

# Improving the Diets of Children: Understanding the Decision-Making of Parents, Children, and Food Manufacturers

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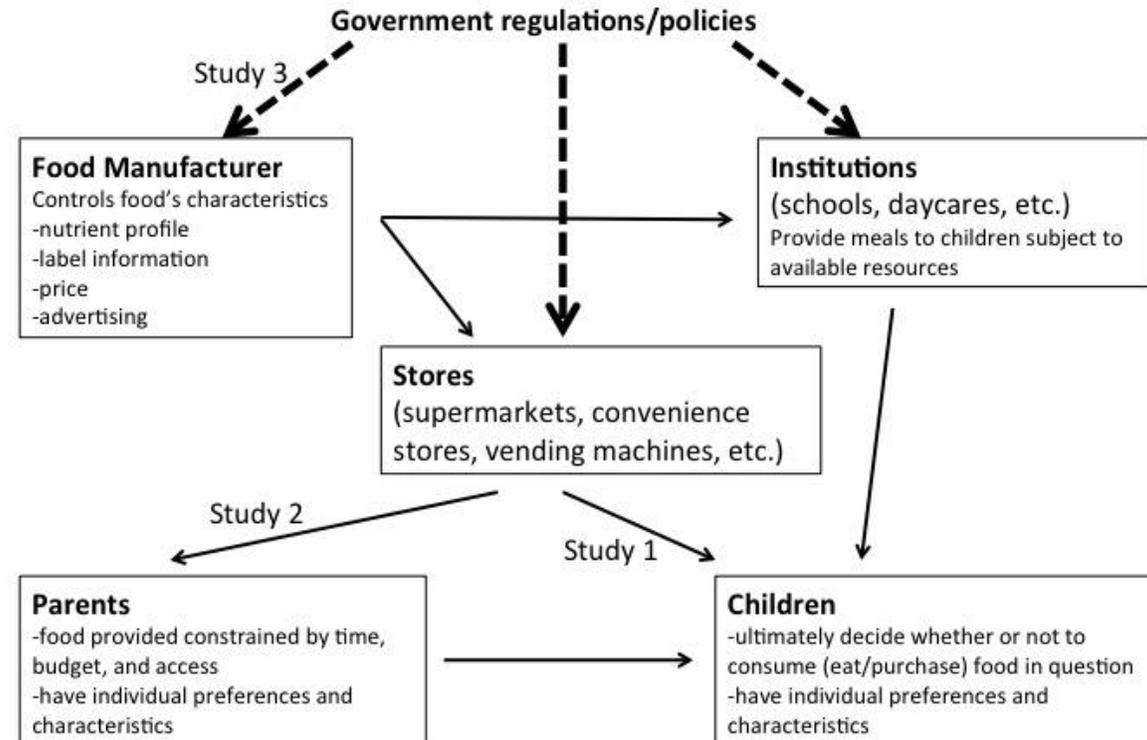
# Background

- ▶ An individual's diet has long-term health implications
- ▶ Suboptimal dietary choices can lead to
  - ▶ chronic health problems faced by individuals
  - ▶ externalities in the form of health care costs borne by society
- ▶ Children merit a higher level of protection as consumers, given that they are not assumed to be capable of protecting themselves
- ▶ Improving the diets of children would improve the long-term health and quality of life of the population and reduce the financial burden of non-communicable diseases on the health care system

# Overall Objective

- ▶ The objective of this study is to inform potential policies that could improve children's diets and subsequent health outcomes. The policies investigated are
  1. tax mechanism
  2. traffic-light or warning label
  3. regulations on food manufacturers
- ▶ The tax and warning label mechanisms address factors that could influence parents' or children's food choices
- ▶ The regulation of food manufacturers would address their strategic decisions in order to improve the nutritional profile of foods targeted at children.

# Conceptual Framework

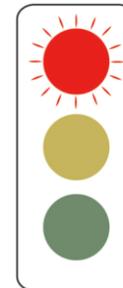


# Children as Consumers

- ▶ We assume that children, just like other consumers, will make utility maximizing choices subject to a budget constraint and what is available for them to purchase.
- ▶ We can't assume is that children evaluate the future ramifications of current consumption on long-term utility.
  - ▶ They may lack the nutritional knowledge to recognize healthy choices
  - ▶ Individuals of all ages put off saving money or eating healthier because they put a proportionally higher value on current utility than future utility (myopic discounting)
- ▶ If kids are making sub-optimal, externality-generating choices, we could:
  - ▶ Correct the information deficit through label mechanisms
  - ▶ Increase the relative utility derived from consuming healthier options by adjusting the relative prices

# Study 1: Children's responses to price and label interventions

- ▶ There is evidence that North American children are autonomous purchasers of food and that they predominantly purchase 'junk' food <sup>1,2,3</sup>
  - ▶ 80% of kids (aged 8-12) in our study purchase food autonomously, largely of the less healthy variety
- ▶ This study examined how children's snack food purchases would be affected by a tax or traffic light style label, and how the effects would differ based on age, gender, or cognitive ability
- ▶ Results indicated that kids would be less likely to purchase snacks with the traffic light label and that these effects were not dependent on the child's individual characteristics
- ▶ The results also showed that kids would respond to a tax, but that sensitivity to price change was heterogeneous
  - ▶ Boys and children with higher executive functioning skills were more price sensitive
  - ▶ Girls and children with higher IQs were less price sensitive



Health Canada recommends eating foods like this less often because they are high in calories, fat or sodium.

# Parents as Intermediaries

- ▶ We assume that parents derive utility from not only their own consumption, but also from their child's consumption and lifetime utility, of which long-term health is a component. As such, they will purchase food for their household in a manner that maximizes their utility subject to a budget constraint and the products available.
- ▶ If the parent understands the long-term impact of diet on health, they will derive more utility from feeding their child a healthy diet, *ceteris paribus*. (However, the disutility associated with trying to make a child eat food they don't like may outweigh the utility gained from feeding them healthy food.)
  - ▶ If the parent lacks the knowledge to make healthy choices for their child, this information deficit could be addressed through a labeling mechanism.
  - ▶ If the child has a strong preference for less healthy foods, they may also be persuaded by a labeling mechanism if they are capable of understanding it.
- ▶ In some cases, the sole determinant of utility is the level of current consumption, such as in the instance of food insecurity
  - ▶ In this case, changing relative prices would likely be an effective incentive to make different choices, but care needs to be taken to ensure that healthy choices are affordable.

# Study 2: Parental response to label interventions

- ▶ The second paper examines how parents would respond to price changes and an explicit text-based warning label on high sugar breakfast cereals, and how these responses would differ based on their characteristics.

**WARNING: This product is high in sugar and should not be consumed frequently by children.**

- ▶ Parents were responsive to the high sugar warning labels
  - ▶ Women and those with high nutrition knowledge were more responsive
  - ▶ Individuals who received information about the warning label prior were more responsive
- ▶ Interestingly, responsiveness to the warning label differed based on which product it was on
  - ▶ The WTP for some products was not affected by the warning label, but was decreased by as much as \$0.83 (15%) per box for others

# Food Manufacturers

- ▶ Manufacturers must choose their optimal mix of price, quality, and advertising to meet their objective (usually to maximize profits).
- ▶ Market structure affects firm decisions, and in an oligopolistic industry such as the breakfast cereal industry, manufacturers will consider their competitors' actions when choosing their levels of price, quality, and advertising.
- ▶ One aspect of quality in food manufacturing is the nutritional value of the food product. As such, firms are inherently choosing how healthy to make their foods while making their profit-maximizing decisions.
- ▶ If firms are disproportionately encouraging consumption of their less healthy products through advertising or price promotion, or are neglecting to improve the nutritional quality of their products, manufacturer regulation could be suggested as a potential means of improving diets.

# Study 3: Nutritional trends in the breakfast cereal industry (1999-2017)

- ▶ Neither Kellogg's nor General Mills spent more money advertising their less healthy products than their more healthy products
- ▶ Neither firm made their less healthy products relatively cheaper than their healthier products.
- ▶ Both firms have decreased the average sodium content and increased the average fibre content of their breakfast cereal portfolios, Kellogg's to a greater extent
  - ▶ Kellogg's made more improvement on average
  - ▶ General Mills made more improvement to their long running products
- ▶ The cost of sugar was positively associated with nutritional quality
- ▶ Sodium reduction was associated with higher public awareness about the harms of sodium overconsumption.

# Summary

- ▶ Children are somewhat homogeneous in their response to warning labels while their reaction to price changes depends on individual characteristics
- ▶ Parents have differing responses to both taxes and warning labels that vary based on their individual characteristics and the brands in question
- ▶ The decrease in simulated purchase probability of less healthy snacks among our child sample when a traffic light label was applied was 5%
- ▶ The decrease in simulated purchase probability of high sugar breakfast cereals among our parent sample when a warning label was applied was 2%
- ▶ Parents were WTP \$0.90 (16%) on average to avoid breakfast cereal with a warning label while children were WTP \$0.21 (18%) to avoid a snack with a warning label
- ▶ The two breakfast cereal manufacturers examined are improving the nutrition profiles of their product lines independently, so if this is representative of the industry, it would likely be inefficient to impose regulations on them at this time

# Policy Implications

- ▶ Health Canada is working on applying a warning label to products that are high in sugar, sodium, and/or saturated fat
- ▶ Based on our findings, this warning label could influence both children and their parents to choose healthier options, but changes in purchasing behavior will probably be heterogeneous across both consumer categories and different brands
- ▶ Health Canada should consider that consumers will be more responsive to a label mechanism if they have some prior understanding of it
- ▶ The government could also consider imposing financial mechanisms at either the retail or manufacturing level
  - ▶ Both children and parents were found to be price sensitive in food purchases
  - ▶ The nutritional quality of breakfast cereals was correlated with the cost of sugar as an input

# Policy Implications

- ▶ No one policy will have huge success on its own in changing the way society eats.
- ▶ If real improvements are going to be made, it will take a multi-faceted approach that takes into account a variety of issues including, but not limited to:
  - ▶ food environments
  - ▶ availability and affordability of both healthy and unhealthy foods
  - ▶ food marketing
  - ▶ the composition of food products
  - ▶ consumer awareness of nutrition and healthy choices
  - ▶ societal norms around food consumption

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# Questions?

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