

VULNERABILITY SCENARIOS

Driver Forecasts #6: Food & Diet

July 2010

Background

Rates of obesity (defined as having a Body Mass Index of 30 or higher) in the U.S. increased from around 15% in 1980 to 33.8% in 2008¹ – the combined result of a changing food supply, changing eating habits, reduced physical activity, and an increase in serving sizes. As an example of the latter, a review of multiple versions of *The Joy of Cooking* found that for 17 of the 18 recipes that had appeared continuously since the first edition in 1936, single-serving calorie counts had increased by 63 percent.²

This “obesity epidemic” has received greater attention from the media and from policymakers. In early 2010, First Lady Michelle Obama launched the “Let’s Move” campaign, which focused on improving information on healthy eating, the quality of food in schools, food access and affordability, and physical education options for children.³ Foundations, such as the Robert Wood Johnson Foundation⁴ and the California Endowment,⁵ have funded efforts with many of these same objectives. The entertainment industry also picked up on these themes in shows like “The Biggest Loser,” which features obese contestants competing to lose the most weight, and “Jamie Oliver’s Food Revolution.” These developments, as well as documentaries like *Food, Inc.*, *King Corn*, and *Super Size Me*, may presage a more intense public discussion of food and diet.

However, not all populations within the U.S. have experienced the obesity epidemic equally. Over the decades to 2010, obesity rates increased disproportionately among people of color and the rural poor, who often lack access to healthy food, diet and nutritional information, safe and walkable neighborhoods, and health care to treat diet-related chronic disease. In fact, a study conducted from 2006 to 2008 found that obesity was 51% more prevalent among blacks and 21% more prevalent among Latinos than among whites.⁶

Poor and minority communities often suffer from structural patterns that contribute to diet-related vulnerability. For example, many poor people live in “food deserts” – areas in inner cities lacking access

¹ Flegal, K.M., Carroll, M.D., Ogden, C.L., and Curtin, L.R. (2010), “Prevalence and Trends in Obesity Among US Adults, 1999-2008”, *The Journal of the American Medical Association*, Vol. 303(3): 235-241.

² Ambinder, M. (2010), “Beating obesity”, *The Atlantic*, May.

³ See <http://www.letsmove.gov>.

⁴ See <http://www.activelivingbydesign.org>

⁵ See <http://www.healthyeatingactivecommunities.org>

⁶ Centers for Disease Control and Prevention (2009), “Differences in Prevalence of Obesity among Black, White, and Hispanic Adults – United States, 2006-2008”, *Morbidity and Mortality Weekly Report*, Vol. 58(27): 740-744, July 17, accessed on May 28, 2010 at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5827a2.htm>.

to fresh vegetables and other healthy food choices.⁷ Initiatives in some cities, often funded by foundations, have brought public, private, and non-profit partners together to make healthy foods available to these underserved populations. Cultural norms may also promote obesity in these populations, in part through cultural preferences for certain foods and in part through a predisposition to childhood obesity that is generated by the mother's behavior during pregnancy.⁸ Targeted efforts, such as the CDC's Racial and Ethnic Approaches to Community Health (REACH) program⁹ and *The Soul Food Cookbook*,¹⁰ have sought to create cultures of healthy eating within these communities.

Under the Obama administration, the federal government has become more assertive in regulating the food industry. In February 2010, the Food and Drug Administration (FDA) admonished 17 food manufacturers for allegedly misleading health claims on their packaging.¹¹ Two months later, the FDA announced its intention to regulate salt content.¹² These initiatives followed on the heels of other efforts at the state and local levels to ban trans-fats and to ban the inclusion of toys in fatty children's foods.¹³ In California, these efforts are continuing under the leadership of the Strategic Alliance for Healthy Food and Activity Environments, which advocates reform of government and industry practices that promote unhealthy eating and behaviors.¹⁴

Many consumers are taking steps on their own to improve their eating habits and food supplies. Residents in some areas are creating community gardens where they share the labor and produce with neighbors. More people are gardening at home, with some even reintroducing chickens (for eggs and poultry) into urban or suburban settings. Many consumers are seeking out organic food, as well as foods produced locally or according to evolving ethical standards – e.g., “fair trade” imported products. Concern for the environment is focusing attention on the food industry's ecological consequences, particularly related to water use, shipping distances, and carbon emissions associated with livestock production. Increased spirituality, in the form of a focus on the mind-body connection or compassion for all living beings,¹⁵ as well as a concern for animal rights, also has the potential to change eating habits.

Forces outside the immediate domain of consumer choices will also affect the role that food plays in vulnerability. For example, the price of some food staples shot up temporarily more than 140% in some

⁷ Martin, M. (host) (2010), “Food Providers, Farmers Fight To Sustain Minority Communities”, Tell Me More (Radio Program), National Public Radio, April 22, accessed May 11, 2010 at <http://www.npr.org/templates/story/story.php?storyId=126193007>.

⁸ Ambinder, M. (2010), “Beating obesity”, *The Atlantic*, May.

⁹ See <http://www.cdc.gov/reach/index.htm>

¹⁰ See the nonprofit Hebni Nutrition Consultants, Inc. at <http://www.soulfoodpyramid.org/web/>

¹¹ Neuman, W. (2010), “F.D.A. cracks down on Nestlé and others over health claims on labels”, *The New York Times*, March 3.

¹² Layton, L. (2010), “FDA plans to limit amount of salt allowed in processed foods for health reasons”, *The Washington Post*, April 20, p. A01, accessed May 11, 2010 at <http://www.washingtonpost.com/wp-dyn/content/article/2010/04/19/AR2010041905049.html>.

¹³ Berton, J. (2010), “Santa Clara County says no to fast-food toys”, *The San Francisco Chronicle*, April 28, accessed May 11, 2010 at http://articles.sfgate.com/2010-04-28/news/20877374_1_toys-santa-clara-county-california-restaurant-association.

¹⁴ See <http://eatbettermovemore.org/sa>

¹⁵ Thich Nhat Hanh and Cheung, L. (2010), *Savor: Mindful eating, mindful life*, HarperCollins Publishers, New York.

parts of the world from 2007 to 2008.¹⁶ Food prices are widely expected to increase in the coming years due to water scarcity, rising fuel prices, climate change, and land, soil, and fishery conditions.¹⁷ Also, many U.S. cities trying to rebuild after a half-century of population decline may expand urban agriculture as a source not only of food but of jobs and urban renewal as well.¹⁸ How the American diet evolves in the midst of all these changes will play a major role in shaping vulnerability over the next two decades.

Forecasts

The Alpha forecasts represent expectable or “most likely” futures, the Beta forecasts envision challenging possibilities (e.g., what could go wrong), and the Delta forecasts represent visionary or surprisingly successful futures that would have a positive impact on reducing vulnerability.

Alpha Forecast – Food and Diet 2030

During the 2010's, food prices were driven substantially higher by water scarcity, increasing costs of fuels and pesticides, restrictions on carbon emissions, the effects of climate change, the decline and collapse of fisheries, and increasing food demand in emerging countries like China and India. While U.S. consumers did not suffer the food shortages experienced in some countries, many families found themselves paying more than 20% of their after-tax household income on food alone, compared to the average of 10% in 2007.¹⁹ Low-income households saw this percentage exceed 30%. While these cost increases reduced serving sizes, they also exacerbated poor people's reliance on low-cost processed foods that were dense in calories but low in nutrition.

Responding to further decay in the nutritional value of the food supply, activists across the country achieved local legislative successes in banning certain ingredients and regulating the activities of the food industry. The federal government became more active in this area as well, regulating salt content in 2011, banning advertisement of unhealthy foods to children in 2015, and enacting a soda tax in 2017.

Food companies responded by providing healthier food choices, such as fortified yogurt for children, flavored kale chips, and convincingly similar soy-based meat substitutes. While demand for organic food continued to grow, the cost differential relative to other foods put organics beyond the reach of most households. However, as food companies provided healthier options, healthy food sales from grocery stores grew steadily at the expense of processed snacks and sodas. At the same time, restaurants

¹⁶ “Food Price Crisis 101: Causes and Solutions to the Crisis” (2008), Center for American Progress, accessed on May 28, 2010 at http://www.americanprogress.org/issues/2008/05/food_crisis.html

¹⁷ See Bezold, C., Fidler, D., and Olson, R. (2008), *Food 2028: Key Forecasts*, Institute for Alternative Futures, and OECD Food and Agriculture Organisation (2008), *Agricultural Outlook: 2008-2017*, May.

¹⁸ “Motor City may provide model for urban agriculture” (2010), National Public Radio, April 23, accessed May 11, 2010 at <http://www.npr.org/templates/story/story.php?storyId=126210187>.

¹⁹ Clauson, Annette (2009), “Despite higher food prices, percent of U.S. income spent on food remains constant”, *Frozen Food Digest*, February 1, accessed on June 16, 2010 at <http://www.allbusiness.com/food-beverage/food-beverage-sector-performance-food-prices/11793740-1.html>

reduced serving sizes to levels seen in the 1980's and consistently provided calorie counts for the items on their menus.

These changes were not felt equally across all communities. Vulnerable populations continued to have reduced access to healthy foods, although urban gentrification and initiatives to eliminate "food deserts" brought healthy foods a little closer to the places where they lived. Policymakers and nonprofit groups became smarter about tailoring health information to specific cultural groups. In many urban areas, new community gardens provided a space for growing food and for learning about healthy eating habits. In many cases, these gardens were incorporated into redevelopment projects of once-blighted neighborhoods.

In the 2020's, evidence-based medicine and personalized nutritional counseling began to influence dietary patterns, while advances in biotechnology spurred research into new categories of tailored nutritional products. Overall, obesity rates began to subside, dropping below 25% by 2030. However, a cohort of Americans aged 15-40 who have been obese their whole lives continue to suffer from higher levels of chronic disease and demand more from the healthcare system. This cohort is concentrated in poor and minority populations who were disproportionately obese in 2010 and were the last to benefit from improvements in food quality. Overall, food and diet remain an important factor of vulnerability in the communities where it exists.

Beta Forecast – Food and Diet 2030

The spikes in food price during the mid-2000's proved a harbinger of worse days to come. By 2017, oil prices climbed to \$170 per barrel, changes in global and local climate patterns reduced crop yields, increased the frequency of droughts and natural disasters, and raised the threat of crop diseases. Reduced food supply further drove prices up. By 2018, food shortages were common in some parts of the U.S., particularly poor urban settings and arid regions with limited local agriculture.

The federal government's initial response to this crisis was simply to back off the regulatory initiatives begun in the early 2010's; with real food shortages in many areas across the U.S., public support for restrictions on food companies evaporated. The government also restricted food exports, following the example of countries like India, China, and Vietnam. Food companies responded by shifting their R&D and marketing infrastructures toward cheap, calorie-dense processed foods to fill the gaps in supply. While these foods provided some nutrient value, their primary effect was an increase in obesity and chronic disease risk, particularly among the poor.

For those who can afford to eat well, however, healthier options are available. Organic food continues to be popular among the rich, as does locally grown produce. Some poor communities, particularly Latino immigrants, fared slightly better than other poor or minority groups by drawing on eating habits brought with them from their impoverished home countries. Their traditional meals, low in cost and high in nutrition, became staples even for middle-class white Americans as an alternative to the processed foods that fill the grocery stores.

In 2030, food availability remains a major concern for poor and middle-class Americans. As nutrition has declined, diet-related health problems have worsened and health care costs have become unsustainable. For more than a decade, low-income and indigent Americans have had to choose between unhealthy food and no food at all, producing twin epidemics of obesity (42% of Americans) and

malnutrition (12%). The consequences for the health of the preponderance of Americans are severe, and are expected to worsen as they age.

Delta Forecast – Food and Diet 2030

Throughout the 2010's, more and more Americans started to care about the foods they were putting in their bodies. This was driven in part by public campaigns against obesity and chronic disease, but also by advances in genetics, epigenetics, and other fields that revealed how individuals vary widely in how different foods interact with their bodies to promote or hinder their health. At the same time, the globalization of trade and communications made Americans more aware of the environmental and human costs of many forms of food production. Rather than seeking food that is quick and easy, more Americans began to make conscious decisions about the foods they consumed, shifting dietary patterns toward fresh fruits and vegetables, organics, vegetarianism, and "fair trade" products.

The food industry responded to this shift in demand by increasingly selling "health" rather than "convenience." R&D was refocused on how to provide higher levels of nutrition at lower economic, environmental, and human cost, while marketing efforts emphasized how food choices fit into a healthy lifestyle. When selling sweets and snacks, food companies publicized their own efforts to teach children how to consume those foods in moderation. By 2020, the food industry had expanded its selection of vegan and vegetarian options as many consumers expanded their definition of health to include spiritual as well as bodily nourishment.

In the late 2010's, electronic medical records and biomonitoring provided an exciting new evidence base for the effects of different foods on health outcomes, leading to more widespread use of "personalized nutrition." This also accelerated development of new foods using the emerging fields of nanotechnology and synthetic biology. Most meat-lovers in the U.S. celebrated the FDA's approval in 2021 of cultured meat, which could be produced in the factory, at far lower cost, without the high carbon emissions and overuse of antibiotics that had dogged the meat industry throughout the 2010's.

By the late 2020's, the U.S. had developed an advanced sustainable agriculture consisting of drought- and pest-resistant crops, technologies for industrial-scale urban agriculture, and enhanced nutrient density in staple foods. However, technology alone was unable to eliminate food-related vulnerabilities. Public health officials realized that it took more than information to ensure that people had access to healthy foods and made healthy food choices. Thus, governments enacted taxes on unhealthy foods and regulated nutritional content and standards for manufacturing quality to prevent industry from preying on vulnerable communities forced to choose food based not on preference but on economic necessity. At the same time, enhanced SNAP and other food subsidy programs fostered healthy food purchases by giving rebates on healthy food purchases. As a result, by 2030 all populations have access to affordable, nutritious food tailored to their health and activity requirements and food-related vulnerabilities have essentially disappeared.