ADDRESSING INADEQUATE CONSUMPTION OF FRUITS AND VEGETABLES IN THE U.S.

A FEDERAL POLICY ANALYSIS

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wholesome wave

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HONOR STATEMENT

On my Honor as a student, I have neither given nor received unauthorized aid on this assignment.

Patrick Grant

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EXECUTIVE SUMMARY

One-in-ten Americans meet CDC guidelines for daily intake of fruits and vegetables, and for low-income Americans the problem is particularly severe. This inadequate consumption of produce contributes to an epidemic of dietary disease that burdens US health care services and results in at least $2b in foregone wages annually. Changing dietary behavior requires overcoming the challenges to access, affordability, and habituation faced by low-income Americans, but targeted policy interventions by the federal government could lower these barriers and improve the health and livelihoods of millions of low-income Americans.

This report analyzes four policy alternatives to the status quo which Congress could enact to increase consumption of fruits and vegetables by low-income Americans. It recommends that Congress funds and implements nutritional incentives into the Supplemental Nutritional Assistance Program (SNAP) in which SNAP benefits spent on fruits and vegetables are reimbursed $.30 for every dollar. The other three alternatives target equity concerns more precisely, but are held back by cost, feasibility, and implementation issues. Therefore, this report also recommends the creation of pilot programs with rigorous impact evaluations to turn promising nutritional welfare ideas into concrete policy items.

Dietary disease is a complex problem, and its multitude of causes must be tackled by a multitude of solutions. Congress should enact a SNAP incentive program as only the next step in a journey towards a healthier America.

INTRODUCTION

DEFINING THE PROBLEM

Too few low-income Americans eat a sufficient diet of fruits and vegetables. Eating the recommended two cup-sized servings of fruit and two-and-a-half cup-sized servings of vegetables per day reduces risks for chronic diseases like cardiovascular disease, type II diabetes, and obesity; despite the benefits, only one-in-ten Americans meet CDC guidelines for daily produce intake (Lee-Kwan, et al., 2015). Poverty reduces healthy consumption further, as 30% of Americans earning less than $15,000 in 2017 consumed vegetables less than once daily, compared to the national average of 19% (Centers for Disease Control and Prevention, 2019). With a Federal Poverty Line (FPL) in 2017 of $12,060 for an individual and $16,240 for a couple, that translates to around 12 million out of the 40 million Americans living in poverty eating fewer than one vegetable per day.

Inadequate consumption of fruits and vegetables varies along demographic lines. One-in-three Hispanics and one-in-four Blacks consume under one vegetable per day, compared with around one-in-seven Whites and Asians. More men fail to eat a serving per day of vegetables than women, and twice as many adolescents as adults have fewer than a serving per day, at 40% and 20% respectively. Fruit consumption follows the same trends but with even lower levels of consumption, since 36% of adults eat fewer than one serving of fruit a day. Following the pattern of other health indicators, the American South has a lower rate of consumption of fruits and vegetables than the rest of the country, with 46% of adult Mississippians eating fewer than one fruit a day, compared to 30% of adult Vermonters in the nation's best state by this metric (Centers for Disease Control and Prevention, 2019).

It is important that Americans eat a healthy diet of fruits and vegetables because the country is suffering a public health crisis due to dietary disease. According to the CIA World Factbook, the US has the highest rate of obesity among OECD countries, at 36% as of 2016. That year, 78 million Americans with hypertension and 27 million with type II diabetes received over $480 billion in direct health care for their conditions (Waters & Graf, 2018). Fruits and vegetables are sources of dietary fiber, vitamins, and minerals, which are linked to lower incidence of cardiovascular disease and obesity (Slavin & Lloyd, 2012). Increased governmental support for healthy eating could decrease incidence of and health care spending on dietary diseases, with the potential for long-term net savings to the federal budget. This report will discuss potential federal interventions that could increase low-income Americans' consumption of fruits and vegetables.

What is Causing this Problem?

Low-income Americans under-consume fruits and vegetables due to three primary factors: access, affordability, and dietary habituation.

Access-The first barrier to eating healthier is whether a person can access produce at all. A 2019 report from the USDA's Economic Research Service found that 12.7% of U.S. census tracts in 2015 were "low-income, low-access" (LILA), meaning their median family income was below the FPL and the closest major food store was an average of more than 1 mile from residents in urban areas or more than 10 miles from residents in rural areas (Rhone, et al, 2019). Researchers consider these households to be living in food deserts, where they face significant barriers to even finding fruits and vegetables to purchase. These measures do not take into account the presence of farmers markets or other produce vendors outside of traditional grocery stores, but these nontraditional vendors have great potential in reducing access barriers for LILA households.

Affordability--The second barrier to increasing produce consumption is their relative lack of affordability. Fruits and vegetables are some of the most expensive food items per calorie, resulting in low-income Americans under-consuming them in place of less nutritious, more filling foods (Drewnowski, 2010). While their purchasing decisions are rational, they result in greater costs to society in the long-term due to the increased prevalence of dietary-based chronic diseases. Most current nutrition policy targets this barrier, using in-kind transfers to subsidize the purchase of food and incentivize the purchase of healthier options.

Habits--The third barrier keeping low-income Americans from increasing their consumption of fruits and vegetables is their habituation to their dietary habits. Nutritional research consistently shows that changing dietary behavior over a long period of time is incredibly difficult (Hennessy, et al, 2020). Interventional studies can influence people to change their diets over the course of the study, but follow-ups consistently show reversion to the mean.

A study published in the International Journal of Environmental Research and Public Health captured the interplay of these three factors (Cooksey-Stowers, et al, 2017). Entitled "Food Swamps Predict Obesity Rates Better Than Food Deserts in the United States," it found that the presence of food swamps, which are areas with a high-density of fast food or high-calorie restaurants, is more predictive of obesity rates than the presence of a food desert, where there is a lack of available produce, even after controlling for the endogeneity of where people choose to live. These results suggest that it is not enough to provide LILA Americans with access to healthy food if it is not also paired with measures to steer them away from or restrict access to less healthy, cheaper alternatives.

IMPACT ON SOCIETY

Inadequate consumption of fruits and vegetables incurs direct costs to society as health care utilization, as well as indirect costs through productivity lost by unhealthy workers. Federal and state governments have long concerned themselves with the health of their citizens in order to lower national health expenditures and increase gross national income. The USDA Economic Research Service reports that the average American is only eating 0.9 cups of fruit and 1.4 cups of vegetables per day, short of the recommended consumption of 2 cups of fruit and 2.5 cups of vegetables per day by around one serving each (Stewart & Hyman, 2019). Therefore, estimates of the cost on society are equated to the benefits if the 38 million Americans living below the poverty line were to consume an additional serving each of fruits and vegetables per day.

In terms of direct costs, the improvements in health for Americans living in poverty associated with their increased consumption of fruits and vegetables would translate to around $1.5 billion in health care savings annually. These savings are driven by the approximately 80 thousand cases of cardiovascular disease per year that would be prevented, including 10 thousand deaths, and assumes a cost-savings per case of around $14,000 in direct health expenditures (Lee et al, 2019). Once adjusted for 2020 USD, a metareview of the CVD literature estimates the direct cost per case to range from $5,000 to $20,000 (Tarride, et al, 2009). The association between additional consumption of produce and incidence of diabetes or cancer is less clear, and so their cost savings are not included in this analysis, but for that reason this $1.5b/year figure may be an underestimate (Lee et al, 2019). Medicaid, the public health insurance program for America's poor and medically needy, bears most of these costs through joint federal-state financing. Uncompensated care given by hospitals to the uninsured as well as out-of-pocket expenses paid by low-income Americans in exchange for their care cover most of the rest.

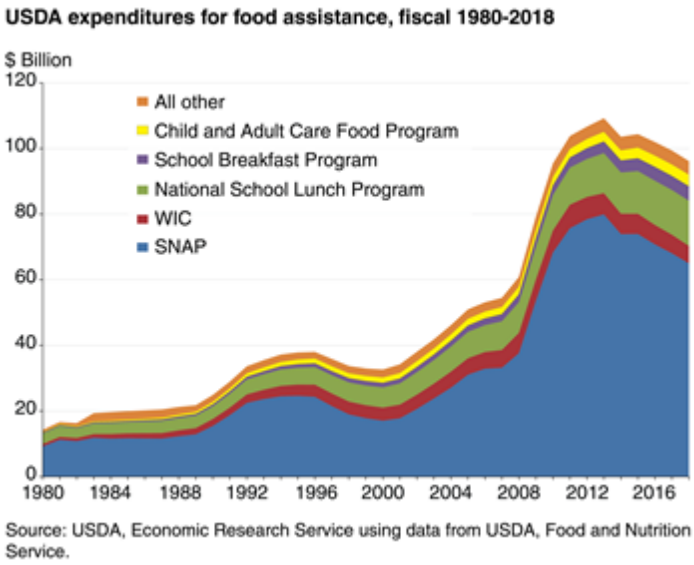
In addition to lowering health expenditures, improving the diets of low-income Americans would result in a healthier workforce that can take fewer sick days and live longer lives. To estimate the effect this has on annual gross national income, this report relies on a Tufts University study finding that preventing 80,000 cardiovascular cases and 10,000 deaths per year would result in an increase of 160,000 QALYs per year, a measure of healthy years of life (Lee et al, 2019). Assuming each of these years is spent earning an annual income of $12,000, this would result in an increase of GNI of approximately $2b/year. This loss of potential income affects not only the households that might have earned it, but also the economy as a whole through missed consumption.

Based on these estimations, inadequate consumption of fruits and vegetables by low-income Americans costs society around $3.5b/year, including $1.5b in health expenditures and $2b in foregone income.

National Nutrition Policy

Food and nutrition policies are present across all levels of government in the US, spanning several federal agencies including the Department of Agriculture (USDA) and the Food and Drug Administration (FDA) within the Department of Health and Human Services (DHHS). The USDA administers the Supplemental Nutritional Assistance Program (SNAP) as a federally funded and state-run entitlement program providing food-purchasing assistance to 40 million low-income Americans. The Farm Bill, reintroduced every five years through the Senate Committee on Agriculture, Nutrition, and Forestry and the House Agriculture Committee, authorizes SNAP and several other food assistance programs, including the Food Insecurity Nutrition Program (FINI). The chart below depicts how spending on these programs has changed since 1980:

Figure 1



Supplemental Nutritional Assistance Program (SNAP)

In FY 2018, federal expenditures on USDA food and nutrition assistance programs totaled $96.1 billion, with SNAP comprising the majority at $68 billion (Economic Research Service, 2019c). Once known as food stamps, the SNAP program entitles households making less than 130% of the FPL ($27,020 for a family of 3) to around $127 per person per month, or $1.40 per meal, in nutritional assistance (CBPP, 2019). Rather than providing a direct cash transfer, SNAP benefits are sent to an Electronic Benefits Transfer (EBT) card, which works like a debit card at participating grocers, supermarkets, farmers markets, and co-ops. While SNAP is administered by state governments, the federal government finances 100% of the program. In addition, the USDA imposes limitations on what SNAP benefits can be spent on, including a ban on alcohol, tobacco, vitamins, prepared or hot foods, and non-food items like pet food or toiletries. The USDA also imposes a 30 hour/week work requirement on eligibility, with exceptions for those searching for work in SNAP-approved programs, those caring for a child under 6, and those incapable of working for various reasons. As indicated in the

figure above, SNAP expenditures are counter-cyclical, meaning that during economic downturns such as the 2008 Recession, more households fall under the eligibility threshold and become entitled to SNAP benefits.

Like SNAP, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides certain low-income Americans with nutritional assistance via federal funding and state administration. However, the population is limited to pregnant women, new mothers, and children up to their fifth birthday. WIC is not an entitlement, instead receiving annual appropriations through the Farm Bill, which totaled $5.9 billion in FY 2018. While states previously have had flexibility in how WIC benefits are distributed, all WIC programs must adopt the EBT method used by SNAP by October 1, 2020 (WIC Assitance, n.d.). WIC also restricts benefits more severely than SNAP, limiting purchases to generic brand versions of certain supplemental foods like tofu, cereal, baby foods, and instant formula. Most states set similar income eligibility requirements for SNAP and WIC, so a large portion of the 7 million participants in WIC in 2018 also received benefits from SNAP.

National School Lunch Program (NSLP)

The second largest federal food and nutritional assistance program is the National School Lunch Program (NSLP), serving 30 million children daily lunches for $13.8 billion in FY 2018 (Economic research Service, 2019b). Participation in the NSLP has reached a 13-year low in 2018, having declined 6 of the last 7 years as a good economy has brought families above the 130% FPL cut-off for free lunches and 185% FPL for reduced-price lunches. The 100,000 public and private schools who participate in the NSLP sell lunches to students of all incomes for an average price of $2.68, while for free and reduced-price lunches (FRLP), they receive over $3.00 each in federal reimbursement. There is also a $.07 incentive for schools certified as meeting new nutritional standards (School Nutrition Association, 2020). Schools report the average cost of to serve a lunch is $3.81 per meal, while the average federal subsidy is only $3.32. Food and labor made up the majority of the cost, with 45% each. In addition to $12.6 billion spent on annual reimbursements in FY 2018, the NSLP distributes $1.2 billion worth of commodities, where schools have a 36 cents per meal voucher for USDA-purchased “entitlement” foods, including fruits and vegetables.

There are several other federal nutrition programs targeted at children in the mold of NSLP. The School Breakfast Program (SBP) serves 14.7 million students per day, around half as many as the NSLP, while participating at around 90% of NSLP schools (Food and Nutrition Service, 2017). Spending on the SBP totaled $4.4 billion in FY 2018, similar to previous years. The Child and Adult Care Food Program (CACFP) provides states similar reimbursements to coordinate food service in family day care homes, child care centers, homeless shelters, and after-school programs (Economic research Service, 2019a). The USDA spent $3.6 billion on CACFP in FY 2018 to provide 4 million children and 100 thousand adults with daily meals and snacks. The Economic Research Service at the USDA reports that both SBP and CACFP improve consumption of vegetables among participants, mostly children (Ralston, et al, 2017).

The Fresh Fruit and Vegetable Program (FFVP) provided additional fruits and vegetables to 4 million children across 7,600 schools in 2018 (United Fresh, 2020). The $170 million USDA appropriation is split between NSLP-participant schools with the highest rates of children qualifying for FRLP, which amounts to $50 to $75 per student per year allowing schools to purchase additional fruits and vegetables to serve as snacks throughout the day. Participating schools have flexibility in what the type of produce and how often they serve it, submitting monthly claims for reimbursement to be reviewed by state departments of education.

GUS SCHUMACHER NUTRITIONAL INCENTIVE PROGRAM (GUSNIP)

Traditionally, federal nutrition programs have combatted hunger in American households, prioritizing the consumption of inexpensive, energy-intensive foods like carbohydrates. Consequentially, SNAP recipients suffer from nutritionally-deficient diets, consuming less healthy foods than even income-eligible nonparticipants of SNAP (Zhang et al, 2018). Now that 40% of Americans are obese, policymakers are considering changes to existing food and nutrition policies to help Americans to not only feed their families, but feed them right (Hales et al, 2017). As a first step, the 2018 Farm Bill included $500 million in mandatory funds over 10 years for the Gus Schumacher Nutritional Incentive Program (GusNIP), which issues competitive grants to projects that increase accessibility and affordability of fruits and vegetables for SNAP participants (National Sustainable Agriculture Coalition, 2019).

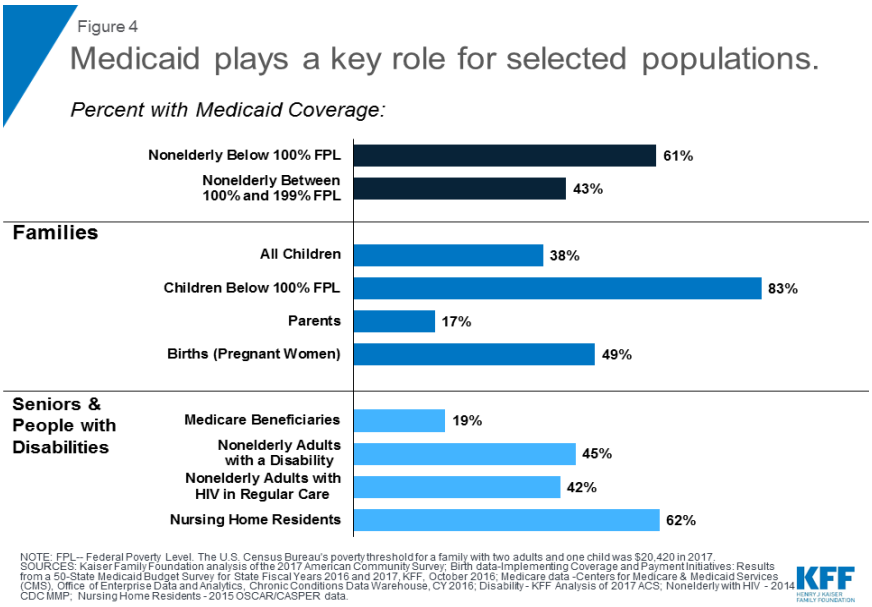
These grants take three forms: GusNIP Pilot Projects (up to $100,000 over one year); multi-year, community-based GusNIP Projects (up to $500,000 over four years); and multi-year, GusNIP larg-scale projects (at least $500,000 over no more than four years) (NIFA, 2019). All GusNIP projects must partner with the state agency administering SNAP to increase the purchase of fruits and vegetables by SNAP recipients by operating through authorized SNAP retailers. Each grant recipient subjects itself to a comprehensive program evaluation that assesses the effectiveness at which they achieved the two-fold goal of increasing purchases of produce and improving the nutrition and health of participating households.

The three most common programs sponsored by these grants are produce prescription programs, SNAP incentives, and training centers for technical assistance and evaluation. Under produce prescriptions (PRx or FVRx) programs, primary care doctors prescribe their patients with a voucher that they can redeem at a participating market or grocery store for fresh fruits and vegetables. PRx programs induce behavior change by combining economic and social incentives, the voucher and the doctor's advice respectively (Swartz, 2018). Meanwhile, SNAP incentive programs subsidize the purchase of fruits and vegetables by SNAP recipients, often relying on partnerships with farmers markets or local grocers (National Sustainable Agriculture Coalition, 2019). Finally, grants for training centers have the purpose of training local actors in the best practices of healthy eating initiatives, serving as local outposts of a broader public informational campaign to induce healthier eating in the general public.

MEDICAID

As a public insurance program designed to help the America's most needy, Medicaid covers a particularly unwell population of Americans. The program is administered by the states but on average receives about 60 percent of its funds from the federal government. While it varies from state to state, Medicaid typically covers families below the federal poverty line, pregnant women, the disabled, and the elderly in nursing homes (in conjunction with Medicare) (USDHHS, 2017). In addition, 36 states have expanded to cover households up to 140% of FPL via the Affordable Care Act. Compared to non-recipients, those on Medicaid report more health problems, greater rates of obesity and high-blood pressure, and 3x the frequency of stress, anxiety, and depression. Food insecurity, defined as a lack of consistent access to enough food for an active life, compounds their broader health problems (USDA, 2019). They purchase less healthy food options due to lack of money at double the rate of non-recipients, and purchase less food overall for lack of money at three times the rate (Food Insight, 2016). Food insecurity ultimately results in greater health care costs due to worsened health conditions (Garcia, et al, 2018). Medicaid faces the challenge of trying to support the health of populations that are systematically worn down by poverty and all its deleterious effects on health (Evans, 2007).

Figure 2



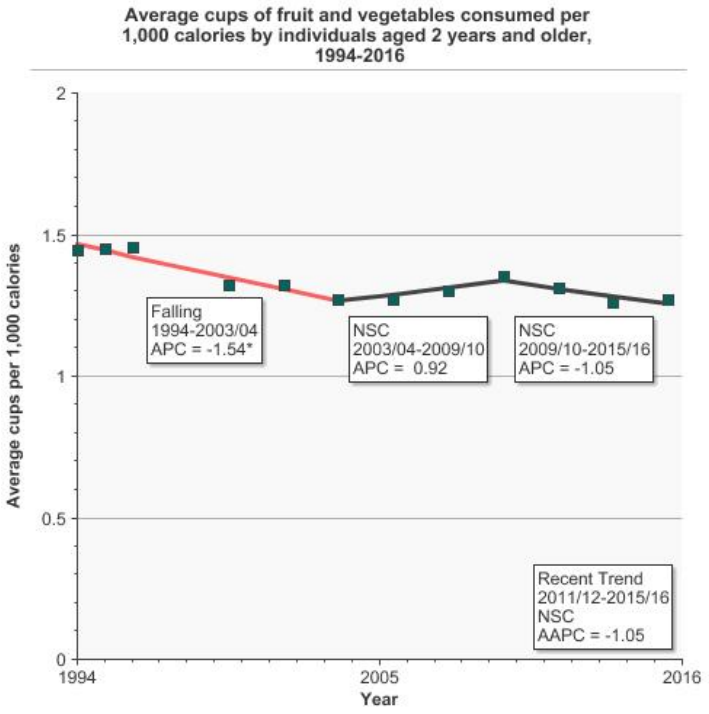
Health care in the United States is prohibitively expensive and only getting worse each year. In 2018, states spent around 20% of their budgets on Medicaid, even with the federal government paying around 60% of the costs of the program (Schneider, 2019). That's up from 15% of their budgets in 2010, and the problem is expected to get worse. CMS projects a 6.0% per year increase in overall Medicaid spending through 2027, driven by growth in per-enrollee spending. As most states must balance their annual

budgets, increases in Medicaid spending have to come out of other public services, most frequently education and infrastructure (MACPAC, 2018). Alternatively, states can manage their Medicaid budgets by reducing eligibility, which increases the number of uninsured in their state, or by lowering reimbursement rates to providers, which leads to fewer providers receiving Medicaid recipients. As health care costs continue to rise, states will face increasingly tough budgetary choices between their Medicaid programs and their broader constituent services.

BEST PRACTICES

Nutrition policies differ from state to state and country to country, and these variations can be used to inform federal policymaking. Among OECD countries in 2013, the US was 5th lowest in daily fruit consumption but 7th highest in daily vegetable consumption (OECD, 2015). These rates reflect both nutritional policies and cultural norms of the different countries, but they also indicate that the US is not alone in struggling to ensure its population consumes a sufficient diet of fruits and vegetables. Many OECD countries including the US have been promoting "5 a Day" style educational campaigns since the 1990s, but data from the National Center for Health Statistics reveals that combined consumption of fruits and vegetables by Americans has fallen slightly over this period.

Figure 3



No HP 2020 Target relating to combined fruit and vegetable intake.
Source: (1994-1996): U.S. Department of Agriculture. Continuing Survey of Food Intakes by Individuals. (1999+): National Center for Health Statistics. National Health and Nutrition Examination Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 2-3, 4-8, 9-13, 14-18, 19-30, 31-50, 51-70, 70+.
Weighted regression lines are calculated using the Joinpoint Trend Analysis Software, Version 4.6 February 2018, National Cancer Institute.
The AAPC is the Average Annual Percent Change and is based on the APCs calculated by Joinpoint.
* The Annual Percent Change (APC)/Average Annual Percent Change (AAPC) is statistically significant.
NSC: Non-Significant Change.

As comparing national nutrition policies is complicated by cultural differences in diet, comparing US states in their nutritional policies and outcomes can be more fruitful. According to the CDC's 2018 Indicator Report on Fruits and Vegetables, not only did Vermont lead the nation in consumption of vegetables per capita, it also had 14.9 farmers markets per 100,000 residents, compared to the national average of 2.7. 82.5% of Vermont's school districts participated in farm to school programs, double the national average of 41.8%. Compared to the nation, Vermont is a unique state regarding the propensity of its residents to live in rural areas yet having high educational attainment and income, and so their healthy diets cannot easily be attributed to good nutrition policy. However, their example suggests to other states that finding ways to increase availability of farmers markets and bring healthier foods into schools may produce positive changes in the diets of their residents.

While most governments have adopted comparable approaches to increasing the consumption of fruits and vegetables by their citizens, there are still public policy innovations worth noting. In response to COVID-19 (Novel Coronavirus), four administrative states in northern India have started a home delivery service of fruits, vegetables, and other essential groceries (Sally & Krar, 2020). In the territory of Jammu and Kashmir, 16,000 families are receiving home delivery of essential groceries, which the government is purchasing directly from farmers facing surpluses following COVID-19's negative demand shock. While this service is intended to bring relief to consumers during quarantine conditions when going to the grocery store presents a serious health risk, it also offers an alternative model for overcoming access barriers faced by low-income Americans attempting to purchase produce in normal times. Private-run meal kit delivery services are already active in America, with a global market share valued at $2.52 billion in 2017 and expected to grow to $8.95 billion by 2025 (Hexa Research, 2019). The US government could create a public-private partnership with one of these companies, such as Blue Apron Inc., or else offer a competing public service which could operate at a loss, similar to how the US Postal Service competes in a market with FedEx and UPS.

CRITERIA

COST EFFECTIVENESS

The most important criterion is a quantitative assessment of how effectively each dollar spent changes outcomes. The primary outcome for analysis will be total consumption of fruits and vegetables, which will be the denominator for the calculation. Total consumption will be calculated based on the number of people affected by a policy multiplied by their average change in produce consumption. This outcome was chosen because it exists in survey data and responds directly to interventions. While improved longevity and decreased health care spending on dietary diseases are the desired downstream consequences of dietary interventions, these measures are subject to too many confounding factors to be meaningfully tied to the impact of specific programs. Therefore, this report will treat the link between produce consumption and health improvements as a given, relying on a correlation found in a significant body of observational studies.

Costs will be broken down into direct spending by the federal government (which may take the form of subsidies, cash transfers, or purchases made by the government), net spending increases by consumers (who in most cases must purchase the fruits and vegetables, and may choose to substitute them for other goods), and social costs to stakeholders, such as time costs to consumers. Total costs over ten years will be discounted with a 7% discount rate. A cost-effective program will maximize produce consumption at minimal cost to society, and so the lower the cost-effectiveness ratio the more cost-effective the alternative is.

POLITICAL FEASIBILITY

This criterion projects the possibility of Congress enacting the alternative into law, as based on Congress's current political makeup in spring of 2020 with a Democratic House and Republican Senate. Each alternative will receive a rating of high, moderate, or low feasibility. Highly feasible alternatives will come at a low cost to tax-payers, resemble legislation that has passed before, and possess broadly bipartisan appeal. Conversely, alternatives with low feasibility will come at great up-front expense, involve significant expansions of governmental powers, and align with the goals of one party at the expense of the other. The recommended alternative must have a chance of being passed into law, but alternatives with low political feasibility are worth considering for comparison.

The most realistic legislative vehicle for any change to federal nutrition policy is the Farm Bill, which goes through the House Agriculture Committee and the US Senate Committee on Agriculture, Nutrition, and Forestry. The House Agriculture Committee is chaired by Rep Collin Peterson (D-MN), who is the most conservative Democratic member of the House according to GovTrack (GovTrack, 2020). Its ranking member is Rep. Michael Conaway (R-TX), a traditional pro-business Republican representing a Dallas suburb. In the Senate, the relevant committee is chaired by Sen. Pat Roberts (R-

KS), one of the most conservative members of the Senate. The ranking member is Sen. Debbie Stabenow (D-MI), a mainstream Democrat. While conservatives have occasionally supported increased government spending to support the agricultural industry, the conservative lean of the leadership of the two committees translates to even lower political feasibility for more ambitious and costly alternatives. The largest lobbying interests in the nutritional policy world represent farmers, and so the Farm Bill typically pairs Democratic support for nutritional welfare with Republican support for rural farmers and agricultural interests to create a bipartisan bill.

EQUITY

This criterion qualitatively rates the extent to which the alternative changes the consumption habits of the most vulnerable Americans, rather than just the average American. Those who are low-income, rural, young, male, and with low levels of education are particularly unlikely to eat fruits and vegetables (Belluz, 2016). Children also are an equity interest, as dietary interventions in children have lasting effects into adulthood. Finally, fruit and vegetable consumption patterns vary by race, and so this criterion will attempt to describe how the intervention's effectiveness will differ across racial groups. A highly equitable intervention will particularly target vulnerable populations and improve their consumption habits more than the average recipient. An intervention with low equity would mostly increase the fruit and vegetable consumption of the Americans who already eat the most vegetables, namely high-income, well-educated, urban, and white people. These ratings will be based on the conceptual design of the alternative and draw on literature of how similar measures affected equity in the past, but quantitative calculations of these factors are not within the scope of this project.

EASE OF IMPLEMENTATION

This criterion captures the capacity of the current administrative state to successfully implement the changes introduced by the alternative's passage into law. This will be assessed based on the number of agencies involved, their support for the law, whether they must adopt novel behaviors, and the extent to which technology will be involved. An alternative with a high ease of implementation would rely on services already provided by the federal government, and would only adjust levels of benefits without introducing new services or technologies. An alternative with moderate ease of implementation might still use existing government services, but seek to expand the population of beneficiaries to hard-to-reach groups. An alternative with low ease of implementation would require multiple agencies coordinating to provide new services involving technology. Alternatives that are more easily implemented stand a better chance to deliver on the behavioral changes projected for them.

ALTERNATIVES

1) CONTINUE THE STATUS QUO

The status quo is what happens if all programs and regulations are frozen in their current form for the next 10 years. Congress has enacted several significant food policy programs that encourage consumption of fruits and vegetables. Most food policy appears in the periodic farm bills that are subject to reauthorization every five years. Included in the farm bill is $68b annually allocated for the Supplemental Nutritional Assistance Program (SNAP) which provides 40 million low-income people with food subsidies each month (Center on Budget and Policy Priorities, 2019). While SNAP fights hunger effectively, critics argue that it does not facilitate nutritional eating. In order to address a lack of federal nutritional programming, Congress created the Food Insecurity Nutrition Incentive (FINI) Program, and increased its funding from $100m to $250m in the latest farm bill (Feldman, 2017). FINI offers grants for pilot and large-scale programs promising to increase consumption of fruits and vegetables among SNAP recipients. Several of the alternatives discussed in this report have received grant-funding through FINI and now should be considered for systematic funding by Congress.

Studies of American eating habits have shown that there has been no variation in the average American's consumption of fruits and vegetables since at least the 1990s, despite there being other dietary changes such as an increase in the consumption of whole grains and a decrease in the consumption of sugary drinks (Denke, 2016). Therefore, the status quo will assume a continued flat trend on the per capita consumption of fruits and vegetables, and all alternatives will project increases in produce consumption relative to this flat trend.

2) Enact an expansion of Supplemental Nutritional Assistance Program (SNAP) incentives

Congress enacts a law increasing SNAP entitlement spending to fund a national nutritional incentive program. This program will be modeled after the Healthy Incentives Pilot (HIP) designed by the USDA and administered by the Massachusetts Department of Transitional Living in 2011 and 2012. Under HIP, SNAP participants received on their EBT card an incentive of 30 cents for every dollar of SNAP benefits that they spent on targeted fruits and vegetables (TFVs) in participating retailers (Bartlett, et al, 2013). TFVs included fresh, canned, frozen, and dried fruits and vegetables generally without added sugars, fats, oils or salt, while excluding white potatoes, mature legumes, and 100% fruit juice. The USDA's Food and Nutrition Service incorporated random control trial (RCT) design into HIP in order to determine its effectiveness and project its utility if extended to all SNAP recipients (Bartlett, et al, 2013). Their analysis projects that the annual value of incentives earned could range from $.8 to $4.5 billion, depending on participant behavior in response to these incentives. In addition to these on-going costs, they estimate one-time implementation costs of around $90 million for state agency activities, all EBT and retailer systems modifications, and retailer and participant training materials.

Cost-effectiveness	**$.22/serving** • Ranks 1st in cost-effectiveness among alternatives • Direct cash transfer with low administrative costs • Incentivizes SNAP participants to use a greater portion of their existing benefits on produce.
Political Feasibility	**Moderate** • Taxpayer cost: $1.6b annually, 2nd lowest of the alternatives • Precedent: Builds on existing SNAP, previous pilot program • Bipartisanship: Expanding the welfare state is a liberal initiative that Republican Senate committee and conservative-leaning House committee may not support
Equity	**Moderate** • Pros: Increases nutritional assistance to low-income population already qualified for SNAP • Cons: Does not specifically target other equity-relevant populations such as children; does not address access or diet habituation barriers
Ease of Implementation	**High** • Agencies: USDA, state welfare agencies • Novelty: Partnering with SNAP grocers to categorize TFVs and process EBT bonus incentives • Technology: New uses for existing EBT technology

3) Enact and fully fund produce prescriptions within state Medicaid programs

Congress directs the Centers for Medicare and Medicaid Services (CMS) to establish produce prescription programs as a reimbursable treatment within Medicaid. States then have the option to establish state-wide produce prescription networks for their Medicaid recipients, with 100% of care provided through produce prescription (PRx) programs financed by the federal government. States would be responsible for administering these networks, and so the full federal funding will incentivize states to adopt this approach. For managed care organizations partnering with state Medicaid programs that want to establish their own produce prescription networks, the federal government will reimburse them on a per capita basis equivalent to if the recipient was enrolled in a state-run plan. Produce prescriptions integrate nutrition and medicine by allowing physicians to prescribe vouchers to their patients that can be spent on fruits and vegetables at participating grocers and farmers markets. These vouchers will be valued at $1/day/household member for 4 months. PRx will be limited to dual-enrolled SNAP and Medicaid recipients, of which there are approximately 20 million adults and 30 million children, so that these vouchers can be administered via EBT cards (Wheaton, et al, 2016). CMS will reimburse state Medicaid offices monthly, who in turn reimburse physicians for PRx consultations and the state welfare office for EBT-balanced vouchers.

Cost-effectiveness	**$.71/serving** • Ranks 3rd in cost-effectiveness among alternatives • While not highly cost-effective, could be cost-beneficial if population health improvements drive down health care spending
Political Feasibility	**Low** • Taxpayer cost: $4b annually, most expensive of the alternatives • Precedent: No existing policy has incorporated nutritional assistance into public health insurance, • Bipartisanship: Expanding welfare and Medicaid are both liberal issues which conservative committee members may oppose
Equity	**High** • Pros: Physicians can target PRx to their most vulnerable patients; influence behavior change beyond monetary incentives • Cons: Does not help those without access to physicians, grocers
Ease of Implementation	**Low** • Agencies: USDA, CMS, state Medicaid & welfare agencies • Novelty: Negotiations between state Medicaid agencies and grocers, possibly mediated by state SNAP administrators, will be difficult • Technology: Using EBTs to deliver PRx requires coordination with grocers, doctors, various state agencies

4) Enact and fund an expansion of the Fresh Fruit and Vegetable Program (FFVP)

Congress appropriates $1 billion annually to the USDA to oversee the expansion of the Fresh Fruit and Vegetable Program (FFVP) from its current 4 million students to the 22 million students who qualify for FRLP. Congress would amend the Richard B. Russell National School Lunch Act, which currently appropriates $170 million each year to be divided between states and allocated to schools with at least 50% of their student base qualifying for FRLP, to the maximum extent practicable at a level of $50 to $75 per student over the school year (Food Research and Action Center, 2016). This alternative would expand the program to all 100,000 schools participating in the NSLP, and grant each state education agency $50 per FRLP student per year to spend on fresh produce delivered to these students throughout the week during non-meal times. As compared to the original FFVP which enrolls entire schools, the expansion would limit the benefits to only students who qualify for FRLP. This presents an implementation challenge, as the fresh produce will have to be targeted at FRLP students, rather than distributed to all students in a school. Schools would have discretion in how they overcome this challenge, such as issuing FRLP students produce passes they could trade in for snacks.

Impact evaluations of FFVP have found that it increases the average student's in-take of produce by .32 servings per school day, while not significantly changing average calories consumed (Bartlett, et al, 2013). This suggests that expanding FFVP to all low-income students would add healthy foods to their diets without contributing to weight gain.

Cost-effectiveness	**$.87/serving** • Ranks 4th in cost-effectiveness among alternatives • Children are less cost-effective targets in the short-run, but dietary interventions on children can create lifelong benefits
Political Feasibility	**High** • Taxpayer cost: $1.1b annually, lowest among alternatives • Precedent: FFVP piloted in 2002, has grown continuously since • Bipartisanship: Children's programs often see bipartisan support
Equity	**High** • Pros: Targets low-income children • Cons: Limited to school year; non-FRLP students ineligible
Ease of Implementation	**Moderate** • Agencies: USDA, state education agencies • Novelty: Negotiating scale-up of existing program by 5.5x; adapting program from school-wide to FRLP-dependent • Technology: None of note

5) Public Fruit and Vegetable Delivery Service

Congress enacts a law appropriating $1 billion upfront and $1.7b annually for the creation of a new service administered by the USDA that delivers weekly shipments of fruits and vegetables to the 2 million households living in low-income low-access (LILA) food deserts across the US (Rhone, et al, 2019). One day per week, each household will receive a shipment equivalent to one serving of fruit and one serving of vegetables per person per day, so 14 servings for a household of two. The USDA will administer this service nationally without any cost-sharing for the households. In order to provide this service, the USDA must negotiate wholesale purchase of produce from farmers, hire drivers and provide them with delivery trucks, maintain an updated national LILA map in order to determine eligibility, recruit and screen eligible participants, facilitate selection of produce via a website, and offer customer service for enrollees. While this alternative is not within the current scope of political reality, it provides a bold plan to tackle access challenges the other alternatives fail to address.

Cost-effectiveness	**$.65/serving** • Ranks 2nd in cost-effectiveness among alternatives • Relies on bulk delivery, low food waste to offset delivery costs
Political Feasibility	**Low** • Taxpayer cost: $1.7b annually, 2nd highest among alternatives • Precedent: A public produce delivery service is unprecedented, though it combines elements of SNAP and USPS • Bipartisanship: Public entry into private food delivery markets will receive significant conservative opposition
Equity	**High** • Pros: Overcomes access barriers for those living in food deserts • Cons: Deliveries require stable permanent address
Ease of Implementation	**Low** • Agencies involved: USDA • Novelty: Delivery service connecting produce to participants must be designed from scratch • Technology: Website coordinating enrollment, orders; map-routing logistical system for efficient deliveries

RECOMMENDATION

I recommend the second alternative, in which Congress enacts an expansion of SNAP incentives. This alternative is by far the most cost-effective measure, as it induces SNAP participants to reallocate existing public benefits toward increased produce consumption in addition to increasing benefits available for purchasing produce. While the current chairmen of the relevant House and Senate committees may not prioritize this alternative, the next farm bill will likely be written in 2022 after multiple election cycles of change. With a credible USDA study asserting its positive impact in pilot form and outlining its path to nationalization, this alternative is ready to be included in the next round of farm bill negotiations regardless of what party is in charge.

The other three alternatives target equity concerns more precisely, but are held back by cost, feasibility, and implementation issues. With that in mind, I recommend Congress fund pilot programs of produce prescriptions and produce delivery services with the intention of conducting an impact evaluation and constructing a plan for national scale-up. As for FFVP that has already proven itself in pilot form, a continued increase in funds for the program while maintaining the 50% FRLP cut-off for eligibility is called for.

Dietary disease is a complex problem, and its multitude of causes must be tackled by a multitude of solutions. Congress should enact a SNAP incentive program as only the next step in a journey towards a healthier America.

OUTCOMES MATRIX

Alternative	Cost-effectiveness	Political Feasibility	Equity	Ease of Implementation
Status Quo	n/a	High	low	n/a
SNAP Incentives	*$0.22*	*Moderate*	*Moderate*	*High*
Produce Prescriptions	$0.71	Low	High	Low
FFVP Expansion	$0.87	High	High	Moderate
Produce Delivery	$0.65	Low	High	Low

IMPLEMENTATION

A policy to introduce nutritional incentives to SNAP will only be as effective as its implementation, and so this report concludes with guidance on an implementation strategy. The Healthy Incentives Pilot upon which this alternative is based required changes to the EBT system and the third-party retailer systems which process EBT payments, as well as training for stakeholders and participants (Bartlett, et al, 2013). A nationwide implementation of this program would face similar challenges, and the extent to which they are met could change utilization of the incentive program from under $1b to up to $5b annually. In order to oversee a smooth roll-out of the incentives program, it is recommended that implementation scales up to nationwide participation over five years, adding 10 states each year. This process would only begin after regulatory review and rule promulgation, meaning full implementation of this program for many years after enactment.

There are three primary stakeholders upon which successful implementation depends: state agencies, retailers, and participants.

- **State Agencies** must update their EBT systems to process incentive payments, design and distribute informational pamphlets to participants, train local staff to prepare for program changes, and coordinate with retailers updating their payment processing systems.
- **Retailers** must update their payment processing systems, the costs of which may be shared between retailers, state governments, and the federal government. Universal participation of SNAP retailers is a key goal of a successful implementation, and even if participation is mandated, retailers will still require guidance in order for the program roll-out to succeed, in particular identifying which items will generate SNAP incentives.
- **Participants** of SNAP participants need to learn about their new benefits, as the incentive program will only work if participants know how to access the incentives. States will have flexibility with how they educate their own SNAP recipients, and the USDA can monitor early states in order to advise later states in the roll-out on best practices. Educational efforts could include advertisements at grocery stores, direct mail to SNAP recipients, and online resources to help with troubleshooting.

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