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Abstract CMD-02

Is there a Relationship among Overall Nutritional Quality Index, Carbon Footprint and the Price of Food?

Qiumei Lin and J. Stephen Clark

Department of Business & Social Sciences, Dalhousie University

The purpose of this study is to explore the relationship among the overall nutrient quality index (ONQI), the carbon footprint and price of 90 different foods. The ONQI is a measure of the healthiness of a food product, while the carbon footprint is often used as a measure of the impact on the environment of food. Both the ONQI and the carbon footprint could be used as possible labels on food products, and in the case of the carbon footprint, is already used as a label for food products in the UK. Many studies have been carried out by researchers on consumers' responses to health labels and environmental labels in isolation; however, there is no study available on the relationship between health labels and environmental labels. Therefore, one purpose of this study is to explore the relationship between these two potential labels to see if there is a tradeoff between the healthiness of a food and its environmental impact or if they are complementary in nature. We do this between the ONQI and carbon footprint while also including the impact of the price of the food. Even if the ONQI is not accepted as a label, we can still analyze the relationship among the healthiness of a food, its environmental impact and price. In this way, we can shed light on how health, environment and price characteristics interact.

Two models are estimated in this study. The first one is a hedonic model of the price of food and two characteristics: ONQI and carbon footprint. It is a regression of food price on healthiness of a food and its environmental impact. That is P=f(ONQI,CF), where P, ONQI and CF represent the price, ONQI score and carbon footprint of the food, respectively. It is found that there is a positive relationship between price and ONQI score (healthiness) of a food. In addition, a positive relationship between price and carbon footprint (environmental impact) is found. In other words, the higher the carbon footprint, the higher the food price is. This implies higher priced foods have a larger impact on the environment. The second model is a regression of ONQI score on price and its carbon footprint; that is ONQI=f(P,CF). In this model, we found that there is a negative, non-linear relationship between ONQI score and carbon footprint. This implies there is a complementary and not competitive relationship between the healthiness of food and its impact on the environment.

However, both models show that healthier food is also higher priced. This could explain why poorer consumers are less healthy than richer consumers, and why taxing food would disproportionately adversely impact the health of the poor.

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