

The National School Lunch Program in Rockbridge County

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Introduction

Historically, our Government's discretionary spending budget has been structured in a way that prioritizes building and maintaining a strong military defense system. In 2015, our government allocated \$598.49 billion (53.71% of the federal discretionary spending budget) to the military.¹ Within the same year, only \$158 million dollars had been directed towards states and school districts for entitlement funds to provide fresh fruits and vegetables to our nation's children.² At the same time, our government has neglected the development of the youth of America, which will eventually be relied on to defend the longevity of our nation's democratic standing. Today, only about 30% of all people between the ages of 17 and 24 are fit for military service, which is an issue firmly rooted in our nation's current obesity epidemic.³

The leading cause of death in the United States, heart disease, is most often acquired by the means of obesity related medical conditions and lifestyle choices, such as high blood pressure, high cholesterol, diabetes, poor diet, and physical inactivity.⁴ Although obesity is a preventable health condition, it is responsible for nearly 112,000 deaths annually.⁵ In fact, U.S. data for 2019

¹"Federal Spending: Where Does the Money Go." National Priorities Project. Accessed March 30, 2019. <https://www.nationalpriorities.org/budget-basics/federal-budget-101/spending/>.

²"Federal Spending: Where Does the Money Go." National Priorities Project. Accessed March 30, 2019. <https://www.nationalpriorities.org/budget-basics/federal-budget-101/spending/>.

³ Feeney, Nolan. "71% of U.S. Youth Don't Qualify for Military Service, Pentagon Says." Pentagon: 7 in 10 Youths Would Fail to Qualify for Military Service. June 29, 2014. Accessed March 30, 2019. <http://time.com/2938158/youth-fail-to-qualify-military-service/>.

⁴ "Top Death Causes U.S. 2017 | Statistic." Statista. 2017. Accessed December 06, 2018. <https://www.statista.com/statistics/248619/leading-causes-of-death-in-the-us/>.

⁵ Nussbaum, Paul L. "Obesity and Mortality." Chronic Lower Respiratory Disease - A National Burden. 2002. Accessed December 06, 2018. <https://www.wvdhhr.org/bph/oehp/obesity/mortality.htm>.

revealed that approximately 13.7 million children and adolescents are obese. Additionally, it has been observed that around 40% of overweight children will continue to add weight at unhealthy levels, and around 75-80% of obese adolescents will become obese adults.⁶ Thus, childhood obesity is arguably the most urgent of the health concerns that torment the wellbeing of our society.⁷ This issue should be concerning to most people because a significant amount of federal tax revenue is used to combat these issues. This is largely due to the fact that, on average, individuals who are obese have medical costs that are \$1,429 higher than people of normal weight.⁸ Additionally, the total medical costs related to obesity are \$147 billion per year in the U.S.⁹

The root of the obesity epidemic in America is the unhealthy dietary habits that develop as children grow up eating poorly. Sub-optimal dietary habits lead children to consume high quantities of low-nutrient, high calorie foods and beverages in a habitual fashion. These unhealthy eating habits commonly form within children that have not had the privilege to be exposed to healthy options from an early age. The fact of the matter is that children come to like and eat what is familiar to them. If children are not provided with, and exposed to, healthy foods and beverages from a young age, they are highly unlikely to find these foods palatable as their

⁶ Lifshitz, Fima. "Obesity in children." *Journal of clinical research in pediatric endocrinology* vol. 1,2 (2008): 53-60. doi:10.4008/jcrpe.v1i2.35

⁷ "Child Obesity Facts." Centers for Disease Control and Prevention. August 13, 2018. Accessed December 06, 2018. <https://www.cdc.gov/obesity/data/childhood.html>.

⁸ List, John A., Anya Savikhin Samek, and Terri Zhu. "Incentives to Eat Healthy: Evidence from a Grocery Store Field Experiment." *SSRN Electronic Journal*, September 21, 2015, 0-29. doi:10.2139/ssrn.2664818.

⁹ List, John A., Anya Savikhin Samek, and Terri Zhu. "Incentives to Eat Healthy: Evidence from a Grocery Store Field Experiment." *SSRN Electronic Journal*, September 21, 2015, 0-29. doi:10.2139/ssrn.2664818.

lives progress.¹⁰ In certain cases, however, children who are given the exposure to healthy foods and the option to eat a healthy diet choose to eat poorly anyways.

Thankfully, there have been several studies conducted and web articles published that address and discuss the problems that stimulate unhealthy dietary habit formation. The main message is that unhealthy dietary habits source from the failure to introduce healthy foods and beverages to children during the period of time when they transition from breastfeeding to early childhood diets.¹¹ What results are children who affiliate good taste solely with unhealthy foods, as well as a sense of unfamiliarity with, and rejection of, tasty and healthy options that exist. As these children age, their purchase behavior is perpetually dominated by the craving of the unhealthy foods they constantly seek which, due to a lack of development of palatability for healthy options early on, threatens the sustainability of an individual's long term overall health.¹²

Children who live in financially well-off households may not be exposed to healthy foods during the early phases of life due to their caregivers' neglect of, or lack of wherewithal towards, proper nutrition practices.¹³ Within these households, caretakers of children may impose substandard dietary habits on their children when healthier dietary habits are financially and locationally achievable. As these children mature, they often find themselves in situations that limit their

¹⁰ List, John, and Anya Savikhin Samek. "The Behavioralist as Nutritionist: Leveraging Behavioral Economics to Improve Child Food Choice and Consumption." *NBER Working Papers Series*, May 2014, 2-32. Accessed December 3, 2018. doi:10.3386/w20132.

¹¹ Birch, Leann L., PhD. "Development of Eating Behaviors Among Children and Adolescents." *American Academy of Pediatrics*, October 24, 1997, 539-46.

¹² Glanz, Karen. "Why Americans Eat What They Do: Taste, Nutrition, Cost, Convenience, and Weight Control Concerns as Influences on Food Consumption." *NeuroImage*. April 23, 2003. Accessed December 04, 2018. <https://www.sciencedirect.com/science/article/pii/S0002822398002600>.

¹³ Tomm, Sara. "Leading Causes of Bad Nutrition." *Healthy Eating*. June 11, 2018. Accessed December 04, 2018. <https://healthyeating.sfgate.com/leading-causes-bad-nutrition-3333.html>.

adaptability to healthier eating habits. When they become working adults, they will often miss meals and choose to opt for the quick pick-me-up refreshments that are easily provided by nutritionally deficient snacks and junk food.¹⁴ Peer influence, easy access to fast food, and addictive behaviors also plague the dietary habits of these adults as well.¹⁵

Children of low income families, on the other hand, are predisposed to a situation that puts them at a higher risk of becoming obese. These children often live in households that struggle to make ends meet financially and are often located in food deserts where availability and accessibility to nutritious foods and beverages is unfeasible. Low-income residents of food deserts are disadvantaged with regard to their dietary potential due to the unavailability of vendors that can provide them with affordable produce and other healthy consumable options. Often, people who live in these areas are unable to afford the transportation necessary to make frequent visits to the nearest produce provider. Thus, households within food deserts are limited financially and locationally to providing their children with cheap, low nutrient snacks, processed meals, and fast foods in order to survive.

Given the fact that 55 million US children between the ages 5 and 19 spend the majority of their days at school, the National School Lunch Program (NSLP) inherently has a significant role in determining the quality of our children's lives. At public schools and nonprofit private schools nationwide, the NSLP has been tasked with the duty to provide nutritious lunches to children on each school day. However, there are a number of issues that surround the program that limit its

¹⁴ Tomm, Sara. "Leading Causes of Bad Nutrition." Healthy Eating. June 11, 2018. Accessed December 04, 2018. <https://healthyeating.sfgate.com/leading-causes-bad-nutrition-3333.html>.

¹⁵ Tomm, Sara. "Leading Causes of Bad Nutrition." Healthy Eating. June 11, 2018. Accessed December 04, 2018. <https://healthyeating.sfgate.com/leading-causes-bad-nutrition-3333.html>.

effectiveness. In this paper, I will discuss the nature of these issues from a national standpoint, narrow in on the barriers that particularly effect the capability of Rockbridge County School District's Lunch Programs, and provide a solution that could bring our nation's schools one step closer to fostering positive dietary habits within our schools' children.

Literature Review

I. Progress Over Time

Over time, the NSLP has made progress towards improving its health standards and requirements. Lunches served by the NSLP must provide one-half of the daily recommended dietary allowances (RDAs) within each child's age group for protein, calcium, iron, vitamin A, and vitamin C.¹⁶ NSLP meals contain two servings of fruit and/or vegetables and one serving of milk, grain products, and meat or meat substitutes.¹⁷ Further, schools are technically required to limit total fat to 35% of the total calories and saturated fat to 10% of the total calories within each meal.¹⁸ However, the NSLP's impact is limited by three main issues: program cost issues, plate waste, and substandard meal nutrition issues.

II. Financing The NSLP

Many schools nationwide struggle with raising the financial resources that are necessary to fund their school's participation in the NSLP, as well as the resources needed to finance the food

¹⁶ Ralston, Katherine, Constance Newman, Annette Clauson, Joanne Guthrie, and Jean C. Buzby. "The National School Lunch Program Background, Trends, and Issues." The National School Lunch Program Background, Trends, and Issues. Accessed March 30, 2019. <https://www.ers.usda.gov/publications/pub-details/?pubid=46046>.

¹⁷ Philip M. Gleason, Carol W. Suitor, Eating at School: How the National School Lunch Program Affects Children's Diets, *American Journal of Agricultural Economics*, Volume 85, Issue 4, November 2003, Pages 1047–1061, <https://doi.org/10.1111/1467-8276.00507>

¹⁸ Ralston, Katherine, Constance Newman, Annette Clauson, Joanne Guthrie, and Jean C. Buzby. "The National School Lunch Program Background, Trends, and Issues." The National School Lunch Program Background, Trends, and Issues. Accessed March 30, 2019. <https://www.ers.usda.gov/publications/pub-details/?pubid=46046>.

service infrastructure necessary to prepare NSLP lunches. The rising cost of the NSLP program over the years coupled with the government's termination of financial assistance towards the purchasing and maintenance of food service equipment in 2010 has heightened the pressure on school boards to utilize private food service management companies.¹⁹ A large number of schools depend on revenues generated from the sales of processed snacks and bottled beverages provided by these companies, even though these foods and beverages have been found to contribute to overconsumption of calories and increased plate waste of nutritionally balanced NSLP lunches. This has led to decreased student intakes of important nutrients.

III. Plate Waste Issues

Student's access to unhealthy processed snacks provided by private food service management companies, the lack of appeal of the food, and the timing of lunch periods have all led to the plate waste dilemma within the current scope of the NSLP program. While the NSLP invests the effort and finances necessary to ensure that students are provided with meals that contain the RDAs of certain important nutrients, the NSLP does not invest the resources necessary to ensure that these meals are palatable. A study that observed the plate waste of 899 lunch trays found that roughly one third of grains, fruit, and vegetable menu items were wasted among the elementary students served.²⁰ Amongst middle school students, 50% of the fresh fruit, 37% of the canned

¹⁹ Ralston, Katherine, Constance Newman, Annette Clauson, Joanne Guthrie, and Jean C. Buzby. "The National School Lunch Program Background, Trends, and Issues." The National School Lunch Program Background, Trends, and Issues. Accessed March 30, 2019. <https://www.ers.usda.gov/publications/pub-details/?pubid=46046>.

²⁰ Smith, S., & Cunningham-Sabo, L. (2014). Food choice, plate waste and nutrient intake of elementary- and middle-school students participating in the US National School Lunch Program. *Public Health Nutrition*, 17(6), 1255-1263. doi:10.1017/S1368980013001894

fruit, and nearly one third of the vegetables were wasted.²¹ The food waste noted within this study resulted in a little less than half of the study's participants to fail to meet the national meal standards for vitamin A and C.²²

IV. Less Food Is Wasted When Meals Are Scheduled After Recess

Plate waste has been found to be highly influenced by the timing of a school's allotted lunch period. Studies have found that younger children waste less food when lunches are scheduled after recess.²³ This is due to the fact that children are less likely to rush through their meal to get outside if the outside activities are fulfilled before the meal. Also, children simply generate a stronger appetite after exerting themselves during recess periods, and thus are likely to eat more and waste less.²⁴

V. Farm Subsidies and Crop Prices

Many schools that participate in the NSLP struggle to incorporate locally sourced, fresh produce. The USDA's farm subsidy platform has a significant effect on the availability and accessibility of crops that are conducive to healthy living. Currently, the USDA subsidy platform significantly

²¹ Smith, S., & Cunningham-Sabo, L. (2014). Food choice, plate waste and nutrient intake of elementary- and middle-school students participating in the US National School Lunch Program. *Public Health Nutrition*, 17(6), 1255-1263. doi:10.1017/S1368980013001894

²² Smith, S., & Cunningham-Sabo, L. (2014). Food choice, plate waste and nutrient intake of elementary- and middle-school students participating in the US National School Lunch Program. *Public Health Nutrition*, 17(6), 1255-1263. doi:10.1017/S1368980013001894

²³ Ralston, Katherine, Constance Newman, Annette Clauson, Joanne Guthrie, and Jean C. Buzby. "The National School Lunch Program Background, Trends, and Issues." The National School Lunch Program Background, Trends, and Issues. Accessed March 30, 2019. <https://www.ers.usda.gov/publications/pub-details/?pubid=46046>.

²⁴ Ralston, Katherine, Constance Newman, Annette Clauson, Joanne Guthrie, and Jean C. Buzby. "The National School Lunch Program Background, Trends, and Issues." The National School Lunch Program Background, Trends, and Issues. Accessed March 30, 2019. <https://www.ers.usda.gov/publications/pub-details/?pubid=46046>.

affects the affordability of nutrient-rich fruits, vegetables, and grains that children need on a consistent basis to develop healthy lifestyles, as well as reach their potential within the classroom and within life in general. The majority of the discretionary spending budget that is allotted to farming and agriculture is funneled into the Farms and Corporations with the highest levels of political clout that produce solely commodity crops. 84% of the USDA's farm fund goes towards subsidizing the production cotton, corn, wheat, rice, and soy. Meanwhile, less than 1% of the USDA's farming subsidy fund is directed towards the production of fruits, vegetables, and whole grains.²⁵ Of the 300-million-plus acres planted with food in this country (excluding grass, hay, and other crops grown to feed animals), around half are corn and soy.²⁶ Another 50 million are wheat. Only 14 million acres of land in the United States are devoted to growing fruits and vegetables, and almost all of that land is within the state lines of California, Idaho, Maine, Oregon, Texas, Washington, Wisconsin, Florida, and Minnesota.²⁷

This subsidy structure originated with the establishment of the Farm Commodity Program, which was implemented during the 1930s as part of FDR's New Deal. The idea of the program was to assist the struggling farmers of America during the Great Depression by subsidizing the production of certain crops that could be grown nationwide, produced in large quantities, and stored for prolonged periods of time to be held and sold in markets across the country. This

²⁵ *A Place at the Table*. Directed by Lori Silverbush and Kristi Jacobson. Netflix.com. March 1, 2013. Accessed February 15, 2019.

²⁶ Haspel, Tamar. "Farm Bill: Why Don't Taxpayers Subsidize the Foods That Are Better for Us?" The Washington Post. February 18, 2014. Accessed March 30, 2019. https://www.washingtonpost.com/lifestyle/food/farm-bill-why-dont-taxpayers-subsidize-the-foods-that-are-better-for-us/2014/02/14/d7642a3c-9434-11e3-84e1-27626c5ef5fb_story.html?noredirect=on&utm_term=.b10b4af3ad8c.

²⁷ Haspel, Tamar. "Farm Bill: Why Don't Taxpayers Subsidize the Foods That Are Better for Us?" The Washington Post. February 18, 2014. Accessed March 30, 2019. https://www.washingtonpost.com/lifestyle/food/farm-bill-why-dont-taxpayers-subsidize-the-foods-that-are-better-for-us/2014/02/14/d7642a3c-9434-11e3-84e1-27626c5ef5fb_story.html?noredirect=on&utm_term=.b10b4af3ad8c.

meant that the crops within this program had to have long shelf lives, which is why produce nutrient rich crops with short shelf lives were excluded from the commodity crop list. At the time, the exclusion of produce from the commodity crop list did not have a large an impact on the health of American Society because a significant portion of Americans were able to grow produce in their home gardens.

However, as our farming priorities remain constant, and home gardens become less feasible for families, the increasing number of food insecure households remain systematically excluded from consuming sufficient levels of fresh fruits and vegetables. National data indicates that fruit and vegetable intake among school age children is below the recommended levels, particularly among low-income children. As a result, 1 in 3 minority children born in 2000 or later are expected to develop type 2 diabetes.²⁸

VI. Commodity Crops Are Also Less Risky to Grow

In the United States, only commodity crop growers are given a premium form of risk aversion. In the farming industry, an income that is relatively guaranteed is hard to pass up, and growing commodity crops give farmers the sustainable economic security they need to make a comfortable living. Under the 2014 farm bill, commodity growers were extended the entitlement to a choice between Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC), which

²⁸ Freeman, Bill. "One in Three US Children Born in 2000 Will Develop Diabetes." Worldhealth.net. November 10, 2003. Accessed March 30, 2019. https://www.worldhealth.net/news/one_in_three_us_children_born_in_2000_wi/.

guarantees farmers protection from both losses (PLC) and price drops (ARC) of commodity crops.²⁹

Methodology

After conducting extensive research on the National School Lunch Program, I decided to narrow my focus on the school lunch programs within Rockbridge County. Having been a member of this community for the past three years, I thought it was necessary to investigate the underlying lunch program issues that Rockbridge Schools currently face. In order to gain a better understanding of Rockbridge County's school lunch program situation, I conducted interviews with four academic officials within the Rockbridge County School District.

The set of questions I asked were slightly different for each individual. I started my interview process by sitting down to a one-on-one, in person discussion with Lori Teague, who is currently the Principle of Mountain View Elementary (MVE) in Buena Vista, Virginia. The five questions that I prepared for the interview are listed below, and were intended to help me gain a basic understanding of the NSLP in Rockbridge.

- 1) Are you satisfied with what is provided by the National School Lunch Program?
- 2) How many of the children at Mountain View Elementary qualify for free or reduced-price lunches within the NSLP?
- 3) How do the children feel about what is provided by the National School Lunch Program?

²⁹ Haspel, Tamar. "Farm Bill: Why Don't Taxpayers Subsidize the Foods That Are Better for Us?" The Washington Post. February 18, 2014. Accessed March 30, 2019. https://www.washingtonpost.com/lifestyle/food/farm-bill-why-dont-taxpayers-subsidize-the-foods-that-are-better-for-us/2014/02/14/d7642a3c-9434-11e3-84e1-27626c5ef5fb_story.html?noredirect=on&utm_term=.f1ce9038bf11.

- 4) Does your school employ any methods of passive or active nutrition education?
- 5) How do you think a hands-on Cooking program would impact the diets of kids in Rockbridge County?

Our discussion not only helped me gain an incredible amount of perspective regarding the NSLP in Rockbridge County, but also connected me to the next two individuals that I approached to interview.

Over email, I contacted both Daphanie Stickley, the Rockbridge County School District Nutrition Director, and Rebecca Walters, the Division Superintendent for Lexington City Schools. I reached out to these two individuals with two different question sets in order to gain some additional information pertaining to the presence of the NSLP within the Rockbridge County School District. The questions I extended to Daphanie Stickley were asked to help me improve my knowledge of the agricultural and funding issues that Rockbridge County Schools deal with.

- 1) Explain the farm-to-table relationship that schools around BV and Rockbridge County areas had with local farmers in the past.
- 2) Is there a strong farm-to-table relationship today within schools around the BV and Rockbridge County areas? If not, why not?
- 3) What difficulties and weaknesses have you observed and identified within the funding and resource aspects of the National School Lunch Program, if any?

When I interviewed Rebecca Walters, I used virtually the same set of questions that I asked Principal Teague. The only change was the addition of a couple of questions to understand her thoughts about how the NSLP could improve in the future, as well as how certain volunteer programs that both she and Lori Teague mentioned have affected the school district's students. Fortunately, Mrs. Walters took the initiative to gain some extra insight for me from Waddell Elementary School's cafeteria manager, Mrs. Lou Hassler. Waddell Elementary School is located here in the city of Lexington, Virginia. The questions I asked her were the following:

- 1) Are you satisfied with what is provided by the National School Lunch Program?
- 2) How many Rockbridge students would you say participate in the National School Lunch Program?
- 3) Do Rockbridge students provide any feedback about the quality and taste of the food?
- 4) Are there a significant number of children in Rockbridge County that are eligible yet have struggled with becoming certified for free or reduced lunches?
- 5) Do Rockbridge Schools employ any methods of passive or active nutrition education?
- 6) How do you think the NSLP could improve?
- 7) How have the volunteer programs that incorporate fresh fruits and vegetables impacted your children? Have you noticed any changes being made to their diets or desire to eat healthier?

After receiving the responses from Ms. Walters, I asked her to connect me to additional contacts within the network of principals and education officials in the district. From this exchange, I was able to get in touch with Vicki Stevens, the principal of Natural Bridge Elementary (NBE)

located in Natural Bridge Station, Virginia. Below, I list the set of questions that I asked Ms. Stevens.

- 1) Are you satisfied with what's provided by the National School Lunch Program?
- 2) How many of your kids would you say participate in the National School Lunch Program?
- 3) Do the children that attend Natural Bridge Elementary provide any feedback about the quality and taste of the food
- 4) Do you have any children at your school that have struggled with becoming certified for free or reduced lunches?
- 5) Does your school employ any methods of passive or active nutrition education? Any cooking education?
- 6) Does your school's lunch program waste a significant amount of food?
- 7) How do you think the NSLP could improve?
- 8) Describe your school's situation regarding access to fresh fruits and vegetables. Are there any local growers that provide produce to your school? Do procurement and sanitation guidelines affect the accessibility of locally grown produce?

Analysis

How Many Children in Rockbridge County Schools Participate in the NSLP Program?

Of all students between Pre-K and Eighth Grade, 26% of students, which is around 530 students, qualify for reduced price or free lunches.³⁰ However, there are students in Rockbridge County

³⁰ Walters, R. (2019, February 28). Personal interview

who technically qualify for free or reduced-price lunches that do not follow through. According to Principal Stevens, at NBE alone, there are around thirty children that could receive free or reduced-price lunches, but their parents “do not want to do the paperwork required to get it”.³¹ Principle Stevens added that some households do not follow through with registration for free or reduced-price lunches because of personal issues that certain parents struggle with. For instance, certain children’s “parents are in jail... for others they don’t want to take the time to do it”.³²

Within the Rockbridge County School District, participation rates vary widely from school to school. For instance, at MVE, about 55% to 60% of the student body participates in the School’s Lunch Program, but at NBE, more than 80% of the student population participates.³³ On average, only about 40% of students in Rockbridge County between Pre-K and Fifth Grade participate in their school’s lunch program on a daily basis.³⁴ For those who are in grades six through eight, 30% participate in their school’s lunch program daily.³⁵

Challenges With Funding the NSLP

I. Current Methods of Financing

Rockbridge’s largest difficulty with the NSLP program is the school district’s yearly struggle to raise the funds to cover the costs of running the program.³⁶ Often, like many other schools nationwide, Rockbridge schools have to rely on the sales generated from full price lunches and competitive food sources, like vending machines, to offset any funding shortfalls.

³¹ Stevens, V. (2019, March 1). Personal interview

³² Stevens, V. (2019, March 1). Personal interview

³³ Stevens, V. (2019, March 1). Personal interview

³⁴ Walters, R. (2019, February 28). Personal interview

³⁵ Walters, R. (2019, February 28). Personal interview

³⁶ Stickley, D. (2019, February 2). Personal interview

Currently, all public and nonprofit private schools are entitled to reimbursements from the USDA's Food Nutrition Service for the meals that they serve to students. The NSLP is administered at a local level by a school food authority (SFA), which works in accordance with each individual school district.³⁷ These SFAs are then reimbursed, depending on the financial need of each student, by the USDA for the meals that they serve. The current system gives schools the ability to provide their low-income students with free or reduced-price nutritious lunches, depending on their income level. Students who qualify for free lunches are individuals who live in a household whose income level is below 130% of the poverty line. For each free lunch served, schools are reimbursed \$3.31.³⁸ Those who come from a household with a family income between 130% and 185% qualify for reduced price lunches, and all students whose families earn a household income above 185% of the poverty line must purchase lunches at full price.³⁹ Reimbursement rates for reduced price meals and full price meals are \$2.91 and \$0.31 respectively.⁴⁰

The reimbursement rates are set at a national level but are variable with respect to a number of factors, such as the size and location of a school. These factors play a role in the costs schools incur to provide meals. The Economic Research Service within the USDA pointed out a study that provided perspective relating to how impactful school size and location can be on the cost of running the NSLP. Within the study, the schools serving the highest number of lunches had per-

³⁷ Ollinger, Michael, and Joanne Guthrie. "Economies of Scale, the Lunch-Breakfast Ratio, and the Cost of USDA School Breakfasts and Lunches." Economic Research Service. November 2015. Accessed March 2019. https://www.ers.usda.gov/webdocs/publications/45438/54356_err-196_summary.pdf?v=0.

³⁸ "Participation, Meals Served and Program Cost." School Meal Trends & Stats. 2019. Accessed April 06, 2019. <https://schoolnutrition.org/aboutschoolmeals/schoolmealtrendsstats/>.

³⁹ Mirtcheva, Donka M., PhD, and Lisa M. Powell, PhD. "Participation in the National School Lunch Program: Importance of School-Level and Neighborhood Contextual Factors." Wiley Online Library. September 2009. Accessed February/March 2019. <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1746-1561.2009.00438.x>.

⁴⁰ "Participation, Meals Served and Program Cost." School Meal Trends & Stats. 2019. Accessed April 06, 2019. <https://schoolnutrition.org/aboutschoolmeals/schoolmealtrendsstats/>.

lunch costs that were 19% lower than schools serving the lowest number of lunches.⁴¹ Thus, school districts that are located in a small, rural areas like Rockbridge County are going to be on the short end of the economies of scale effect within the program.

A recent study done by the Economic Research Service suggested that participation rates for paid meals have declined steeply between 2008 to 2014, which is mainly attributable to price increases for paid meals that began in 2011 and the recovery of program participation following of the Great Recession.⁴² School Districts that are smaller and more rural, like the Rockbridge County School District, are particularly prone to experiencing discouraged paid meal participation.⁴³ In turn, Rockbridge County School District, and many other small, rural school districts, have struggled to adjust to the new meal standards while maintaining the palatability of the meals served.

In addition to school size and location, cost constraints to run the program surface from the perpetual struggle to maintain paid meal participation while simultaneously adhering to the new meal standards that were implemented in 2010 by the Healthy, Hunger-Free Kids Act. These standards align the school lunch programs with the most recent Dietary Guidelines for Americans. Overall, the standards were enforced in attempt to increase the “availability of fruits,

⁴¹ Ollinger, Michael, and Joanne Guthrie. "Economies of Scale, the Lunch-Breakfast Ratio, and the Cost of USDA School Breakfasts and Lunches." Economic Research Service. November 2015. Accessed March 2019. https://www.ers.usda.gov/webdocs/publications/45438/54356_err-196_summary.pdf?v=0.

⁴² Ralston, Katherine, and Constance Newman. "School Meals in Transition." Economic Research Service. August 2015. Accessed February/March 2019. Ollinger, Michael, and Joanne Guthrie. "Economies of Scale, the Lunch-Breakfast Ratio, and the Cost of USDA School Breakfasts and Lunches." Economic Research Service. November 2015. Accessed March 2019. https://www.ers.usda.gov/webdocs/publications/45438/54356_err-196_summary.pdf?v=0.

⁴³ Ralston, Katherine, and Constance Newman. "School Meals in Transition." Economic Research Service. August 2015. Accessed February/March 2019. Ollinger, Michael, and Joanne Guthrie. "Economies of Scale, the Lunch-Breakfast Ratio, and the Cost of USDA School Breakfasts and Lunches." Economic Research Service. November 2015. Accessed March 2019. https://www.ers.usda.gov/webdocs/publications/45438/54356_err-196_summary.pdf?v=0.

vegetables, whole grains, and fat-free and low-fat fluid milk in school lunches; reduce the levels of sodium, saturated fat and trans fat in meals; and meet the nutrition needs of school children within their calorie requirements”.⁴⁴

Plus, since 1981, schools have not received financial aid for foodservice equipment, which has added to the financial burden of running the program.⁴⁵ During my conversation with Principal Lori Teague at MVE, she expressed her frustration with the lack of financial aid to support the establishment and maintenance cafeteria-related infrastructure. The financial investment in MVE’s cafeteria staff and equipment is entirely separate from the agenda of Rockbridge County’s SFA, meaning that the school and the surrounding community must cover these costs.⁴⁶ This is of particular concern for a school like MVE that relies heavily on cash inflows from a community that has struggled financially from a collective standpoint. The median household income for Buena Vista is \$29,109, a figure that is 56% lower than the overall Virginia median household income (\$66,149) and 47% lower than the national average (\$55,322).⁴⁷ Unsurprisingly, about half of MVE’s students qualify for reduced price or free lunches.⁴⁸ At a school like MVE that has a high percentage of students that rely on school prepared lunches, food service equipment endures a higher level of wear and tear on a daily basis, causing the equipment to depreciate at a faster rate than at schools within communities that are more financially well off. As you can imagine, this adds to the financial pressure that schools

⁴⁴ "Nutrition Standards in the National School Lunch and School Breakfast Programs." Government Publishing Office. January 26, 2012. Accessed April 4, 2019. <https://www.govinfo.gov/content/pkg/FR-2012-01-26/pdf/2012-1010.pdf>.

⁴⁵ Teague, L. (2019, January 28). Personal interview

⁴⁶ Teague, L. (2019, January 28). Personal interview

⁴⁷ "Buena Vista Employment Information." AreaVibes. 2016. Accessed February/March 2019. <https://www.areavibes.com/buena-vista-va/employment/>.

⁴⁸ Teague, L. (2019, January 28). Personal interview

like MVE endure on a yearly basis, which further limits their ability to meet the nutrition standards of the program.

II. The Proposed Block Grant Funding Structure

Recently, proposals have been made to remodel school meal programs from an entitlement structure to a block grant structure. This issue is of particular concern because fixed-sum school meal block grants would cut funds for meal programs to a devastating extent and would also reduce the strength of the federal school nutrition standards currently in place. Under the block grant structure, states would be held to more ambiguous nutrition standards, which would solely require them to provide one “healthy and affordable” meal.⁴⁹ Beyond that, individual schools would have all of the power to set nutrition and eligibility rules. If the block grant structure were to be implemented, it would go against the word of the Federal Government, which promised American families in 1946 that students would always have access to healthy meals at school.⁵⁰ Currently, the entitlement structure within the NSLP allows the program to determine which students are eligible for free meals and sets a set of nutritional and safety standards that schools are supposed to follow.⁵¹

The proposed block grant structure would also put several children at risk of being denied lunches at school. Block grants would set the amount of funding a state receives for school lunch programs at a certain level one year, which would be inalterable without adjustment for inflation for the next three years to come. In the scenario that a state runs out of funds for its lunch

⁴⁹ Neuberger, Zoe. "House Proposal to Block-Grant School Meal Programs Would Put Children's Nutrition at Risk." Center on Budget and Policy Priorities. October 11, 2017. Accessed February/March 2019. <https://www.cbpp.org/research/food-assistance/house-proposal-to-block-grant-school-meal-programs-would-put-childrens>.

⁵⁰ Stickley, D. (2019, February 2). Personal interview

⁵¹ Stickley, D. (2019, February 2). Personal interview

programs during a school year, there would be no guarantee that financially disadvantaged students would continue to receive free school meals. Additionally, the transition from an entitlement to block grant system would make school lunch program systems largely incapable of responding to times of urgent need. Mrs. Stickley asserted that under the block grant system, schools would not be able to guarantee lunches to at-risk students that would surface during an economic downturn or during periods of rising enrollment. Even vulnerable children who need temporary assistance due to a national disaster could be denied school meals. Additionally, a bill enforcing a block grant structure would allow states to divert resources from school meals towards other purposes, as long as that particular state's legislature concluded those purposes met school-aged children's nutritional needs⁵². States would then be in the position to shrink school meal funds to address other budget related issues. Hypothetically, under the block grant structure, if a state decided to that it needed a large sum of money to build a series of monuments, it could retract funds from the state's schools' lunch programs to do so.

Nutritional Content of the Program

I. Rockbridge Lunch Programs Lack a Significant Presence of Locally Sourced Produce

An issue that was addressed by each academic official that I spoke with was the lack of fresh, high-quality fruit and vegetable products within Rockbridge County School Lunch Programs.

This issue has been perpetuated overtime by the county's unmalleable agricultural landscape.

Historically, the county's agricultural system has prioritized meeting the cattle feed demand and

⁵² Neuberger, Zoe. "House Proposal to Block-Grant School Meal Programs Would Put Children's Nutrition at Risk." Center on Budget and Policy Priorities. October 11, 2017. Accessed February/March 2019. <https://www.cbpp.org/research/food-assistance/house-proposal-to-block-grant-school-meal-programs-would-put-childrens>.

grazing needs of the area's thriving beef and dairy markets.⁵³ As a result, Rockbridge County has been unable to establish a significant produce growing presence within its agricultural framework. In fact, within the Rockbridge Area, there is not even one large-scale agricultural farm that yields produce for human consumption.⁵⁴ This problem stems from three main phenomena: Rockbridge County's climate, the USDA's farm subsidy platform, and the United States' growing demand for beef and dairy products.

Currently, the only fresh produce items that Rockbridge County Schools are consistently sourcing from local growers are tomatoes, peppers, potatoes, and broccoli. However, Rockbridge County Schools are only receiving enough of these items to occasionally include in school lunches.⁵⁵ Outside of the county, Rockbridge Schools are periodically able to receive produce items from Rockingham and Augusta counties. From these counties, hydroponic lettuces, fresh apples, and sweet potatoes have been purchased for use within Rockbridge School lunches.⁵⁶

II. Why are Most Rockbridge Farmers Only Raising Cattle?

Farmers, like the rest of us, have a family to feed and bills to pay. Producing any sort of crop in Rockbridge County is incredibly risky. The relatively cold winters, the seemingly never-ending rain during the winter and spring seasons, and other uncontrollable climate-related factors can make farmers less profitable. Also, the local landscape of Rockbridge County is dotted with rocks, making it difficult to grow crops.⁵⁷

⁵³ Stickley, D. (2019, February 2). Personal interview

⁵⁴ Stickley, D. (2019, February 2). Personal interview

⁵⁵ Stickley, D. (2019, February 2). Personal interview

⁵⁶ Stickley, D. (2019, February 2). Personal interview

⁵⁷ Kanzinger, Ellen, Faith E. Pinho, and Maria Rachal. "Farming Rockbridge." Farming Rockbridge. May 18, 2018. Accessed March 31, 2019. <https://www.farmingrockbridge.com/>.

On top of that, land for farming in Rockbridge is incredibly expensive. Per \$100 value, the real estate tax rate for land in Rockbridge County (\$0.70) is held at a higher rate than Bath (\$0.50) and Augusta (\$0.63) counties, which are right next door.⁵⁸ As a result, farmers need to reel in a bang for their buck, which leads many farmers in the area to raise livestock instead of crops for human consumption. While most of Shenandoah Valley's top produce growers can be found right next door in Augusta County, the Rockbridge School District has not been able to maintain a steady stream of produce from the county.⁵⁹ This is largely due to the fact that sales of produce are more lucrative for Augusta County Farmers in local markets.⁶⁰

Program Feedback

I. Meals Are Not as Nutritious as They Could Be

Lunches provided to students by the NSLP within Rockbridge Schools provide the caloric intake children need to make it through the day in an academic setting, but seldom incorporate nutritious elements that are conducive to the development of long-term healthy dietary habits. A majority of the lunches served are highly processed meals containing, in the words of Principle Teague, "a lot of pizza and mashed potatoes, as well as every form of pressed chicken that exists: chicken patties, chicken nuggets, and chicken tenders".⁶¹ Fresh fruits and vegetables are seldom incorporated into school lunches.⁶² While the academic officials I spoke with would like to see

⁵⁸ Kanzinger, Ellen, Faith E. Pinho, and Maria Rachal. "Farming Rockbridge." Farming Rockbridge. May 18, 2018. Accessed March 31, 2019. <https://www.farmingrockbridge.com/>.

⁵⁹ "Farm Fresh." Farm Fresh – Augusta. Accessed April 05, 2019. <http://www.visitaugustacounty.com/farm-fresh/>.

⁶⁰ Stickley, D. (2019, February 2). Personal interview

⁶¹ Teague, L. (2019, January 28). Personal interview

⁶² Walters, R. (2019, February 28). Personal interview

Rockbridge School Children eat a wider variety of meals, as well as more fresh fruits and vegetables, there are certain barriers that prevent them from the necessary incorporation.

II. Difficulty Providing Palatable Variety

Rockbridge Schools are limited with respect to the amount of palatable food options available to purchase through the NSLP.⁶³ Superintendent Walters mentioned that Rockbridge County Schools generally are not able to provide meals that are appealing to “today’s youth”. She indicated that the choices at the disposal of their cafeteria manager through the NSLP are not exactly what children would typically choose to eat on their own terms.⁶⁴ This issue has resulted in the Rockbridge School District experiencing an incessant waste issue within their School Lunch Programs. Principle Stevens, Principle Teague, and Superintendent Walters all attested to the fact that not only do some items go untouched within meals, but many lunches go wasted without a single item consumed, which is relatively consistent with national lunch waste trends.⁶⁵ As a result, the lunch programs within Rockbridge County Schools become routine, rotating, and repetitive. In fact, the lunch programs within Rockbridge Schools typically cycle through a ten-to-fifteen-day rotation of nutritionally suboptimal fare that children are barely willing to consume.⁶⁶

While it would be in the best interest for Rockbridge Students to eat a wider variety of meals and more fresh fruits and vegetables, the children tend to “only want to eat what they know”, which limits what the school cafeterias are able to purchase and prepare.⁶⁷ In the past, MVE

⁶³ Walters, R. (2019, February 28). Personal interview

⁶⁴ Walters, R. (2019, February 28). Personal interview

⁶⁵ Stevens, V. (2019, March 1). Personal interview, Teague, L. (2019, January 28). Personal interview, Walters, R. (2019, February 28). Personal interview

⁶⁶ Walters, R. (2019, February 28). Personal interview

⁶⁷ Teague, L. (2019, January 28). Personal interview

experimented with a series of new dishes purchased through the NSLP such as low-fat fettuccini alfredo with grilled chicken but did not get the feedback from the children that they hoped for.⁶⁸ Overtime, MVE had to stop its efforts to experiment with new meal options because the children would refuse to eat them.⁶⁹

The School District has not ignored the countless uneaten plates that have been found to be entirely wasted. However, the feedback received by faculties from students of Rockbridge County Schools has not led to any productive insights towards providing more healthy, palatable meals. In the past, Superintendent Walters has surveyed students to hear their thoughts about the food options provided to them, as well as what they would like to see more of within their lunch program. Most students, as one can imagine, requested fast food items and processed snacks, which, thankfully, are not foods that Rockbridge Schools have been willing to implement.⁷⁰

The Current Scope of Rockbridge School Dietary Interventions

No Nutrition Education Within the District's Academic Agenda

The Rockbridge County School District does not currently require their schools to implement nutrition education or dietary interventions of any kind. Most nutrition and dietary intervention programs within the county are manifested from local nonprofit groups and organizations. From the knowledge I obtained from the interviews I conducted, little success has resulted from school PTA efforts to implement nutrition education and dietary interventions within the academic agendas of all of Rockbridge County Schools.

⁶⁸ Teague, L. (2019, January 28). Personal interview

⁶⁹ Teague, L. (2019, January 28). Personal interview

⁷⁰ Walters, R. (2019, February 28). Personal interview

The Veggie Brigade

The main dietary intervention-related presence within the Rockbridge School District is the Veggie Brigade. The Veggie Brigade, a partnership program between the Let's Move Lexington Organization and the Bonner Scholars from Washington and Lee University, visits several schools in the Rockbridge Area to introduce children to fruits and vegetables that they may have never tried.⁷¹ During those visits, school children have the opportunity to try an array of freshly cut fruits and vegetables. At NBE, the “no yuck rule” is enforced during the program, which requires each child to at least give each offering a taste before moving on.⁷² Often, children are also given a reward (usually a small knickknack of some sort) for exiting their comfort zone to try something new.⁷³

The Veggie Brigade has received positive feedback from Rockbridge Schools. An aspect that schools admire about the program is that it is solely a dietary supplement to the lunches that the children already eat.⁷⁴ This way, schools do not have to dig into their budget to introduce their children to new foods that they may not want to eat. Many of the students who participate in the Veggie Brigade Program are experiencing most of the offered items for the first time. As a matter of fact, at MVE, there are several children who have “never even tried a fresh strawberry before”.⁷⁵ When the Veggie Brigade visits MVE, the children who participate “get excited about

⁷¹ Tschiggfrie, Sarah. "W&L Veggie Brigades Descend on Rockbridge County Schools." *The Columns*. April 01, 2012. Accessed February/March 2019. <https://columns.wlu.edu/wl-veggie-brigades-descend-on-rockbridge-county-schools/>.

⁷² Tschiggfrie, Sarah. "W&L Veggie Brigades Descend on Rockbridge County Schools." *The Columns*. April 01, 2012. Accessed February/March 2019. <https://columns.wlu.edu/wl-veggie-brigades-descend-on-rockbridge-county-schools/>.

⁷³ Tschiggfrie, Sarah. "W&L Veggie Brigades Descend on Rockbridge County Schools." *The Columns*. April 01, 2012. Accessed February/March 2019. <https://columns.wlu.edu/wl-veggie-brigades-descend-on-rockbridge-county-schools/>.

⁷⁴ Teague, L. (2019, January 28). Personal interview

⁷⁵ Teague, L. (2019, January 28). Personal interview

it” and “tend to try all of the vegetables within the program”.⁷⁶ In actuality, a number of the children leave the program wanting more. After the end of each session, Principal Teague has found that children “will pressure their parents to provide those foods for them”.⁷⁷

At Waddell Elementary, the students “always enjoy when the Veggie Brigade comes to visit them”.⁷⁸ There is something about the Veggie Brigade Program that makes children excited to eat fresh fruits and vegetables, whether its “because they haven’t tried the food before, or maybe because a friend they are sitting beside might try it”.⁷⁹

Potential Dietary Intervention to Consider: Hands-on Cooking Education

Hands-on cooking education has shown promising results within its capacity to help children develop positive sentiment towards healthy eating options. Therefore, the employment of reoccurring and consistent hands-on cooking education within school agendas could be an effective way to not only decrease plate waste of healthy items within Rockbridge Lunch Program Meals, but also improve childrens’ dietary habits in general.

A study done by Leslie Cunningham-Sabo et al. found that an opportunity to directly experience foods through tasting and cooking activities positively affected fruit and vegetable preferences. By the end of the experiment, the participants’ vegetable preferences, in particular, were recorded to be three times greater than those of the comparison students.⁸⁰

⁷⁶ Teague, L. (2019, January 28). Personal interview

⁷⁷ Teague, L. (2019, January 28). Personal interview

⁷⁸ Walters, R. (2019, February 28). Personal interview

⁷⁹ Walters, R. (2019, February 28). Personal interview

⁸⁰ Cunningham-Sabo, Leslie, and Barbara Lohse. “Cooking with Kids positively affects fourth graders' vegetable preferences and attitudes and self-efficacy for food and cooking.” *Childhood obesity (Print)* vol. 9,6 (2013): 549-56. doi:10.1089/chi.2013.0076

Another study conducted by Elizabeth Miller et al. called *What's Cooking* revealed that hands-on cooking education can go beyond simply improving attitudes towards fruits and vegetables. Miller's study educated parents and children simultaneously about nutrition and the cooking of healthy foods in a hands-on setting. This method of cooking education not only improved children's' attitudes towards vegetables, but also led the children to autonomously request that their parents purchase more fruit and vegetables outside of the program when at the grocery store.⁸¹ Additionally, child participants left the program feeling inclined to ask their parents to help more in their family's kitchen at home and to prepare the healthy recipes taught to them during the program.⁸² Following the program's completion, the participants who were parents involved the program felt more comfortable including their children in the process of preparing meals due to their children's' attainment of knowledge about safe methods of meal preparation.⁸³ This led to parents spending more time overall with their children.⁸⁴

These programs, all of which focused on either pre-school or elementary school students, were incredibly effective with regard to their ability to improve children's' sentiment towards fruits and vegetables. Unfortunately, a large number of public school districts, including Rockbridge

⁸¹ Miller, Elizabeth. ""What's Cooking?": Qualitative Evaluation of a Head Start Parent-Child Pilot Cooking Program." SagePub. November 21, 2016. Accessed February/March 2019. <https://journals.sagepub.com/doi/full/10.1177/1524839916679104>.

⁸² Miller, Elizabeth. ""What's Cooking?": Qualitative Evaluation of a Head Start Parent-Child Pilot Cooking Program." SagePub. November 21, 2016. Accessed February/March 2019. <https://journals.sagepub.com/doi/full/10.1177/1524839916679104>.

⁸³ Miller, Elizabeth. ""What's Cooking?": Qualitative Evaluation of a Head Start Parent-Child Pilot Cooking Program." SagePub. November 21, 2016. Accessed February/March 2019. <https://journals.sagepub.com/doi/full/10.1177/1524839916679104>.

⁸⁴ Miller, Elizabeth. ""What's Cooking?": Qualitative Evaluation of a Head Start Parent-Child Pilot Cooking Program." SagePub. November 21, 2016. Accessed February/March 2019. <https://journals.sagepub.com/doi/full/10.1177/1524839916679104>.

County School District, are affected by certain externalities that limit their ability to incorporate hands-on cooking programs within their agendas the pressure schools are faced with to achieve academic benchmarks and a shortage of resources are the most significant barriers that prevent schools from incorporating hands-on cooking education programs.⁸⁵

The only school that has experimented with hands-on cooking education in Rockbridge County is NBE, which has been able to include cooking classes on occasion in its after-school program.⁸⁶ However, if it were feasible, the schools that have not had the opportunity to employ hands-on cooking education would be open to the prospect of it. When I asked Principle Teague about how she thought a hands-on cooking program would impact kids at MVE, she imagined that this sort of program would be a “great way to get kids excited to try new things that their families would not necessarily provide at home”.⁸⁷

Conclusions

Obesity is among the most powerful detriments to the overall health of our society. In tax dollars, US citizens inadvertently pay an insurmountable amount of money to combat obesity-related health issues that are intrinsically preventable. This is an issue that can become less prominent within our society by giving our children the tools to establish positive dietary habits. To soften the persistence of the obesity epidemic, what must be understood is that the root of the problem lies within the fact that premium foods, like fresh fruits and vegetables, are not exposed to a large portion of our nation’s population until it is too late.

⁸⁵ Teague, L. (2019, January 28). Personal interview

⁸⁶ Stevens, V. (2019, March 1). Personal interview, Teague

⁸⁷ Teague, L. (2019, January 28). Personal interview

Given that 55 million children in the United States between the ages of 5 and 19 spend the majority of their days at school, a wise place to begin our battle against obesity going forward would be within our schools by establishing a National Lunch Program that is empowered to ensure that the meals our children are eating at school are both nutritious and palatable. While the NSLP has made modest progress overtime by bettering its nutritional offerings, the meals that it provides have remained relatively unpalatable. Also, student's attitudes towards NSLP meals and nutritious foods in general have remained stagnantly negative, which is reflected by the NSLP's food-waste dilemma.

The Rockbridge County School District is a picture-perfect example of a public school district that struggles with a feeling of powerlessness within its ability to provide its children with nutritious, yet palatable meals. Rockbridge County's climate and rocky landscape, disadvantageous financial standing, and childrens' neglect of unfamiliar lunch fare are all factors that have contributed to this dilemma. While Rockbridge County may not be able to control the finances and locally grown ingredients that it's community members are able to funnel into its school district, it may have the potential to provide its children with the foundation of positive dietary habits if given the necessary support.

In order to make the NSLP more palatable and less wasteful, the USDA, as well as the creators of our government's discretionary budget, must understand that solely continuing to improve the quality of the NSLP's meals is not going to get the job done. In tandem with higher quality food, the NSLP, or some other entity involved with young school children, must be equipped with the

ability to assure that our nation's children are becoming receptive to the healthy foods that are being provided to them. In order to do so, it is vital that dietary interventions that have been proven to be effective are implemented within the agenda of school districts to help their children achieve the positive sentiment towards healthy foods that they need to establish favorable dietary habits overtime.