Embodied Sugar Consumption in the United States

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Excessive food consumption threatens both peopleâ€™s health and the sustainability of the global environment, requiring urgent resolution. Particularly, excessive sugar consumption can reduce diet quality and increase the risk of noncommunicable diseases (World Health Organization (WHO), 2015). The WHO recommends that the daily intake of free sugars for adults and children should be less than 10% of the total energy intake. However, in the United States (the U.S.), sugar consumption exceeds this limit by 5% (Food and Agriculture Organization (FAO), 2023). This highlights the concern over excessive sugar consumption in the U.S. To achieve a healthier diet for Americans, concrete steps must be taken to reduce sugar intake.

To date, few studies have examined this issue in the U.S., leaving the government without effective solutions. The novelty of this study lies in its estimation of sugar intake embodied in household consumption, with a focus on household characteristics. Based on the results, this study provides policy recommendations for effectively reducing excessive sugar consumption in the U.S.

To estimate the sugar input embodied in household consumption for a specific sector, we first calculated the embodied sugar input per dollar of final consumption (i.e., the sugar consumption unit) using mixed-unit input-output analysis. This analysis was based on the U.S. domestic input-output table, where the â€˜Sugar and Confectioneryâ€™ sector (measured in U.S. dollars) was converted into physical quantities (in tons). Importantly, this study estimated per capita sugar intake by incorporating detailed household characteristicsâ€”including income, age, and genderâ€”using data from the 2019 Consumer Expenditure Survey (CES). The analysis focused on expenditure data from single-person households. Data on sugar use by each industry was sourced from the United States Department of Agriculture (USDA) for 2019 and the U.S. domestic input-output table from the Bureau of Economic Analysis (BEA), published in 2017.

The results revealed that single-person households in the U.S. consumed 62 grams of sugar per person per day in 2019. The top three sectors for sugar intake were limited-service restaurants (11.0 grams), bread and bakery product manufacturing (10.9 grams), and sugar and confectionery product manufacturing (7.46 grams). These sectors accounted for 47% of total sugar consumption. Furthermore, the analysis found that excessive sugar intake from processed food industries was due to high sugar consumption units, while intake from restaurant industries was driven by high consumer expenditure.

Further analysis, controlling for income, age, and gender, showed that sugar consumption increases as food expenditure rises. Among the six income groups, the group with an income of 70,000 U.S. dollars and more consumed the most sugar (90.3 grams). Similarly, among the six age groups, the group aged 35 to 44 consumed the most sugar (71.3 grams). Households with these characteristics had the highest income and food expenditure compared to other households. The higher expenditure suggests a higher overall food intake, which may also lead to higher sugar intake. As men spent on average 1.13 times more on food than women, men consumed slightly more sugar than women.

To address the problem of excessive sugar consumption, two main strategies are recommended. First, Americans should reduce the frequency of eating out, especially at limited-service restaurants. According to the CES, single-person households spent 965 U.S. dollars annually at limited-service

restaurants, accounting for 21% of their food expenditure. Americans frequently opt for limited-service restaurants for lunch due to their affordability and convenience. To reduce sugar intake from limited-service restaurant, the U.S. government should mandate and support the sale of inexpensive and healthy lunch boxes in supermarkets and require all companies to provide employee cafeterias.

Second, the government should introduce a â€˜sugar taxâ€™ on industries producing sugar-containing foods. Foods such as bread and confectionery often contain excessive amounts of sugar. To reduce sugar intake from these foods, it would be most effective to provide industries with incentives to lower sugar usage during production. The government needs to implement policies targeting both producers and consumers, based on the findings of this study, to resolve the issue of excessive sugar consumption in the U.S.

In addition, the government should publish dietary guidelines to improve their unhealthy diets. It is important not only to raise awareness of the dangers of processed and fast food, but also to warn higher income households.