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Socio-Economic and Health Determinants of Canadian's Body Mass Index in 2010

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The effects of socio-economic and health factors on Body Mass Index (BMI) with four obesogenic nutrient prices are studied. Previous studies do not include prices for nutrients beyond the price of calories in the specification of BMI equations. It is unlikely that a single calorie price variable can adequately capture the effects of all nutrients on BMI. We review the nutrition literature and conclude that a single price of calories cannot adequately capture the complex nutrient interactions that occur that result in changes in BMI. The single price of calories approach studied by previous authors assumes that the effect of say, one unit of fat and one unit of carbohydrates on BMI can be adequately captured by a single calorie measure.

Using the data of 2010 Canadian Community Health Survey (CCHS), we find that it is essential to study the effect on BMI of obesogenic nutrients using several nutrient prices simultaneously, since they help uncover interactions that may be masked by a single calorie price. Our regression results indicate that separate prices of fat, carbohydrates, calorie and protein prices are all statistically significant, indicating that inclusion of separate nutrient prices is superior to a single calorie price in the explanation of variations in the BMI of Canadians. The results show that the coefficients on fat and carbohydrate prices are negative and statistically significant, meaning that as the prices of these obesity causing nutrients rise, Canadians shift away from these nutrients, lowering their BMI. The coefficient of protein price is positive and statistically significant, which could be picking the effect of protein on diet, since as Canadians switch into higher protein diets with a protein price fall, they may substitute way from carbohydrates, calories and fat, lowering their BMI. The results suggest that imposing a nutrient tax on fat or carbohydrates or thin subsidies on protein may help control obesity, although our analysis does not consider how manufacturers could respond, especially to fat or carbohydrate nutrient taxes. Our results also show that the effect of income on BMI is positive, and this result is consistent with the argument that as the value of time increases and people work more, they exercise less and increase their BMI. Finally, BMI is negatively related to education, indicating that more highly educated people have lower BMIs.

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