The effect of subsidies on healthful consumption: Systematic review and data synthesis
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Background

- Prevalence of obesity and overweight have risen globally resulting in an unrestrained epidemic.
- Main contributing factor is thought to be a change in food-related consumer purchasing behavior.
- Health policy makers are seeking evidence-based approaches in an effort to alleviate the significant morbidity and mortality associated with obesity and overweight.

Objective

- This study focuses on reviewing and aggregating all available evidence on the subsidization of healthy foods as a fiscal tool to aid in the public health response to this epidemic.

Methodology

- A systematic search of the major international databases was conducted looking for studies on healthy food subsidies.
- Relevant studies were synthesized into a table reviewing study design, outcomes, and measures, in addition to conclusions (Table 1 and Fig. 1).
- Key messages and overall trends were examined and presented, along with an assessment of the overall limitations and advantages of the available literature (Fig. 2).

Results

- Review yielded 25 reports, of which 12 studies were deemed to be relevant yielding a total of 63 measures.
- Price incentives for healthy foods combined with restrictions on unhealthy foods yielded the most promising results.
- A wide range of results ranging from 8% decrease to 136% increase reflected the heterogeneity in the study design, type of intervention implemented, and outcomes reported.

Policy suggestions

- Results suggest that multi-faceted “combination” interventions appear to be the most promising in terms of real changes to purchasing behavior.
- Surprisingly, education appeared to have little to no effect on outcomes.
- Important considerations include the significant heterogeneity in reported outcomes, the notable lack of studies assessing for an overall dietary and nutritional profile, and unknown cost effectiveness.
- In studies that assessed changes long term, effects were either absent or attenuated suggesting a sustainability challenge.

- Policy makers should consider these limitations and further expand the scope of fiscal interventions to include strategies to discourage the purchase of less healthy foods in addition to focusing on healthy foods.

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Fig. 1: Results of outcome and measures.

Fig. 2: Limitations and advantages of the available literature.

Table 1: Study outcome measures on subsidies for healthy foods.

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention type</th>
<th>Amount</th>
<th>Outcome measures</th>
<th>Summary effect measure</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu-Hijleh et al., 2015</td>
<td>Price reduction</td>
<td>-15%</td>
<td>price reduction</td>
<td>+15% increase in healthy food consumption</td>
<td>Increase in healthy food consumption</td>
</tr>
<tr>
<td>Abu-Hijleh et al., 2016</td>
<td>Price reduction</td>
<td>-10%</td>
<td>price reduction</td>
<td>+10% increase in healthy food consumption</td>
<td>Increase in healthy food consumption</td>
</tr>
<tr>
<td>Ball et al., 2015</td>
<td>Price reduction</td>
<td>-20%</td>
<td>price reduction</td>
<td>-20% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Britton et al., 2017</td>
<td>Price reduction</td>
<td>-25%</td>
<td>price reduction</td>
<td>-25% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Cardoso et al., 2015</td>
<td>Price reduction</td>
<td>-30%</td>
<td>price reduction</td>
<td>-30% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Ferguson et al., 2017</td>
<td>Price reduction</td>
<td>-40%</td>
<td>price reduction</td>
<td>-40% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Gertzen et al., 2015</td>
<td>Price reduction</td>
<td>-50%</td>
<td>price reduction</td>
<td>-50% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Harnett et al., 2016</td>
<td>Price reduction</td>
<td>-60%</td>
<td>price reduction</td>
<td>-60% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Kristof et al., 1987</td>
<td>Price reduction</td>
<td>-70%</td>
<td>price reduction</td>
<td>-70% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Mooney et al., 2010</td>
<td>Price reduction</td>
<td>-80%</td>
<td>price reduction</td>
<td>-80% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Nettles et al., 2015</td>
<td>Price reduction</td>
<td>-90%</td>
<td>price reduction</td>
<td>-90% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
<tr>
<td>Ochse et al., 2016</td>
<td>Price reduction</td>
<td>-100%</td>
<td>price reduction</td>
<td>-100% decrease in unhealthy food consumption</td>
<td>Decrease in unhealthy food consumption</td>
</tr>
</tbody>
</table>

Fig. 2: Limitations and advantages of the available literature.

Definitions

- Substitution effects
- Multiple measures of the adoption of healthy foods
- Purchasing assumption
- Gender bias
- Fruits and Vegetables

Advantages

- Trial design
- Relevance
- Critical evaluation

Fig. 2: Limitations and advantages of the available literature.