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Why behavioral economics matters to global food policy

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ABSTRACT

As developed countries have grappled with rising rates of obesity, policymakers' efforts have been frustrated. Traditional approaches have treated food consumers as if they were making deliberate and calculated food decisions, leading to policies that provide more detailed health information, pricing incentives and direct prohibitions. The results have fallen far short of expectations, and have often generated significant backlash in the process. Alternative approaches recognizing the passive nature of food decisions has recently gained some traction. These approaches, based on behavioral economics, rely on subtle changes in the food choice environment. The hallmark of these "nudges" are relatively large impacts on choice within the altered environment, relatively low costs, and little in the way of consumer resistance. In this paper we review the relevant literature within the developed world, and document the systematic policy applications. One key theme has been the importance of such interventions in food environments affecting the poor and food insecure. This is the case for two distinct reasons: First, it is the food insecure that are at greatest risk for obesity; second, the food insecure are most likely to be susceptible to food choice nudges. For these reasons, nudges may be of import in developing country settings. As obesity is on the rise in many developing countries, lessons learned in developed countries may be directly applicable. Alternatively, similar principles may be of use in ensuring proper nutrition among the food insecure as a means to prevent malnutrition or other acute diet related diseases. We provide some discussion of what these applications may look like, as well as the research needed to make effective use of behavioral choice in this new frontier.

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In most of the wealthiest nations in the world, we are now seeing an unprecedented prevalence of obesity. This trend is visible in the United States from the early 1970s until today, and appears to have begun in many other relatively wealthy nations in the late 1980s or early 1990s (see Fig. 1). The increase in obesity is particularly worrying given the close association between obesity and diet related diseases such as diabetes and heart disease (WHO, 2009). In the US, the rise in obesity overall has been accompanied by a disproportionately large rise in childhood obesity (Anderson and Butcher, 2006), and child onset of co-morbidities (Stevens et al., 1998; Engeland et al., 2004; Freedman et al., 2007). Many have described this as a public health crisis (Ebbeling et al., 2002; Lobstein et al., 2004) and one that has substantial implications for medical expenditures and the public burden on the workforce (Wang et al., 2011; Lehnert et al., 2013; Finkelstein et al., 2014).

With the apparent increase in obesity, we have seen myriad attempts to both determine the causes and to bring rates under control. The average US consumer has increased consumption by approximately 500 calories since the 1970s (USDA, 2003). Indeed, it is possible to find researchers that lay the primary blame for

increasing obesity on the food industry and changing diets (Hill and Peters 1998; Nestle, 2013). Food prices have declined relatively over the period in question, and many suspect that this reduction has necessarily led to an increase in calories consumed (Glanz et al., 1998; French et al., 2001). Moreover, some note that more processed and higher calorie dense foods are cheaper and more affordable than healthier alternatives (Drewnowski et al., 2004; Lakdawalla and Philipson, 2002). Some have gone as far as to claim that specific foods (e.g., soda, fast food, etc.) are the primary cause of the rise in obesity (Vartanian et al., 2007; Basu et al., 2013; Malik and Hu, 2012). Despite this, there is no particular correlation with consumption of these foods and Body Mass Index (BMI) (Just and Wansink, 2015). Moreover, consumption of added sugars increased by less than 50 calories over the period of concern while consumption of fats and grains increased by more than 400 calories (USDA, 2003). Our problems are not so narrow.

Others have claimed that the overall amount of exercise and physical exertion is primarily to blame (Blundell et al., 2003; Sallis and Glanz, 2006; Caudwell et al., 2011). Many note that there has been a decrease in time spent in vigorous or even mild activity (Brownson et al., 2005; The U.S. Census Bureau, 2015). Moreover, due to labor saving devices, an increased prevalence of sedentary jobs and leisure, individuals have a reduced incentive to exert

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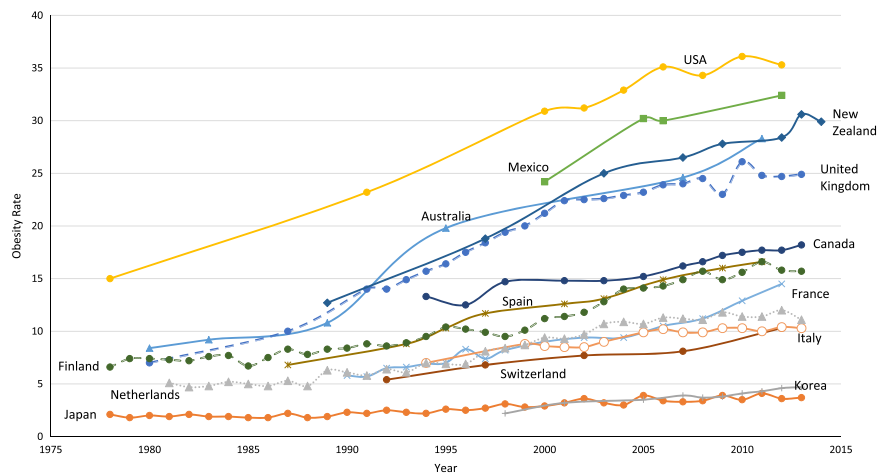


Fig. 1. Rising Obesity Rates in the US and other OECD countries (OECD, 2015). Obesity is defined as a BMI of 30 kg/m² or more (BMI \geq 30 kg/m²).

themselves. Bouchard et al., (1993) claim that an individual must perform some type of exercise for at least one hour a day in perpetuity in order to induce successful and sustained weight and fat loss. Thus idiosyncratic interruptions to physical routines (through injury, illness or work situations) can also play a role. In summarizing the evidence on both physical exertion and eating, one prominent health economist (Cawley, 2015) says “Overall, the evidence suggests that there is no single dominant economic cause of obesity; a wide range of factors may contribute a modest amount to the risk.”

In the context of this paper, we focus on food policy, including food aid and school feeding programs, in addition to health and nutrition promotion through both information and market intervention. The attempts to curb obesity using policy and regulation have been nearly as numerous as the posited causes. Many of these attempts have been rooted in the rational paradigm, supposing that individuals use all available information to make food decisions that are calculated to maximize their wellbeing given their time and budget constraints. Given this model, the proper policy response would involve either providing information, influencing prices, or barring items from the choice set. Indeed, each of these approaches have been attempted. For example, several countries require various nutrition information to appear on food package labels, either in detail (as in the US), or in simple displays, or both. More recently, we have seen a move in the US to require calorie counts to be displayed at chain restaurants (Farley et al., 2009; Bollinger et al., 2010; Bleich and Pollack, 2010; Auchincloss et al., 2013). The idea is that by providing this nutrition information, individuals will be enabled to make better decisions and potentially avoid overeating. Food price policies have been attempted in Denmark (Stafford, 2012; Smed and Robertson, 2012) and Mexico (Sturm and An 2014; Cornelsen et al., 2015) as well as in some states or cities within the US (Fletcher et al., 2010; Cawley and Frisvold, 2015). Bans have often occurred in institutional settings. For example, the US bars the sale of soda in schools together with other foods considered to be off limits. Various municipalities have created zoning laws to restrict the amount of fast food available (Li et al., 2009; Sturm and Cohen, 2009; Fraser et al., 2010), while others have also attempted to restrict the size of soft drinks (Saul, 2012).

Such attempts can miss the mark for many reasons. Chief among these reasons is the complexity of obesity itself. Initially, the rise in obesity appeared to be primarily focused in those of lower socio-economic status (Strauss and Knight, 1999; Lakdawalla and Philipson, 2002; Drewnowski and Specter, 2004). However, this relationship does not hold generally. Among white

women, income is negatively correlated with weight (Jeffery and French, 1996; da Veiga et al., 2004; Zhang and Wang, 2004). This relationship is weaker among minorities (Noppa and Hällström, 1981). There is no clear relationship between income and weight among men (Ball et al., 2002; Scharoun-Lee et al., 2009), with some even finding a positive correlation (Barnes et al., 2013).

While consuming greater amounts of soda, for example, can lead to weight gain (Martin-Calvo et al., 2014; Ruff et al., 2014; Beck et al., 2014), a representative sample of the US finds that there is approximately the same average soda consumption for groups with BMI between 18 and 40 (Just and Wansink, 2015). Consumption of soda is only significantly larger for those who are severely underweight. This heterogeneity means that aggregate policies are almost certain to negatively affect the health of some portion of the population (Just and Gabrielyan, 2015). Taxing a specific item or group of items may have little effect because consumers can buy substitutes that have similar health implications. On the other hand, because most of the production of non-alcoholic beverages is concentrated with a few producers who control most of the market, these producers have the power to increase prices of other drinks as well. Such a move could leave consumers worse off financially and weaken the effect of the tax on consumption. Taxes on less healthy foods in general are also regressive, and could lead to substitutions that exacerbate food insecurity (Powell and Chaloupka, 2009; OECD, 2012). Moreover, Hopkins et al. (2013) among others (e.g., Caudwell et al., 2011) find significant heterogeneity in the way individuals respond to reduced caloric intake as well as increased exercise. Heterogeneity in compensating behavior can mean that some will lose weight by increasing consumption, while others will gain.

Beyond this problem of targeting, the track record for traditional market policies is not particularly promising. Initial efforts to improve diets centered around improving the nutrition information that was available to consumers. For example, Mathios (2000) finds that mandatory nutrition labeling had a significant impact on consumer selection of salad dressing. Cioffi et al. (2015) finds that nutrition labels have a significant but small effect on consumer choice. Similarly, Graham et al. (2015) find that only a small subset of consumers use such information. Several studies in consumer behavior (summarized by Wansink (2004)) show that individuals tend to misinterpret these labels or focus only on one or two pieces of information and ignore the bigger picture. Moreover, marketers are often able to distract from overall nutrition by including a very simple positive nutrition fact on the front of the package. More recent efforts to include calorie counts on menu boards in quick service restaurants have similarly proved to

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