

Restricting Multi-Buy Price Promotions on High Fat, Sugar or Salt Discretionary Foods: Summary of SRUC Analysis on Potential Calorie and Nutrient Intake Impact

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RESTRICTING MULTI-BUY PRICE PROMOTIONS ON HIGH FAT, SUGAR OR SALT DISCRETIONARY FOODS: SUMMARY OF SRUC ANALYSIS ON POTENTIAL CALORIE AND NUTRIENT INTAKE IMPACT

1. INTRODUCTION

This paper presents results of an analysis by SRUC and the University of Aberdeen on the impact of restricting multi-buy promotions of high fat, sugar or salt (HFSS) discretionary food and drink (HFSS discretionary foods).

“Multi-buys” are defined here as (a) two or more separate products sold together to obtain a discount or (b) one or more products given free as a result of a purchase¹.

This paper is a companion to the SRUC’s *Economic modelling: Reducing health harms of foods high in fat sugar or salt*² report (SRUC and University of Aberdeen report, SRUC-UoA report, hereafter) which examined the impact of a policy that restricted all price promotions of discretionary foods, not just multi-buy promotions.

The SRUC-UoA report Defines Discretionary food categories as the following: take home confectionery, biscuits, take home savouries, cakes, pastries and higher fats and sugar morning goods, total puddings and desserts, take home drinks and edible ices and ice cream

The results presented in this note are extracted from the supporting data and analysis which accompanied the SRUC-UoA report.

This briefing and the SRUC report contribute to informing the development of potential policy proposals to restrict promotions of HFSS foods.

2. SUMMARY FINDINGS

The analysis on multi-buy promotion restrictions of HFSS discretionary foods found that, on average, consumption could be reduced by 155 calories per person each week. This compares to the findings from the SRUC-UoA report that restricting all price promotions could potentially lead to a reduction of 613 calories per person each week.

The impact on consumption was examined across a range of demographic characteristics and found a positive impact overall (in terms of reduced average calorie intake of HFSS discretionary foods) for all groups, but some variation in the level of impact. For instance:

- Those in the most deprived areas could see a calorie reduction of 135.2 on average per person each week compared to 220.5 for those in the least deprived areas.

¹ [Reducing Health Harms of Foods High in Fat, Sugar or Salt: Consultation Paper \(www.gov.scot\)](http://www.gov.scot/ISBN/9781802017779)

² <http://www.gov.scot/ISBN/9781802017779>

- Those earning £30,000-£39,999 could see a calorie reduction of 276.2 on average per person each week compared to 134.9 for those earning up to £29,999.
- Older families could see a calorie reduction of 237.9 on average per person each week compared to 50.9 for middle families.
- Those who live in Remote Small Towns could see a calorie reduction of 350 on average per person each week compared to 45.1 for those who live in Accessible Small Towns.

3. BACKGROUND

Generally Scotland has a poor diet and an unhealthy weight, consuming too many calories and too many foods high in fat, sugar or salt. In turn, this can have a negative impact on health and wellbeing.

It is estimated that obesity in Scotland costs the NHS between £363 million-£600 million in treating obesity and the health harms associated with it. To the wider Scottish economy it is estimated to cost around £0.9 billion-£4.6 billion each year (2015 values).³

Restricting promotion of HFSS discretionary foods has been highlighted as a policy of value to include alongside a range of other interventions⁴. Further policy context and discussion of evidence is set out in the SRUC report.

4. METHODS

SRUC and the University of Aberdeen analysed the changes in the purchase of HFSS discretionary foods if price promotions on these were restricted.

The analysis looked at changes in consumer behaviour such as switching within category or buying more non-discretionary foods as a result of restrictions to price promotions by estimating different demand elasticities⁵ for each category.

Using sales data which included if the product was subject to a price promotion, and data from experiments asking individuals to rank hypothetical alternative product choices, a model was constructed which isolates the price promotion aspect of demand for different products. This element could then in effect be switched on and off, allowing the amount spent by each representative household to be calculated before and after “restrictions were included”. This provides an estimate of the difference in consumption of each food category.

The model assumes that the prices and promotions of other products remained the same and substitution was estimated using the inter category demand model (this measures the substitution between discretionary foods and non-discretionary foods). This provided an estimated change in quantities and nutrition simulating the restriction of promotions.

Further analysis was carried out to understand impact by: Household gross income, deprivation level using the Scottish Index of Multiple Deprivation (SIMD), , Family Stage and Rurality.

Details of the methodology are set out in full in Section 3.1 of the SRUC-UoA report.

³ [Obesity in Scotland \(parliament.scot\)](https://www.parliament.scot)

⁴ [MGI Overcoming obesity Full report.ashx \(mckinsey.com\)](https://www.mckinsey.com)

⁵ The percentage change in the quantity demanded as a result of a 1% increase in the price of the product (own price elasticity) or the price of another product (cross price elasticity)

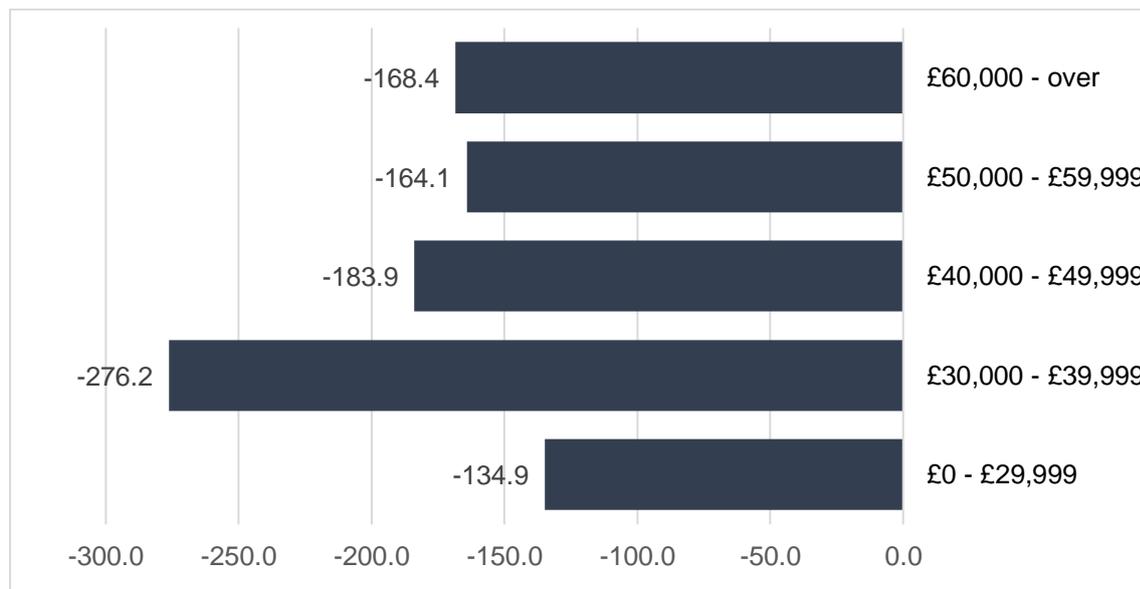
5. RESULTS FOR RESTRICTING PROMOTIONS OF HFSS DISCRETIONARY FOODS

Across the whole sample, the model estimated an average reduction of 155 calories per person each week from implementation of a restriction on multi-buy promotions. On average, people were estimated to potentially consume 18.5 fewer grams of sugar each week, 4.3 fewer grams of fat and 31.7 fewer grams of carbohydrates.

5.1. Impact by income

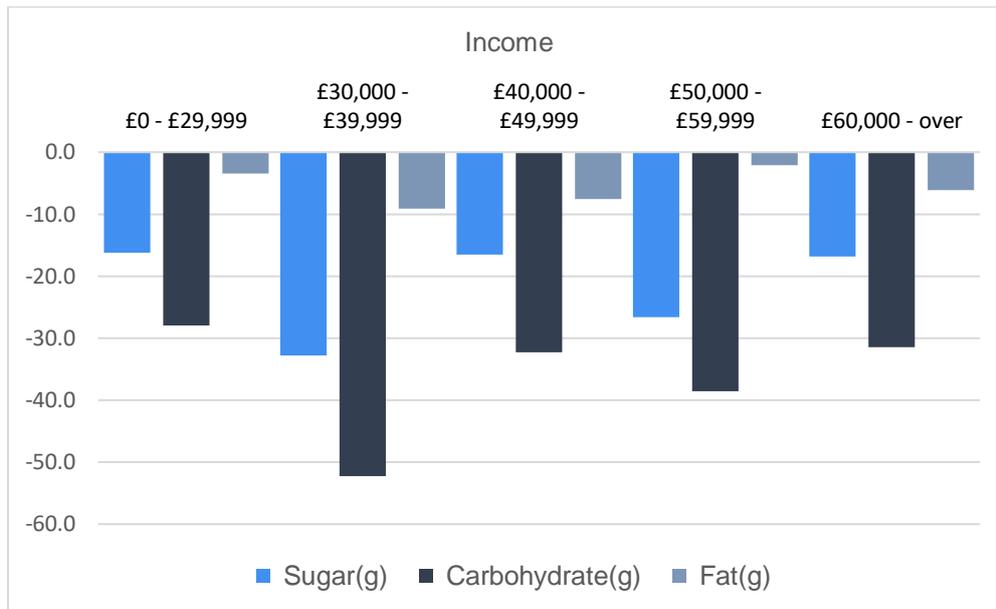
Potential impact by income level was examined using income quintiles, see Figure 1. Overall, all income groups were estimated to consume fewer calories under the policy on average. There was a non-linear impact across the income gradient. The greatest reduction was in the income group £30,000-39,000 (quintile 2) with an average reduction of 276 calories per person each week. The least impact was seen on those in the lowest income quintile, earning less than £30,000 per year, with an average reduction of 135 calories per person each week.

Figure 1: Change in calories per person per week, by household income group



A similar impact was observed on major nutrient groups (Figure 2) as for calories. People earning less than £30,000 were estimated to consume 16 grams less sugar, 27.8 grams less carbohydrates and 3.5 grams less fat per person each week on average.

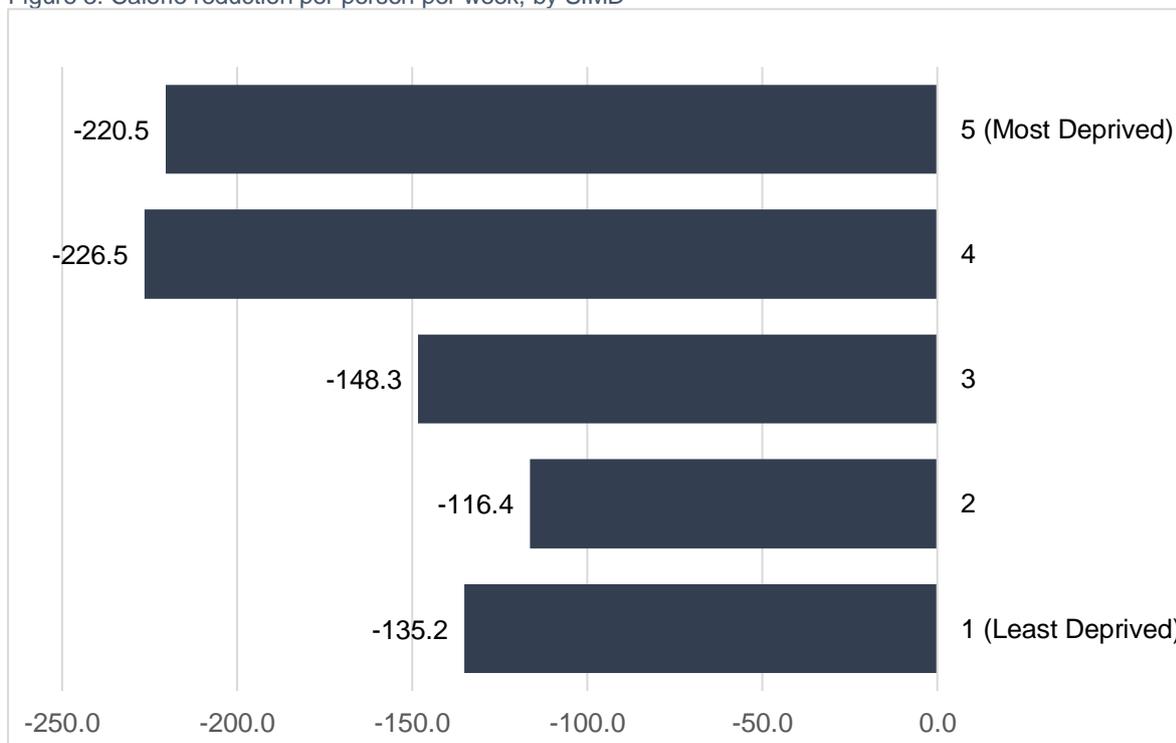
Figure 2: Change in major nutrients per person per week, by household income group



5.2. Impact by SIMD

By SIMD, all groups were estimated to consume fewer calories per person each week on average due to the policy. There was a nonlinear impact, although Figure 3 shows a deprivation gradient, with those in the least deprived quintiles reducing calorie consumption the most on average. The greatest reduction was seen in quintile 4 with a reduction of 226.5 calories per person each week on average.

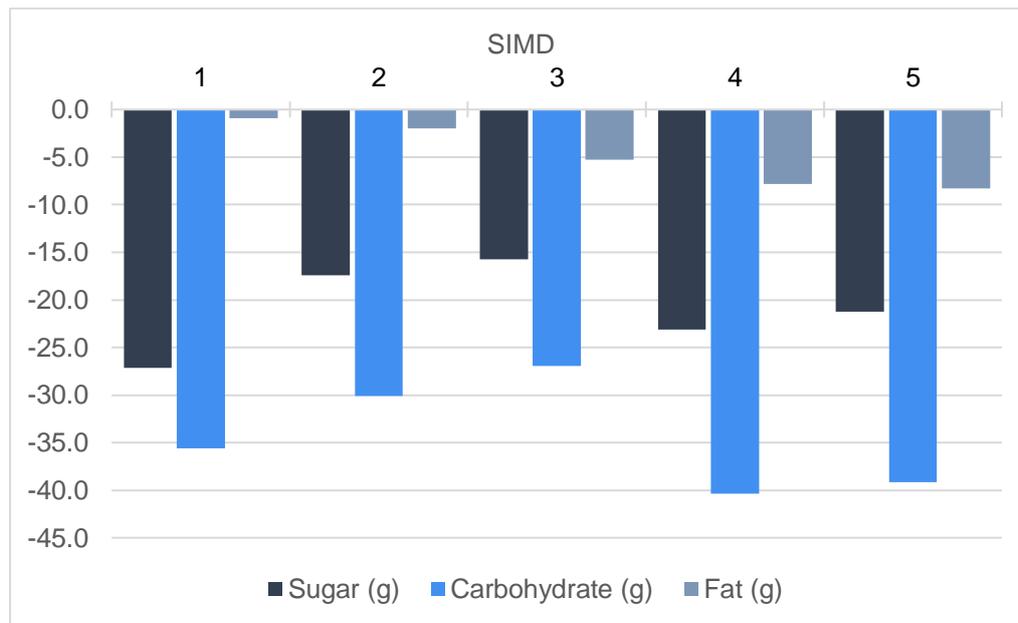
Figure 3: Calorie reduction per person per week, by SIMD



People in the most deprived SIMD group (quintile 1) may be expected to consume 27.1 grams less of sugar, 35.6 grams less of carbohydrates and 0.9 grams less of fat on average per person each week, see Figure 4.

While those in the most deprived quintile were estimated to reduce sugar consumption the most, those in the least deprived quintile may be expected to reduce fat consumption by the most (8.3 grams) on average per person each week.

Figure 4: Change in major nutrients per person per week, by SIMD



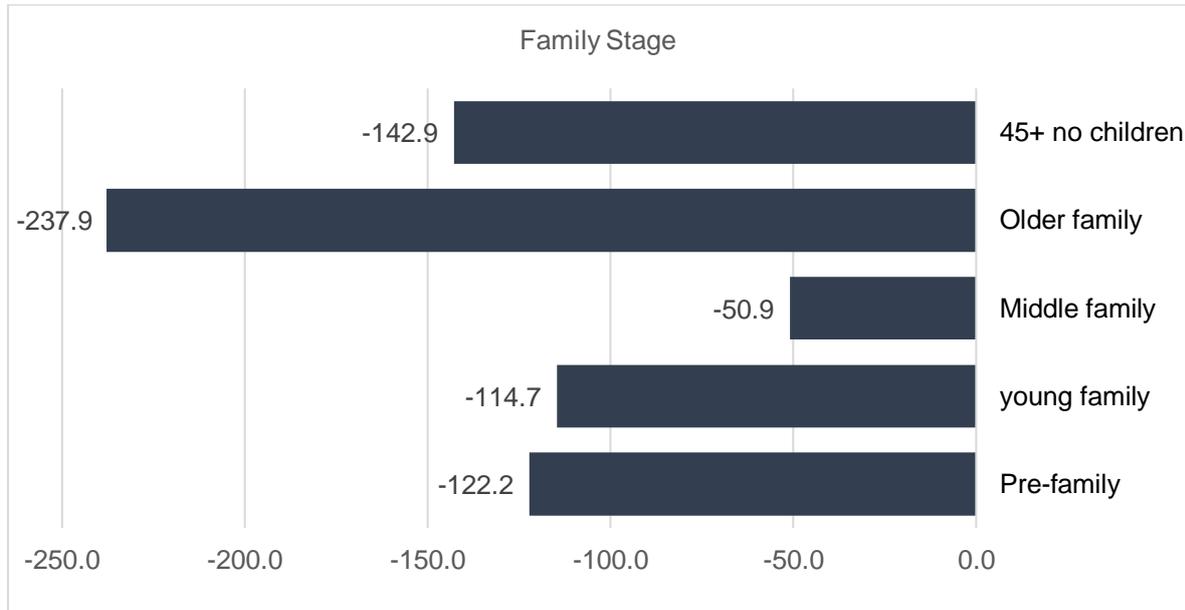
5.3. Impact by Family Stage

Older families⁶ were estimated to have the greatest reduction in calories on average: 237.9 calories per person each week (Figure 5). The lowest impact was estimated for those classed as middle family. Those who are in pre family stages are expected to consume on average 188 grams less of sugar, 27.2 grams less of carbohydrates and 3.8 grams less of fat per person each week.

⁶ Family stages are defined as;

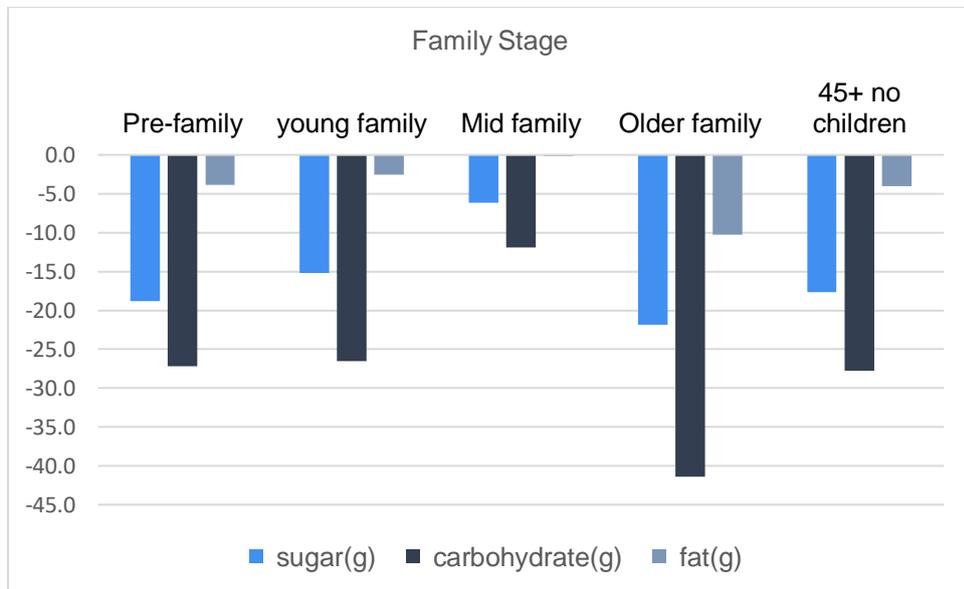
- Pre-family are 16 years old to 34 years old without children (childless couples over the age of 35 years are automatically included in the empty nester);
- 'Young family' same age but with children;
- 'middle family' are 35 years old to 44 years old with children;
- 'older family' are those older than 44 years old and with children and 45+ without children is the remaining group (i.e., other dependents, empty nesters and retired).

Figure 5: Change in calories per person per week, by Family Stage



Older families were estimated to have the greatest reduction across the board, with an average reduction of 21.9 grams of sugar, 41.1 grams of carbohydrates and 10.3 grams of fat per person each week. Middle families are estimated to have on average the smallest impact on major nutrient consumption, with a reduction of 6.2 grams of sugar, 11.9 grams of carbohydrates and 0.1 grams of fat on average person each week. See figure 6 below.

Figure 6: Change in major nutrients per person per week, by Family Stage

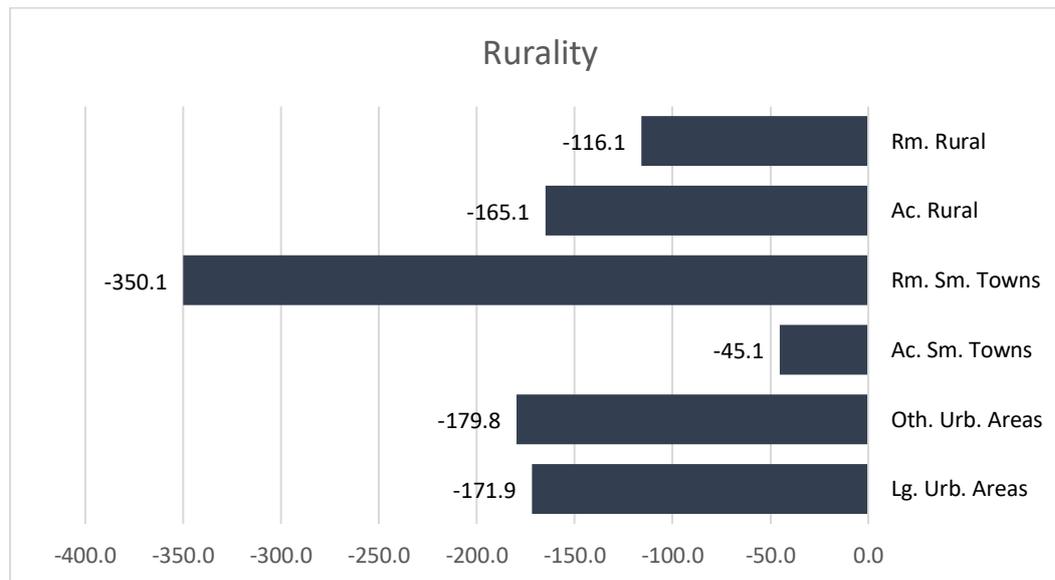


5.4. Impact by Rurality

Analysis by level of rurality⁷ used the following categories: Remote Rural, Accessible Rural, Remote Small towns, Accessible Small towns, Other Urban Areas and Large Urban Areas.

The impact on calories purchased was greatest in Remote Small Towns, reducing consumption by 350.1 calories per person each week on average, and the smallest reduction was in Accessible Small Towns of 45.1 calories per person each week on average. See figure 7 below.

Figure 7: change in calories per person per week, by rurality

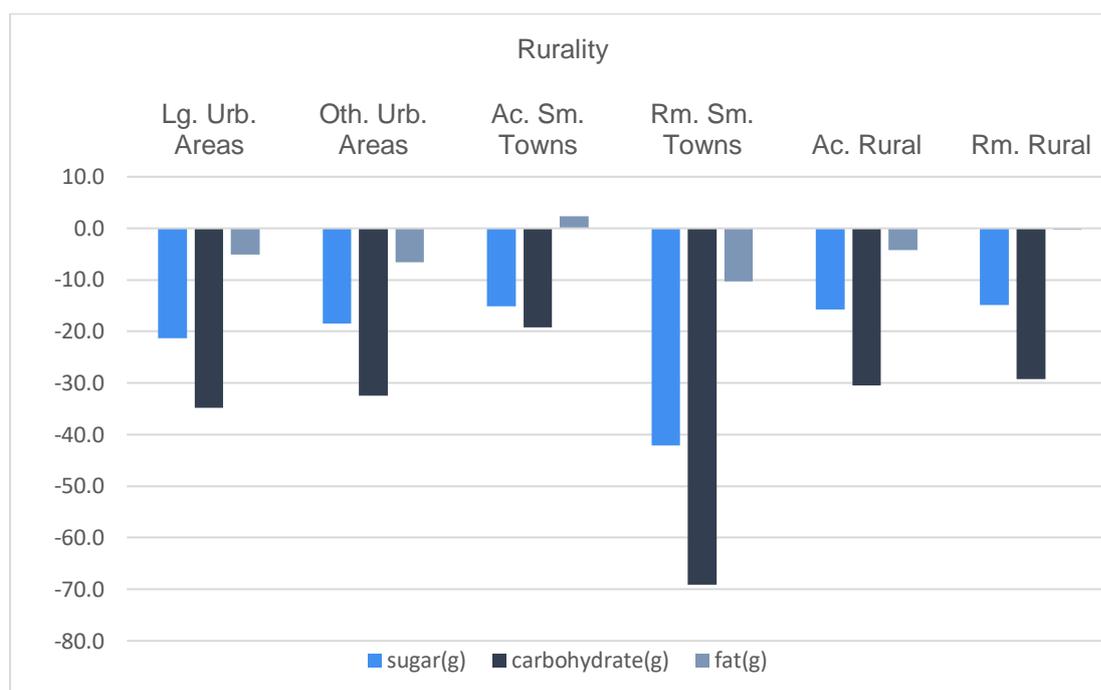


People in Large Urban Areas were expected to consume 21.3 grams less of sugar, 34.8 grams less of carbohydrates and 5.1 grams less of fat on average per person each week. Rural Small Towns saw the greatest reduction overall with 42.1 grams less of sugar, 69.1 grams less of carbohydrate and 10.3 grams less of fat on average per person each week. See figure 8 below

⁷ Large Urban Areas - populations of 125,000 or more Other Urban Areas - populations of 10,000 to 124,999 Small Towns - populations of 3,000 to 9,999 Rural Areas - populations less than 3,000 Accessibility is measured in terms of drive times to an urban area. Accessible - Areas within a 30 minute drive time of a Settlement with a population of 10,000 or more. Remote - Areas that are more than a 30 minute drive time or areas that have a drive time between 30 and 60 minutes from a Settlement with a population of 10,000 or more. Very Remote - Areas that are more than a 60 minute drive time from a Settlement with a population of 10,000 or more

[Scottish Government Urban Rural Classification 2016 - gov.scot \(www.gov.scot\)](http://www.gov.scot)

Figure 8: Change in major nutrients per person per week, by Rurality



6. Discussion & Conclusions

This paper has summarised key modelling results conducted by SRUC and the University of Aberdeen on behalf of the Scottish Government, exploring a policy of restricting the use of multi-buys of discretionary foods. It has not attempted to discuss the potential reasons behind the results. Full results are available in the online data files at <http://www.gov.scot/ISBN/9781802017779/documents/>.

In order to reduce health harms associated with obesity in Scotland, Food Standards Scotland have estimated that discretionary food consumption⁸ would have to reduce by at least half⁹, equivalent to 190 calories per person each day or 1,330 each week on average¹⁰.

The SRUC-University of Aberdeen modelling estimated an average reduction of 155 calories per person each week from restricting multi-buys on discretionary products, equivalent to 22 calories reduction per person each day.

Despite variation in levels of impact across different sectors of society, an estimated reduction in calories on average per person each week was observed for all groups examined. However, there are some variations to note, such as the lowest SIMD group (decile 1) estimated to see a calorie reduction of 135 calories per person each week compared to the highest group (decile 5) of 220 calories per person each week on average. Those on an income up to £29,999 would have an estimated reduction of 132 calories per person each week and those on an income between £30,000-

⁸ To note that definitions of discretionary foods by Food Standards Scotland and SRUC are not in full alignment.

⁹ [Situation report - the Scottish diet - it needs to change - 2018 update FINAL.pdf \(foodstandards.gov.scot\)](http://www.foodstandards.gov.scot/Situation_report_-_the_Scottish_diet_-_it_needs_to_change_-_2018_update_FINAL.pdf)

¹⁰ [Reducing Health Harms of Foods High in Fat, Sugar or Salt: Consultation Paper \(www.gov.scot\)](http://www.gov.scot/Reducing_Health_Harms_of_Foods_High_in_Fat_Sugar_or_Salt:_Consultation_Paper)

39,000 would be estimated to see a reduction of 276 calories per person each week on average.



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