

Realigning UK food production and trade for transition to healthy and sustainable diets

Work Package-1 Estimating changes in consumption of key food products / product groups for transition to healthy diets

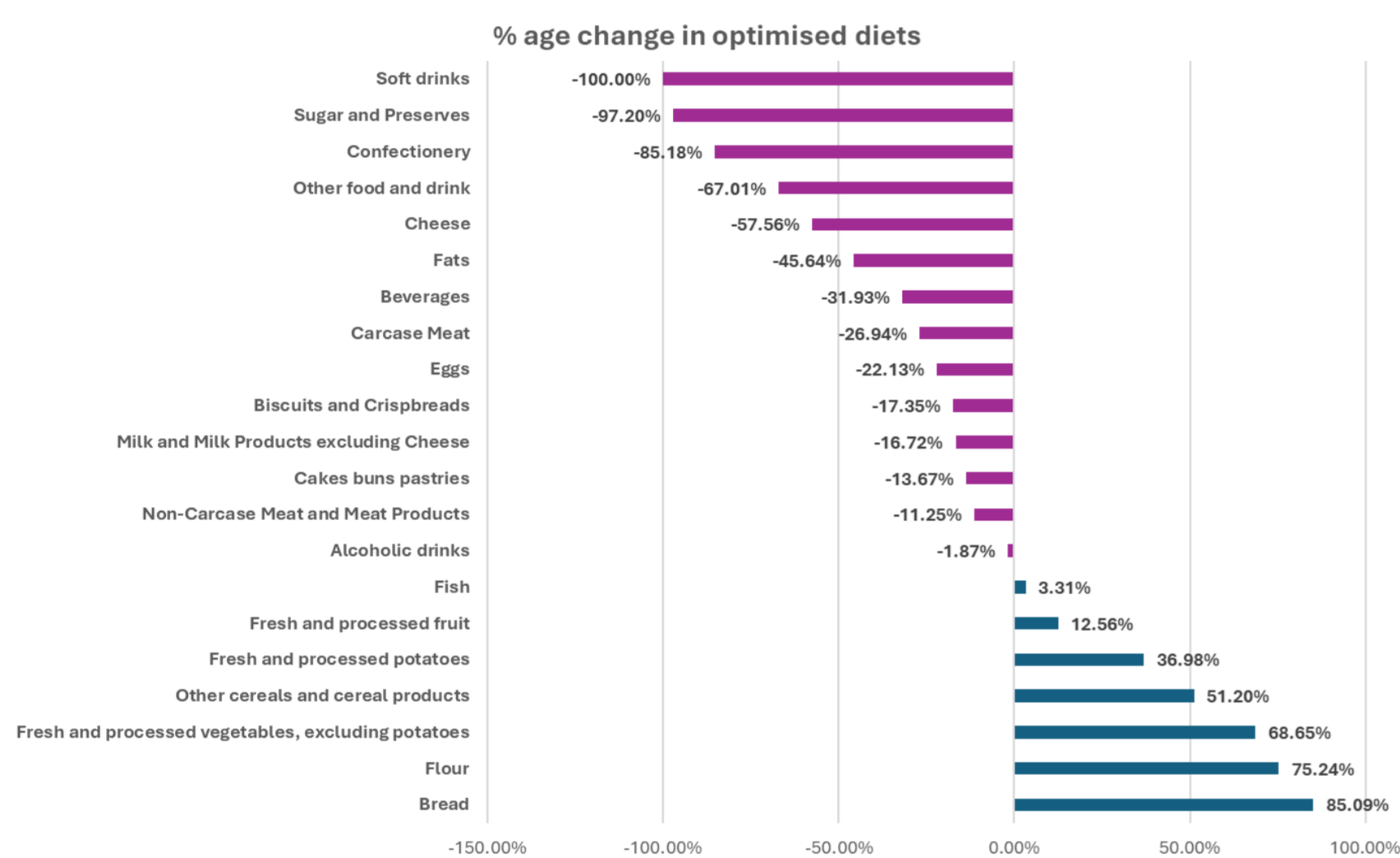
Methods and Data

- 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

Additional Constraints

- 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
 - Estimate percentage change in the consumption of food products/groups at the level of disaggregation available in Family Food

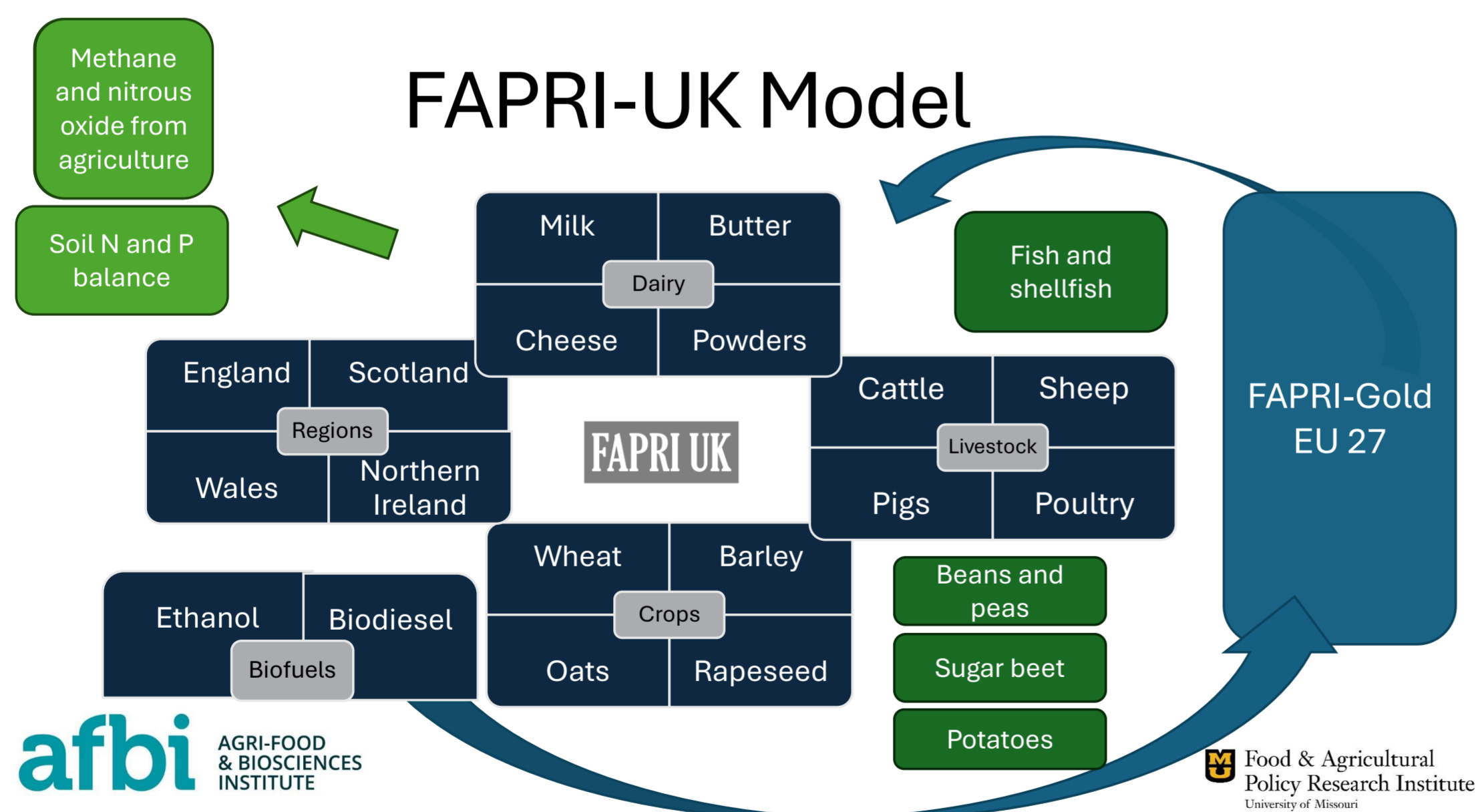
Diet changes for optimised diets



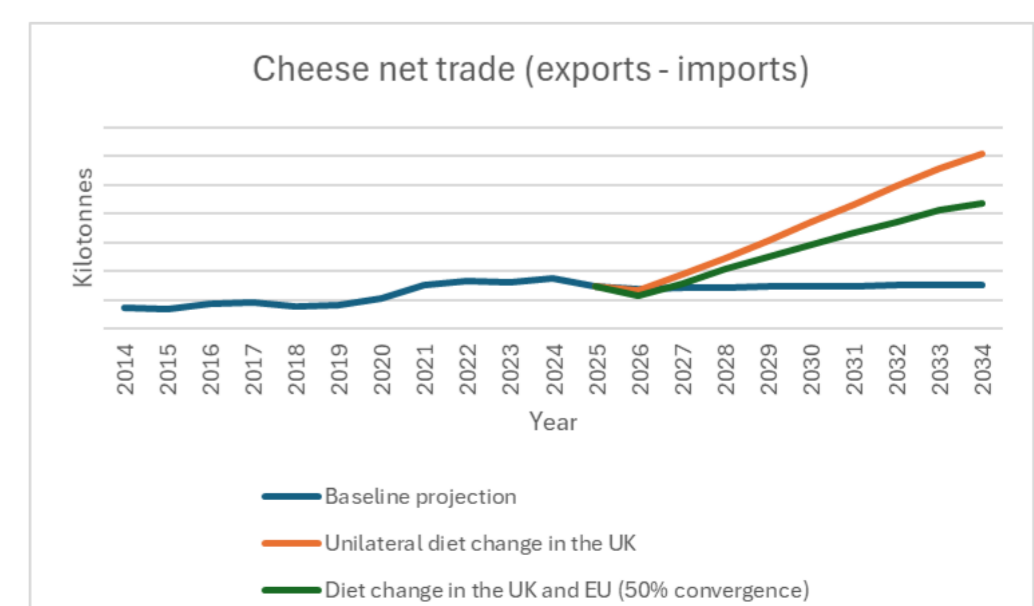
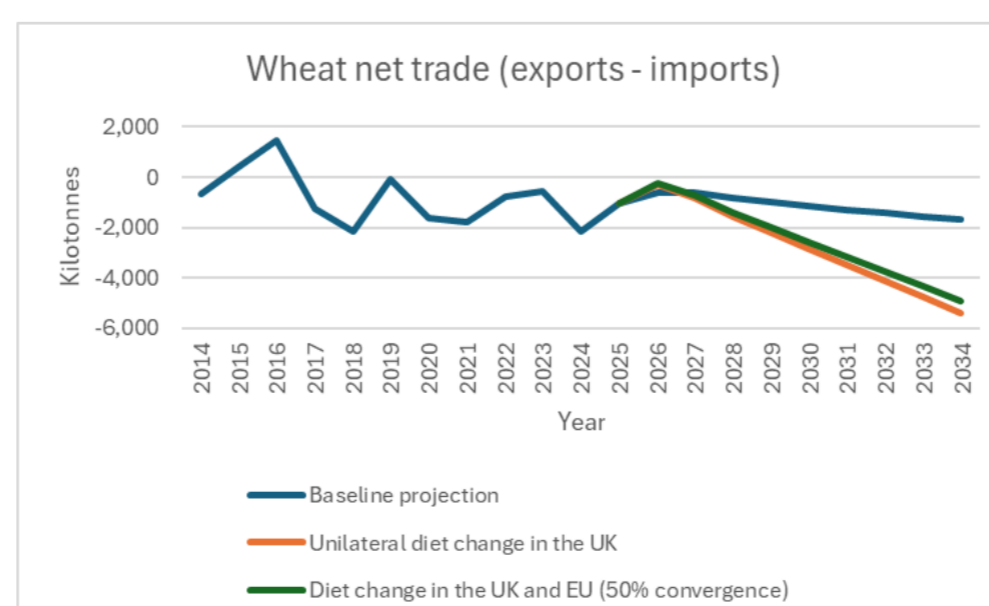
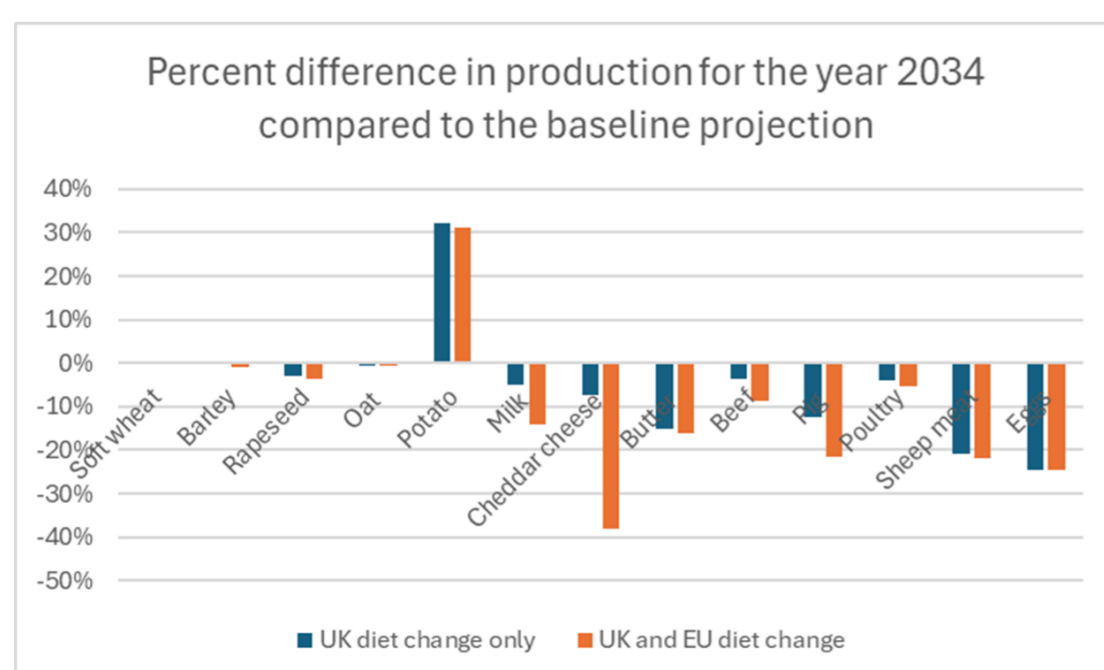
Additional Constraints

- 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%)**

Work Package-2 Estimating production and trade changes associated with changes in consumption for the transition to healthy diets



Product	Percent difference in nominal prices for the year 2034 compared to the baseline projection	
	UK diet change only	UK and EU diet change
Soft wheat	1%	-5%
Barley	1%	-6%
Maize	1%	-18%
Rapeseed	-2%	-10%
Sunflowerseed	-1%	-19%
Soybean	-1%	-7%
Oat	1%	-5%
Potato	106%	104%
Milk	-18%	-53%
Cheddar cheese	-11%	-56%
Butter	-40%	-64%
Beef	-11%	-22%
Pig	-21%	-48%
Poultry	-4%	-12%
Sheep meat	-25%	-28%



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