Financial Costs and Benefits of Healthy, Hunger Free Kids Act for Ohio's Elementary Schools

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Executive Summary

The Healthy Hunger-Free Kids Act (HHFKA), implemented by President Obama in 2010, was created in order to improve child nutrition in response to the rise of childhood obesity and to provide new guidelines for the National School Lunch Program (NSLP). Section 205 of the HHFKA sets forth a federal mandate requiring all participating schools in the NSLP to raise the price of a paid lunch in order to generate enough revenue to cover the costs of implementation of the HHFKA. School meal budgets for 86 randomly selected elementary schools in the State of Ohio were analyzed to determine the efficiency of this policy by determining the amount of schools' deficits prior to a raise in rates, and to determine how much deficit, or lack of deficit, schools experience after raising rates. Also analyzed, is the demand for school lunches as the price increases. Through analysis, it is clear that the price increase on lunches is allowing schools to decrease their overall deficit, and therefore the provision in the federal guidelines is helping to cover overall costs in regards to the costs of production for the school lunch program.

Introduction

The purpose of this paper is to determine the financial impact Section 205 of the 2010 Healthy, Hunger Free Kids Act (HHFKA) is having on Ohio's elementary schools. This provision is requiring all public schools to raise lunch prices in order to implement the HHFKA as signed into law by President Obama. The research presented will determine the amount of money schools receive from the federal and state government for their school lunch programs and the additional revenue that is projected based on the new federal guidelines to raise school lunch prices as set forth in Section 205 of the HHFKA. In order to determine if schools are able to cover the cost of production for meals in accordance with the HHFKA and to determine if schools experience a higher or lower deficit upon implementation of the HHFKA, both state and federal funding will be considered when calculating the entire projected budget schools will have to comply with the HHFKA. In addition, the demand for school lunches as prices increase will be analyzed to determine the negative implications a change in demand could potentially have on schools relying on additional revenue from an increase in price to help cover costs. Finally, a conclusion will be made to determine if schools will financially benefit from this policy in the long-term and decide on next steps in the research process.

In order to fully understand the HHFKA, it is important to understand its functionality within the National School Lunch Program (NSLP). The NSLP was first implemented in 1946 by Harry S. Truman as a way to feed underprivileged children and increase food prices by using farm surpluses. Today, the program feeds more than 31 million children annually and operates in more than 101,000 public and nonprofit schools making it the nation's second largest food and nutrition assistance program by providing free and reduced- price lunches to school children daily. The United States Department of Agriculture's (USDA) Food and Nutrition Service

administers the program, and the federal government reimburses schools at a varying rate for free, reduced, and paid lunch price (National School Lunch Program). In accordance with HHFKA, effective July 1, 2012, schools will receive reimbursements ranging from $2.77 per free lunch served, $2.37 for each reduced-priced lunch served, and $0.26 per paid lunch served (Healthy, Hunger Free Kids Act).

Any student may participate in the NSLP and students who meet certain requirements may be eligible to receive free or reduced-priced lunch. Free lunches are available to children in households with incomes at or below 130 percent of the poverty line as determined by the federal government. Children whose household income is between 130 and 185 percent of the poverty line are eligible for reduced-priced lunch (National School Lunch Program). The NSLP has received much criticism over the years that schools are not providing nutritious enough meals, and research has concluded that childhood obesity is related to students who participate in the NSLP (Millimet, 2010).

As a result, the HHFKA was created in order to improve child nutrition in response to the rise of childhood obesity and is the first reform to the NSLP in more than 30 years. The legislation includes new guidelines not only for the NSLP, but also for the School Breakfast Program, the Special Supplemental Nutrition Program for Women, Infants and Children, the Summer Food Service Program, and the Child and Adult Care Food Program. The act provides and authorizes the funding for these programs for the next five years with estimates of the United USDA adding an additional $1.5 billion to the program. The intended goal is to update standards in order to more closely match the Federal Dietary Guidelines for Americans and provide more nutritious meals to children by requiring most schools to increase the availability of fruits, vegetables, whole grains, and fat-free and low-fat fluid milk in school meals; reduce the levels of

sodium, saturated fat and trans fat in meals; and meet the nutrition needs of school children within their calorie requirements (Healthy, Hunger Free Kids Act). In addition to improving nutritional standards, the act also increases access to drinking water in schools and sets minimum standards for school wellness policies. These improvements to the school meal programs, largely based on recommendations made by the Institute of Medicine of the National Academies, are expected to enhance the diet and health of school children, and help mitigate the childhood obesity trend (Nutrition Standards for National School Lunch Program and School Breakfast Program).

The HHFKA doubled the amount of fresh fruits and vegetables schools must serve. Table 1 shows these new guidelines and their implementation over an eleven year period. These phases are built in order to help ensure that all stakeholders—the children, the schools, and their supply chains—have time to adapt. (Nutrition Standards for National School Lunch Program and School Breakfast Program). However, the majority of changes are to occur in the first school year of implementation, 2012-2013, dramatically increasing costs for schools in the inaugural year. This is where Section 205 becomes increasingly important in order to ensure federal guidelines are being met in this first year and production costs are covered by schools.

Given the price of fresh fruits and vegetables and whole grains, it is estimated the HHFKA will costs schools a total of $3.2 billion over the course of five years in order to successfully implement. However, in order to help cover these costs, the federal government raised reimbursement rates by six cents. The Congressional Budget Office estimated about $1.5 billion in additional revenue over 5 years will be generated from this increase. However, this is still not enough to cover the projected $3.2 billion of costs to cover the cost of complete HHFKA

implementation. Table 2 is projected food costs as found in the USDA's guidelines. (Nutrition Standards for National School Lunch Program and School Breakfast Program).

Due to estimated yearly increases in food cost as schools strive to serve healthier foods, which are more expensive, Section 205 of the HHFKA was implemented to help cover the cost of production and the discrepancy behind what additional funding the federal government is providing.

Literature Review

On several occasions, the NSLP has been criticized for adding to childhood obesity due to the poor quality of the food being served (Millimet, 2010). Despite the propensity to cause obesity, the program does, as Hinrichs (2010) states, serve the more important role of providing food to students that may, under a variety of circumstances, be unable to otherwise be fed. In fact, students who are fed and are well-nourished are more alert and focused in class than their hungry, under-nourished peers. There is no doubt that school food managers understand that healthier items could, and should, be added to the menu; however, this would require prices to increase and schools are reluctant to raise prices because the school lunch program is a non-profit operation (Newman, 2008). Indeed, the majority of the literature published regarding the NSLP focuses on how the program affects students' diet, weight, education, and learning; but little is reported on the financial impact, especially in light of the provisions of Section 205, of the program on individual schools.

Financial analysis, published prior to the HHFKA, reveal that most school lunch programs are not financially self-sufficient and resort to other means to break-even (Cornyn, 2001). This has several implications for the implementation of the HHFKA. First, if schools

that are already operating in a budgetary deficit cannot cover costs and are now required to provide healthier, more expensive foods, funds must be taken from elsewhere in the budget, and this could potentially mean taking dollars out of the classroom and inhibiting education (March, 2002). Secondly, it is unknown if the revenue generated from the increase in lunches mandated by Section 205 will be enough to cover both existing budgetary deficits as well as the additional costs of healthy food. Prior to the act and currently, to make up costs for the other 55 percent of spending that federal funding does not cover, schools reach out to state and district funding as well as generating revenue from other food sales. These other food sales are typically less nutritious a la carte items, but are appealing to young students and provide the needed additional revenue to help schools decrease deficits (Newman, 2008).

Another explanation for school lunch programs' deficits is the rising cost of food and health care costs for employees (Newman, 2008). March (2002) argues that most lunch programs not self-sufficient because of under-qualified managers that do not pay attention to food or labor costs. Also, poor communication between the upper administration who deals with district finances and school lunch directors adds to the problem (March, 2002). To improve financial stability, one solution is to hire qualified managers, despite the cost of higher employment costs, to make the program as efficient as possible (March, 2002).

Another federally funded program used to aid schools with achieving affordable lunch prices is the federal commodity program. This program allows schools to purchase subsidized food at low prices instead of buying food from a third party supplier. Peterson (2011) indicates that this is not a reliable funding method since states fail to receive approximately three to ten percent of entitled commodity funds, leading them to losses ranging from $35 to $87 million.

Inconsistent funding of the commodity program leads to poorer nutrition of students (Peterson 2011).

As the literature indicates, federal reimbursements under the NSLP or the commodity program are not sufficient for school lunch programs to gain enough revenue to cover all expenditures. Section 205 in the HHFKA and the USDA guidelines both require schools to spend more money in order to meet nutritional requirements; however, it has yet to be determined how these policies will impact the finances of school lunch programs or if the additional federal funding will help school lunch programs become more self-sufficient.

Methods

The percentage of school lunch programs in deficit was determined for 86 randomly selected Ohio school districts. The number of elementary school lunches and their prices for these schools were collected from their respective websites. First, a demand curve was estimated to understand the impact of the amount of lunches bought as a result of the increase in price. Then, net revenue was calculated for lunch programs as they currently stand, after one year of meeting federal guidelines, and after three years of meeting federal guidelines to understand the impact of price increases and additional per meal costs.

To develop the demand curve, the number of paid lunches was regressed on price, controlling for the districts' enrollment and the median family income. The results are presented in Table 3. They indicate that as the price increases by $1.00, the demand for total lunches in the district will decrease by 35,760.59; or as the price increases by every $0.10, the demand will decrease by 3,576 lunches.

Data on the amount of free, reduced, and paid lunches bought as well as amounts of state funding for each district were obtained from the Ohio Department of Education. Since elementary students typically have less a la carte items available and are more likely to purchase a school meal, elementary prices were used and obtained from their respective schools' websites. Data on the cost to produce a lunch was obtained from Ohio Smart Schools Benchmarking Ohio School Districts Study. Using these variables, a series of calculations were made under varying assumptions about price increases. These different calculations are intended to show how districts' deficits increase or decrease under different cost and pricing scenarios.

The first variable, 'no adjustment' was determined using the equation in Figure 1. The federal reimbursement rates are based on the NSLP requirements set by the USDA for 2012-2013 school year with the reimbursement schedule: $0.26 for paid lunch; $2.37 for reduced price lunch; and $2.77 for free lunch. In addition to federal reimbursements, schools receive money from the purchase of free and paid lunches at a rate of $0.40 for reduced-price lunches and a price determined by individual school districts for paid lunches. Net revenue in Figure 1 is determined by subtracting the cost to produce all lunches from reimbursement rates and revenue from paid and reduced-price lunches.

Federal Reimbursement= (number of paid lunches x $0.26)+(number of reduced lunches x $2.37)+(number of free lunches x $2.77)

Reduced Revenue= number of reduced lunches x $0.40

Paid Revenue= number of paid lunches x price to customer

Total Lunches= number of paid lunches served + number of reduced lunches served + number of free lunches served

Net Revenue= (Federal Reimbursement + State Reimbursement + Reduced Revenue + Paid Revenue) – (Total Lunches x Cost to Produce)

Figure 1. Equation to determine the net revenue school lunch programs are experiencing after federal and state reimbursements.

The second calculation reflects the mandatory increase in the price of lunch after implementation of the HHFKA regulations after one year. Funding Arrangement I (Figure 2a) includes the addition of $0.26 to the cost to produce lunch, as well as a $0.10 to the cost of the price of lunch in districts that currently have lunch prices below $2.50. For this variable, there is a price cap of $2.50. For example, schools that currently serve lunch for $2.45 only increase by $0.05. The price increase will decrease the demand for lunches. As a result, for each $0.10 increase, the amount of paid lunches is assumed to decreases by 3,576 following the demand curve estimated in Table 3.

Funding Arrangement II (Figure 2b) is the same as Funding Arrangement I, except that there is no price cap, in which case all schools increase their price of lunch by $0.10, regardless of what they are already charging. A decrease in 3,576 lunches was assumed for all schools as indicated with the demand curve.

Federal Reimbursement= ((number of paid lunches – 3576(w)) x $0.26)+(number of reduced lunches x $2.37)+(number of free lunches x $2.77))

Reduced Revenue= number of reduced lunches x $0.40

Paid Revenue= (number of paid lunches – 3576(w)) x price to customer

Total Lunches= (number of paid lunches served – 3576(w)) + number of reduced lunches served + number of free lunches served

Net Revenue= (Federal Reimbursement + State Reimbursement + Reduced Revenue + Paid Revenue) – (Total Lunches x (Cost to Produce+$0.026))

Where w= the number of $0.10 (or a fraction of) increments to reach $2.50.

Figure 2a. Funding arrangement I: Increase of price of lunch by $0.10 with a cap of $2.50 for the total price.

Federal Reimbursement= ((number of paid lunches – 3576) x $0.26)+(number of reduced lunches x $2.37)+(number of free lunches x $2.77))

Reduced Revenue= number of reduced lunches x $0.40

Paid Revenue= (number of paid lunches – 3576) x price to customer

Total Lunches= (number of paid lunches served – 3576) + number of reduced lunches served + number of free lunches served

Net Revenue= (Federal Reimbursement + State Reimbursement + Reduced Revenue + Paid Revenue) – (Total Lunches x (Cost to Produce+$0.026))

Figure 2b. Funding arrangement II: Increase of price of lunch by $0.10 with no cap for the total price.

Funding Arrangements III and IV, Figures 3a and 3b respectively, were also developed to determine the impact of the policy after three years. Funding Arrangement III has the same variables as Funding Arrangement I except that the price to produce lunch increases by $0.52. As a result, the multiplier for the demand curve to determine how many fewer students will purchase lunch is greater. Funding Arrangement IV increases the price to produce lunch by $0.52 and assumes that all schools, regardless of what they are currently charging, are going to raise prices by $0.30 after three years of the policy being implemented.

Federal Reimbursement= ((number of paid lunches – 3576(z)) x $0.26)+(number of reduced lunches x $2.37)+(number of free lunches x $2.77))

Reduced Revenue= number of reduced lunches x $0.40

Paid Revenue= (number of paid lunches – 3576(z)) x price to customer

Total Lunches= (number of paid lunches served – 3576(z)) + number of reduced lunches served + number of free lunches served

Net Revenue= (Federal Reimbursement + State Reimbursement + Reduced Revenue + Paid Revenue) – (Total Lunches x (Cost to Produce+$0.026))

Where z= the number of $0.30 (or a fraction of) increments to reach $2.50.

Figure 3a. Funding arrangement III: Increase of price of lunch by $0.30 with a cap of $2.50 for the total price.

Federal Reimbursement= ((number of paid lunches – 3576) x $0.26)+(number of reduced lunches x $2.37)+(number of free lunches x $2.77))

Reduced Revenue= number of reduced lunches x $0.40

Paid Revenue= (number of paid lunches – 3576) x price to customer

Total Lunches= (number of paid lunches served – 3576) + number of reduced lunches served + number of free lunches served

Net Revenue= (Federal Reimbursement + State Reimbursement + Reduced Revenue + Paid Revenue) – (Total Lunches x (Cost to Produce+$0.026))

Figure 3b. Funding arrangement IV: Increase of price of lunch by $0.30 with no cap for the total price.

Results

When considering current pricing data and number of lunch sales, the net revenue can be determined for all 86 districts as either in the red (deficit) or black (excess). The percentage of schools in the red and in the black was calculated for each funding arrangement for all districts (Table 4). After a $0.10 increase for all schools with a cap of the price of lunch being $2.50, there was no change in the number of schools in deficit; however, if all schools make the $0.10 adjustment, then the amount of schools in the red decreases from 67.44 percent to 4.65 percent. If all schools increase their lunch prices, regardless of meeting the requirements, then the number of schools in the red decreases.

To further understand differences between schools that are already meeting federal requirements compared to those that are below the price minimum for the price of lunch, schools were separated on the basis of whether their lunch prices are below or above $2.50. The results are similar, as seen in Tables 5 and 6. For schools that have lunch prices below $2.50, the majority of schools are in the red; however, there are fewer, by percentage, in the red for these

schools compared to schools who are meeting pricing minimums. In addition, the number of schools that get out of deficit is greater for schools that already have lunch prices at or greater than federal minimums.

Discussion

Through the research shown, it is clear that the price increase on lunches is allowing schools to decrease their overall deficit. This provision in federal guidelines is in fact helping to cover overall costs in regards to the costs of production for the school lunch program. Of the 86 schools accounted for, more than 60 percent of schools were able to move from the red category to the black category demonstrating losing their deficit prior to a raise in price. However, the most noteworthy finding is that only a ten cent increase will not help to alleviate the deficit, in schools overall, assuming a $2.50 cap is placed on school lunch price. There is only noteworthy change in percent of schools moving from red to black if there is no cap placed on high schools can raise prices. Consequently, the federal guideline that only requires schools to raise prices by ten cents per year is not going to solve the financial woes schools will experience when cooperating to implement the HHFKA guidelines.

Schools initially above $2.50 benefited the most when only a ten cent increase in price was implemented. For example, prior to any price increase of the 86 schools in which data was collected from, 72 percent of the schools above $2.50 experienced a deficit placing them in the red category. However, after a ten cent increase with no cap on potential price, that number decreases to only 8 percent of schools experiencing a deficit. That is a change of 64 percent.

Schools below $2.50 do experience a change in deficit if prices are increased but not on the same level of the ones whose prices are already above $2.50 with a more than four percent

change between the two categories. Incremental increases, for schools below $2.50 initially, did not help to move more schools from the red to the black.

Long term, requiring schools to raise prices to implement the HHFKA guidelines does prove to be beneficial given the amount of deficit it has allowed schools to be relieved from. Ohio's elementary schools do benefit. However, given schools are only going to raise prices to a certain point, other means are necessary in order to cover costs to completely implement the HHFKA guidelines and keep deficits down. It is uncertain to say how much schools will raise prices, given there is no cap and there is no set increment that schools must raise prices according to federal guidelines.

From this research, however, it is evident that federal guidelines are not just helping cover costs, but are aiding schools in generating additional revenue to assist in financial stability by decreasing overall deficits. It is beneficial for schools to increase prices of student meals regardless if minimum federal guidelines are already being met.

In order to further this research and capture a better picture of the financial impact, after the first year of the HHFKA implementation, which would be school year 2012-2013, further analysis should be done in order to determine if food prices have fluctuated and to analyze the actual amount of labor and administrative costs have incurred, which would directly affect the projected total cost of the HHFKA guidelines implementation.

In addition to this analysis, questions for a further study, and ones that raise interesting points, are why do some schools benefit from raising prices and some do not? The data computed in this paper shows that at two schools, one whose lunch prices were initially above $2.50 and one whose was below, actually experienced a deficit after raising prices by 30 cents

after a three year period. Why this occurred is unknown. It could be researched to determine what the similarities and differences are in these schools such as their demographics, school leadership, or division of money in overall budgets.

Table 1. Implementation Timeline of New HHFKA Food Requirements

	School Year		
New Requirement	2012/13	2013/14	2014/2015
Offer Fruit Daily	L		
Fruit Quantity Increase to 5 Cups per Week	L		
Offer Vegetable Sub-groups Daily	L		
Half of grains must be whole-grain rich	L		
All grains must be whole-grain rich	L		L
Offer weekly grains ranges	L		
Offer weekly meats/meat alternatives	L		
Offer only fat-free and low-fat milk	L, B		
Sodium Targets			L

Table 2. Projected Cost of Final Rule:
Dollars in Millions

	2012	**2013**	**2014**	**2015**	**2016**	**Total**
Food Costs	$20.8	$135.4	$178.7	$612.8	$642.8	$1,590.5
Labor Costs	$20.7	$141.9	$174.4	$598.0	$627.2	$1,562.3
State Agency/ Administrative Costs	$.01	$8.9	$9.1	$9.4	$9.7	$37.1
Total	$41.6	$286.2	$362.1	$1,220.2	$1,279	$3,189.9
Percent Change Over Baseline	2.0%	2.0%	2.5%	8.0%	8.1%	5.2%

Table 3. Number of paid lunches as a function of price of schools in the red decreases.

	Coefficient (t-statistic)
Enrollment	35.93
	(15.89)
Price	-35760.59
	(-2.76)
Median Income	1.64
	(4.43)
Constant	-3521.21
	(-0.11)
N	86.00
R-Square	0.80

Table 4. Percent of schools in the red and black when considering all schools analyzed for all funding arrangements.

Funding Arrangement	No adjustment	I	II	III	IV
% schools in red	67.44%	67.44%	4.65%	3.49%	3.49%
% schools in black	32.56%	32.56%	95.35%	96.51%	96.51%

***n*=86**

Table 5. Percent of schools in the red and black when considering all schools that initially have lunch prices below $2.50.

Funding Arrangement	No adjustment	I	II	III	IV
% schools in red	67.21%	65.57%	3.28%	3.28%	3.28%
% schools in black	32.79%	34.43%	96.72%	96.72%	96.72%

***n*=61**

Table 6.Percent of schools in the red and black when considering all schools that initially have lunch prices above $2.50. *n*=25

Funding Arrangement	No adjustment	I	II	III	IV
% schools in red	72.00%	76.00%	8.00%	4.00%	4.00%
% schools in black	28.00%	24.00%	92.00%	96.00%	96.00%

***n*=25**

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