

Nutrition and Public Policy in Advanced Economies

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Measures of nutritional status, such as height, body-mass-index, and the prevalence of nutrient-deficiency diseases are now accepted indicators of well-being. Economic development changes nutritional threats to well-being as populations move from scarcity to abundance. Fogel (1993) traces the decline of malnutrition with economic growth, and highlights improvements in nutrition as an engine of growth. Cutler, Glaeser, and Shapiro (2003) highlight technological change in the production and distribution of food that has greatly reduced its cost: The average household in the U.S. spent a third of its income on food in 1960, but spends less than half that amount on food today.

As a result, public policy makers now struggle to battle a rising tide of obesity and related diseases such as type 2 diabetes using policy tools which were formulated largely to battle the effects of scarcity. The incidence of type 2 diabetes has doubled in the past decade in the U.S. and 30 percent of U.S. adults over 20 are obese. Even in countries like France, which historically had little obesity, now report that 11 percent of adults are obese and that as many as 40 percent are overweight. Surprisingly, many people in the U.S. are both overweight and consuming diets that are deficient in fiber, calcium, potassium, magnesium and vitamin E. This juxtaposition suggests that an excess of calories and a deficit of nutrients may in fact be closely related and reflect poor food choices rather than food scarcity.

This essay considers the difficulties involved in tracking the nutritional status of populations as well as two classes of tools that policy makers in advanced economies can

use to improve nutrition: Targeted food and nutrition programs and regulation of the food industry.

Measuring Nutrition

Tracking the nutritional status of a population over a long period of time is difficult. Much of Fogel's work relies on the records of army veterans, largely because the veterans represent a large group for whom anthropometric measures are available. Birth weight is also available in many populations over long periods of time (c.f. Currie and Moretti, 2005).

Going beyond anthropometric measures is generally expensive. Data on food consumption is often collected using food diaries, in which subjects are asked to record everything that they ate (and the amount that they ate) over some specified period such as a day or a week. These entries must then be converted into data about the number of calories from various sources. Clearly, there is likely to be a great deal of measurement error in this type of data, so large sample sizes are needed to uncover any systematic relationships between food intakes and outcomes.

A few data sets such as the National Health and Nutrition Examination Survey (NHANES) in the U.S. collect information about the levels of specific nutrients using blood and urine tests as well as food diaries. This information is collected as part of a complete physical exam conducted in a mobile examination clinic. Each wave takes several years to collect, as the mobile examination units travel to interview sites around the country. The expense of collecting the data means that the survey is mounted approximately once a decade. The long time intervals between surveys raise additional

problems because best practices in terms of ways to measure nutritional status often change between the surveys. Hence, while one can use the NHANES to track changes in body mass index over time, it is difficult to use these data to examine changes in the prevalence of specific nutritional deficiencies.

A fourth source of information about nutrition comes from health surveillance data. Doctors are often required to report the prevalence of specific conditions in their practices to central health agencies. These central agencies in turn can determine how many cases of something like iron deficiency anemia occur in a given population. One suspects such surveillance systems will tend to under-estimate the extent of nutritional deficiencies to the extent that people go untreated, or doctors fail to meet reporting requirements.

Finally, developed countries often produce statistics about the number of people suffering from “hunger”. It is important to realize that in advanced economies hunger is a social construct that is not directly related to measures of actual nutritional deficiency. In 1968, a group of physicians issued “Hunger in America,” a landmark report documenting appalling levels of malnutrition among poor children. Frank malnutrition is now extremely rare in developed world. In the U.S., people are now classified as hungry if they respond affirmatively to a series of questions in the Current Population Survey. These questions ask whether households are worried about having the money to pay for food, whether there are times that households go without food because they lack money to pay for it, and whether specific household members go without food. These “food insecurity” questions are inexpensive to ask and can be asked more frequently and

consistently than the direct measures of nutritional status collected in more episodic surveys.

However, once poverty is controlled for, food insecurity is predictive of poorer nutritional outcomes among older household members, but not among children (Bhattacharya, Currie, and Haider, 2004). To say that food insecurity is not a direct measure of nutritional deficiency does not mean that it is unimportant. Food insecurity has been linked to higher levels of hyperactivity, absenteeism, aggression and tardiness as well as impaired academic functioning among children, although these linkages may not be causal.

Targeted Food and Nutrition Programs

Most advanced economies prefer income support over targeted food and nutrition programs as a way of improving the nutrition (and overall well-being) of their poorest citizens. In contrast, the U.S. has an array of food and nutrition programs targeted to specific low income groups. School meal (or milk) programs are an exception, in that they are widespread in advanced economies. Apparently the paternalism involved in creating a feeding program is acceptable when dealing with children, but not (in many countries) when dealing with adults.

Aside from paternalism, economists have developed an array of rationales for providing benefits (including food) in kind, rather than in cash. One common rationale for government intervention in kind is that malnourished citizens create negative externalities for other citizens, through the psychological distress of others who interact

with them, burdens on social programs and health care systems, or their own inability to work.

A second set of arguments have to do with informational asymmetries. Since the government cannot perfectly identify those who need help, it must create schemes that will encourage self-selection. Such schemes often involve penalizing recipients through stigma or through the imposition of non-trivial transactions costs (c.f. Blackorby and Donaldson, 1988; Besley and Coate, 1991, 1995).

A final rationale is more dynamic: The government fears that cash aid will not be spent as intended, so that recipients will return again and again. The problem is that the government cannot credibly commit to cut starving people off, even if the needy person has squandered past aid (Bruce and Waldman, 1991).

These models shed some light on the question of why in-kind programs are set up as they are, with often substantial barriers to entry and consequent lack of take up by the neediest people (See Currie (2005) for a discussion of take up of these programs, and of factors that affect it).

A complete survey of the literature assessing U.S. in-kind food and nutrition programs is beyond the scope of this essay, but see Currie (2006, Chapter 3) for more details about the programs discussed here and evidence regarding their effectiveness. These programs take various forms and target various groups. The largest and most studied include the Food Stamp Program (FSP), the Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the National School Lunch Program (NSLP). These three programs have adopted very different approaches to improving nutrition in disadvantaged families.

The NSLP (and the smaller School Breakfast program) provide free or reduced price meals conforming to certain nutritional guidelines directly to their target population. The program is available in most U.S. public schools and serves approximately 27 million lunches every day at a cost of about \$6 billion annually. The FSP provides electronic debit cards that can be redeemed for food with few restrictions on the types of foods which can be purchased. The program serves about 20 million households at a cost of roughly \$19 billion. WIC offers coupons which may be redeemed only for specific types of food (often specific brands), to women, infants, and children under five who are certified to be at nutritional risk. WIC also involves a significant nutrition education component, something that is largely absent from the other two programs. This program serves about 8 million people each month, at a cost of approximately \$4 billion.

WIC packages are tailored to the nutritional needs of each of the target groups. The program has been credited with virtually eliminating iron deficiency anemia among infants and young children and with improving birth weight and birth outcomes among the most disadvantaged mothers in an extremely cost-effective manner. There is less research available about WIC's effects on young children. In the past, WIC promoted bottle over breast-feeding by giving mothers free infant formula. Currently, strenuous efforts are made to promote breast-feeding and give nursing mothers food packages of equal value to those received by mothers getting formula.

The near-unanimous consensus regarding the positive effects of WIC on infant outcomes has been disturbed in recent years by those who argue that there may be unobserved factors that are correlated both with positive infant health outcomes and with

WIC participation. While this is true in theory, careful analyses of selection into the WIC program suggest that it is the most disadvantaged eligible women who participate, and it is unlikely that they have other positive unobserved characteristics that are driving the findings. That is, selection is probably leading to underestimates of the effects of WIC.

At some points WIC has also generated controversy by enrolling more infants than the government estimated to be eligible. A National Academy of Sciences report on the subject found however, that eligibles were under-counted, and that there was much less than full take up of this program. The fact that many eligible people do not participate in food and nutrition programs remains a far more significant problem than participation by ineligibles.

FSP benefits are available to all households with incomes less than 130 percent of the poverty threshold. FSP benefits can be used to purchase virtually any foods at almost all grocery stores. Since the benefits are generally less than the household's food budget, economic theory suggests that the benefit should be treated in the same way as a cash transfer. But several food stamp "cash out" experiments in which treatment households were given cash instead of food stamps while control households continued to receive food stamps suggested that the cash out reduced spending on food.

However, Whitmore (2002) reanalyzed data from one such experiment and found that only households whose benefits exceeded their food budgets initially reduced spending in response to the cash out. Thus it appears that the FSP may in fact be no different than a cash transfer. It is thus worth asking whether the FSP plays any role other than serving as an indirect cash safety net that is available to the many U.S. households who do not qualify for any other form of assistance? Given that virtually any

type of food can be purchased, the FSP should not be expected to have much impact on the quality of the diet, other than via relaxation of the budget constraint. Evidence that people buy and sell stamps (often doing both within a month) further suggests that FSP benefits are treated like cash.

Studies of the FSP shed a good deal of light on the question of take up and again suggest that lack of participation by eligible people is a greater problem than participation by those who are ineligible. Enrollments in the FSP grew rapidly in the early 1990s following the expansion of the federal Medicaid program. Households could sign up for Medicaid and the FSP at the same office, so households that were attracted by Medicaid also signed up for FSP. Conversely, the 1996 welfare reform in the U.S. was accompanied by a decline in FSP participation even among those who remained eligible. Those who lost eligibility for cash benefits were no longer automatically eligible for the FSP and requiring people to go through enrollment procedures for the FSP, and to repeat those procedures every 3 to 6 months, drove many eligible people away. These examples suggest that transactions costs are an important deterrent to enrolment in means-tested transfer programs.

The NLSP operates in a way that is similar to school meal programs in many other countries. In the U.S. the poorest children are eligible for free meals, while slightly better off children are eligible for reduced price meals, and other children can purchase school meals at “full price”. The meals are subject to U.S. government dietary guidelines, which were revised in 1994 to limit the amount of fat and sodium. Evaluations suggest that the NLSP has successfully raised the consumption of important nutrients. At the same time, meals have been roundly criticized for being high in

calories, fat, and sodium. Still, the evidence suggests that many American children have extremely unhealthy diets which are improved somewhat through participation in the NLSP.

Like other food and nutrition programs, the NLSP has been criticized for serving too many ineligible children. The U.S. government conducted several studies of this issue, experimenting with different ways to tighten controls on eligibility. In every case, “reforms” were more likely to discourage eligible children from applying than they were to reduce program use by ineligibles. As a result of these policy experiments, the U.S. government recently adopted several measures designed to make it easier for poor families to document and maintain eligibility.

Regulation

Traditionally, regulation of the food industry has been aimed at insuring the safety of the food supply. However, increasingly regulation has been used as a tool to improve the quality of the diet. Governments in advanced economies have mandated the inclusion of important nutrients such as iodine in salt (which has eliminated goiter), vitamin D in milk (which has helped to eliminate rickets), and folic acid in flour (which has greatly reduced the incidence of neural tube birth defects). Increasingly, regulation is being targeted at the information available to consumers, through labeling and advertising.

There is a good deal of evidence that consumers respond to food labels. Ippolito and Mathios (1990) examine the effect of a U.S. government decision to allow cereal makers to advertise the link between fiber and cancer reduction. The change led to increased advertisement of fiber content, as well as other content information, and to

increases in the consumption of high-fiber cereals. Ippolito and Mathios (1995) found that consumption of fat had been declining secularly, but that it declined more rapidly after manufacturers were allowed to advertise health claims associated with low fat products.

It is however, unclear whether food labels have allowed consumers to make food choices that are healthier overall. Marketing studies suggest that few consumers use labels religiously and that many consumers are unaware of the nutritional contents of items in their food baskets. Moreover, food-away-from-home constitutes a large and growing fraction of total consumption and is largely exempt from labeling regulations.

Low SES households have higher propensities to suffer from nutrition related disorders and are also least likely to use labels. However, some labeling requirements have encouraged manufacturers to reformulate their products in ways that will benefit all consumers, whether or not they read labels. For example, a recent U.S. requirement that manufacturers label “transfats” has led many producers of products such as crackers to substitute away from trans fats towards less harmful fats.

Governments have also acted to limit the consumption of unhealthful foods directly. Many U.S. school districts have removed “junk food” and soft drinks from vending machines, and federal legislation that would require this of all school districts has been introduced. France and the U.K. have taken similar measures nationally and the U.K. is going further by banning burgers and processed sausages in schools and requiring two servings of fruit and/or vegetables per day.

The U.K. has also recently banned the use of celebrities to advertise junk food during children’s television programming, and the use of film tie-in advertisements.

More radical measures that might ban all junk food advertising during prime time TV viewing hours are under study. Several studies indicate that the majority of food advertising directed at children is for relatively unhealthy foods, and a recent report from the National Academy of Sciences (Institute of Medicine, 2006) concluded that children's preferences are significantly swayed by such advertising, and called for either voluntary or regulatory controls on the advertising of food to children.

Given our increasing knowledge about the links between poor food choices and future health, and the rising social costs of providing health care for nutrition related conditions such as diabetes, additional future regulation is likely. Government intervention can be viewed as a way of reducing the externalities created by poor individual choices, which in turn, may be encouraged by food producers who do not bear the social costs created by their products. Economists can contribute to this important public health debate by analyzing the costs and benefits of regulation.

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