Leveraging Financial Transactions and Collections Data: How Big Data Enhances Affordability in the UK Banking Industry

Edinburgh Credit Research Centre: Credit Scoring and Credit Control Conference XIX

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Introduction & Background

Meet The Authors

Hallie is a statistician and an ACCA qualified accountant who believes in global collaboration to achieve the best results. She contributes technical modelling and statistics skill to the finance industry as well as the healthcare industry. She is currently working at Virgin Money as an unsecured credit risk manager of innovation.

Whilst working at 4most, she was able to develop a reputation as an industry expert of affordability modelling, using complex transactional data, as well as the more standard ONS type of approach. And combined with some exposure to working with business banking data, learning risk-based pricing methodologies, and understanding the basics for lifetime probability of default (PD) modelling - this has given her a solid grounding to progress her career in the credit risk field. She is a proud speaker, supporter and delegate of the Edinburgh Credit Research Centre: Credit Scoring and Credit Control Conference 2023 and 2025.

Nasdeep is a leading credit risk strategist with over 15 years of experience across the UK and Europe, working with tier 1 banks, fintechs, and high-growth startups. He has built and shaped lending strategies across retail and commercial products, driving profitability and sustainable growth through innovation and responsible risk management.

Known for his data-driven mindset, Nasdeep leverages advanced analytics and big data to optimise decisioning and build fairer, customer-focused products.

His deep expertise spans the full credit lifecycle; including product design, go to market strategy, customer acquisition, portfolio management, and collections; across products like BNPL, credit cards, personal loans, and mortgages; and customer segments from sub-prime to super-prime. He is a trusted voice in modern lending transformation, balancing commercial value with doing the right thing by the customer.

Backdrop

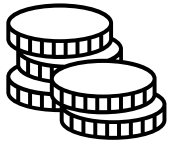
Recent volatility in expenditure trends has made working with Office of National Statistics (ONS) data in the UK more difficult, especially given its 2+ year publication lag and declining household participation.

As a result, organisations are increasingly exploring alternative data sources. Virgin Money is well-positioned in this regard, with access to internal transactional data from its credit card and current account customers.

2021 – Post Covid era and start of cost-of-living crisis

2023 – Ofgem Energy Cap peak (January - £4,279)

2024 – Essential expenditure begins to plateau at "new" normal



2025 – Q3 Ofgem cap £1,720. Water bills & council tax increases

Not captured within published ONS data

UK Affordability Data Sources

	Direct Data Capture from Customer	Bureaux Data	Office of National Statistics (ONS)	Internal Transactional Data
Background	Manually capture expenditure details from customer conversations, documents or declarations.	Provided by UK bureaux, detailing credit commitments reported by lenders and retailers.	Free, in the public domain, published expenditure survey data reflective of 'average' UK spending.	Line by line internal transactional data. In this case, from both Virgin Money credit cards and current accounts.
Strengths	Granular level of expenditure detail, categorised in accordance with the bank's requirements.	Provides an understanding of outstanding debt commitments.	Free, reliable and reasonable to expect it to be reflective of average UK spending at the time of the survey.	Transaction level data provides an accuracy uplift when used in modelling. Often more simplistic model result compared to other sources, due to less overlays.
Weaknesses	Manual effort required to complete and verify this capture accurately.	Not all credit providers supply to bureaux. Does not include essential and basic quality of life expenditure such as food shopping, travel costs, etc.	Modelling is done using averages as a starting point, rather than a "bottom up" approach used in transactional modelling. The modelled result will be overestimated for some and underestimated for others. Multiple overlays are often applied leading to unintended results.	Not always clear what category of transactions relate to. Complex programming knowledge required to clean the data. Transactional data in this case is not categorised; there's a large initial overhead to bring the data to an insightful and model ready state.
Timeliness	Up to date – typically based upon the last 3 months.	Short lag. Refreshed monthly.	Significant lag: Publication can post-date survey collection by 2+ years.	Current, up to date.
Bias	Customer might not know specific spending habits, leading to a bias either underestimating or overestimating expenditure.	None.	Unbiased average of the UK, assuming survey sampling technique is appropriate.	Only customers who hold a Virgin Money credit card or current account.

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**Table design adapted from paper presented at Edinburgh Credit Research Centre: Credit Scoring and Credit Control Conference XVIII, *Testing Times for Testing Affordability*, authors & affiliation – Hallie Thomas & Andy Johnson, 4most Analytics Consulting.

Transactional Data Use Cases

The primary use of transactional data is to build a timely, customer centric expenditure model that outperforms ONS models in relevance and speed, suitable for both acquisition and back book affordability strategies. However, this paper also outlines the following additional use cases below.

Assessing impacts of price cap changes

Model validation of ONS or alternative cost of living models

High-risk transactional monitoring

Individual customer affordability assessments and monitoring

Business banking affordability and revenue forecasting

02

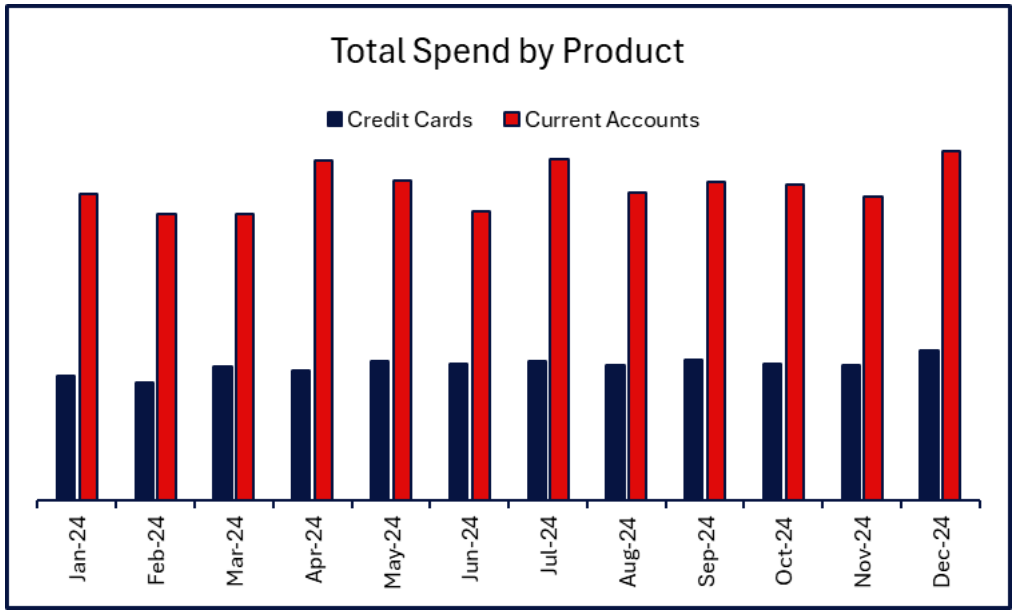
Expenditure Trends

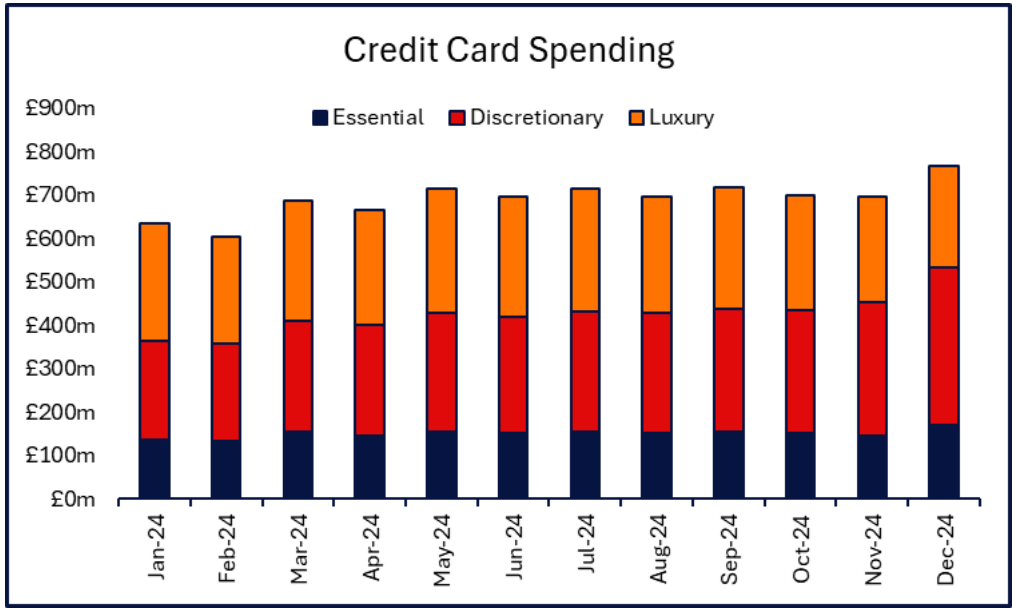
Credit Card Spend Analysis

Debit card spending is roughly 2 to 2.5 times higher than credit card spending.

While credit card spend is mostly discretionary or luxury, current account data offers a more complete picture of essential costs.

Therefore, the next section on expenditure benchmarking focuses primarily on current account transactions.





**Latest Virgin Money Credit Card Quarterly Report: Home and away: Virgin Money customers prioritise spending on travel and home improvements this spring | Virgin Money PLC

Expenditure Categorisation

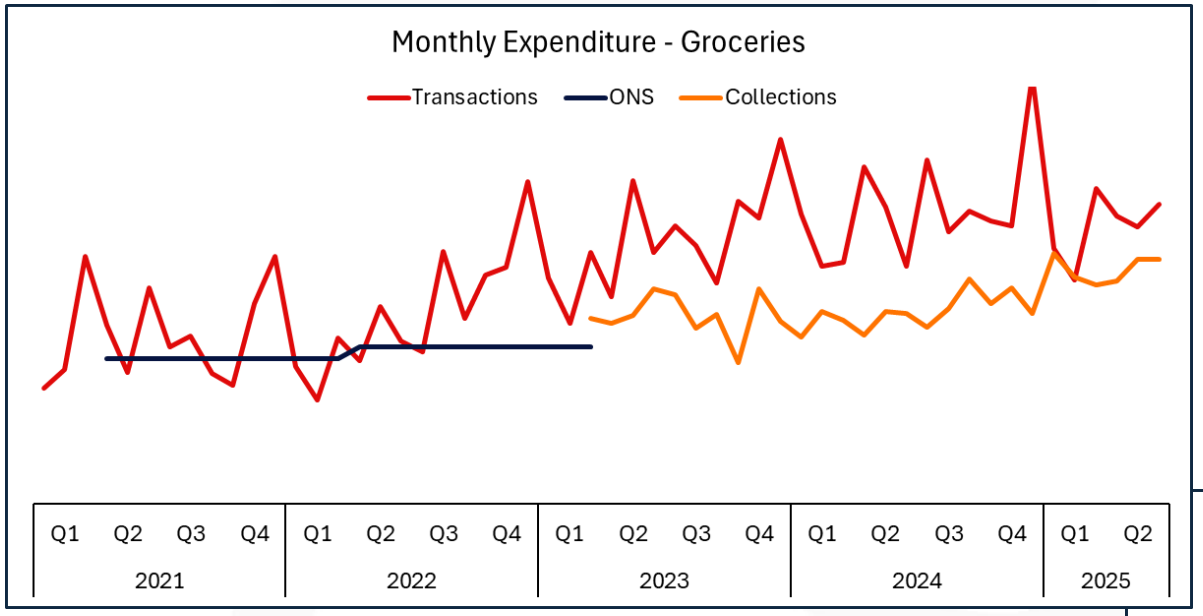
Expenditure has been grouped into 19 strategic categories using merchant category codes (MCCs) where available. Examples of these groupings are shown below. Transactions without MCCs (e.g. direct debits) were classified using text analysis. The next section of this presentation covers 8 of these categories.

Clothing	
5698	Wig and Toupee Shops
5611	Men's and Boys' Clothing and Accessories Stores
5621	Women's Ready to Wear Stores
5631	Women's Accessory and Specialty Stores
5641	Children's and Infants' Wear Stores
5651	Family Clothing Stores
5655	Sports Apparel, Riding Apparel Stores
5661	Shoe Stores
5681	Furriers and Fur Shops
5691	Men's and Women's Clothing Stores

Supermarkets/ Groceries	
5411	Grocery Stores, Supermarkets
5422	Freezer, Locker Meat Provisioners
5441	Candy, Nut, Confectionery Stores
5451	Dairy Products Stores

Essential Travel	
4111	Transportation-Suburban and Local Commuter Passenger, including Ferries
4112	Passenger Railways
4784	Bridge and Road Fees, Tolls
4131	Bus Lines

Groceries and Takeaways

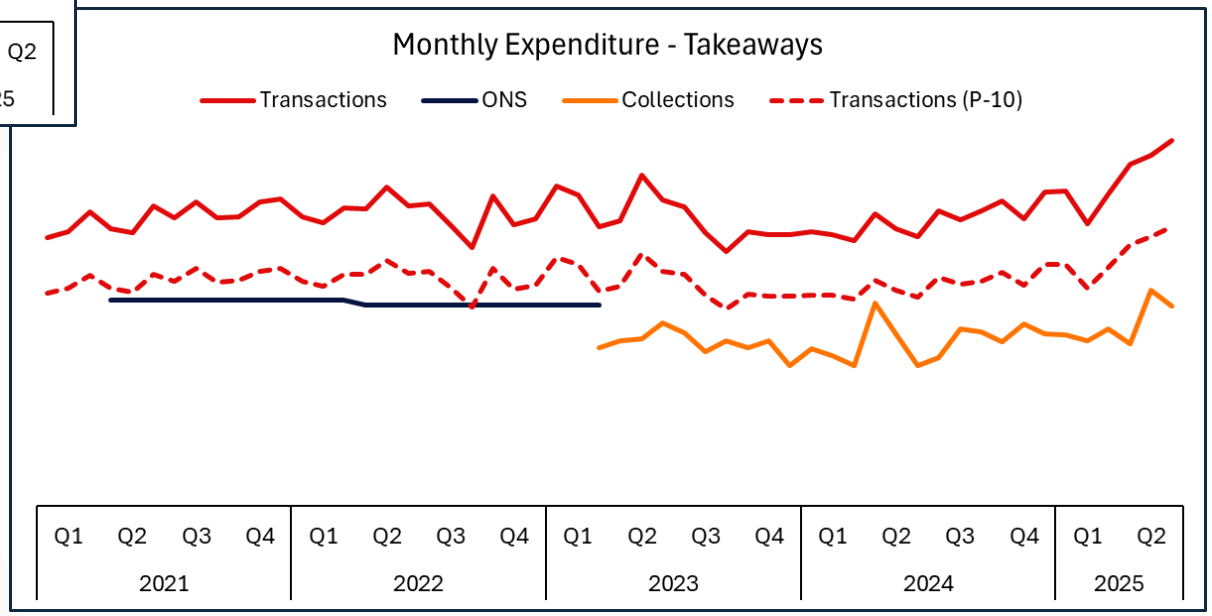


Grocery store spend has increased by 21% since 2021 based on internal current account data.

Transactional data captures overall spend at grocery stores without detail on specific items, while ONS focuses solely on food expenditure and offers more granularity.

Collections I&E data shows groceries spend continuing to increase throughout 2024/25 as customers in financial difficulty have already cut back spending as much as possible during high inflation periods.

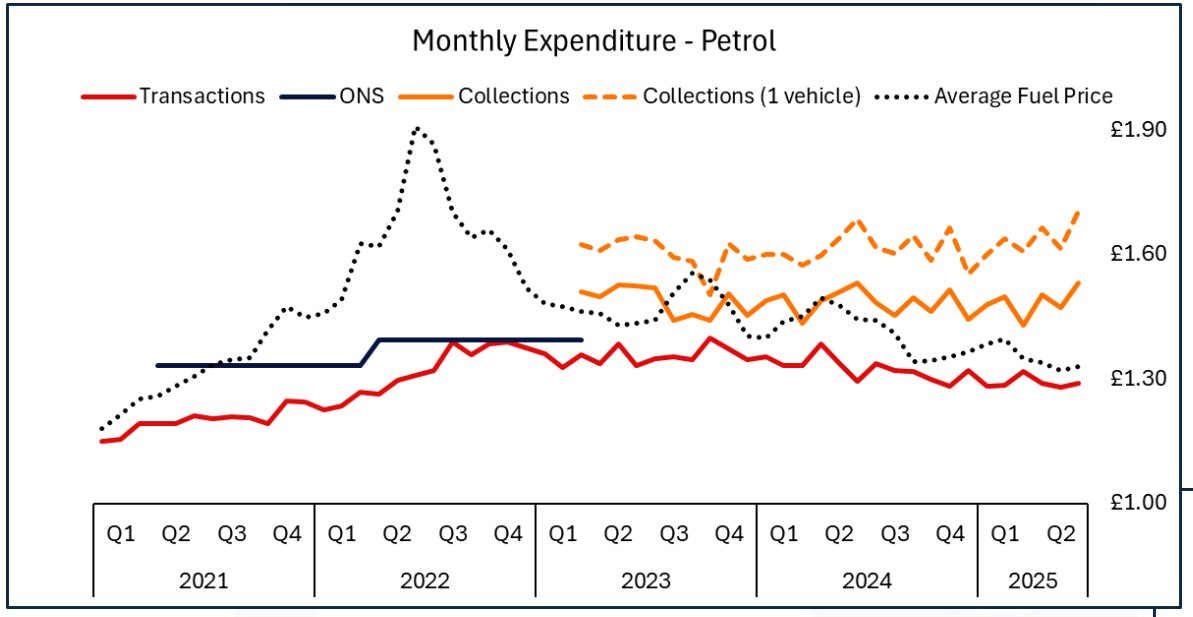
Takeaway spend tends to not follow inflation trends necessarily, as it is generally dictated by consumer behaviour.



ONS data increasingly underestimates grocery spending as it doesn't cover high inflation period between 2022/23, though UK banks typically adjust for this using modelling overlays.

Transactions – Internal VM current account expenditure.
ONS – Office of National Statistics (ONS) data that is free and published by the UK government.
Collections – Income & Expenditure (I&E) assessments completed by VM customers who have displayed signs of financial difficulty.
Transactions (P-10) – Internal VM current account expenditure using a lower decile.

Fuel and Travel



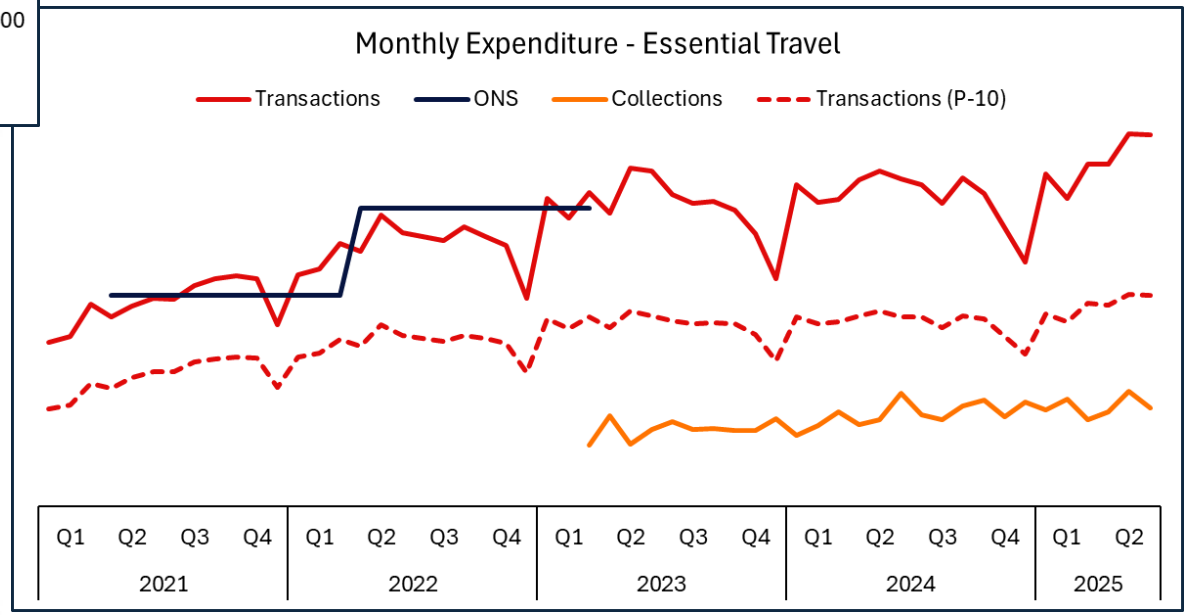
Transactional data generally follows the trend in fuel price (p/litre on right hand axis) and has shown a decreasing trend since fuel prices peaked in mid 2022.

ONS data shows more abrupt step change due to the timing of each annual release.

Collections data suggests higher fuel spend but lower public transport use; suggesting that this population may make more use of driving as essential transport.

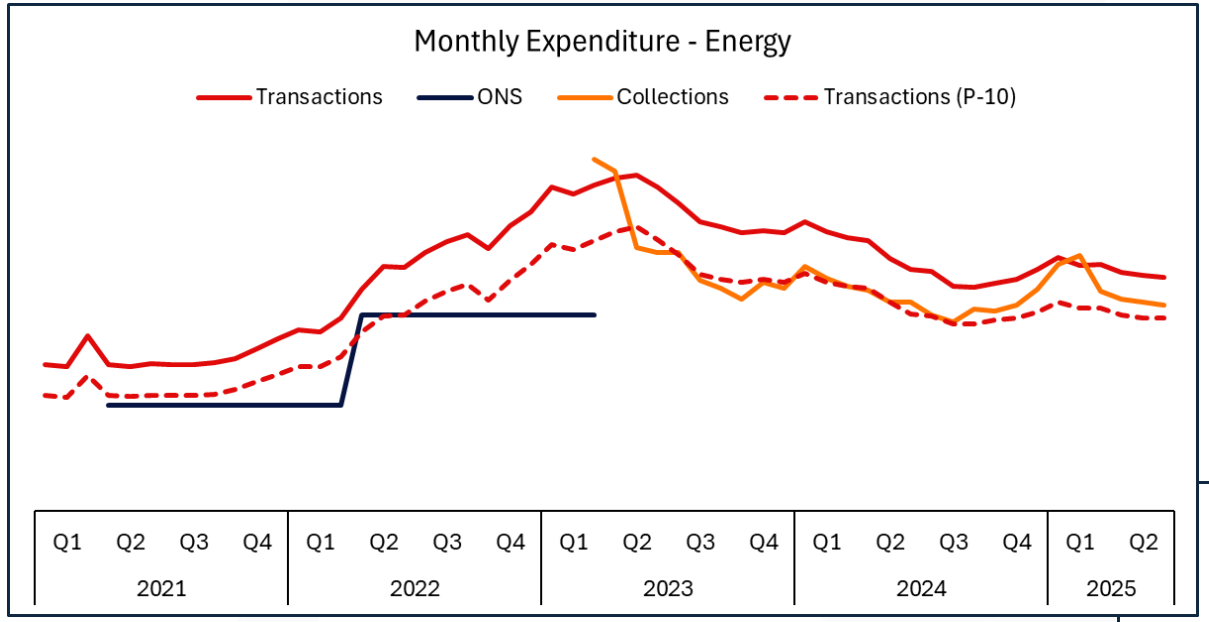
However, Collections data, can be segmented by number of vehicles, which is the determining characteristic of fuel spend.

Neither transactional nor ONS data can segment by household vehicle count directly - a key factor in fuel and public transport spend.



Transactions – Internal VM current account expenditure.
ONS – Office of National Statistics (ONS) data that is free and published by the UK government.
Collections – Income & Expenditure (I&E) assessments completed by VM customers who have displayed signs of financial difficulty.
Collections (1 Vehicle) – I&E assessment where customer has stated 1 vehicle household.
Transactions (P-10) – Internal VM current account expenditure using a lower decile.

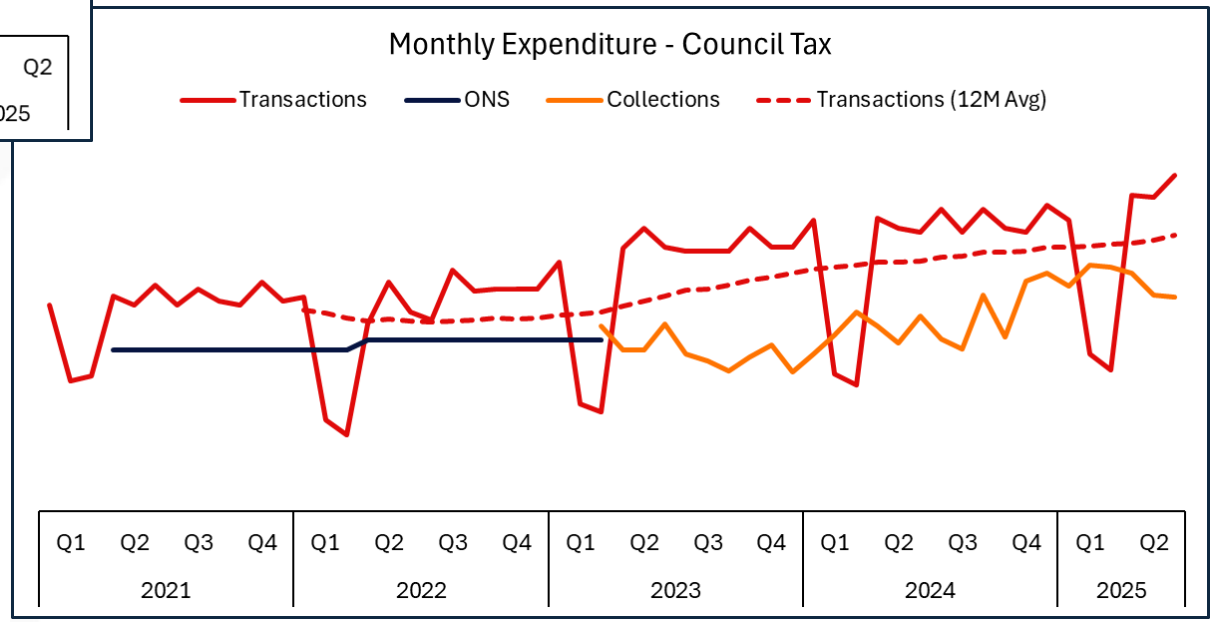
Essential Household Bills



All sources reflect Ofgem regulatory trends, but transactional data can show month on month movements, whereas ONS data is the average over a given period.

Energy costs have eased slightly since the peak in 2023 but remain at a new normal, unlikely to return to pre-pandemic levels.

Transactional data better reflects council tax spend than ONS, which overlooks the common 10-month payment cycle, causing annual dips.



Transactional data offers timely insights into essential household bills, capturing unavoidable increases like council tax and Ofgem-regulated energy hikes.

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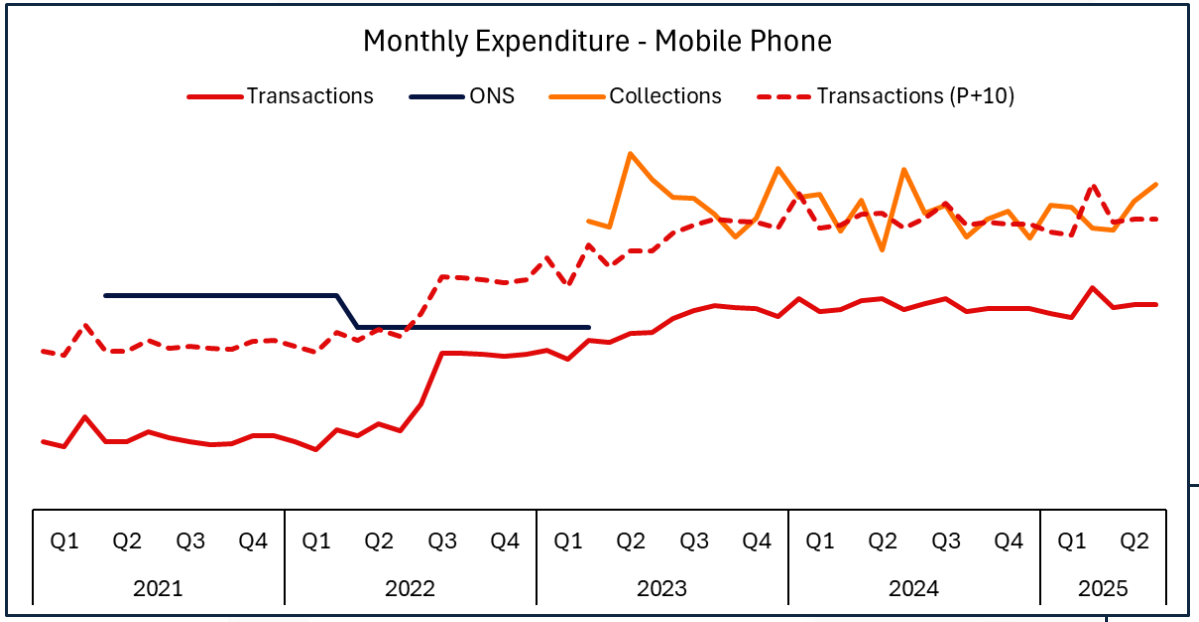
ONS – Office of National Statistics (ONS) data that is free and published by the UK government.
Collections – Income & Expenditure (I&E) assessments completed by VM customers who have displayed signs of financial difficulty.
Transactions (P-10) – Internal VM current account expenditure using a lower decile.

Other Essential Items

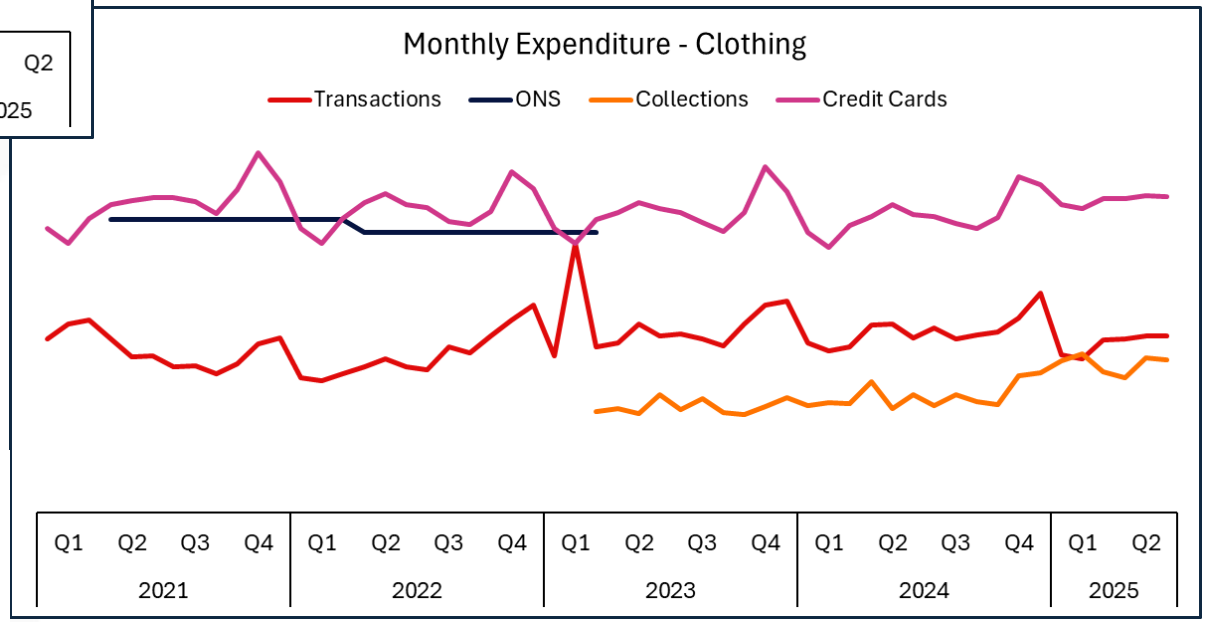


Mobile phone expenditure has shown a slight but steady increase in recent years in transactional data whereas ONS shows a slight decreased step.

Collections data for mobile phone generally shows a higher level of spend than ONS data, and tracks to a higher percentile of transactional data.

Collections data suggests clothing spend is lower than ONS and transactional figures, indicating lower ability to purchase despite its essential nature.

Clothing is an item where there a general higher level of spend on credit cards, potentially indicating credit card customers see clothing as a discretionary/luxury item in line with ONS spend.



Mobile phone costs are rising, while clothing spend remains driven by consumer choice.

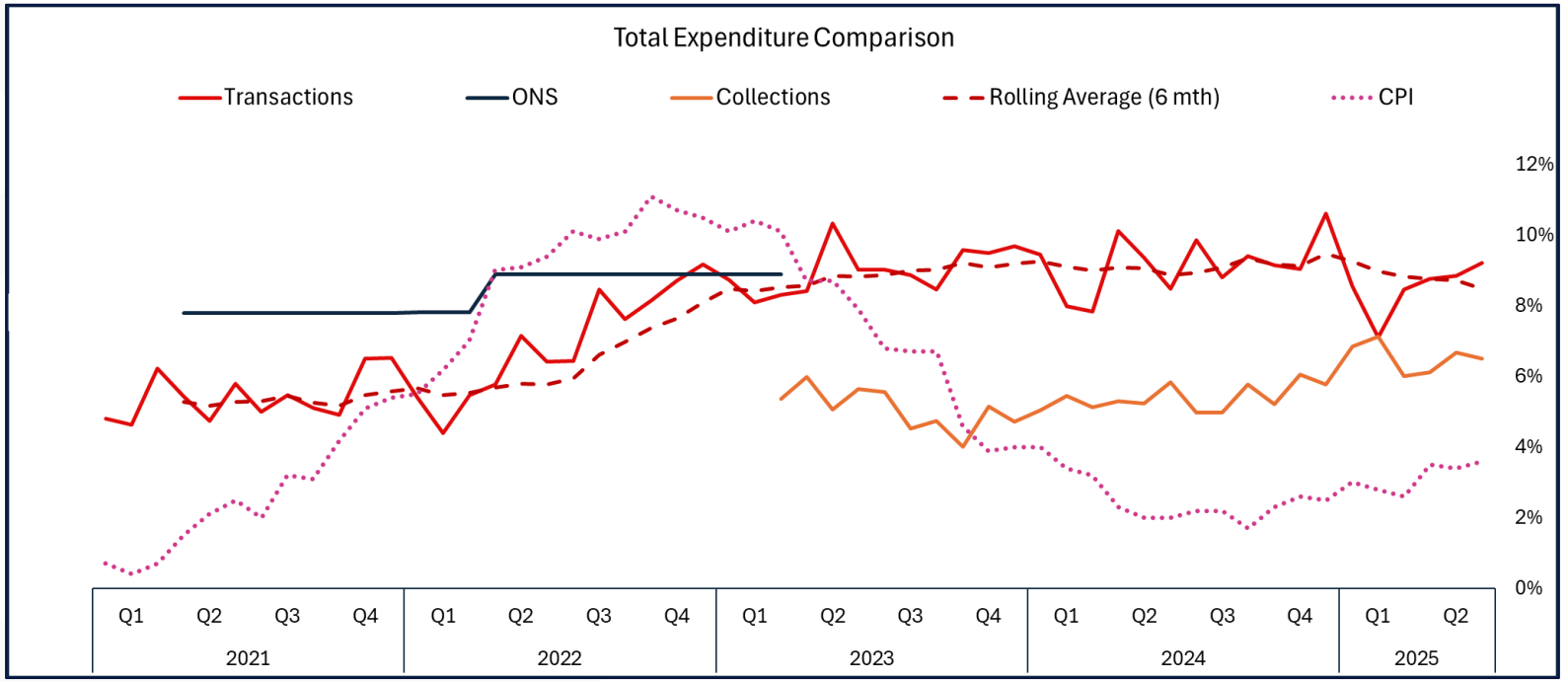
Transactions – Internal VM current account expenditure.
ONS – Office of National Statistics (ONS) data that is free and published by the UK government.
Collections – Income & Expenditure (I&E) assessments completed by VM customers who have displayed signs of financial difficulty.
Transactions (P+10) – Internal VM current account expenditure using a higher decile.
Credit Cards – Internal VM credit card expenditure.

03

Model Structure

Trended Results

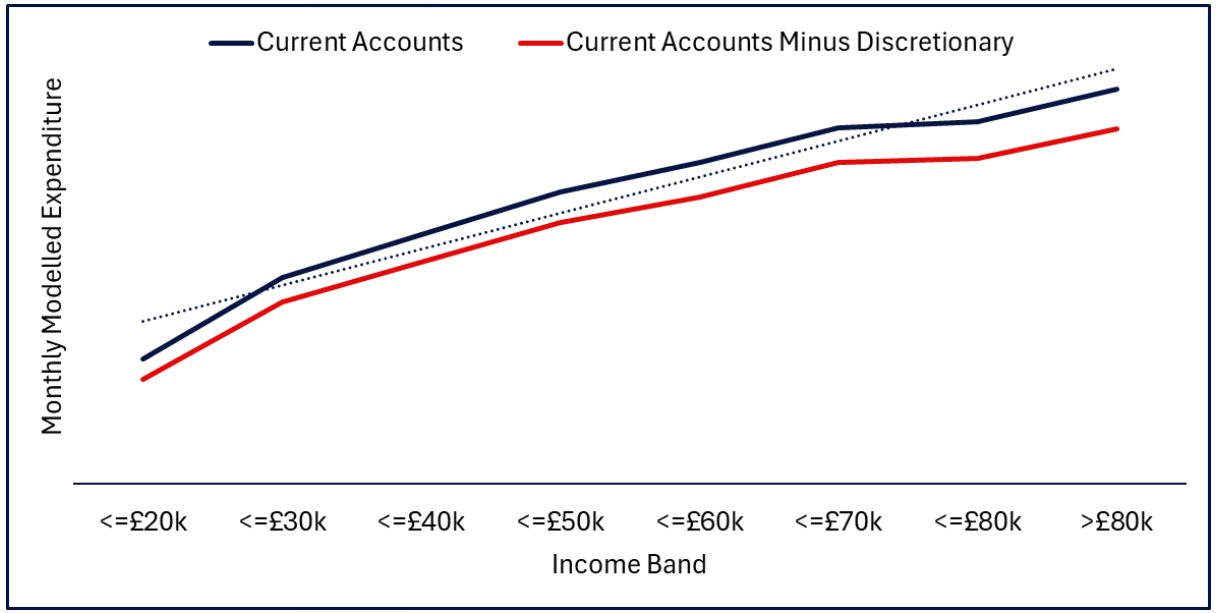
When combined with other essentials, ONS figures often represent an upper bound, while Collections data reflects a lower bound. Transactional data typically falls in between. The chart below uses a 6-month rolling average to smooth seasonal fluctuations. CPI, shown on the right axis, influences transactional spend, though consumer behaviour also plays a role - especially in certain categories discussed earlier.

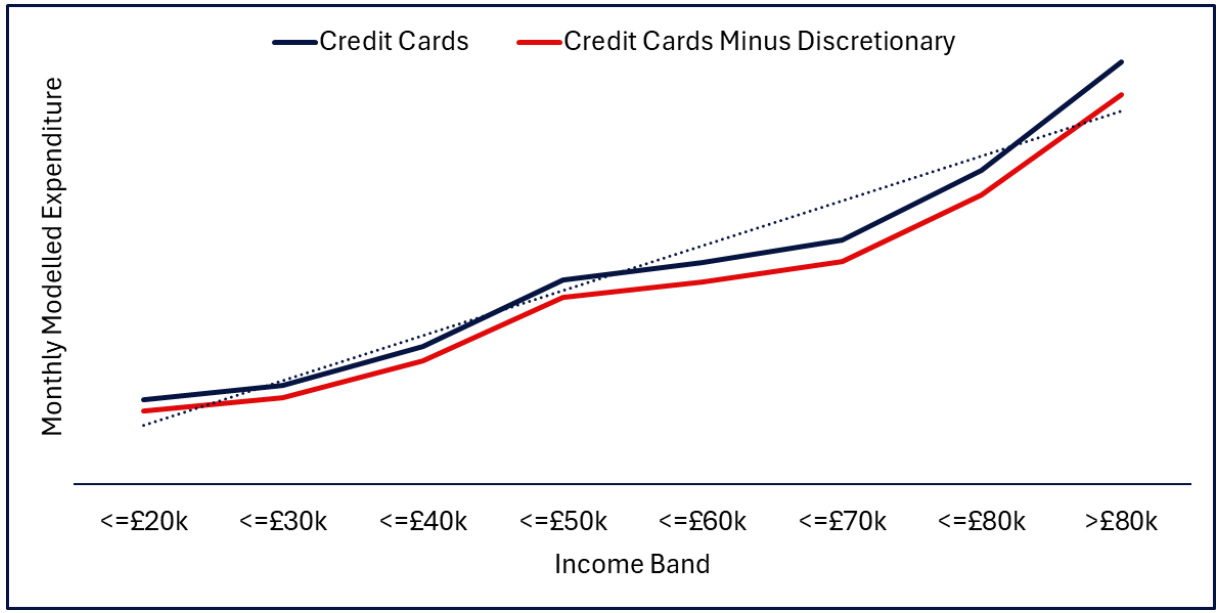


Transactions – Internal VM current account expenditure.
ONS – Office of National Statistics (ONS) data that is free and published by the UK government.
Collections – Income & Expenditure (I&E) assessments completed by VM customers who have displayed signs of financial difficulty.
Rolling Average (6 mth)– Rolling or moving 6-month average calculated by looking back in time.
CPI– Publicly available Consumer Price Index (CPI) data.

Model Structure

The charts show two essential expenditure models using transactional data – one from current accounts (left) and one from credit cards (right). Both align well with income bands. Current account data is preferred due to its fuller view of income and expenditure. Essential bills like council tax, energy, and water are better captured through current accounts, as credit card data lacks reliable estimates.





Current Accounts – Estimation of Modelled Expenditure using internal Virgin Money current accounts data.
Current Accounts Minus Discretionary – Estimation of Modelled Expenditure using internal Virgin Money current account data, but with some discretionary spend excluded.
Credit Cards– Estimation of Modelled Expenditure using internal Virgin Money credit cards data.
Credit Cards Minus Discretionary – Estimation of Modelled Expenditure using internal Virgin Money credit cards data, but with some discretionary spend excluded.

04

Conclusions

Conclusions

The benchmarked results display the thought process and value of having multiple data sources to understand spend patterns. By using a triangulated approach, one can follow a data driven methodology and begin to differentiate between essential and discretionary spend.

Price cap increases pose unavoidable cost pressures – Some expenditure categories have experienced increases which the consumer is not able to avoid. Examples of these categories include council tax and energy bills due to price cap rises.

Consumer behaviour changes in high inflation periods – Other expenditure categories are more driven by consumer behaviour; and whilst inflation has been a challenge over recent years for many households, there is evidence to say that consumers adapt their behaviour to what is within their reasonable bounds. Examples of these types of categories include takeaway and clothing expenditure which has not kept pace with inflation.

Transactional data is real time – Rendering it more relevant and inclusive of recent consumer trends, as well as any regulatory changes.

Collections I&E data provides a useful benchmark – This data source is representative of customers in financial difficulty, and therefore this is a useful source to pinpoint a lower bound of essential expenditure.

Transactional data model is more transparent – Building models using transactional data brings transparency and simplicity to the forefront of affordability modelling solutions.

A big thank you to Abass Durodola, Analyst at Virgin Money UK, without whom, the work within this presentation would not have been possible to complete.

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Any Questions?

Thank you

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