Realigning UK Food Production and Trade for Transition to Healthy and Sustainable Diets

Work Package-1: Estimating Consumption Changes for Transition to Healthy and Sustainable Diets- Initial results

WP-1: Main Components

- Estimating changes in consumption of key food products/product groups for transition to healthy diets.
- Comparison of the environmental footprint of current and post-transition (healthier) diets.
- Food basket-based choice experiment.

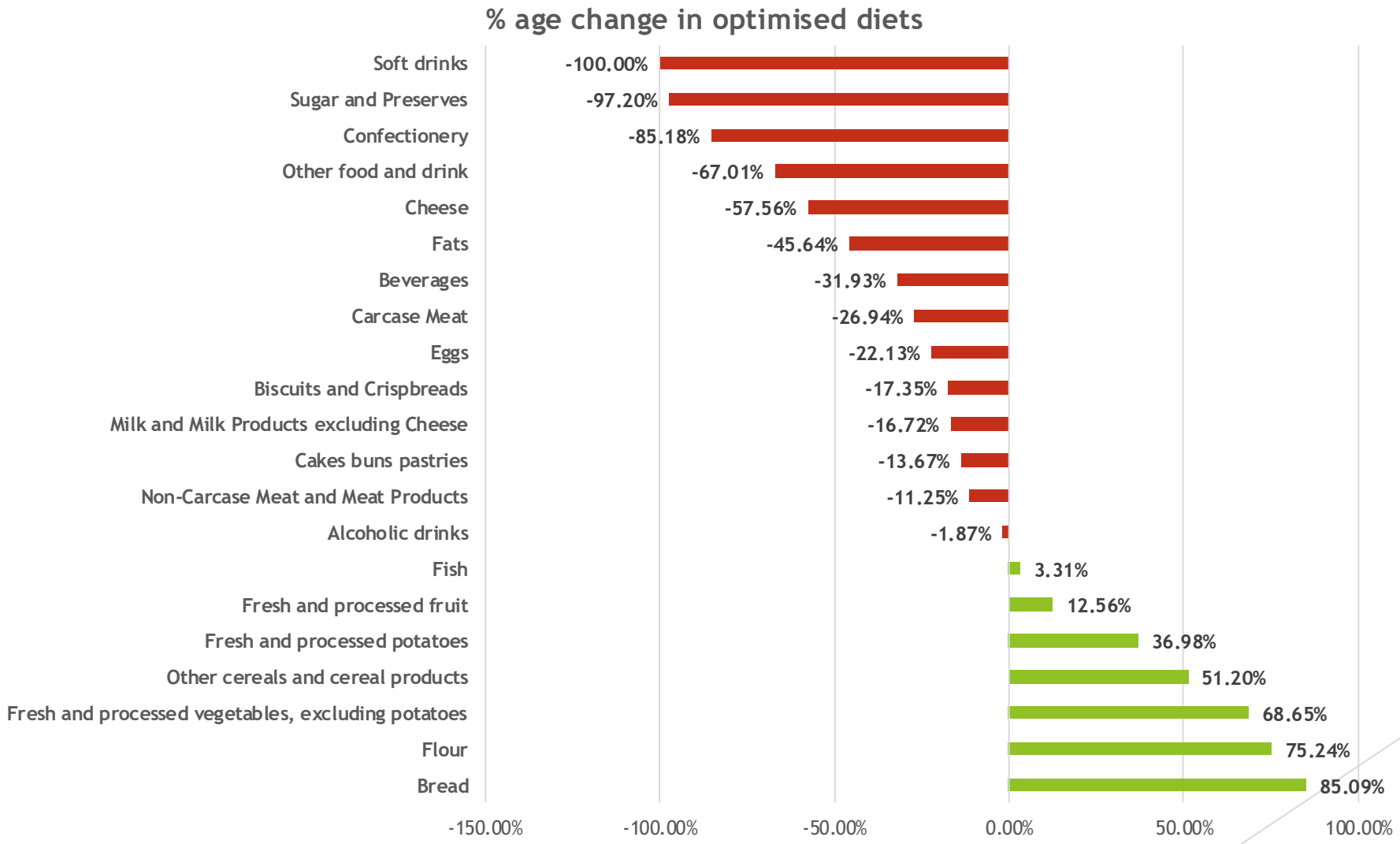
Estimating changes in consumption for transition to HSD.

- Datasets
  - Living Cost and Food Survey - DEFRA family food - food purchases and expenditure at household level
- Programming approach: Quadratic programming
  - Minimise the deviation from existing diets subject to constraints derived from UK recommended dietary guidelines (COMA):
    - Proportion of energy derived total fats: <30%
    - Proportion of energy derived from saturated fats: < 10%
    - Proportion of energy derived from proteins: <15%
    - Proportion of energy derived from (non-milk extrinsic) sugars: <5%
    - Consumption of fruit and vegetables: 400 gms/day
    - Consumption of salt (sodium): < 6 gms per day
    - Consumption of fibre: 30 gms/day (Southgate method)
    - Consumption of alcohol and unhealthy food categories (e.g., fizzy drinks) not to increase
- Estimated percentage change in the consumption of food products/groups at the level of disaggregation available in Family Food

Additional Constraints -AFBI

- In the optimised diet certain product proportions would need to be maintained:
- For livestock products: beef, sheep/lamb, pork, poultry - proportions relevant for carcase derived products.
- For products derived from liquid milk.
- Trade may allow some of the product proportionality constraints to be relaxed.
- Constraint added: For livestock derived products and for liquid milk, share of products within the group should not deviate by more than + or - 5% of the share in the current pattern of consumption.

Results


% age change in optimised diets
Soft drinks
Sugar and Preserves
Confectionery
Other food and drink
Cheese
Fats
Beverages
Carcase Meat
Eggs
Biscuits and Crispbreads
Milk and Milk Products excluding Cheese
Cakes buns pastries
Non-Carcase Meat and Meat Products
Alcoholic drinks
Fish
Fresh and processed fruit
Fresh and processed potatoes
Other cereals and cereal products
Fresh and processed vegetables, excluding potatoes
Flour
Bread
-100.00%
-97.20%
-85.18%
-67.01%
-57.56%
-45.64%
-31.93%
-26.94%
-22.13%
-17.35%
-16.72%
-13.67%
-11.25%
-1.87%
3.31%
12.56%
36.98%
51.20%
68.65%
75.24%
85.09%
-150.00%
-100.00%
-50.00%
0.00%
50.00%
100.00%

Main Results

- Reduction in consumption of **milk and milk products (11.6%)** – offsetting changes – reduction in **cream(60%) different types of milk (15-30%)** offset by increase in the consumption of **skimmed milk (18%)**.
- Reduction in **cheese consumption of 52.5%**; reduction in different types of cheese ranges from **14-60%**.
- Reduction in consumption of **carcase meat (23%), beef (21%), mutton(41%), pork(15%)**. Reduction in **poultry, offal and takeaway meat (11.6%).**
- **22% reduction** in consumption of **eggs** and a **1% increase** in the consumption of **fish** – increase in consumption of white fish offset by decrease in takeaway fish.
- Near elimination of **soft drinks, sugar and preserves**. Reduction in **confectionery (85%), cakes, buns, pastries (13%), biscuits and crispbreads (15%).**
- Substantial increase in consumption of **vegetables (53%)**, overall increase in **fresh and processed fruits is only 3.3%** - large increases in some fruits offset by decreases in fruits with high sugar content.
- Large increase in the consumption of **bread(89%), flour(76%), cereal products (54%)**
- Reduction in consumption of **beverages (39%)**

Environmental footprints of current and post-transition diets

- Environmental parameters:
  - Greenhouse Gas Emissions (GHGs)
  - Water use
  - Land use
  - Eutrophication potential
- Use existing environmental impact databases at food product level – match NDNS food products and categories to these data bases.
- Develop an environmental score for different food products.
- Compare environmental impact scores for current and post-transition healthier diets.
- Examination of potential trade-offs between healthier and sustainable diets.

Food Basket-based Choice Experiment

- Purpose: To assess how the nutrient composition (healthfulness) and environmental sustainability of consumers' entire food basket changes in response to price changes induced by fiscal or regulatory measures (e.g., fat taxes or thin subsidies or carbon/environmental taxes)