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Even a 14-Cent Food Tax Could Lead to Healthier Choices

by Romana Khan, Kanishka Misra, and Vishal Singh

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More than one-third (37.7%, or 91.4 million) of U.S. adults are considered obese, which is among the highest obesity rates in the world. The condition shows a marked socioeconomic gradient, with significantly higher rates among minorities and the poor, and is associated with an increased risk of preventable chronic diseases, such as heart disease, stroke, and Type 2 diabetes. Estimates of the annual medical costs of obesity range from $147–$210 billion, approximately 40% of which is financed by Medicare and Medicaid.

Given these serious personal and economic consequences, what can be done from a policy perspective? Currently, the primary policy tool being used is what's known as an information provision — think education programs and nutrition labels on products and restaurant menus, including the recent FDA decision to require information about added sugar on nutrition labels.

While information is important, there is scant evidence that providing consumers with it is effective in influencing people toward healthier choices. For example, studies on New York City's menu-labeling mandate find that, even after five years, there is no evidence that people's choices responded to the provision of calorie information on menus.

Another set of initiatives aims to address the problem through altering access, for example by restricting fast food restaurants from operating near schools and increasing access to healthy food. These approaches are less widespread, and there is limited research on their effectiveness.

One of the most contentious policy tools is a tax on unhealthy products — a sugar or fat tax — to make them more expensive. Proponents of the measure point to successes achieved in combating tobacco use, and the potential to use tax revenues to offset other obesity-related costs. From the industry side, attempts to impose taxes face stiff opposition; the beverage industry, for example, spends millions of dollars on lobbying and advertising against the proposed taxes.

Opposition to such a tax is often voiced in ideological terms, framing it as an issue of personal responsibility versus government restrictions. There are also economic concerns related to the regressive nature of a tax on food, as such taxes are likely to disproportionately affect lower-income families.

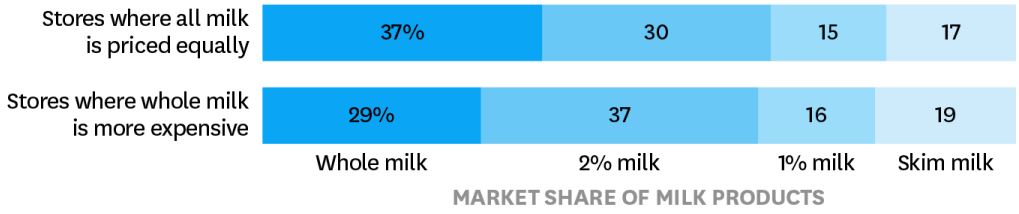
The core issue in the debate over taxation, however, is whether consumers will actually change their behavior in response to price incentives. A key barrier to using taxes is the general perception that the taxes need to be substantial to be meaningful — at least 20%, and often as high as 50% — yet high taxes are a solution that is considered infeasible. But can small price differences be effective in inducing consumers to choose a healthier option?

To address this question, we analyzed six years of weekly milk sales data from over 1,700 supermarkets across the U.S. We studied milk consumption for two reasons. First, the current guidelines (for 2015–2020) from the Department of Health and Human Services and the USDA say that a person above the age of two should drink low-fat milk. Second, relative prices across milk

types vary depending on where you live and which store you happen to patronize. At some stores, prices are equal, or flat, across all fat content. At other stores, prices are not flat — they decrease with fat content, so that whole milk is most expensive and skim is the cheapest option.

This provides an ideal natural experiment to test the effectiveness of price incentives. The chart below shows the average market shares by milk type in flat and non-flat pricing stores. We notice that in flat pricing stores, consumers prefer whole milk to all other varieties. In non-flat pricing stores, where whole milk is sold at a $0.30 premium, there is a large switch from whole to 2% milk.

When Whole Milk Is More Expensive, People Tend to Buy 2%



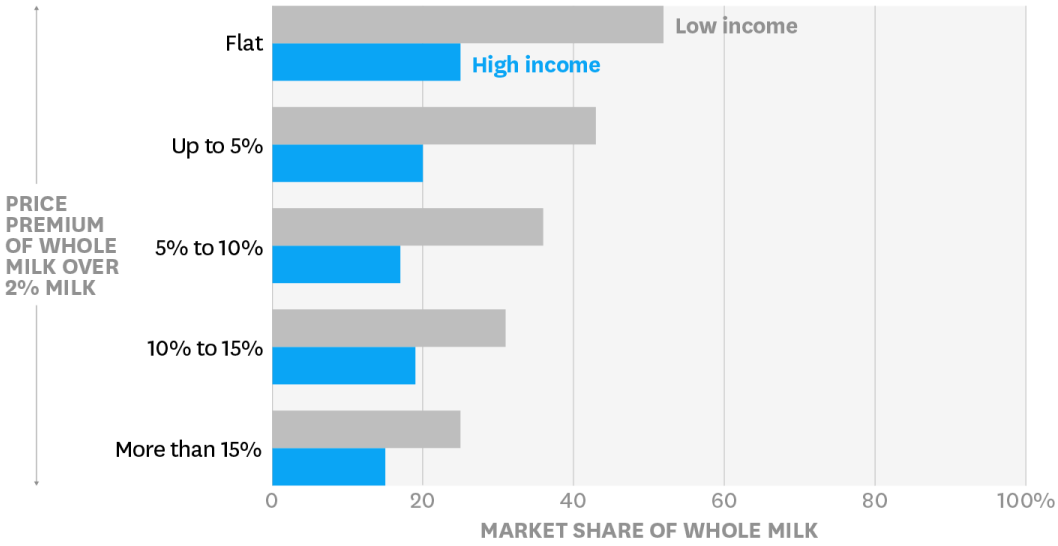
SOURCE ROMANA KHAN ET AL., BASED ON SIX YEARS OF WEEKLY MILK SALES DATA FROM MORE THAN 1,700 U.S. SUPERMARKETS

To further explore the effect, we controlled for factors such as income, age profile, race, and the educational attainment of the local customer base at each store. While there were some differences across these categories, the most striking one was about income.

Generally speaking, where milk prices are equal (flat) across fat alternatives, people are much more likely to choose whole milk over lower-calorie alternatives. This is particularly noteworthy in low-income areas, where the market share of whole milk is 52%, much greater than the 25% in higher-income areas (see the first set of bars in chart below).

And when whole milk is priced at a premium — even if it's just 5% per gallon of milk (14 cents, on average) — we observed a significant shift in market share away from whole milk and toward lower-fat options. This shift to the lower-calorie options is particularly pronounced in lower-income neighborhoods, which is important because obesity has a disproportionate impact on lower-income groups.

The Market Share of Whole Milk Drops When 2% Milk Becomes Cheaper
Particularly in low-income neighborhoods.



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But do the people in the markets where whole milk is more expensive just happen to be prone to making healthier or lower-calorie choices anyway? We found that's not the case: The prevailing price structure, whether prices across fat content are the same or not, is determined by chain policy at the regional level, and does not vary with local demographics or competition. This provides us with a setup to analyze how small price differences impact people's choices.

Another check is to look at the market shares of soda, because regular and diet soda are priced the same. If it is the case that people in markets with flat milk prices tend to prefer higher-

calorie options, we should also observe lower shares of diet soda in these markets. We found no difference in the share of diet soda between flat and non-flat markets, regardless of whether you look at high- or low-income areas.

Although these results are striking, we do want to emphasize an important note about implementation: The mechanism supported here is selective taxation designed to induce substitution within a narrowly defined product category (e.g., baked versus fried chips), rather than to discourage consumption of the category as a whole. This has the advantage of further mitigating the regressive nature of food taxes, since some options within a narrowly defined product category can be made cheaper. These taxes should be imposed as an excise tax, so that they are reflected in the shelf price at the point of purchase, rather than imposed as a post-purchase sales tax, which makes them less salient in the decision process.

To date, studies addressing similar questions have been conducted with small student populations or at a cafeteria. What distinguishes this analysis is the real-world field setting covering sales across the U.S. and observed over a long time period — mimicking what a potential "fat tax" would look like and what the long-term outcome would be. The result is compelling field-based evidence that such taxes don't need to be high to be effective. Small differences in price are sufficient, and highly effective, in shifting demand away from high-calorie options to low-calorie alternatives — even as slight a price gap as 5–10%. More important, lower-income consumers, who disproportionately suffer the consequences of obesity, are particularly responsive to these small price incentives.

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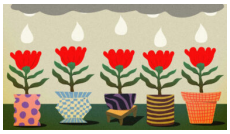

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