

THE \$11 TRILLION REWARD

How Simple Dietary Changes Can Save Lives
and Money, and How We Get There



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Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

A set of dangerous, often lethal, illnesses continues to wreak havoc in the United States. In 2011, more than 750,000 American deaths—nearly a third of all fatalities that year—were attributable to some form of cardiovascular disease (Hoyert and Xu 2012). Yet there is a straightforward way to reduce the rates of these eminently preventable (and costly) disorders, which include stroke and coronary heart disease. One antidote for individuals is easy, painless, and even pleasurable: exploit the multiple nutritional and protective benefits of fruits and vegetables.

Low-cost policy investments to increase fruit and vegetable consumption would not only help prevent disease and save lives but also return billions of health care dollars to the U.S. economy.

Americans simply aren't eating *enough* fruits and vegetables (USDA and HHS 2010). It would follow that our country's farm policy should encourage the production and consumption of these healthful foods, but unfortunately farm policy does the reverse. While domestic fruit and vegetable production is restricted, huge subsidies are lavished on crops that become the ingredients for highly processed foods—including "junk" foods.

In this report, the Union of Concerned Scientists (UCS) shows that finding innovative ways to help Americans increase their consumption of fruits and vegetables would greatly benefit our health *and* our national economy. Specifically, we find that:

- More than **127,000 deaths per year from cardiovascular diseases could be prevented, and \$17 billion in annual national medical costs could be saved**, if Americans increased their consumption of fruits and vegetables to meet dietary recommendations.
- Using estimates of how much people are willing to invest in measures to reduce cardiovascular disease mortality, the **present value of lives saved** in the above-bulleted way would exceed **\$11 trillion**.¹

- Even modest changes in diet could result in big payoffs. The present value of lives saved from boosting average daily consumption of fruits and vegetables by **just one additional portion, or one half-cup, per day** would be **more than \$2.7 trillion**.



We identify low-cost policy reforms—involving targeted investments to rectify problems along the supply chain—that would increase fruit and vegetable consumption. These investments would not only help prevent disease and save lives but also return billions of health care dollars to the U.S. economy. The reforms include: encouraging farmers (by supporting research and developing effective crop insurance policies, for example) to increase their production of a variety of fruits and vegetables; using grants and subsidized loans to invest in market infrastructure such as grocery stores, farmers markets, and distribution facilities ("food hubs"); and reducing obstacles for those wishing to redeem food assistance benefits at local markets.

Cardiovascular Disease: A Costly Killer

Cardiovascular disease (CVD) refers to a group of health conditions that include hypertension (also known as high blood pressure), heart diseases,² and stroke.³ Heart diseases are the leading cause of death in the United States.

These diseases are immensely expensive for patients and their families, and also for taxpayers who fund subsidized public health insurance programs such as Medicare (for elderly Americans) and Medicaid (for people of low income). In 2010, direct medical costs related to CVD totaled \$273 billion (Heidenreich et al. 2011). CVD accounts for 30 percent of Medicare expenditures and 12 percent of Medicaid expenditures (Trogon et al. 2007). Based on Congressional Budget Office estimates for 2012 Medicare and Medicaid outlays, we can infer that taxpayers spent \$142 billion and \$30 billion, respectively, that year to treat CVD through these two programs (CBO 2013a; CBO 2013b).

There also are indirect costs. Productivity losses—earnings foregone due to illness or premature death



Cardiovascular disease is the leading cause of death in the United States and is extremely expensive to treat.

from CVD—were estimated at \$172 billion in 2010 (Heidenreich et al. 2011). And there are many other costs that result from CVD, including those related to quality of life, which can be challenging to quantify but are nonetheless considerable. Significantly, in the absence of major and effective intervention, CVD is only expected to worsen as the “baby boomer” generation ages. If the demographic distribution of CVD remains unchanged and treatment costs continue to rise, by 2030 116 million Americans are projected to suffer from some type of CVD and treatment costs will have increased by 200 percent—reaching a staggering \$818 billion (Heidenreich et al. 2011).

Increasing U.S. Fruit and Vegetable Consumption Would Save Lives and Money

Medical research has made major advances in diagnosing and treating CVD and also has yielded a greater understanding of how it can be prevented. A recent literature review of studies that examined the implications of fruit and vegetable consumption on all types of chronic disease found clear evidence that a daily diet rich in fruits and vegetables reduces the risk of CVD—particularly hypertension, coronary heart disease, and stroke (Boeing et al. 2012). The survey concluded that this evidence has been established through numerous CVD “cohort” studies—which

follow groups of people over time, document what they eat (for example), and then assess their health status—as well as through randomized intervention studies that examine CVD risk factors.⁴

The incidence of CVD is influenced by many factors, including energy intake, physical activity, smoking habits, alcohol consumption, and age. Isolating the impacts of fruit and vegetable consumption on CVD is challenging when researchers are unable to control for all possible risks, as people with healthful diets may also be likely to have healthful lifestyles. For example, some may avoid eating highly processed foods in addition to eating more fruits and vegetables.

Nonetheless, it is clear that significant fruit and vegetable consumption is a necessary part of a heart-healthy lifestyle. Meta-analyses (overarching studies that synthesize the findings of various individual studies addressing the same question) have found that each additional daily fruit and vegetable portion reduces the risk of stroke by 5 percent and the risk of coronary heart disease by 4 percent (Dauchet et al. 2006; Dauchet, Amouyel, and Dallongeville 2005). Based on these two meta-analyses, we calculated the CVD-related benefits—in terms of lives saved and medical expenditures reduced—that would be gained



from an average population-wide increase in fruit and vegetable consumption of one serving per day. While these studies found that the impacts of one fruit serving were greater than one vegetable serving, in our calculations and in this report we use the estimate of aggregate fruit and vegetable intake as a middle value.

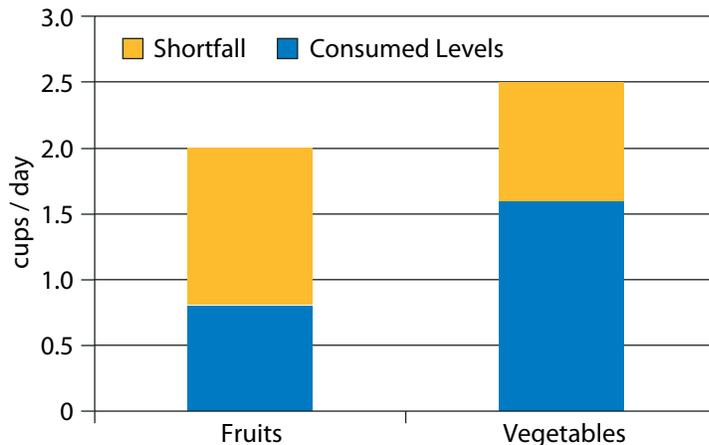
If Americans ate fruits and vegetables at recommended levels, we could save 127,261 lives each year.

The federal government’s *Dietary Guidelines for Americans, 2010* (USDA and HHS 2010) and its consumer-friendly “MyPlate” icon recommend that people fill half their plate with fruits and vegetables at meals. However, the average American is consuming just 0.8 cup of fruit and 1.6 cups of vegetables per day (USDA ERS 2013)—only 40 percent and 64 percent, respectively, of the *Guidelines’* recommended levels (see Figure 1). As there is considerable variability in fruit and vegetable consumption among the U.S. population, our findings are applicable on an average basis—the relationship between fruit and vegetable consumption and cardiovascular disease was found to remain constant over various fruit and vegetable consumption levels (Dauchet et al. 2006; Dauchet, Amouyel, and Dallongeville 2005).

As shown in Table 1, the 2010 combined medical costs of treating three specific types of CVD in the United States—coronary heart disease, heart failure (when the heart does not pump enough blood to meet the body’s needs), and stroke—were \$94 billion (when converted to 2012 dollars), or 32 percent of total CVD medical costs (Heidenreich et al. 2011). Assuming that medical costs for these disorders are proportional to their rates of incidence, UCS estimates that a sustained one-serving average daily increase in fruit and vegetable consumption would have generated an annual \$5 billion savings in 2010 medical expenditures.⁵ If Americans increased their consumption to meet federal dietary guidelines, the savings would rise to \$17 billion annually. And because CVD health care costs are projected to be greater in the future due to an aging population, the cost savings of preventive action will also grow. Using our methodology, we calculate that, relative to 2030 medical cost projections, annual cost savings associated with greater fruit and vegetable consumption sustained over time would be \$13 billion for a single-serving increase and \$54 billion in the case of full compliance with the federal *Dietary Guidelines*.⁶

While these medical cost savings are significant, they are dwarfed when compared with the value of increased longevity that would result from a population-wide dietary shift. Assuming, as above, that premature deaths from heart disease and stroke are proportional to the incidence rates of these diseases, we estimate that a sustained daily per capita one-serving increase in fruit and vegetable consumption would prevent 30,301 premature deaths annually. And if Americans ate fruits and vegetables at the *Guidelines’* recommended levels, we could save 127,261 lives each year.

FIGURE 1. Average daily per capita consumption of fruits and vegetables compared with federal dietary guidelines



Source: USDA ERS (2013).

It is impossible to put a price tag on human life, but economists have devised ways of estimating the amount that people are willing to pay for safety measures that reduce their likelihood of death—a concept often referred to as the “value of a statistical life.” Using such a method, a 2006 study calculated the value of reduced mortality from cardiovascular disease between the years 1970 and 2000. The researchers found that these reductions were worth \$58 trillion (we converted their results to 2012 dollars), a full one-quarter of the total gross domestic product during that period (Murphy and Topel 2006). Because this estimate represents the benefits of reduced

mortality, it is applicable regardless of how the reduction is accomplished.

The same researchers also computed the present value of a further 10 percent mortality reduction from CVD if the mortality reduction occurred in the year 2000. They found that the present value of this mortality reduction regarding heart disease was \$5.5 trillion while that of stroke was \$1 trillion (in 2012 dollars).

Assuming these 2000 figures remain applicable at this time, UCS estimates that—based on the relationship stated above between fruit and vegetable consumption and CVD mortality—today’s present value

of reduced stroke and heart disease deaths from a sustained one-serving average daily increase in fruit and vegetable consumption is \$2.7 trillion. This amount increases to an astounding \$11.4 trillion if Americans were to eat fruits and vegetables according to the federal *Dietary Guidelines*. Moreover, because these valuations of lives saved do not account for the improved quality of life that would result from better nutrition and health, they are conservative estimates.

Public Investments in Fostering Local-Food Systems are Cost-Effective Solutions

The above analysis demonstrates that simple dietary measures can prevent premature deaths, loss of

TABLE 1. Longevity value and reduced medical costs of additional fruit and vegetable consumption

	Heart Disease	Stroke	Total
2011 deaths	596,339	128,931	725,270
2010 estimated medical costs (billions 2012 USD)	\$64	\$30	\$94
2030 projected medical costs (billions 2012 USD)	\$196	\$102	\$298
Risk reduction for one fruit and vegetable portion	4%	5%	
One-portion increase			
Prevented deaths	23,854	6,447	30,301
Value of increased longevity (billions 2012 USD)	\$2,202	\$518	\$2,720
2010 reduced medical costs (billions 2012 USD)	\$3	\$2	\$5
2030 reduced medical costs (billions 2012 USD)	\$8	\$5	\$13
Consumption at recommended levels			
Prevented deaths	100,185	27,076	127,261
Value of increased longevity (billions 2012 USD)	\$9,248	\$2,175	\$11,423
2010 reduced medical costs (billions 2012 USD)	\$11	\$6	\$17
2030 reduced medical costs (billions 2012 USD)	\$33	\$21	\$54

Note: The “heart disease” medical costs include those of coronary heart disease and heart failure, whereas the “heart disease” prevented deaths apply to all types of heart disease. Similarly, “stroke” medical costs are due to strokes, whereas “stroke” prevented deaths apply to all types of cerebrovascular diseases, which include strokes.

Sources: Hoyert and Xu 2012; Heidenreich et al. 2011; Dauchet et al. 2006; Murphy and Topel 2006; Dauchet, Amouyel, and Dallongeville 2005.

Eating a healthy diet heavy in fresh fruits and vegetables is a good way to reduce one's risk of cardiovascular disease.



productivity, and massive personal and public costs. In this era of epidemic chronic disease and runaway fiscal crises, it is a matter of great urgency to act

when solutions are so clear, direct, and achievable. Many factors influence food purchasing decisions, including price, advertising, nutritional education, availability, convenience, and cultural and individual preferences. But smart and systematic farm policy investments can support and influence Americans to eat more fruits and vegetables and thus enjoy longer, healthier, and more productive lives. This achievement would provide great benefits not only to the consumer but also to the nation's economy.

One way in which U.S. food and farm policy can put us on the road to change is by capitalizing on the increasing public interest in buying fresh and healthful produce from local farmers.⁸ Evidence that local-food sales are a phenomenon that has captured the public's imagination is demonstrated by the remarkable national increase in the number of farmers markets, from 340 in 1970 to 7,864 in 2012 (USDA AMS 2013; Brown 2001), and in the number of farm-to-school programs, from six in 2001 to more than 10,000 currently (National Farm to School Network 2013). With modest public investments in these systems, policy makers can further improve access to fresh fruits and vegetables in communities across the country, provide an impetus for helping families

develop more healthful eating habits, and stimulate farmers to grow more of these beneficial foods.

Using farm policy for this purpose has considerable public support—86 percent of U.S. adults favor government action to prevent heart disease and 84 percent endorse policies that improve the affordability of fruits and vegetables (Morain and Mello 2013). Further, using farm policy to promote healthful eating need not be prohibitively expensive. One study found that a 1 percent subsidy to decrease fruit and vegetable prices would only cost 14 to 32 percent of what people were willing to pay to reduce their mortality risk (Cash, Sunding, and Zilberman 2005).

The extent to which increased fruit and vegetable consumption can be locally sourced depends on region-specific factors such as growing-season length, climate characteristics, and factors that influence demand, such as cultural and personal preferences. Nonetheless, there are three reasons why bolstering local-food markets are a priority. First, fruits and vegetables constitute 65 percent of food sold locally (Low and Vogel 2011). They are amenable to local sale because they are relatively unprocessed, with fewer intermediaries between farmer and consumer. Moreover, the fruits and vegetables sold from farmer to consumer tend to be fresh, and therefore are generally more nutritious than processed fruits and vegetables that contain unhealthy ingredients.

Second, evidence is emerging that local-food markets have unique attributes that can contribute to greater levels of fruit and vegetable consumption (Freedman et al. 2013; Evans et al. 2012; Herman et al. 2008; Anderson et al. 2001). Understanding why this is so requires more research, but relevant factors may include the quality of the produce and a more interactive and educational shopping experience.

Third, unenlightened farm policy—with its massive subsidies for junk food ingredients—has played a pivotal role in shaping our food system over the past century. But that policy can readily be changed. Except for modest recent efforts, subsidies have had only a limited role in the resurgent interest in local production of fruits, vegetables, and other

healthful foods (O'Hara 2012). We can utilize numerous straightforward farm policy opportunities to restructure our farming system without having to resort to massive federal support.

Thus UCS calls on Congress to pass legislation, and on the U.S. Department of Agriculture (USDA) to implement policies, that would accomplish two straightforward objectives:

1. Increase the production of fruits and vegetables.

Policy makers could help boost fruit and vegetable consumption by making it easier for farmers to grow more of these crops. This approach would complement efforts, which we outline subsequently, to increase demand. Perhaps the most significant way to increase productivity over a longer time period is by investing in research. For example, robust efforts such as plant breeding programs can produce higher-yielding fruit and vegetable crops, generate new varieties and adapt them to local conditions, and render them more resilient to adverse weather events and other farming challenges. However, compared with research support for commodity crops such as corn and soybeans, the level of publicly funded research dedicated to fruit and vegetable crops remains low (Alston and Pardey 2008), as demonstrated in Figure 2. Investments that can make these crops more productive in the future must be given higher priority in the present.

In addition, policy makers should remedy flaws in current farm policy that restrict the supply of domestically grown fruits and vegetables in more overt ways. Currently, farmers who receive subsidies to grow commodity crops such as corn are prohibited under those subsidy programs from planting any acreage with fruits and vegetables, except under certain conditions. The removal of such planting restrictions would be an important step toward facilitating more competitive market conditions for healthful foods.

The federal crop insurance program is yet another example of where farm policy reform is urgently needed. The USDA-administered and -subsidized insurance program is oriented toward farmers who grow a handful of subsidized commodity crops, including corn, soybeans, and cotton. Many fruit and vegetable farmers, particularly those growing a variety of crops, do not have access to adequate insurance. This omission places these farmers at a disadvantage, as the

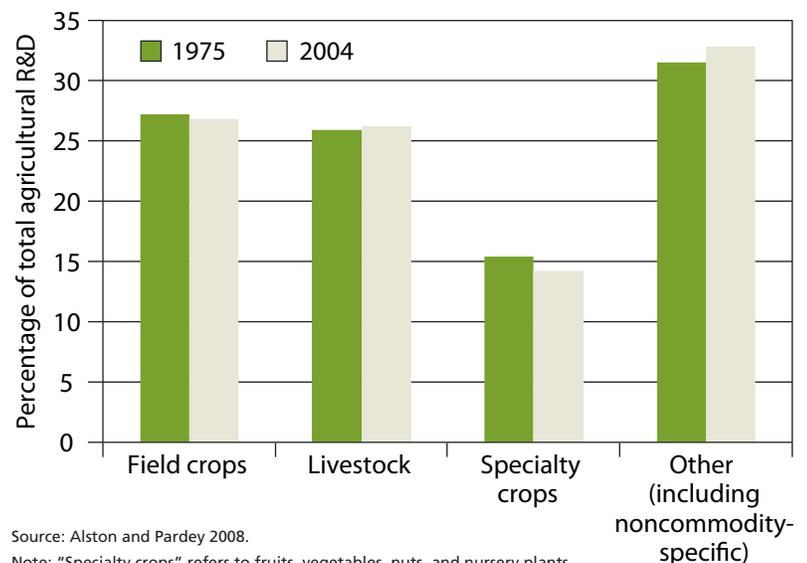
lack of crop insurance, particularly for those on smaller farms, often translates into difficulty in obtaining needed credit (O'Hara, 2012). Instead, a USDA-backed insurance policy covering *all* the crop and livestock revenue that a farm generates in a year (in contrast to crop-specific insurance policies) should apply. The new policy could provide risk management to diversified fruit and vegetable farmers, thereby helping them supply more local markets and consumers with fresh and affordable produce.

2. Improve the availability of fresh, locally grown produce. Better physical access to healthful food is needed in many communities, where there often are infrastructural challenges.

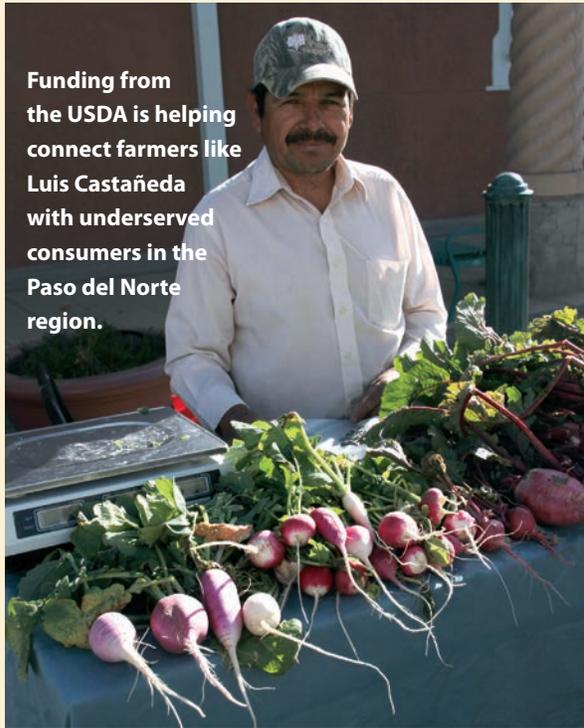
For example, in 2010 some 30 million Americans lived in low-income neighborhoods more than one mile from the nearest supermarket (Ver Ploeg et al. 2012). Public incentives can rectify this problem by supporting the establishment of farmers markets, supermarkets, small grocery stores, and distribution facilities ("food hubs") for institutional purchases of locally sourced food (Treuhaft and Karpyn 2010). Depending on the size of the project, financing can occur through modest grants or subsidized low-interest loans (see the box on p. 8).

A good example of such a government initiative was the USDA's Farmers Market Promotion Program, which administered small targeted grants to farmers markets in order to support staffing, outreach, and assistance in the redemption of nutrition-assistance

FIGURE 2. Distribution of agricultural R&D expenditures



USDA Grants Aim to Boost Healthful Eating in Low-Income Border Communities



Funding from the USDA is helping connect farmers like Luis Castañeda with underserved consumers in the Paso del Norte region.

Accessing healthful food can be a challenge, especially where there are few supermarkets. In the Paso del Norte region of southern New Mexico and El Paso, Texas, some families must travel 20 miles or more each way to shop at one. Even then, the fresh produce at those far-away stores can be unaffordable, given the region's high rates of poverty. Due in part to these factors, fewer than one in five people living in Paso del Norte eats the government-recommended levels of fruits and vegetables (CBHR 2005).

La Semilla Food Center—*semilla* is the Spanish word for “seed”—seeks to remedy this situation. With seven full-time staff complemented by AmeriCorps service members, this small nonprofit has been working since 2010 to foster a healthful, self-reliant, fair, and sustainable food system in the region. Through youth and school gardening projects, training for young farmers, and other programs, La Semilla is committed to increasing residents' access to healthful and affordable food and to raising community awareness about the links between food, health, and local economies.

These efforts were launched through startup funding from charitable foundations and USDA grants.



Authorized by Congress through the farm bill, the USDA's Farmers Market Promotion Program (FMPP) provided more than \$9 million in grants during fiscal year 2012 for local projects to improve and expand farmers markets and other direct producer-to-consumer channels. La Semilla's \$94,000 grant is funding a series of radio, television, and online ads designed to attract more low-income residents to five local farmers markets. The grant also enables market staff to assist consumers in redeeming their nutrition-assistance benefits—via electronic benefit-transfer machines, for example—to buy fresh fruits and vegetables. Moreover, the grant facilitates communication between farmers market managers and local nutrition clinics, and even enables La Semilla to host cooking demonstrations, at the markets, that teach shoppers how to prepare unfamiliar vegetables.

Under a second USDA grant—nearly \$300,000 from the Community Food Projects Program—La Semilla is seeking to empower and train the region's youth to be agents of change, advocates for nutritious-food access in their communities, and promoters of developing a new generation of local farmers and healthy eaters. For example, the organization is launching La Semilla Youth Farm, which will provide youths with training in food production, desert ecology and desert edibles, culinary and nutrition skills, and marketing. The farm will also serve as an education and demonstration site for other small-scale farmers in the region.

The poor health experienced by the Paso del Norte region's population—as well as by people in many other communities across the country with inadequate access to affordable, fresh, and healthful foods—won't be reversed overnight. But with grants such as La Semilla's, the FMPP and other farm bill programs can help to create a more health-enhancing and equitable food system for all.

benefits. These kinds of investments are critical because farmers markets confront unique financing challenges that make them difficult to successfully establish (Stephenson, Lev, and Brewer 2008). This program, when reauthorized, could also support other direct marketing opportunities in addition to farmers markets, such as food hubs.

Even when fruits and vegetables are physically available to consumers, those with limited budgets may be unable to afford them or to redeem their nutrition-assistance benefits at local food markets. Advocates have made considerable progress in increasing benefit redemptions under the Supplemental Nutrition Assistance Program (SNAP, formerly known as the “food stamp” program) at farmers markets; the sum of redemptions at these venues rose from \$1.6 million in 2007 to \$11.7 million in 2011 (USDA 2012). Still, only 0.02 percent of total SNAP redemptions were made at farmers markets in 2011, in part because of the administrative challenges that farmers and market managers confront (e.g., USDA FNS 2013; Briggs et al. 2010).

Evaluating the feasibility of consumer- and farmer-friendly mobile technologies, such as smartphones, is therefore one high priority; they might make it just as easy for federal nutrition-program participants to redeem their benefits at local-food markets as at other locations. Another needed next step is to ensure that the Senior Farmers Market Nutrition Program and the WIC [Women, Infants, and Children] Farmers Market Nutrition Program are funded and that WIC Cash Value Vouchers are redeemable at local-food markets.

Matching incentive programs have also been implemented in recent years for those wishing to redeem nutrition-assistance benefits at farmers markets. These programs are typically deployed by distributing vouchers to eligible shoppers at the market’s point



Increased public investments to bolster local-food systems would help increase access to fresh produce in many communities, improving health and saving lives.



of entry, and the shoppers can then use them at the market. Administering the programs in this manner is important—the voucher serves an educational and informational role, thereby increasing the effectiveness of the subsidy. While a 10 percent price subsidy for SNAP is estimated to increase the consumption of vegetables by 4.7 percent and fruit by 7 percent (Lin et al. 2010), coupons for a 10 percent discount could result in redemption rates as much as twice as high (Dong and Leibtag 2010). SNAP redemptions often double at markets that participate in nutrition-incentive programs (Oberholtzer, Dimitri, and Schumacher 2012).

Restructuring U.S. farm policy to help mitigate the grim effects of cardiovascular disease is long overdue.

Federal policy makers could take these initiatives to the next level by providing seed funding for the implementation of nutrition-incentive programs across the country on a larger scale. This would be a beneficial step, because ensuring that government nutrition-assistance vouchers could be redeemed at farmers markets would likely result in greater patronage of farmers markets (Racine, Vaughn, and Laditka 2010).

An obstacle confronting those who wish to eat healthfully is that they may not be familiar with highly nutritious foods or know how to prepare them. Processed foods, by contrast, are usually convenient and require little time or skill in preparation. Farm policy could be used to improve culinary awareness by providing modest funds to implement school gardening and farm-to-school programs, which are

valuable ways to teach parents and children about nutrition, cooking, and where food originates. Farm-to-school program evaluations have indeed observed increased consumption of fruits and vegetables (Feenstra and Ohmart 2012). One of the key benefits of teaching these skills is that cooking and eating at home often helps obese individuals reduce their weight (Kolodinsky and Goldstein 2011).

Conclusion

Restructuring U.S. farm policy to help mitigate the grim effects of cardiovascular disease is long overdue. In this report we have demonstrated that the soaring health care costs associated with CVD could be reduced, with thousands of lives saved, if farm policy were to promote fruit and vegetable consumption in particular. Our analysis shows that such preventive CVD measures would result in significant cost savings to individuals and to the federal budget,⁸ thereby constituting a fiscally responsible investment of public resources.

Our recommendations are straightforward. First, government should help farmers grow more fruits and vegetables. It can do so by making investments in research, by removing fruit and vegetable planting restrictions, and by developing effective risk management for farmers, particularly those growing a variety of fruits and vegetables. Second, policy should promote investments that will improve consumers' access to fruits and vegetables. This can be accomplished through grants and loans that help build market infrastructure such as grocery stores, farmers markets, and food hubs, and through reducing obstacles for consumers wishing to redeem nutrition-assistance benefits at local markets.

What could be more American than to act on the insight of one of our country's wisest of founding fathers? It was Benjamin Franklin who presciently observed that, "An ounce of prevention is worth a pound of cure."

Endnotes

- 1 The “present value” is the monetary value of a stream of future benefits relative to the present. Future benefits are discounted, as current benefits are generally perceived to be more desirable.
- 2 Also known as coronary artery diseases, heart diseases involve a narrowing of the small blood vessels that supply oxygenated blood to the heart. The resulting blockage can lead to a heart attack. Coronary heart disease is an example of this condition.
- 3 Stroke occurs when blood flow to a part of the brain stops, as from a clogged artery, and can result in death or permanent brain damage.
- 4 See Boeing et al. 2012 for a list of citations and an expanded discussion.
- 5 Our findings should be interpreted as the long-term payout associated with greater fruit and vegetable consumption, given that daily consumption of these foods sustained over a number of years would be required to reduce CVD-related incidence and mortality. Thus the estimated \$5 billion savings in 2010 assumes sustainment of the extra one-serving regimen over many years prior to 2010.
- 6 We point out, as in the previous footnote, that these savings are estimated to occur in 2030 only if the corresponding regimens are sustained over previous years.
- 7 In this report, we use the terms “local” or “regional” food sales to characterize shorter supply chains, in which farmers sell directly to consumers or to retail institutions such as schools or grocery stores.
- 8 Because preventing CVD is just one health benefit of increased fruit and vegetable consumption, our estimated cost savings from eating more of these foods are conservative.

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