Food Price Inflation, Product Entry and Exit and Changing Tastes across Income Groups: Evidence from the UK Ready Meals Sector

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Broad theme of research aims to . . .

- Measure food price inflation at household level and how this differs across socio-economic groups (characterised by different food baskets)

- Stress importance of
  - Product substitution
  - Entry and exit of products
  - Changing consumer preferences

- Current paper marks the first milestone in this work, focussing on cost of food in a single category (chilled and frozen Ready meals).
  - Product churn
  - Rapidly changing preferences

- Contrast with official measure of inflation “Consumer Prices Index”

In order to address these issues we draw on . . .

- Recent **developments in the theory of price indices** that allow for:
  - **Entry and exit of products** Feenstra (*AER*, 1994); Broda and Weinstein (*QJE* 2006, *AER* 2010)
  - **Changes in tastes** Redding and Weinstein (*QJE*, 2020)

  Both these innovations build on the Exact Price Indices (Diewert, 1976; Sato 1976, Vartia (1976) derived from CES demand system that allow for product substitution when prices change.

- Access to **household scanner data** (*Kantar WorldPanel* data)

Why does accommodating these issues matter?
(i) Entry and exit of products

- Product substitution is fundamental to the consumer's response to price changes, a key part of which is entry (exit) of products.

- Entry (exit) of new products imply reduction (increase) the overall price index.

- Different households consume different products with different substitution possibilities, hence different experience of inflation.

Why does accommodating these issues matter?
(ii) Preference Changes

- Tastes change over time reflecting changing consumer incomes, preferences for health and convenience, etc. particularly at the barcode level

- Redding and Weinstein (2020) show how to back-out **'taste adjusted prices'** from observed product prices.

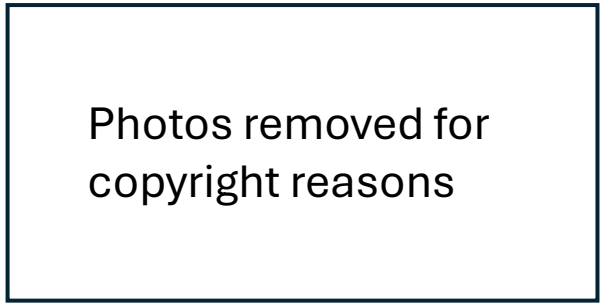
- Adjustment for changing consumer tastes analogous (but conceptually distinct from) adjusting prices for quality improvement.

- An increase in preference for a specific product is equivalent to a reduction in its price, and vice versa.

Why does accommodating these issues matter?
(ii) Preference changes

- Treating consumer preferences as constant is likely to give a misleading measurement of the welfare effects of price changes

What exotic convenience food looked like in the past . . .



And today

The Consumer Prices Index

- Universally applied measure of the cost of living
- Largely ignores product substitution due to price changes, product innovation, changing tastes.
- Based on three ‘representative’ ready meal products (not 3,500+)
- As a single price index, also ignores socio economic differences
- Likely to offer a rather poor measure of household experience of inflation, particularly in ready meals category.

Data

- *Kantar WorldPanel* data
  - 30,000 households in Great Britain; evaluated weekly, 2013-2022

- We can identify what each households buys, from where, at what cost.

- From this, we can derive price indices in households of different income, as well as overall.

Methods

- Using exact price indices, for each household, price changes measured by

$$\left(\frac{P_t}{P_{t-1}}\right) = \prod_{k \in \Omega_t^*} \left(\frac{p_{kt}}{p_{kt-1}}\right)^{\omega_{kt}^*}$$

Substitution

- **Conventional exact price index (SV)**
  Allows for substitution among existing products as prices change

- **Feenstra- Broda-Weinstein (FBW)**
  - Also accommodates substitution due to entry and exit of products

- **Redding and Weinstein (RW)**
  - Additonally allows tastes to vary between products and over time

UK ready meals

- In vanguard of changing tastes and preferences
- Seemingly limitless substitution possibilities
  - (8,375 barcoded products in sample, 3500+ at any one time)
- Product entry and exit is a key feature of the category
  - 68% of products available in 2022 did not exist in 2013
- Ready meals particularly important in low-income households

Experience of ready meal inflation by household income

Percentage change in prices between 2013 and 2023

	Household Income		
	Low	Middle	High
Conventional EPI	23.3	25.8	26.7

Low income households substituted most actively reducing their exposure to price rises

Product entry and exit is a key mechanism particularly among low income households

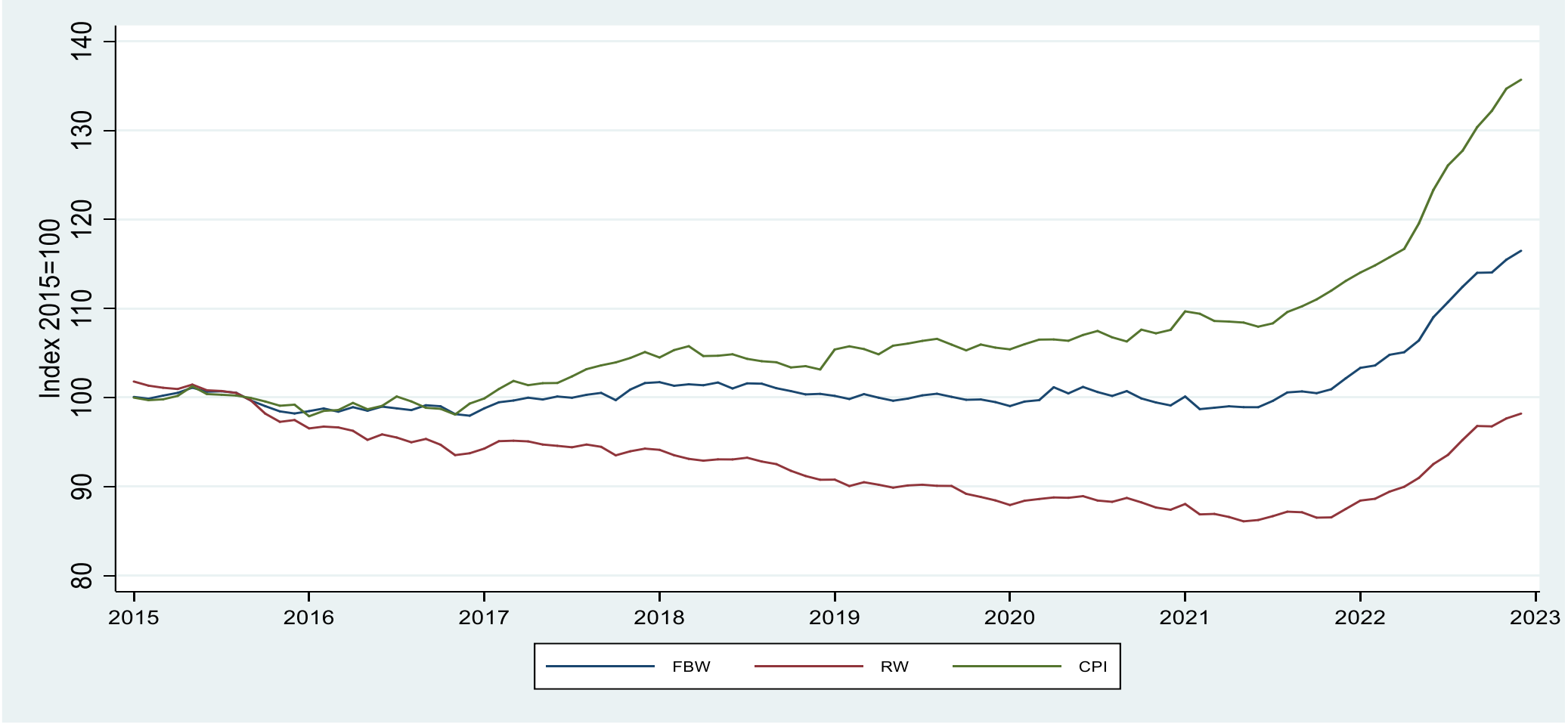
Preferences changes impart even stronger effects

Markedly different experience of inflation

How well does the CPI for ready meals do?

The CPI over-estimates price changes by up to 40%

Comparison between CPI, FBW and RW Price Indices for Ready Meals (All households)



CPI

Entry and Exit

Tastes

Headline Results

- Product innovation and preference changes matter for the experience of inflation at the household level
- High and low income households have a different experience of inflation in this category
- CPI overstates experience of inflation at the household level
- Lessons for measurement of food inflation more generally

Thank you!

Other issues we look at in the paper

- Estimating the elasticity of substitution
- Comparison with other commonly used price indices
- Robustness
- Responses of households during COVID