Food Policy 33 (2008) 465–469

Contents lists available at ScienceDirect

Food Policy

journal homepage: www.elsevier.com/locate/foodpol

Food product composition, consumer health, and public policy: Introduction and overview of special section

Elise Golan, Laurian Unnevehr *

Economic Research Service, USDA, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, 326 Mumford Hall, 1301 West Gregory Drive, United States

ARTICLE INFO

Article history:
Accepted 15 May 2008

Keywords:
Diet quality
Food composition
Agricultural policy
Nutrition labeling
Nutrition education

ABSTRACT

As efforts to improve diets in high income countries intensify, attention has turned to how policies may influence diet composition. The case studies in this special issue contribute to our understanding of how two main types of policies have influenced food product composition and dietary outcomes: (1) policies affecting food manufacturers' input costs and (2) information policy affecting competition. Research on the first type of policy is relatively new, but suggests that US commodity policies would not be good policy instruments to influence diets, except through the long run impacts of agricultural research. Research on the impacts of information policy continues to demonstrate that it can spur food industry competition to introduce healthier products, but may not result in healthier diets. International comparisons show where the US experience may have relevance for other high income countries.

Increasing attention to health and nutrition characterizes food markets and policies in high income countries. As understanding of the links between diet and health improves, and as obesity rates increase around the world, both the public and private sectors have initiated efforts to communicate diet-health information to consumers. But even as these efforts intensify, it has become clear that many dietary choices are predetermined or influenced by market forces that are beyond the control of individual consumers. Food product composition is one influence on diets that may itself be influenced by market forces and government policies.

The array of food products available in the market and their composition responds to market forces, including consumer demand, production costs, relative prices, and new technologies. A wide variety of foods are available in high income countries, and new products appear daily. The breadth of food choices can, however, mask overarching similarities in the composition of foods, including frequently used ingredients, standard product formulations, or changes in raw commodity nutrient content. Such changes can have wide-spread effects on diet quality and health.

Agricultural and food policies shape product content, by making some ingredients cheaper than others, by regulating food markets and firms, by providing information to consumers, or by research investments that introduce new food content or processing. In this special section, we present new studies of how policies have led to changes in US product content or in relative food prices, which have had broad based impacts on consumer diets, with possible consequences for public health. Such changes can occur without much consumer awareness, as when alternative oils are used in cookies or crackers, or when high fructose corn syrup replaces sugar in soft drinks. Table 1 provides examples of some of the changes in product composition that have occurred in the US during the past two decades. In some cases, these changes are unique to the US, and in others there are useful lessons from comparisons with different policy approaches in other high income countries. As efforts to encourage healthier diets intensify, this special section considers how policy might influence diets beyond encouraging consumer behavior change.

The case studies in this special issue contribute to our understanding of how two main types of policies have influenced food product composition: (1) policies affecting food manufacturers' input costs and (2) information policy affecting competition. Policies affecting input costs include such farm policies as farm-income support programs and commodity-price supports, and trade policies such as import quotas and tariffs, all of which may alter relative prices of major food product ingredients. The influence of this type of policy on consumer prices and nutrition has only recently been addressed by agricultural economists. Miller and Coble (2007) find that US government payments to farmers did not impact the affordability of food. Cash et al. (2006) discuss how Canadian commodity price policies have discouraged dietary substitutions that would have reduced saturated fat intake, but do not directly test this hypothesized effect.

In this special issue, Alston et al. (2008) explore how US farm policies may have influenced dietary outcomes, including price and income support, as well as agricultural research

* Corresponding author. Tel.: +1 202 694 5400; fax: +1 202 694 5661.
E-mail address: lunnevehr@ers.usda.gov (L. Unnevehr).

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doi:10.1016/j.foodpol.2008.05.004

Table 1
Food product composition change and public policy

Composition shift (documented, hypothesized, or targeted)	Possible U.S. policy impetus or constraint	International comparison
Policies affecting input or technology costs		
Increase in high fructose corn syrup in processed foods and drinks[a]	Sugar and corn price policies over the past two decades[a]	Mexico soft drink industry has greater flexibility of substitution in response to changing relative prices[a]
Consumption switch from full fat milk to low fat milk and from high fat cheeses to lower fat cheeses[b]	Milk marketing order pricing that sets incentives for milk components[b]	Canadian administered prices favor production of butterfat over milk solids.[c] Finnish butterfat consumption reduced when dairy became more expensive after joining the EU in 1995[d]
Pork has less fat now than twenty years ago[e]	Producer and government supported research to improve meat quality[e]	None known
Energy dense foods are cheaper than fruits and vegetables[f]	Research investments for field crops greater than for fruits and vegetables[f]	Obesity is more widespread in countries where consumer prices of food are lower[f]
Information policy		
Reduction of trans fats in processed foods[g]	Trans fat added to mandatory nutrition label in 2006[g]	Danish ban in 2004 led to more rapid elimination[g]
Increase in whole grains in processed foods[h]	Dietary guidelines in 2005 emphasize whole grains[h]	None known
Salt content in processed foods	Mandatory nutrition labeling starting in 1995	Canada has lower salt consumption but reasons unclear[i]
Low-fat product introductions increased in the 1990s[j]	Dietary Guidelines emphasize moderation in fat consumption; Mandatory nutrition labeling to disclose fat content	EU mandates fat content label disclosure in 2008[k]

Sources:
[a] Beghin and Jensen (2008).
[b] Gould (2007).
[c] Cash et al. (2006).
[d] Prattala (2003).
[e] USDA/ARS (2008).
[f] Alston et al. (2008).
[g] Unnevehr and Jagmanaite (2008).
[h] Mancino et al. (2008).
[i] Goddard (2007).
[j] Mojduszka et al. (1999).
[k] EUBusiness (2008).

investments. They examine the hypothesis that policy has shaped long run relative prices so as to make less healthy foods cheaper. In the second article in this section, Beghin and Jensen (2008) look at sugar price policies in the US and their potential role influencing the growing intake of added sugars. Both of these papers conclude with international comparisons to see how and whether US outcomes are unique. Taken together, the two papers provide strong arguments that commodity policy is largely divorced from nutritional outcomes, and that using such policies to influence diets would be largely ineffective. These results appear to extend to other countries, as the correlations among commodity policies, food prices, dietary patterns and nutritional outcomes across countries do not reveal any clear relationships among these variables.

Information policy, including mandatory disclosure, regulation of product claims, and nutrition education programs, provides an entirely different kind of influence on product composition. The impact of new US information policies during the past two decades has been widely studied. Such policies include partnership initiatives, such as between the cereal industry and the American Cancer Association to promote bran; the introduction of the mandatory nutrition label in 1993 to disclose calories, fat, sugars, and salt; and the impact of education campaigns, such as "Five-a-Day" to encourage fruit and vegetable consumption. Most studies have found that such efforts lead consumers to make healthier choices, at least among some subpopulations (e.g., Kim et al., 2000); or that these policies provide incentives for the food industry to reformulate products (e.g., Ippolito and Mathios, 1990; Mojduszka et al., 1999).

In this special section, new and more recent cases of information policy are examined to see if the lessons from the 1990s studies hold true. Mancino et al. (2008) examine the influence of the 2005 USDA Dietary Guidelines in spurring product development to provide more whole grains products for consumers. Unnevehr and Jagmanaite (2008) look at food industry response to the US Food and Drug Administration's regulation requiring disclosure of trans fat content on nutrition labels beginning in 2006. The two papers support the lessons from the 1990s in their findings that competition in the food industry leads to fairly rapid reformulation of products in response to information policy. However, the ultimate impacts on public health may not be straightforward.

Despite the different intents and purposes of price and information policies, the way in which both kinds of policies play out in food markets and product composition are similar. The articles in the special section emerged from a set of case studies presented at a Farm Foundation sponsored conference in April 2007. In the remainder of this introduction, we summarize key observations that emerge from this special section and from the conference discussions. We close with some thoughts about future directions for research.

Policies affecting input costs have a muted effect on retail prices and consumer demand

Policies affecting commodity input costs have a muted effect on final retail prices and consumer food choices. In general, the lower the percentage value of the commodity in the final product and the more competitive the manufacturing and retail sector, the lower the effect of commodity price change on retail price (Leibtag, 2008).[1] For example, commodity price changes have negligible effects on the retail prices of highly processed products with very

[1] Leibtag also notes that regardless of how competitive the industry or how minor the value of the commodity input, commodity prices that rise high enough for long enough will eventually elicit price increases by food producers and retailers (Leibtag, Ephraim, 2008. Corn Prices Near Record High, But What about Food Costs? *Amber Waves*, Economic Research Service, USDA, February 2008).