



Comparing mean and median food prices between the living cost and food survey, Kantar and a manual supermarket price rip.

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Who am I?

Knowledge Exchange Research Fellow

(N8 AgriFood project, Theme 3: Improved nutrition and consumer behaviour)

Research areas:

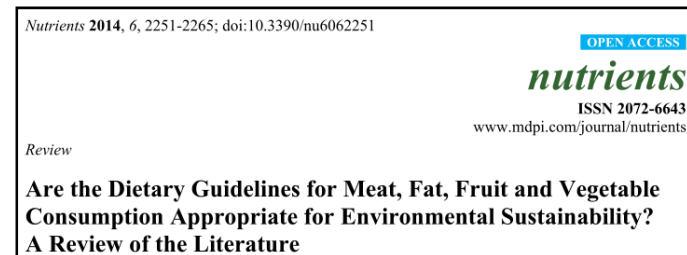
- **Healthy Sustainable Diets and Food Consumption**

Food Waste

Household food insecurity

Eating out/takeaway

Food Price



Comparing food prices – Purchase vs Availability

- Objective: understand the price that was paid for foods in the UK. (Discussions around food security and inequality). Use in diet modelling.
- This work began in 2014 at the University of Aberdeen. (pre Brexit vote, food prices “stable”)
- It has continued since I moved to the University of Sheffield in 2016.
- **Work in progress**
I would value any and all feedback and collaboration.



Comparing food prices – Purchase vs Availability

The range of food prices can be collected

- At place of purchase; (what **can be** purchased) Availability
- Gathering receipts from consumers. (what **is** purchased) Purchased
- Both of these are labour intensive process.

Availability provides the true price distribution but no information on consumption.

Purchase provides the prices paid by consumers in the sample and so may lack information on the entire price distribution, (consumption habits)

- Though similar, are these interchangeable?
- Their use could have implications on food affordability discussions.

Methods

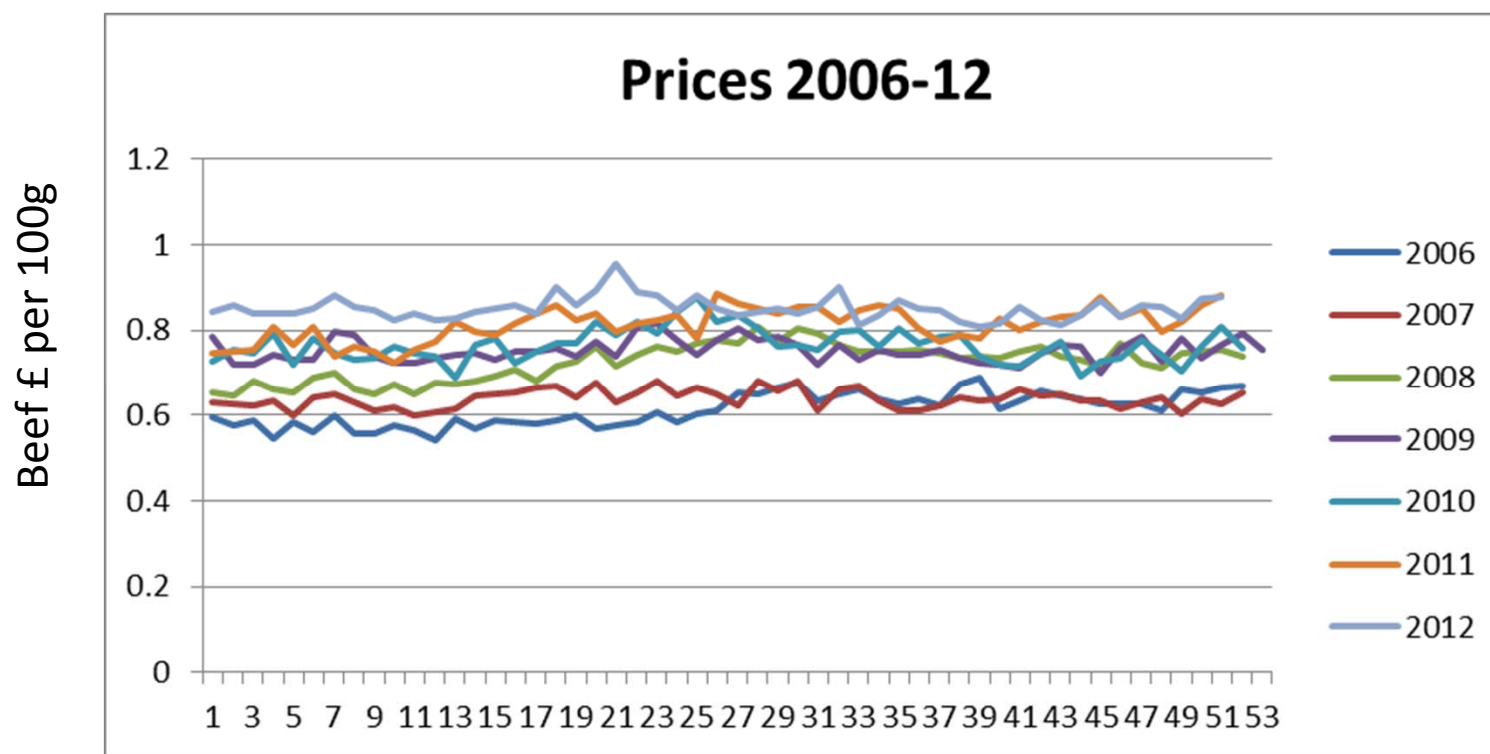
- 3 sampling methods to compare 97 food categories
- The Family Food 2014 survey, 5134 households
 - Method 1 The Average amount (£) per week purchased / Average amount (g) per week purchased .
 - Method 2 Calculating the Mean from each purchase event. Amount (£) purchased / Amount (g) purchased
- Kantar (Scotland) - 2012 time period, 2,600 Scottish households (at any one time).
- Supermarket Price Rip, 2014-15 time period. Collected from Mysupermarket.co.uk.



KANTAR WORLD PANEL

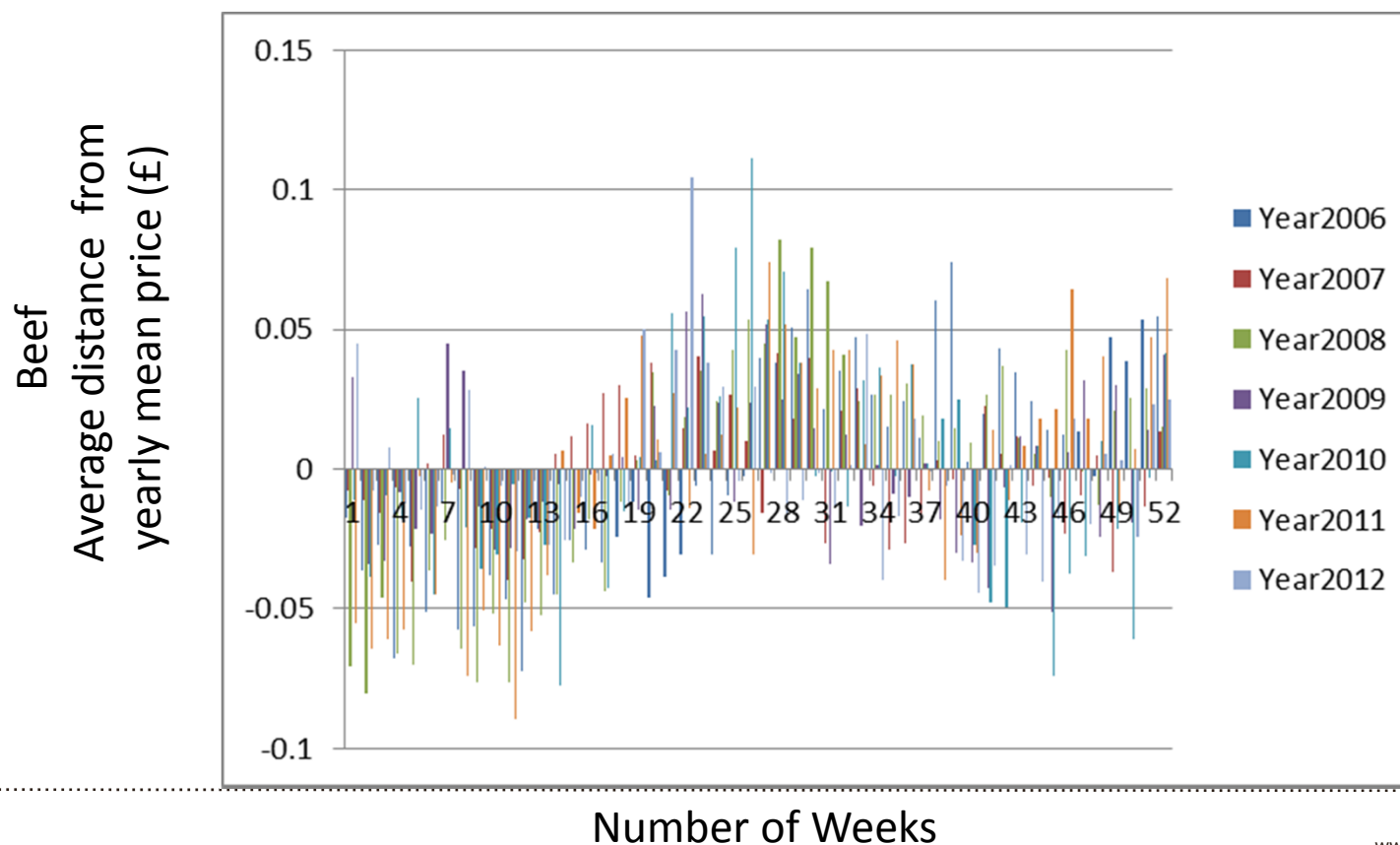
Methods – Kantar Scotland

- 2006-12 time period, 2,600 Scottish households.
- Weekly purchase data from all households. Used a kantar query to provided the average purchase price for each good, as well as the SD of the price and the number of sales of the product.



Methods – Kantar Scotland

- 2006-12 time period, 2,600 Scottish households.
- Created Average Yearly price, could allow for investigation of seasonal 'distance' from average (area for further study)



Methods – Price rip

2014-15 time period. Collected from Mysupermarket.co.uk. 4 major supermarkets. No discounted items.



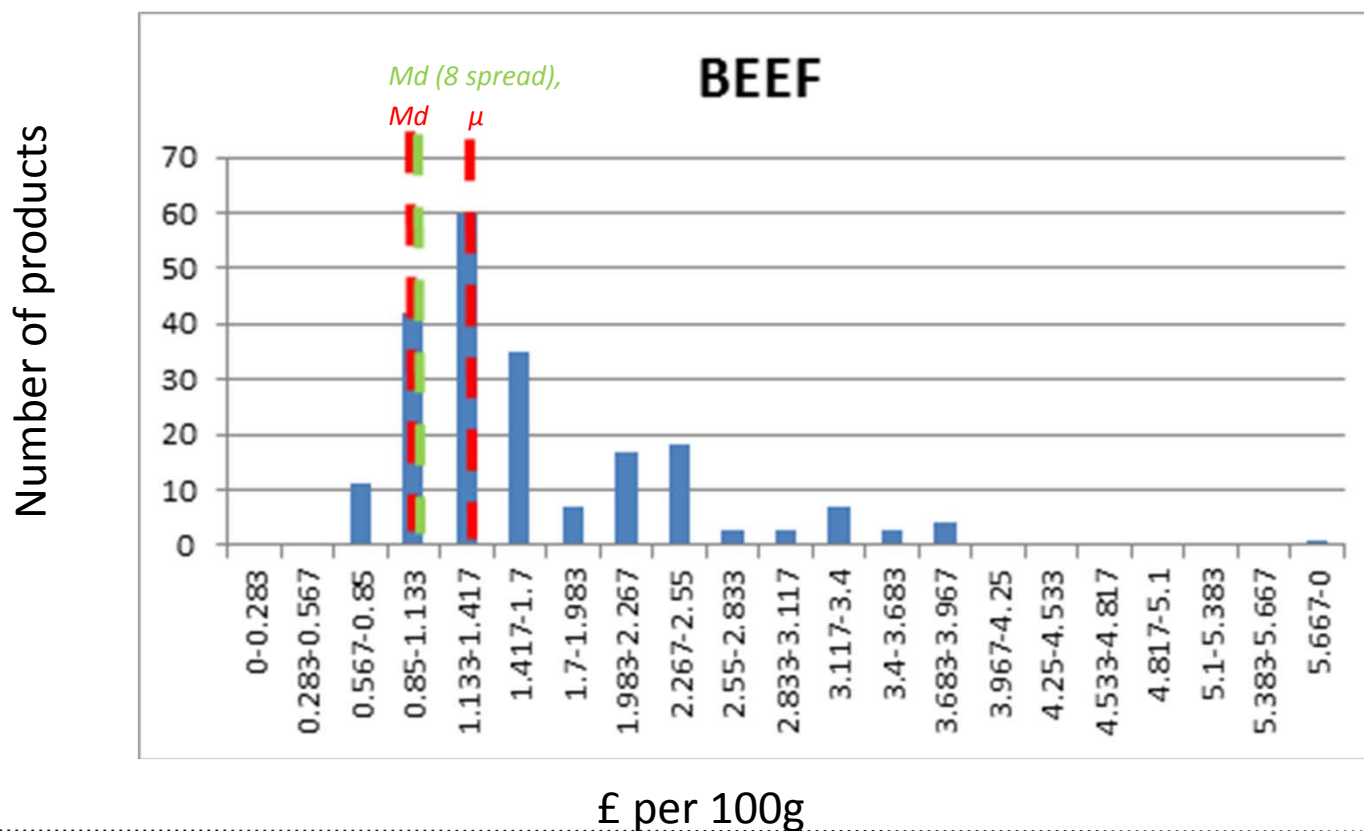
Multiple methods tested on nine food items

Baked Beans, Tomatoes, Bread, Pasta, Fish, Rice, Milk, Apples and Pears, Beef.

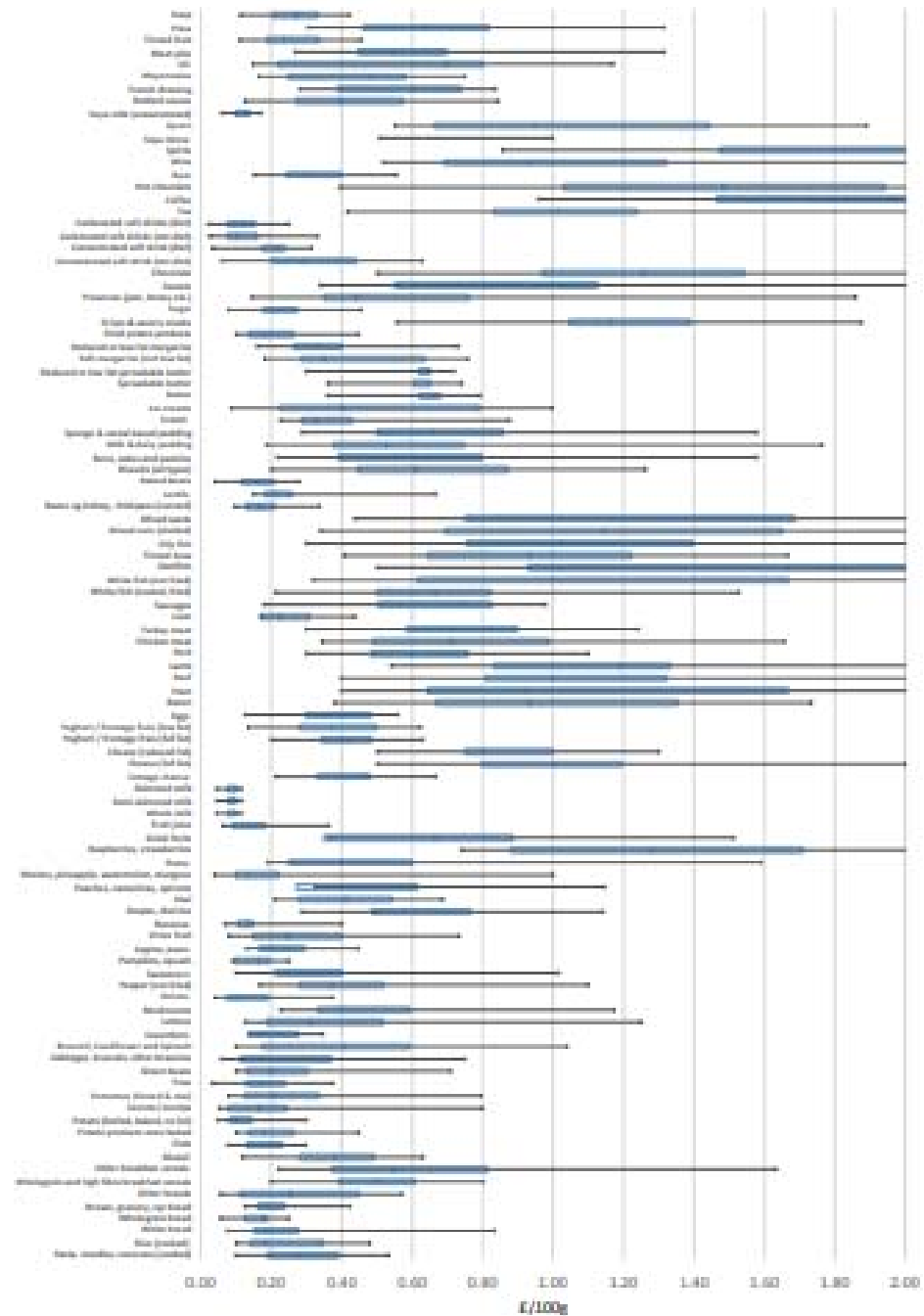
- **All:** Sample every product from every store.
- **+/-10% collect:** Sample the bottom and top 10% (rounded up as integers) of each stores items for each subcategory.
- **+/- 5 and +/-10:** Sample the bottom and top 5 or 10 products from each stores items list for each category.
- **Min5:** Sample the minimum value per store product and then every fifth item after this.
- **Min5Max:** Sample the minimum value per store product, and then every fifth item after this and the maximum.
- **8 Spread:** Determine the total number of (products) per store. Calculate an even spacing of 8 items along the spread and collect these (this may exclude the minimum and maximum as sample size increases).

Methods – Price rip

- The **8 Spread** method was found to have a lowest variation in range, spread, median (up to ~9%) and mean (up to ~6%) from the **All** price rip.



Price Rip IQR



Discretionary
foods and drinks

Fats

Lentils

Fish

Meats

Dairy

Fruit and
Vegetables

Cereals and
grains

Results – 97 products

- 75 (77%) of the Kantar mean food item prices, and 78 (80%) of the LCFS mean food item prices were within the mean +/- 1SD of supermarket price rip.
- 84 (86%) of the FF mean food item prices were within the mean +/- 1SD of the Kantar food item prices.
- 53 (55%) of the Kantar mean food item prices, and 57 (59%) of the FF mean food item prices were within the interquartile range of our supermarket price rip.
- 91 (93%) of the Kantar mean food item prices, and 95 (98%) of the FF mean food item prices were within the full supermarket price rip.
- Differences between Method 1 and Method 2 of FF. Needs further investigation.

Results – 97 products

- FF Method 2 higher mean than FF1 in 86 of the items.
- FF Method 2 a much bigger spread and range than the supermarket price sample?
- Only 3 of the minimum values our supermarket price rip were LOWER than the minimum values found in FF method 2. (20 of the IQR1)
- Only 9 of the maximum values our supermarket price rip were HIGHER than the maximum values found in FF method 2. (but 83 of the IQR3)
- Is this due to classification choices (or data input errors (price discounts?) in the Family Food (LFCS) coding making it hard to differentiate?

Results – 97 products

- Differences can be attributed to :

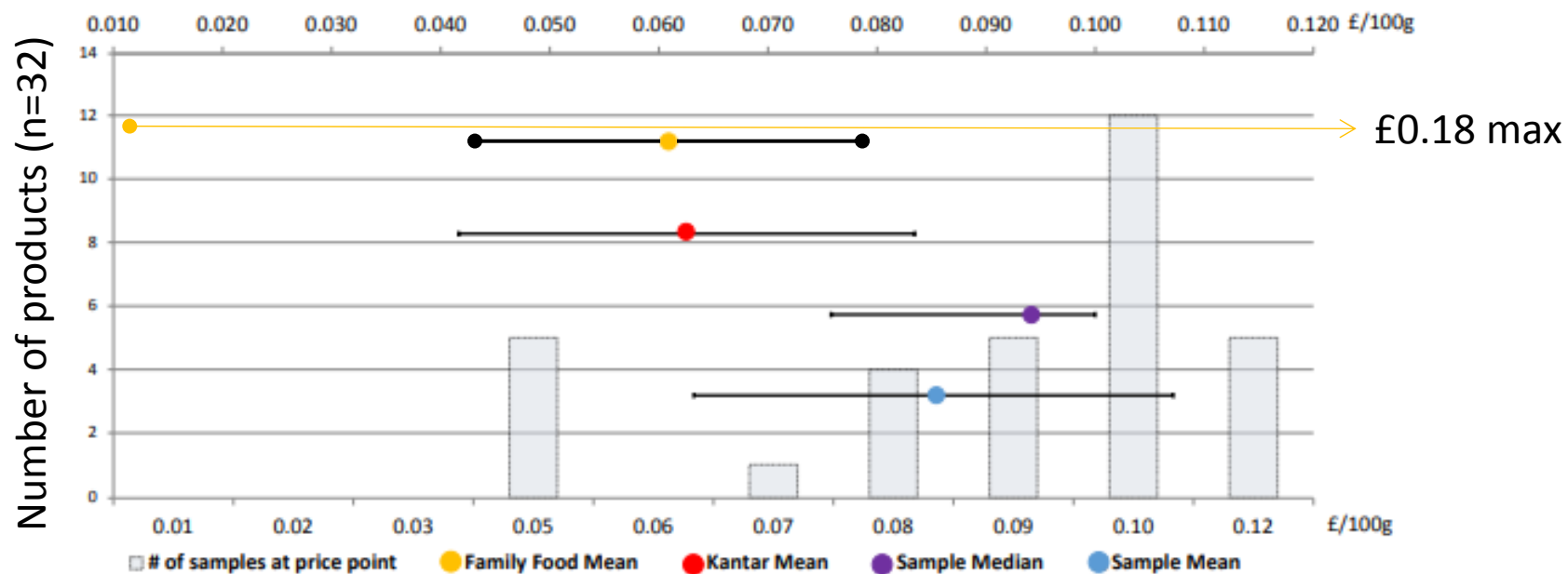
1 **Expensive** ‘luxury’ priced food items (e.g meat, cheese, exotic fruits etc.),

2 Goods that have reduced costs for **‘basic’ or bulk purchases** (e.g milk, bread, butter etc.) s

Both of these skew the price paid by the consumer when compared to the range of prices and number of products available at the supermarket.

Current Implication: certain foods may not be well represented by the Mean or Median consumer purchase price.

Results – Milk, products in store



Types and sizes of products available at each price point



4 Pints



2 Pints

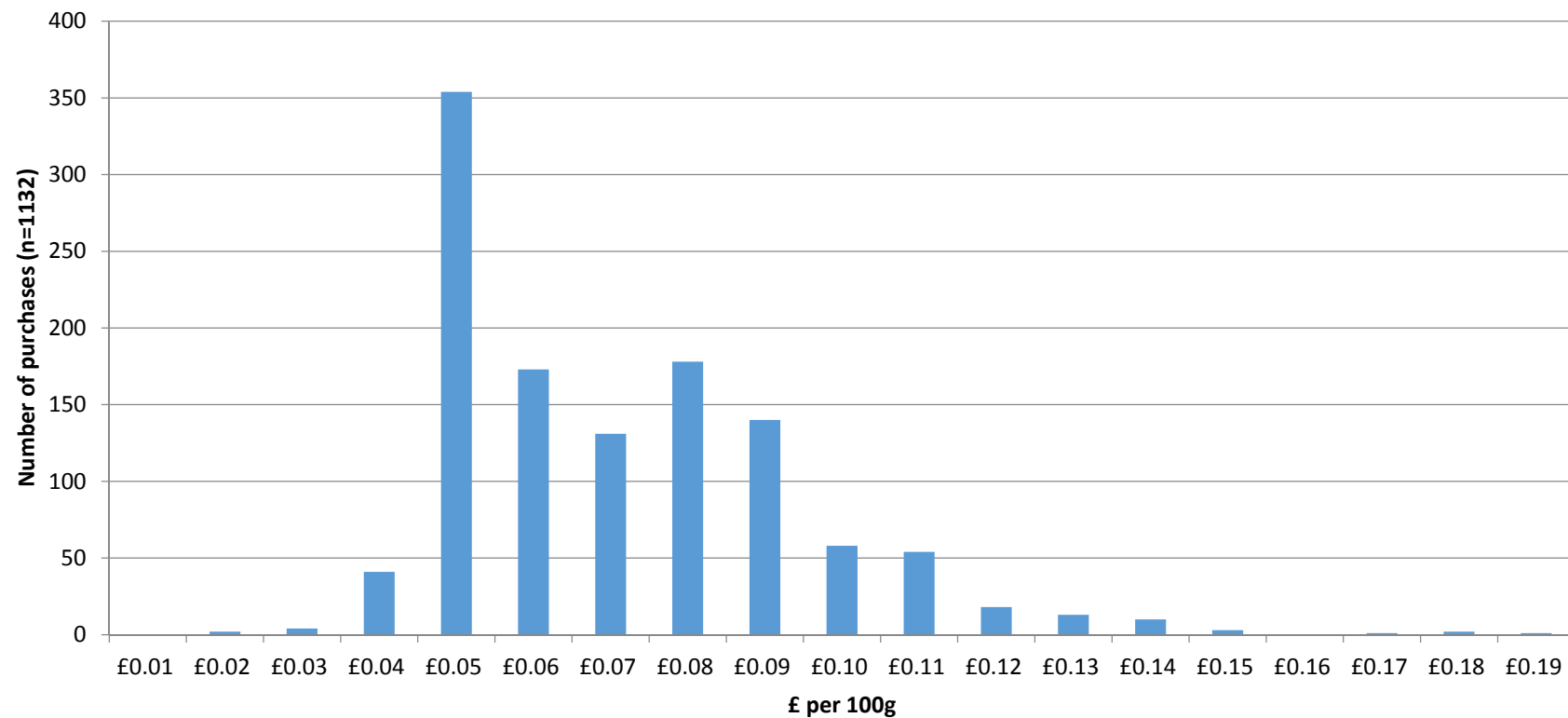


1 Pints

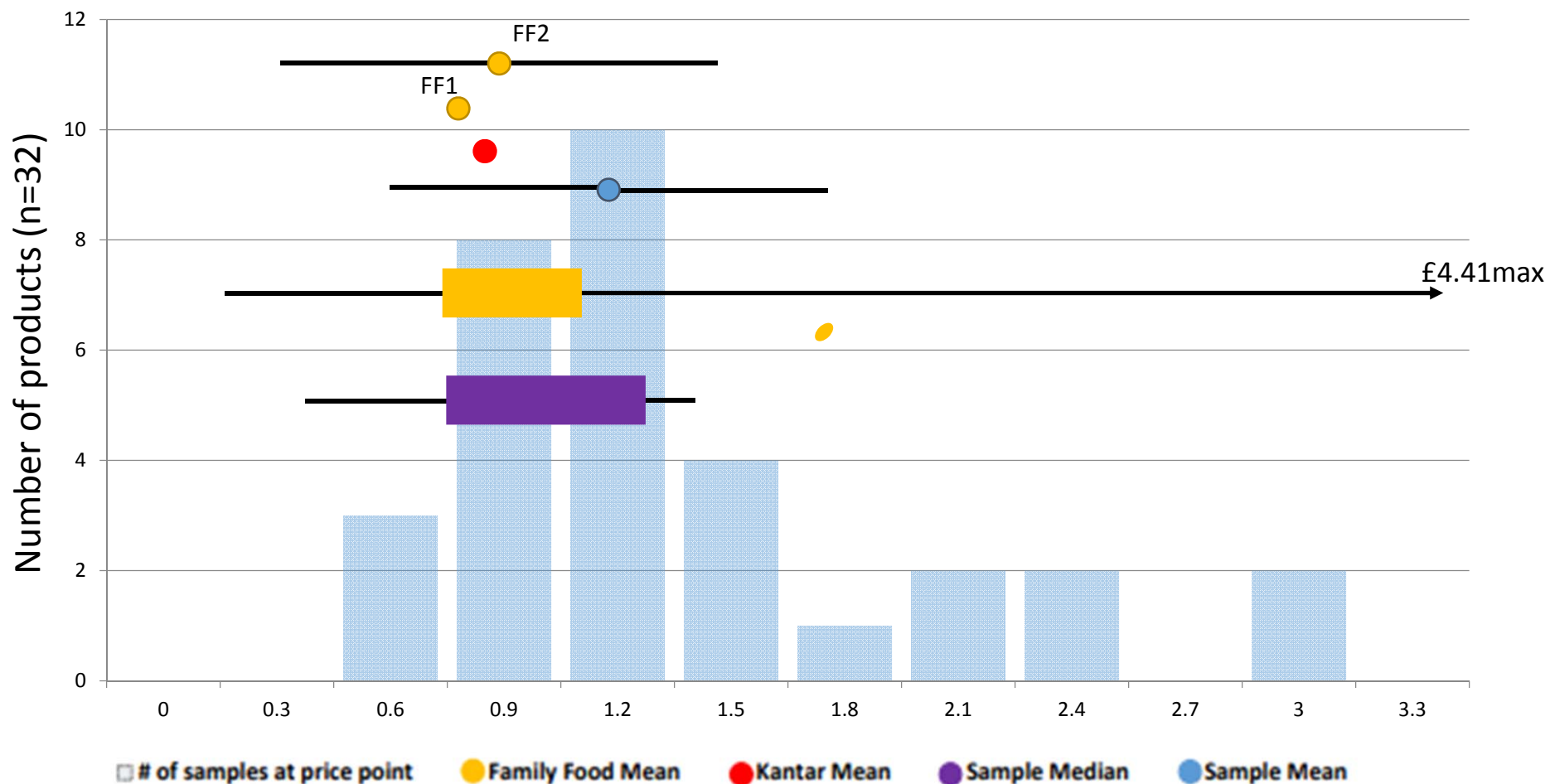


2 Pints

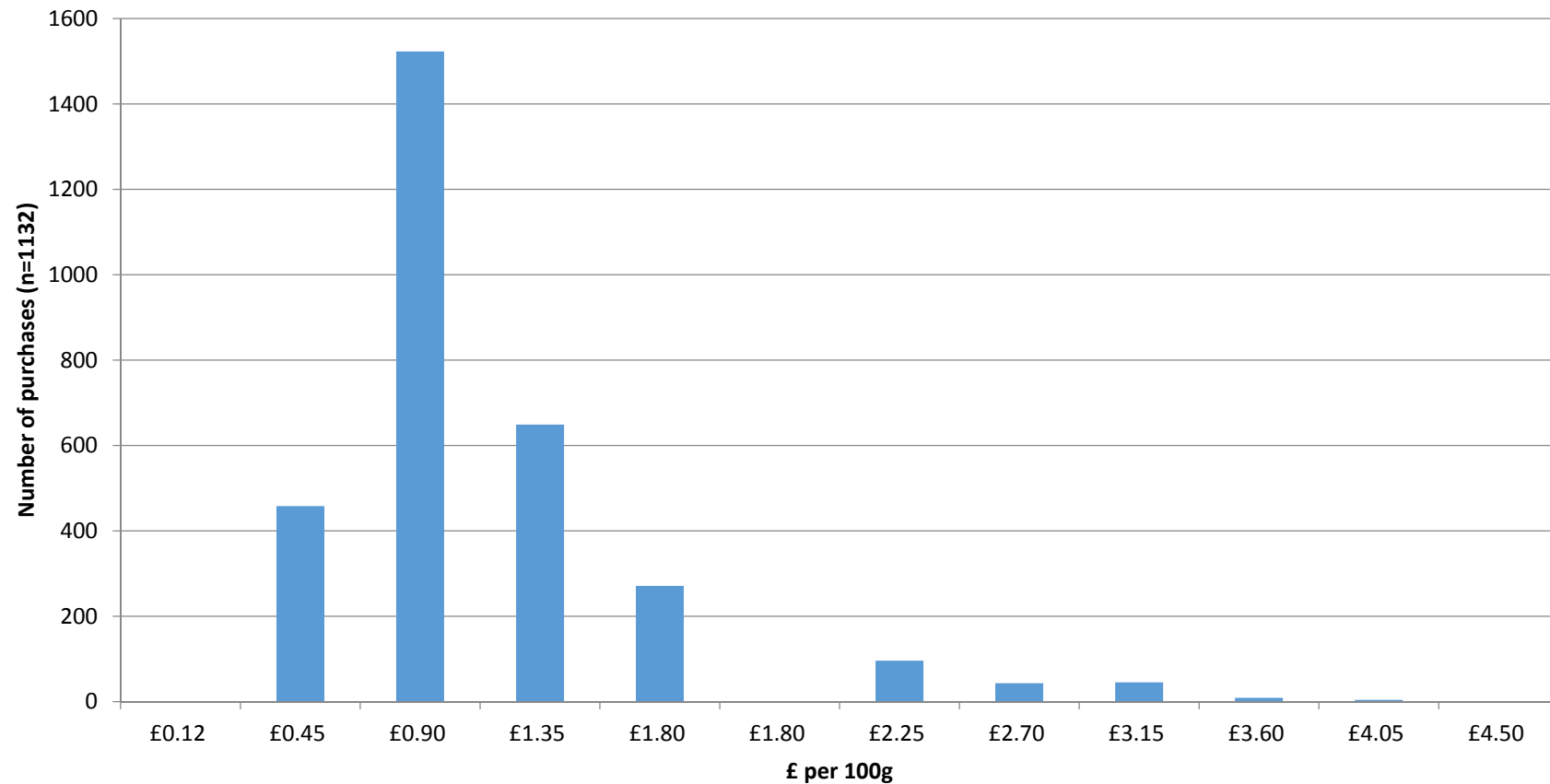
Results – Milk, purchases from FF



Results – Beef, products in store



Results – Beef, purchases from FF



Final thoughts - the weekly difference this makes...

Difference in Price per week of typical diet according to the difference prices

Family food method 1	£44.80	
Family food method 2	£53.03	(IQR1 £33.23 to IQR3 £63.55)
Kantar	£45.58	
Price sample	£72.93	(IQR1 £45.42 to IQR3 £85.66)

*(Mean prices * Family food 2014, UK average household diet Eat in, g weekly per person)*

Healthy Sustainable Eating Why and How?



Thank you

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