset are not available. SFACS data were augmented by data on socioeconomic and school district characteristics from the National Center for Education Statistics and the U.S. Census Bureau. Food price data come from a computation based on ERS's Quarterly Food At-Home Price Database and the food menu plans of the schools surveyed in the School Nutrition and Dietary Assessment Study (SNDA) III.