

A Descriptive Analysis of Supply Factors and Prices for USDA Foods in the National School Lunch Program

Cora Peterson

Please note that this study was published before the implementation of Healthy, Hunger-Free Kids Act of 2010, which went into effect during the 2012-13 school year, and its provision for Smart Snacks Nutrition Standards for Competitive Food in Schools, implemented during the 2014-15 school year. As such, certain research may not be relevant today.

ABSTRACT

Purpose/Objectives

Schools that participate in the National School Lunch Program (NSLP) receive a portion of their annual federal funding as commodity entitlement foods—now called USDA Foods—rather than cash payments. Due to rising food prices in recent years, it has been recommended that schools compare the costs and benefits of commodity and commercial foods. The purpose of this research was to measure the price and supply consistency of USDA Foods from the school district perspective.

Methods

Data from 586 school ordering sites in Minnesota from school year (SY) 2005-6 to SY 2008-9 was assessed. Commodity prices demonstrated to schools at the ordering stage were compared to final prices (or entitlement charges), quantities ordered were compared to quantities received, and delivery timing was assessed.

Results

Final prices for USDA Foods were consistently different from the prices that school districts had seen at the time they placed orders. Over the four years studied, the average one-year price change across all food groups was an increase of 12 percent. School districts received the same quantity of regular packaged commodities as ordered for only 54 percent of orders, and 9 percent of orders were delivered late to the state warehouse. These estimates contributed to a cost analysis that directly compared the full procurement cost of USDA Foods to equivalent commercial foods, and found that the full cost for USDA Foods was, on average, consistently higher for school districts.

Applications to Child Nutrition Professionals

Changes to commodity prices, order quantities and delivery timing create extra costs for school districts in terms of extra labor, transportation and storage. Data collection to allow direct comparison of prices and supply factors for commodity and commercial foods may assist school districts and administering agencies with food procurement decisions.

INTRODUCTION

Expectations are high for the National School Lunch Program's (NSLP) contribution to child nutrition, though recent research indicates that schools face a difficult financial situation. On average, school foodservice revenues cover just 82 percent of full costs (Bartlett, Glantz & Logan, 2008). Research from the School Nutrition Association indicates that schools have responded to higher costs by making menu substitutions, decreasing financial reserves and staff, and, in some cases, cutting the reduced price lunch category (2008).

References to commodities entitlement—whereby schools receive foods from the U.S. Department of Agriculture (USDA) rather than cash payments for a portion of their annual federal NSLP funding—have appeared recently in literature from policy groups with respect to nutrition (Food Action and

Research Center, 2008; Hecht et al., 2008; Muller, Schoonover, & Wallinga, 2007). Commodity foods—now called USDA foods—comprise an average of 15 to 20 percent of foods served in school lunches nationwide, while the remaining foods are procured commercially (USDA Food and Nutrition Service [FNS], 2008b).

In 2008, the federal government allocated \$1.03 billion to commodities entitlement, equivalent to 12 percent of the value of the \$8.27 billion in cash funding for school lunch programs (USDA FNS, 2008a). Food purchases are the largest budget item in school foodservice operations, constituting an average of 46 percent of reported food program expenditures annually (Bartlett, et al. 2008).

Though the National Food Service Management Institute (NFSMI) has recently published information about the commodity program's continued potential for a positive contribution to school nutrition, the program's financial impact on schools has not been well documented (2008).

Based on large, consolidated purchases of commodity foods, it is assumed that USDA Foods are available to schools at a lower cost than commercial products. The most recent research from USDA on this topic is over 10 years old, and indicates that commodity prices for six products in 1996 were 4 to 38 percent less than equivalent commercial products (MacDonald, Handy, & Plato, 1998).

A more recent price comparison for 48 products in Minnesota confirms that commodity prices were, on average, less expensive than commercial prices in 2008-9, however 25% of the commodity products were more expensive than products available through a local commercial supplier (Peterson, 2009).

Despite lower average unit costs, there are several ways in which the commodities program could create additional costs for schools. Schools coordinate USDA Foods procurement separately from commercial procurement, which may lead to extra labor costs. Schools cannot see the final price they will pay for commodities at the time they place orders, which may restrict schools' ability to make informed financial decisions. USDA Foods orders must achieve truckload quantities at the state level, which may reduce the likelihood that individual districts will receive the same quantity of commodities as they have ordered. Finally, a situation in which school districts are separated from food producers by state agencies and the USDA may create extra costs in terms of communications, transportation, storage, and menu planning if order quantities and delivery times deviate from schools' expectations.

In commercial procurement, a school district is likely to have accurate price information at the ordering stage. The district is also likely to have direct contact with a commercial distributor and can find another supplier if the distributor fails to meet standards.

Given that food prices have increased in recent years, schools have been advised to assess the costs and benefits of USDA Foods compared to commercial foods (NFSMI, 2008). However, to make such an assessment schools would benefit from more empirical information on commodity foods.

This research provides a descriptive analysis of price and supply data for USDA Foods for the past four years in Minnesota. A case study state was used because school commodity orders are facilitated by administrative agencies at the state level, and therefore agencies in each state hold relevant data. Moreover, there is wide variation in the type of data that is collected on schools' commodity procurement in each state, and Minnesota gathers a substantial amount of useful information on this topic.

Because all states are subject to the same laws that guide the commodities program, ordering procedures are broadly similar across states and thus the use of a case study should not limit the generalizability of this study's results. The *Results* section contains an explanation of commodity procedures in Minnesota to facilitate comparison with other states.

METHODOLOGY

Research Design

This research assessed the consistency of the USDA Foods procurement process from the school district perspective based on three issues: 1) quantities ordered compared to quantities received, 2) guide prices used by schools to make ordering decisions compared to final prices paid through entitlement funds, and 3) expected delivery dates compared to actual delivery dates.

There are two stages in the commodity ordering process in most states. In the first stage, school districts place commodity orders (also referred to as “preference surveys”) with state administering agencies. The second ordering stage occurs when the state agency aggregates districts’ surveys into truckload quantities and places the orders with the USDA.

When schools complete preference surveys, officials see historic prices for commodities. Such prices may be updated daily based on USDA purchases, as in the case of states that use the Electronic Commodity Ordering System (ECOS), or may be updated once a year, in the case of states that use the USDA November 15 price (which represents the most recent USDA purchase for each commodity prior to November 15 annually). Districts will see the real price of their order when the USDA makes a purchase based on aggregated commodity orders from state agencies. In some cases, such a purchase may occur months after a preference survey has been submitted by a school district.

State agencies are not charged for commodities via entitlement funds until a final price is communicated by the USDA. However, changes in commodity price may affect the quantity of foods that a district receives. For example, if a district orders a number of commodity cases based on an expected price, but the state agency is faced with a higher price when school surveys are aggregated or if the USDA pays a higher purchase price, the district will likely receive fewer cases than ordered. Changes in quantities received at district sites compared to quantities ordered may also occur at the state level due to the need for truckload quantity orders.

The state’s administering agency demonstrates prices to school districts at the ordering stage. Some states make the USDA’s ECOS ordering system available to districts. In this case, districts can see price information that is updated frequently for each USDA Food. However, the majority of states do not use ECOS at the district level, and instead maintain their own pricing and ordering systems. Many states demonstrate the November 15 price to districts as a guide price for USDA Foods during district ordering periods. November 15 prices are intended for use in agreements with commodity processors, though these prices have been used in recent years or are still in use as a basis for all school commodity orders in at least six states, including Alaska, Colorado, Hawaii, Minnesota, Mississippi, and Wyoming.

Data

This research used price and supply information on USDA Foods delivered to Minnesota for up to 586 school sites annually from school year (SY) 2005-6 to SY 2008-9. This information was obtained from the Minnesota Department of Education (MDE) (2006-9).

Minnesota was selected for this analysis based on the state’s extensive and accessible data on school districts’ commodity procurement, owing in part to the state’s long-term use of an electronic ordering system (the Cyber-Linked Interactive Child Nutrition System [CliCS]). The MDE maintains records of the type and price of commodity foods offered to districts each year, the type and quantity of commodity foods ordered by each district, the type and quantity of commodity foods ordered by the MDE from the USDA, and the quantity of commodities that arrive at the warehouse contracted by the MDE to receive the state’s USDA Foods. The MDE also records the date of orders placed with the USDA, the expected date of product arrival (expressed by the USDA as a two-week delivery window, though the MDE records the last date of this window as the expected date) and the date of actual arrival.

The estimates presented in this research formed the basis of a comparative cost analysis of commodity and commercial foods in Minnesota (Peterson, 2009). That research estimated that the costs of extra handling, labor, transportation, storage, and inventory investment due to changes in USDA Foods delivery quantities and timing cost schools an average of \$12.28 per case in addition to

the product price. The estimates presented here provide year-on-year information on commodity supply outcomes to demonstrate how collecting such data on a local level might assist school officials in operational decisions.

RESULTS AND DISCUSSION

Minnesota's commodity ordering process

Each year the MDE issues preference surveys to districts with November 15 prices for each commodity that is offered. In February, the MDE informs each school district of its estimated entitlement level, which is based on the district's number of NSLP meals served in the previous year and a national index of food prices. Actual entitlement values for each state are confirmed by the federal government in July.

Not every commodity item on the USDA's list is offered to districts by the MDE. The MDE selects which commodities to offer based on orders from past years, mostly owing to the need for truckload quantity orders.

School districts submit preference surveys for commodities between February and May. The MDE aggregates the surveys and submits orders to the USDA between November and July, which means that early orders are the MDE's best estimate of what schools will need. The MDE submits a second round of orders to the USDA in October, after the commodities entitlement rate is confirmed and the state is assured of its total entitlement for the upcoming year.

School districts in Minnesota have three options for commodity orders (MDE, 2008). *Regular packaged commodities* are delivered to the MDE's contracted commercial warehouse, and are collected by a distributor selected by each school district. The MDE deducts the value of the commodities from the district's entitlement funds based on the USDA purchase price, and the district pays its distributor for transportation and handling.

Processor commodities are ordered by districts in bulk quantities and diverted to food processors. Processed commodities are ultimately delivered to district sites, rather than the MDE warehouse. Payment for these commodities is conducted in the same manner as regular packaged commodities, and processors bill schools directly for additional processing fees.

Rebate commodities are also diverted to food processors. Under this option, food processors pay the MDE for diverted commodities, and the school district can claim back entitlement funds for the final products it purchases from the processor that contain commodity foods. For example, districts might claim entitlement funds back on a purchase of chicken nuggets that contain commodity chicken.

Delivery quantities and dates for commodity orders diverted to processors were not included in this analysis because the MDE warehouse does not take delivery of these orders and relevant information is inconsistent at the state level. However, the assessment of price consistency in this research used data for all Minnesota school commodities.

The value of regular packaged commodities delivered for Minnesota schools in SY 2008-9 accounted for over 64 percent of the state's total commodities expenditure (MDE, 2009). At the national level in 2008, regular packaged commodities accounted for up to 67 percent of the total commodities entitlement value delivered to states, or \$684 million out of a total commodities entitlement food value of over \$1.02 billion (USDA Budget Congressional Justifications, 2009).

Commodity quantities ordered compared to quantities received

As demonstrated in Figure 1, just 53 to 56 percent of school district orders for regular packaged commodities were delivered to the state warehouse by the USDA in the same food case quantity as school districts had ordered over the four years studied (MDE, 2006-9). Fourteen to 21 percent of orders were received in greater case quantities than school districts had surveyed, while 25 to 36 percent of orders were received in quantities less than districts had surveyed.

It seems that the majority of the changes that occurred to commodity order quantities occurred at the state level, rather than the USDA level, as demonstrated in Figure 1. According to MDE data, the state received the same quantity of commodities as ordered from the USDA for 93 to 98 percent of

orders annually, while 0 to 2 percent of orders were received in greater quantities, and 2 to 6 percent of orders were received in lesser quantities than the state had ordered.

Despite what appears to be a consistent delivery performance from the USDA, these results do not capture cancelled deliveries due to the way that data is reconciled at the MDE at the end of each school year. Pre-reconciliation data from SY2008-9 indicate that 4 percent of USDA truckloads were cancelled during the school year, which would likely have altered the results in Figure 1 if the cancelled truckloads had not been eliminated from MDE records (MDE, 2006-9).

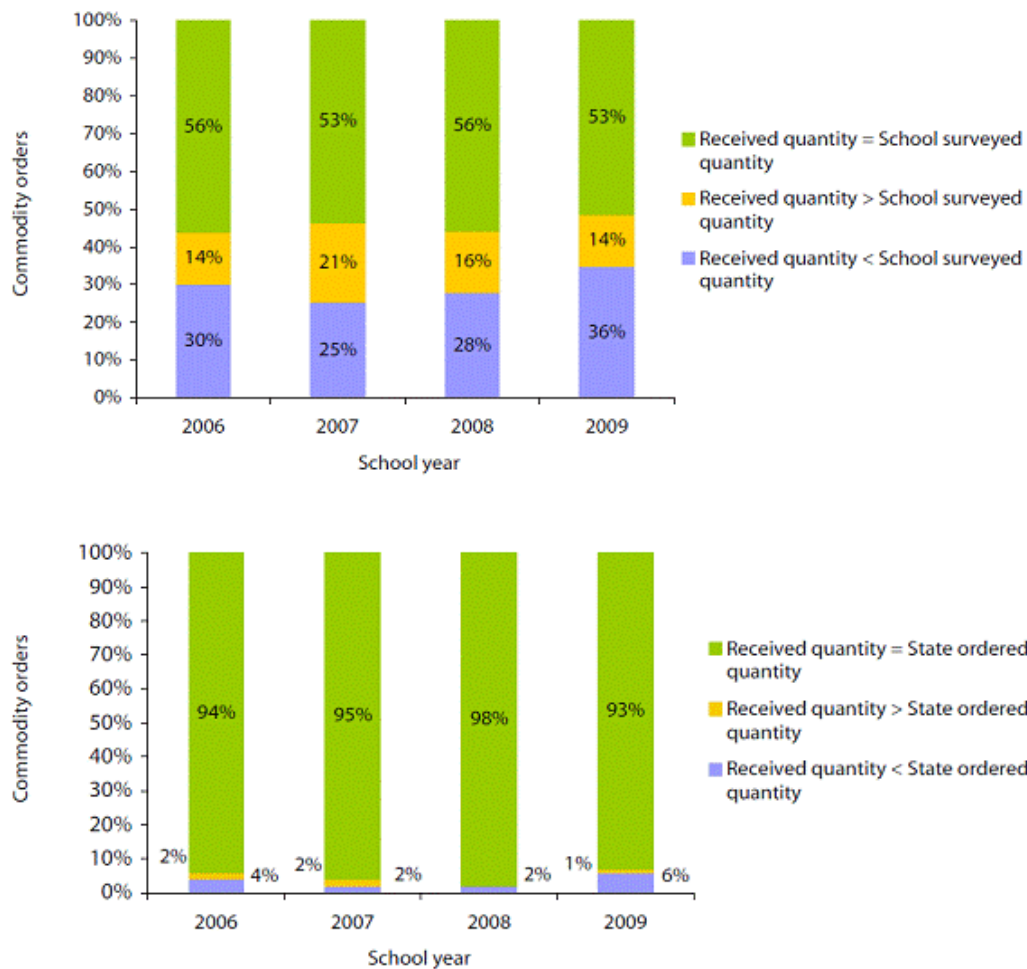


Figure 1. Quantity per order received compared to schools surveys and state orders

As demonstrated in Figure 2, USDA Foods orders that were received by districts in a lesser quantity than the district surveyed contained an average 55 to 66 percent less food cases per order over the four years studied. Commodity orders that were received by school districts in a greater quantity than the district surveyed contained an average 20 to 36 percent more cases per order.

Receiving greater quantities of foods than anticipated may incur additional costs for school districts not only due to the extra product cost, but also to the cost of transporting and storing the additional products, as well as menu and budget adjustments. Receiving lesser quantities of food than anticipated may incur costs due to menu and budget changes, as well as replacement of the missing products.

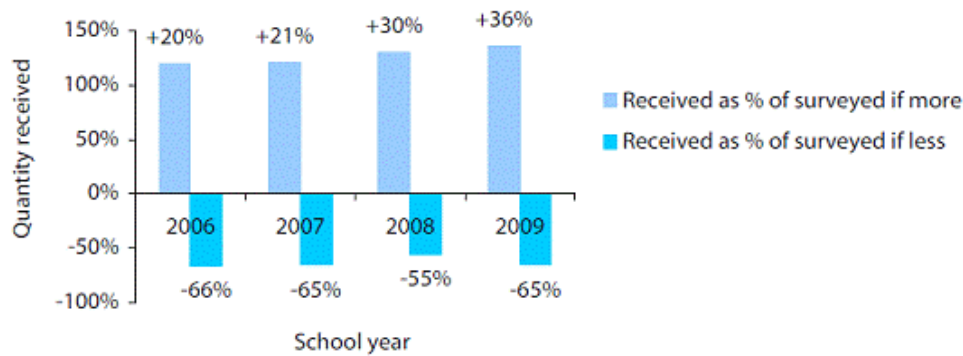


Figure 2. Average change in quantity per order

Commodity guide prices compared to entitlement charges

Minnesota school districts received 63 to 67 different types of regular packaged USDA Foods annually over the four years studied. Commodities were aggregated to MyPyramid.Gov food categories for presentation of the comparison between guide prices and final prices (or entitlement charges) (U.S. Department of Agriculture, 2009). Prices per pound (lb.) were compared for each commodity.

By matching the prices that school districts used to make ordering decisions at the survey stage (which are November 15 prices in Minnesota, as described above) with final prices paid for commodity products (demonstrated in the USDA Commodity Code Outlay reports for the state of Minnesota), this research included 27 price comparisons for grain products over the four years studied, 35 price comparisons for vegetables, 42 for fruits, 28 for dairy, 45 for meats and poultry, 5 for oils, and 9 for nuts and seeds.

Each year from SY 2005-6 to SY 2008-9, school districts on average were liable for greater prices in commodities entitlement than the prices they had seen at the time they ordered USDA Foods. In SY 2005-6, the average price increase across all food groups was 3 percent, though in SY 2007-8 and SY 2008-9 final prices for USDA Foods were an average of 23 percent and 18 percent higher, respectively, than the prices districts had seen at the ordering stage.

Figure 3 demonstrates price changes by food category for each school year. The maximum one-year average increase between guide prices and final prices over the years studied occurred among dairy foods, and was an increase of 65 percent in SY 2007-8. The maximum one-year annual decrease was an average price decrease of 12 percent, which occurred in the dairy category in SY 2006-7, and in the nuts and seeds category in SY 2005-6. There were no average price decreases in any food category in SY 2007-8, and only products in the dairy category demonstrated an average price decrease in SY 2008-9. Changes in food prices are to be expected over the course of a school year, but unfortunately it is not possible to compare these historic commodity prices with commercial prices.

Commodity price changes could incur extra costs to school districts in terms of administrative labor for budget changes and other planning, and may cause a change in the number of food cases that a school receives compared to ordered.

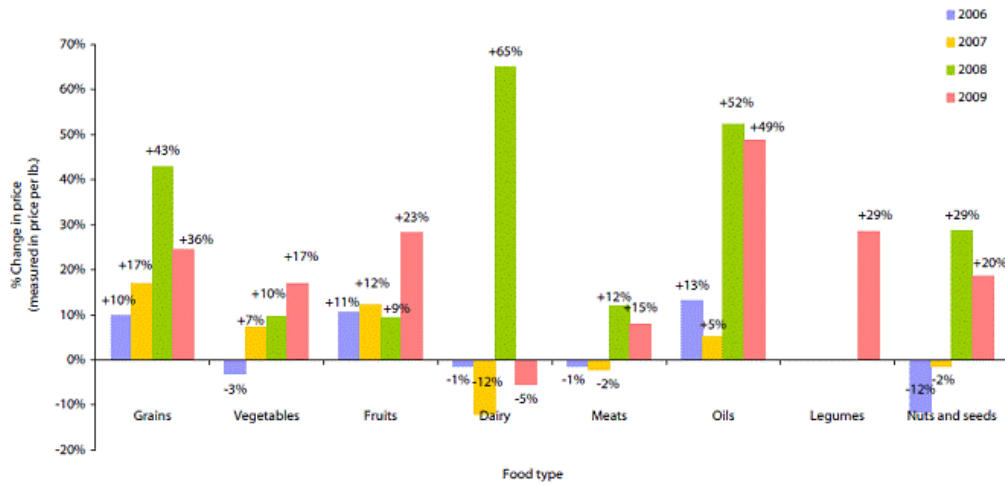


Figure 3. Average price change between ordering and delivery

Expected delivery dates compared to actual delivery dates

Based on comparison of expected and actual arrival dates, 5 to 12 percent of orders for regular packaged commodities annually were delivered to the state warehouse at a later date than the two-week delivery window specified by the USDA from SY 2005-6 to SY 2008-9, as demonstrated in Figure 4.

Late delivery to the state warehouse could incur extra costs for school districts in terms of food transportation, storage, and associated labor.

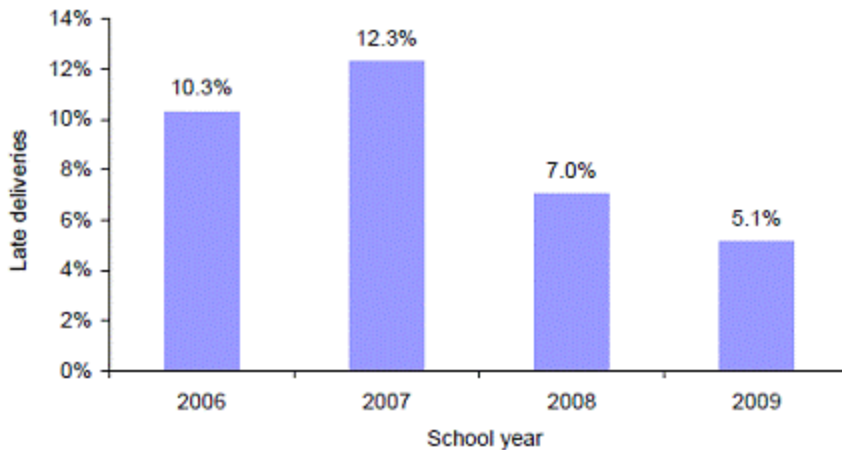


Figure 4. Commodity orders delivered late to the state warehouse

CONCLUSIONS AND APPLICATION

This research has shown that there is substantial variation between the commodity price that school districts see at the ordering stage and the final price drawn from entitlement funds, as well as variation in the quantities of USDA Foods surveyed compared to quantities received. There is also evidence that many deliveries arrive late to the state warehouse.

In terms of a comparison with commercial supply outcomes, it is assumed that commercial prices and delivery quantities are fixed at the time an order is placed. Only anecdotal information was available regarding commercial delivery consistency, though staff at Minnesota's largest school district—Minneapolis Public Schools—as well as staff at the state's contracted commercial

warehouse indicated that unexpected late delivery to schools by commercial distributors in the state is extremely rare.

Changes in food price, purchase quantities, and delivery times are likely to be more expensive to districts than a situation in which prices, quantities, and delivery timing are known for each transaction at the ordering stage. In addition, changes in purchase quantities and prices between the ordering stage and the delivery stage may prevent meaningful comparison of the costs and benefits of USDA Foods compared to commercial foods if school districts attempt to conduct such a comparison at the time they place food orders.

This research presented relative (percentage) changes in price, quantity and delivery timing rather than absolute changes (such as a total number of cases ordered, or a price change in terms of dollars). It could be argued that the absolute price and quantity of a commodity order may determine how great a financial impact will result from variations in supply. However, this research presented relative measures because school districts vary in terms of size, resources and an ability to make substitutions if commodity prices and delivery quantities differ from a school district's expectations. For example, smaller districts or schools with limited staff may have difficulty dealing with even low quantities of excess or missing food cases, thus expressing delivery variations in relative terms was deemed most appropriate.

The results of this research do not facilitate obvious conclusions about whether price changes or the aggregation of orders to truckload quantities at the state level create more disturbances in the supply of USDA Foods to school districts. It is likely that some prices will have changed between the time that a school district submits a preference survey, the time that a state agency places an order with the USDA, and the time that the USDA ultimately makes a commodity purchase. However, the need for truckload quantities at the state level could conceivably drown out the effects of such price changes. Unfortunately, to distinguish between the effects of price changes and commodity order aggregation in terms of the effect on delivery quantities is beyond the scope of this project.

This research was not able to account for school district errors in completing preference surveys, which could potentially have an impact on commodity supply issues. For instance, a school district could exceed their entitlement budget at the survey stage and make it necessary for the state agency to adjust the district's order prior to submitting it to the USDA.

Each state uses slightly different ordering and handling procedures for school commodities. For instance, some states do not have electronic ordering systems, while other states use commodity guide prices that are updated more frequently than the November 15 price. Despite these differences, the potential for supply variation is inherent to the USDA Foods system in its current form due to the system's multiple ordering stages. In a situation where a school district manages its own food purchases with a commercial supplier, the district likely has direct communication with the supplier, and prices and quantities are likely to be confirmed at the time an order is placed.

This research demonstrated that considerable changes had occurred from the perspective of Minnesota school districts in terms of prices, order quantities, and delivery timing of USDA Foods each year from SY 2005-6 to SY 2008-9. Any extra costs resulting from such changes—including costs to transport and store extra foods, labor costs to change lunch menus and budgets, as well as communicate about changes with the state agency and the district's schools, transportation costs to collect foods that arrive late at the state warehouse, and storage costs to hold foods that arrive late or early—are likely to be the responsibility of the school district and to be handled with local resources.

Based on this research, school districts may consider it worthwhile to monitor more closely the commodity and commercial supply outcomes in their local areas to facilitate informed food purchase decisions. Also, based on evidence of supply variations from the school district perspective documented here, the USDA may consider investing in research at the national level to compare states' ordering procedures to improve the commodity process for school districts. The USDA could also invest in research to compare costs for schools that use USDA Foods compared to

the very low number of school districts that receive cash-in-lieu of commodities or Commodity Letters of Credit (CLOC).

For comparative purposes, it would be useful to derive estimates similar to those presented here for other states, though Minnesota's data on this topic seems to be rather unique. Further research could also include a comparison of price and supply issues related to processor commodities and rebate commodities, both of which involve commercial food processors in the procurement of USDA Foods.

However, most of the supply inefficiencies identified in this research stem from USDA processes—delivery timing, a need for truckload quantity orders at the state level, truckload cancellations, price changes between orders and delivery—and therefore it is not obvious how changes at the state level or school district level could result in substantial improvements in supply from the district perspective.

It is possible that the use of the November 15 price as a guide for school district commodity orders may create unnecessary problems for school foodservice officials. Making the ECOS system available to school districts may be one way to improve the commodity ordering process, though it appears that only a handful of states are taking the opportunity to enable districts' direct access to the system. Cost may be a barrier to such access. If this is the case, USDA might consider research to compare ordering procedures and procurement outcomes for USDA Foods in states that use non-ECOS systems to states that use ECOS at the school district level.

However, the ECOS system functions only to inform school officials more frequently about price and quantity changes to commodity orders; consistently checking the most recent ECOS information and making necessary adjustments likely still implies extra labor and other costs for schools. Moreover, district-level ECOS access will not eliminate the need for truckload consolidation of schools' orders at the state level, which appears to be a major source of quantity changes to schools' orders of USDA Foods.

The estimates presented in this paper were used in a comparative cost analysis of commodity and commercial foods from the school district perspective in Minnesota for SY 2008-9 (Peterson, 2009). That research estimated that commercial products were on average 9 percent less expensive than commodity products once the full costs of procurement were included, and estimated that Minnesota schools collectively spent an additional \$1.7 to \$3.7 million to procure USDA Foods in SY 2008-9.

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BIOGRAPHY

Peterson is a doctoral candidate at the London School of Economics and Political Science in the United Kingdom.