

Small area consumption estimates combining survey and financial footprints data

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Family Finance Surveys User Conference, 2026

Motivation

Growing demand among policy-makers for sub-national statistics on living standards

Consumption is an important measure of material well-being

But HH surveys typically do not have the sample sizes to compute reliable measures of local average consumption spending

For example: The **Living Costs and Food Survey (LCFS)** in UK:

- Sample of 5000 households records expenditures on all goods (including durables)

But Great Britain has > 350 local authorities

- $\Rightarrow$ Some local authorities will have v. low (or zero) sample sizes
- Estimates based on survey data alone will be very noisy

Motivation (II)

Growing availability of bank account data on **millions** of HHs

Not a substitute for surveys

- Provides a measure of *outgoings* but does not correspond to natl acc. defs of consumption
- Cannot equalise for household characteristics, may not cover all HH spending
- Cannot impute housing or other service flows

But a **complement**...

Also : labour market surveys contain useful information on households (tenure status, employment and so on) + larger sample sizes

Can we combine this information to get reliable estimates of local consumption spending?

This paper

- ① Shows how to combine naturally occurring bank account data with budget survey data + labour survey to produce small-area consumption estimates
- ② Constructs standard errors and evaluates improvement from adding data sources (using simulations)
- ③ Produces new estimates of local consumption spending for local authorities in GB
 - Compares these with other measures of living standards (based on income data)

Consumption

Why try to measure local *consumption* spending?

Various advantages over income

“Consumption better reflects long-run resources and is more likely to capture disparities that result from differences across families in the accumulation of assets or access to credit. Consumption will reflect the loss of housing service flows if home ownership falls, the loss in wealth if asset values fall, and the belt-tightening that a growing debt burden might require, all of which an income measure would miss.” – Meyer and Sullivan (2023)

Data

- **Living Costs and Food Survey:** Pool samples for calendar years 2018-2019. Use secure-access geo-coded version.
- **Annual Population Survey:** Labour market survey. $N = 387,000$ for two years (2018-2019).
- **FINDS data:** Bank account data supplied by Smart Data Foundry. Use outgoings from current account. Average spending at MSOA level.
- **Domestic electricity and gas consumption:** Average KWh consumption per domestic user at postcode level from DESNZ.
- **Price Index of Private Rents:** Average monthly rents at the local authority $\times$ house type $\times$ year level.

Approach: intuition

We use small area estimation methods (Molina and Rao, 2010)

- Direct estimator: (potentially noisy) sample mean in each area
- Use a random-effects regression (estimated in the LCFS) to impute consumption for each HH in the APS using bank account spending in their local area, local energy consumption, and demographic characteristics of each household (education, age, tenure etc.)
- When sample size in the consumption survey is big, rely more on this information, when it is small rely more on the regression model
 - Combined optimally using Bayesian approach (hence 'Empirical Best')

(see paper for more details!)

Consumption definitions

Different possible consumption definitions

- C1: **Non-housing consumption**
- C2: **Total consumption including housing**
 - Impute service flows for owner occupiers/HHs in social housing (rental equivalence approach)
- C3: **Deflated consumption including housing**

All our consumption measures are equivalised using the OECD scale

Why measure consumption in different ways

- **C1: Non-housing consumption**
 - Transparent but doesn't account for important part of living standards (size of home etc.)
- **C2: Total consumption including housing**
 - Includes housing spending but house prices and rents vary significantly across area
- **C3: Deflated consumption including housing**
 - Local amenities might be capitalised into house prices/rents - deflation would then be inappropriate

Unclear what is the best measure – all make assumptions

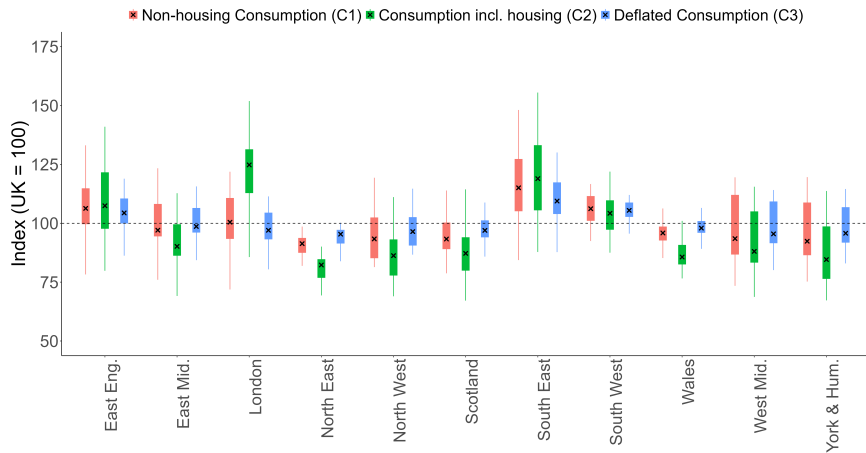
- Perfect mobility + homogeneous prefs $\Rightarrow$ no need to deflate
- No mobility - should deflate

We also compare our estimates with **mean per capita income from admin data**

Results

- Simulations show substantial improvement of EB approach relative to direct estimator
- Inclusion of bank data improves MSE, particularly in areas with low sample sizes
- (See paper for details!)

Within-region variation (across LAs) in consumption measures



- London 0.4% above UK mean on C1
- 25% above UK mean on C2
- 3% below UK mean on C3

Source: Levell, Nesheim and Vyas (2026), 'Small area consumption estimates combining survey and financial footprints data', IFS Working Paper

Income vs consumption

Compare National Accounts Gross Disposable Household Income (GDHI) data for each LA to our consumption measures

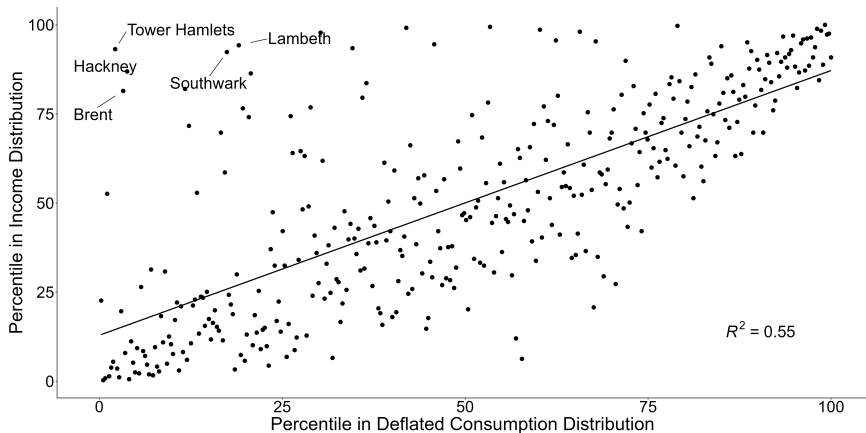
Measurement reasons for differences

- Income is per capita average (based on tax data), consumption is hh average
- Consumption is equivalised for family size, GDHI not
- Surveys (LCFS) may not capture high incomes that skew mean

Economic reasons for differences

- People live in areas at different life stages
- Savings differ across locations at given age (e.g. due to wealth differences)

Equivalised Deflated Consumption including Housing (C3) vs per-capita income - ranks



- 10 largest rank changes all in London
- E.g. Tower Hamlets 93rd → 2nd
- London 40% above UK mean on income, but 3% below on C3

Source: Levell, Nesheim and Vyas (2026), 'Small area consumption estimates combining survey and financial footprints data', IFS Working Paper

Summary

- Combining household budget data with auxiliary datasets can be used to measure local-area consumption spend
 - Financial footprints data is not a substitute for good survey data, but can be used to complement it
- Simulations show significant improvements in MSE (especially in small areas) relative to taking the sample mean
- Income and consumption can lead to different rankings across areas in terms of living standards, as can different definitions of consumption