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Non-monetary incentives motivate children to eat more vegetables: results from a school-based field experiment

*Elisa De Marchi**, *Rodolfo M. Nayga J.*, *Akesia Cavaliere***, *Alessandro Bartele**,
*Department of Environmental Science and Policy, University of Milan, **Department of Agricultural Economics and Agribusiness, University of Arkansas, Fayetteville

Abstract

According to recent data collected by the International Association for the Study of Obesity, Italy is among the EU countries with the highest rates of childhood overweight and obesity: 36% of boys and 34% of girls are overweight or obese, relative to 23% of boys and 21% of girls (on average) of OECD countries (OECD, 2014). Among other unhealthy food-related behaviors, the low vegetable consumption is one of the main problems, negatively affecting children's diet quality. This aspect assumes particular relevance in the context of school canteens, where vegetables are frequently rejected by a large number of children (Maietta and Gorgitano, 2016) compromising the overall balance of children's daily food intake. In this framework, the present study explores whether the provision of non-monetary incentives can be effective in increasing children's daily vegetable consumption during lunch at school.

Methods - The study was based on a field experiment conducted in a public primary school in Italy. The sample consisted in 218 pupils between 6 and 11 years old. The 10 classes involved were randomly and evenly assigned to either one of the two experimental groups, namely the Control group and the Incentive group. During the first 4 experimental weeks (Period 1) vegetable consumption of all classes in each group was measured daily without children being aware of the experiment being conducted. Vegetable consumption was assessed indirectly, through the leftovers weigh. In the following 4 weeks (Period 2) no variations occurred for children in the control group, while those in the incentive condition were provided with small prizes to eat more vegetables at lunch. Incentives were provided at the end of the week to all children that (Monday to Friday) finished their daily vegetable portion. As in Period 1, also in Period 2 vegetable leftovers of each class in both experimental groups were weighed daily.

Results - The results reveal that the provision of non-monetary incentives was effective reducing vegetable leftovers of the treated group. Indeed, while no significant variations in

vegetable leftovers were observed between the two groups in Period 1, in Period 2 children in the incentive group eat significantly more vegetables (35.26%) than children in the control group. The positive effect of the incentive provision was independent from the type of vegetable served, with the only exception of broccoli. When analyzing within subject data the results highlighted that the intervention group ate 27.4% more vegetables in Period 2 relative to Period 1 ($p= 0.000$), whilst no significant variations were observed in the control group.

Discussion - The results of our field experiment provide novel insights on the powerful impact of incentive provision in leading to positive food-related behavioral changes. Indeed, in line with previous works conducted in the school lunchroom environment (Belot et al., 2013; Just and Price, 2013; Loewenstein et al., 2016), we observed a powerful effect of non-monetary incentives in increasing vegetable consumption. These findings have a twofold implication: (i) on the one side, an increased consumption of vegetables positively contributes to improve children's dietary balance, thus having a positive impact on their health; (ii) on the other side, increased consumption of vegetables would contribute to significantly reduce food waste, thus contributing to a more sustainable provision of meals in school canteens.

Keywords : Field experiment, Non-monetary incentives, Children food consumption