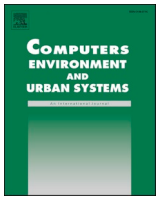
Computers, Environment and Urban Systems 125 (2026) 102399

Contents lists available at ScienceDirect

Computers, Environment and Urban Systems

journal homepage: www.elsevier.com/locate/ceus



Thriving or surviving: Understanding the geography of financial precarity in Great Britain

Zi Ye *, Alex Singleton

Department of Geography and Planning, University of Liverpool, Liverpool, UK

ARTICLE INFO

Keywords:
Financial precarity
Geodemographic classification
Household finance
Spatial inequalities
Great Britain

ABSTRACT

Financial precarity, the state of economic insecurity characterised by unpredictable employment and declining social protection significantly impacts cognitive functioning, emotional stability and social inclusion. This condition stems from multiple interconnected factors: poor quality and unpredictable work, unmanaged debt, insecure asset wealth and insufficient financial resource. Despite extensive research on financial precarity's individual impacts, its geographical distribution and associated social-spatial inequalities remain poorly understood. This paper addresses this gap by introducing a new geodemographic classification of financial precarity across Great Britain. Our classification system uses small-area measurements encompassing employment patterns, income levels, asset holdings, debt obligations, and lifestyle characteristics at the neighbourhood level. By mapping financial precarity at a fine spatial scale, this research reveals how economic vulnerability varies across different localities, highlighting the uneven geography of financial insecurity between rural and urban areas, city centres and peripheries, coastal and inland communities, and how the classification groups are interwoven to the variegated patterns in and around major urban areas. This small-area approach provides sufficient detail to identify spatial patterns while enabling comparisons between local areas, offering new insights into the geographic dimensions of economic precarity in contemporary Britain.

1. Introduction

Precarity has taken on a new significance in academic discourse and popular debate since the recession in the 2010s, which has been broadly used to define a state of lacking security and predictability in levels of material and psycho-social deprivation (Alberti, Bessa, Hardy, Trappmann, & Umney, 2018). In particular, financial precarity refers to the precarious state of being financially insecure and persistent concern of financial well-being (Meuris & Gladstone, 2023). The concept of financial precarity is closely related and continuously stated within the current discourse of a cost-of-living crisis in Britain. Where financial precarity diverges from more general but related definitions of poverty, is that it more explicitly stresses the instable and vulnerability of household financial status and usually reflects the deeper impact of inequalities.

Financial Precarity is usually considered as the result of declining social protection due to vulnerable and insecure employment. Some of the earliest scholarly work examining this relationship emerged in the 1960s with Pierre Bourdieu's conceptualisation of precarious work and precariousness, developed through his studies of underemployed Algerian workers (Betti, 2018). Building on this foundation, Standing (2011) describes the emergence of a new class-in-the-making: 'precariat', which is mainly characterised from the aspect of labour security, including the insecure job, low and unstable income, fewer rights or lacking collective representation, and shrinking opportunities for career development and upward social mobility.

Since then, there has been a proliferation of studies that operationalise the concept of precarity from the lens of employment vulnerabilities and workplace insecurity (Waite, 2009; Robinson, Martins, Solnet, & Baum, 2019; Barnes, 2021; Noibi et al., 2022). Such studies highlight issues of low income, non-standard working such as temporary contracts and involuntary part-time occupations or unsociable working hours. These studies usually concentrate on specific population cohorts such as migrant labourers (Anderson, 2010; Lewis, Dwyer, Hodkinson, & Waite, 2015; Waite, 2009), manufacturing or leisure service workers (Jachimowicz et al., 2020; Robinson et al., 2019), gig economy workers such as Uber drivers (Apouey, Roulet, Solal, & Stabile, 2020; Graham, Hjorth, & Lehdonvirta, 2017), retrenched employees (Barnes, 2021) and

* Corresponding author at: Department of Geography and Planning, University of Liverpool, 74 Bedford St S, Room 107, Roxby Building, Liverpool L69 7ZT, UK.
E-mail addresses: zi.ye@liverpool.ac.uk (Z. Ye), ucfnale@liverpool.ac.uk (A. Singleton).

https://doi.org/10.1016/j.compenvurbsys.2026.102399
Received 17 July 2025; Received in revised form 28 December 2025; Accepted 2 January 2026
Available online 9 January 2026
0198-9715/Crown Copyright © 2026 Published by Elsevier Ltd. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

tend to highlight the detrimental consequences of financial precarity to the individual's workplace performance (Meuris & Leana, 2018), physical and mental wellbeing (Haile, 2023; Newman & Humphrys, 2020), and more general social cohesion (Kalleberg & Vallas, 2017).

Research has identified that financial precarity varies significantly based on socio-demographic factors, rather than being solely determined by structural and institutional drivers. The evidence indicates that precarious individual financial status also correlates strongly with specific demographic or contextual characteristics such as those from immigrant backgrounds, or who are ethnic minorities (Pósch et al., 2020; Pósch, Cockbain, Beadsworth, Scott, & Bradford, 2024), those with lower educational levels or with overall low household income (Meuris & Leana, 2018). The importance of household assets wealth and family structure in protecting economic security from precarious employment has also been highlighted (Barnes & Weller, 2020).

Given those interactions between individual and contextual characteristics, a growing field of scholars render a broader conversation about contemporary precarity beyond the workplace to a much wider definition related to the 'precariousness of life' (Millar, 2017; Parfitt & Barnes, 2020). This body of literature views precarity as a more general, or even enduring feature of socialised conditions (Ettlinger, 2007; Strauss, 2018), and highlights the links between labour precarity and the wider effects of what this precarity does in economic, political and social space through an "unbounded approach" (Ettlinger, 2007). Research has demonstrated that financial precarity is not confined to employment conditions alone but is intrinsically interconnected with various aspects of daily life. These broader life circumstances exert diverse and significant influences on an individual's financial vulnerability, highlighting the complex, multidimensional nature of economic insecurity beyond the workplace context. For example, Waite (2009) argued for differentiating between subjective and objective notions of precarity, distinguishing between people who may voluntarily pursue more precarious employment for greater flexibility and stable jobholders who may still face the threat of precarity. Lain, Airey, Loretto, and Vickerstaff (2019) also recognised the importance of state financial support mechanisms in the precarity of ageing workers in the UK. Gambling and fuel poverty have also been proved to associate not only financial distress, but also health concerns, social exclusion and unemployability which lead to further risks of financial precarity in the UK (Burlinson, Giulietti, Law, & Liu, 2021; Muggleton et al., 2021). Recent studies also extended their research subjects beyond workers to other population groups such as international students (Mulvey, Morris, & Ashton, 2024), disabled people (Evans et al., 2023) or more general population groups across different demographic characteristics to understand how broader lived experiences interact with financial precarity (Clark, Davies, Owen, & Williams, 2024). There is also evidence to suggest that geography acts as a confounding factor to individual or household effects. Regional economic inequality in the U.S. increases financial precarity among lower-income households by reducing their economic safety net and weakening community support systems (Jachimowicz et al., 2020). Elevated housing prices and concentrated employment centres in major cities also increase financial precarity for even highly educated workers through long daily commutes, residential displacement and overcrowded living conditions (Wang, Li, & Deng, 2017).

Despite extensive research on precarity, significant gaps remain in understanding its social-spatial manifestations and inequalities (Strauss, 2018). Researchers have identified a variety of drivers of inequalities and documented their disparity across socioeconomic groups on rentierism, housing-wealth and tenure inequalities (Christophers, 2021, 2023). Two key methodological challenges persist in this research area. First, the interconnected nature of financial precarity drivers makes it difficult to derive meaningful insights when analysing them in isolation. Second, while previous studies have examined the spatial and geographical dimensions of financial precarity in Great Britain, comprehensive nationwide analyses at the small-area level have been limited. Existing studies have not fully captured the spatial heterogeneity of financial precarity or revealed how its underlying drivers vary across different geographic contexts. To address these challenges, this research employs geodemographic techniques to integrate multiple factors that characterise both neighbourhoods and their residents. This approach creates a classification map that reveals the complex and varied geography of financial precarity across Great Britain. Geodemographic classification is a well-established method to highlight salient multidimensional characteristics from a body of small area measures, which has been adopted in numerous contexts to create neighbourhood classifications (Harris, Sleight, & Webber, 2005). There are evidenced successful applications to develop both national classifications (Singleton & Longley, 2024), or more specific policy-orientated applications (Ashby, Irving, & Longley, 2007), for example: in education, ageing population, digital inclusion or energy deprivation (Chen, Robinson, & Singleton, 2025; Singleton, Alexiou, & Savani, 2020; Xiang, Stillwell, Burns, Heppenstall, & Norman, 2018) and are also widely used in consumer segmentation for marketing and other business practices (Singleton & Spielman, 2014).

This paper develops a comprehensive geodemographic classification to map the multi-dimensional and geographic nature of contemporary financial precarity (Strauss, 2018; Waite, 2009). We introduce the concept of financial precarity as encompassing both workplace insecurity (precarity-in-work) and broader social vulnerabilities (precarity-in-life), capturing the full spectrum of economic instability people face. Our approach differs from existing research by providing population-wide quantitative evidence rather than focusing on specific demographic subgroups. We examine how financial precarity varies geographically at the small area scale, offering a holistic foundation for understanding economic vulnerability across entire national populations. As part of our study design, we include an external validation step using household investment data from a national consumer lifestyle survey, allowing us to assess the Financial Precarity Classification against independent measures of household financial security.

The paper begins by establishing our conceptual framework for financial precarity in Great Britain in Section 2. This multidimensional framework encompasses the complex factors shaping household experiences: employment status, income and benefits, housing assets, financial liabilities and lifestyle patterns. This comprehensive approach reveals how financial vulnerability varies based on where people live, moving beyond single-indicator measures to capture the full complexity of economic insecurity. Section 3 presents our geodemographic classification, which maps how financial precarity differs across small areas throughout Great Britain. The classification includes detailed "pen portrait" descriptions that illustrate geographical disparities and reveal the diverse, localised experiences of economic vulnerability. We validate our classification's performance and efficiency in Section 4 using household investment data from a recent lifestyle marketing survey. Section 5 concludes by summarising our key findings and identifying promising directions for future research.

2. Understanding financial precarity in Great Britain

Contemporary precarity has been shaped in novel ways by the forces of neoliberalism and globalisation, but also by Britain's distinctive institutional context. According to research funded by Labour Market Enforcement, during 2009 to 2018, around 9 % of the UK workforce or 5 % of the UK population could be considered as precarious workers (Pósch et al., 2020). As recognised in the literature presented in the introduction, financial precarity varies significantly in its levels, types, and geographical distribution. This heterogeneity is influenced by multiple interconnected factors: employment conditions and job insecurity, lifestyle and living arrangements, personal financial circumstances, access to social welfare support, and individuals' socio-economic background.

Here, we propose a conceptual framework that understands financial precarity as encompassing workplace conditions, household economic

circumstances and lived experiences. We present a synthesis of measures designed to capture differences among local residential households at the small area geography level across five domains: employment, income and benefits, household assets, financial liabilities, and resident lifestyles.

The "Employment" domain encompasses flexible employment arrangements, unemployment, retirement, social class, occupation, and atypical working hours. It is crucial to distinguish between different types of flexible employment, as arrangements such as part-time and temporary contracts may involve job variability but do not inherently constitute precarious employment. A key consideration is differentiating between voluntary flexible employment, where workers may choose alternative arrangements and involuntary underemployment, where individuals accept suboptimal conditions due to limited options (Doogan, 2009). As such, other employment statuses (see Table 1) have been included alongside measures of part-time employment in the compilation of the "Employment" domain. "Income and Benefits" include both household income and receipts of the main social benefits in Great Britain. The "Household Assets" domain covers housing status such as tenure, second home, housing cost relative to net income, a measure of overcrowding, house purchase and rental price, car ownership and the rank of savings and investments as an indicator of financial security. "Financial Liabilities" relate to the domain in which household financial status is considered, including debt, loan, gambling behaviour, savings and investments. Finally, in the "Resident Lifestyles" domain, this includes dimensions of age, household composition, health, education and energy consumption. Table 1 lists 67 variables associated with each domain and dimension that were considered as candidate measures of financial precarity.

3. Data sources and input creation

Multiple data sources were integrated to create input measures across the different domains and dimensions of financial precarity. These sources included both direct measures, and those which requires small area estimation. In this section we provide an overview of those methods used to create the consolidated set of measures.

An additional trade-off was made between spatial granularity, and the availability of data as outlined in Table 1. We selected the Lower Super Output Area (LSOA) for England and Wales and Data Zone (DZ) for Scotland as the geographical level for the extent of Great Britain as our target spatial unit. These are widely adopted zonal geography and

Table 1
An overview of the domains, dimensions and measures of financial precarity; and their data sources.

Domain	Dimension	Measures	Data Source
Employment	Flexible Employment	Part-time employed	Census 2021 (EW) Census 2022 (S)
		Self-employed NS-SEC: L8 and L9 Small employers and own account workers	ibid.
	Unemployment	Unemployed (excl. Full-time students) economically inactive (excluding retired and full-time students)	ibid.
	Student	Full-time students	ibid.
	Retired	Retired	ibid.
	Work hour	Part-time: 15 h or less	Census 2021 (EW)
		Full-time: 49 h or more	Census 2011 (S)
	Occupation	Managers, directors and senior officials; Professional; Associate professional and technical; Administrative and secretarial; Skilled trades; Caring, leisure and other service; Sales and customer service; Process, plant and machine; Elementary occupations	Census 2021 (EW) Census 2022 (S)
	National Statistics Socio-Economic Classification (NS-SEC)	L1, L2 and L3 Higher managerial, administrative and professional; L4, L5 and L6 Lower managerial, administrative and professional; L7 Intermediate; L10 and L11 Lower supervisory and technical; L12-L13 Semi-routine/routine	ibid.
Income and Benefits	Household Income	Gross disposable household income (GDHI) per head	ONS (2021)
		Number of children in Low Income Families per 1000 usual residents	DWP (2022)
	Social Benefits	State Pension	ibid.
		Universal Credit	ibid.
		PIP health/disability	ibid.
Household Assets	Housing Ownership	Housing tenure: Owns outright, Social rented, Owns with a mortgage or loan, Shared ownership, Private rented	Census 2021 (EW) Census 2022 (S)
		Second address Holiday home; outside the UK	Census 2021 (EW)
		Housing cost account for net household income	ONS (2023) (EW)
	Overcrowded	Occupancy rating of bedrooms ≤ 0	Census 2021 (EW) Census 2022 (S)
	House Price	Median house price, median Zoopla rental price	GeoDS (2021)
	Car ownership	Owning no car; owning more than 2 cars	Census 2021 (EW) Census 2011/ 2022 (S)
	Savings and Investments	Saving and investment rank	FCA (2021)
Financial Liabilities	Debt	County Court Judgement (CCJ) value	GeoDS (2023)
	Loan	Outstanding residential mortgage loans, outstanding insecure personal Loans	FCA (2021)
	Problem Gambling	Problem Gambling Severity Index	GambleAware (2022)
Resident Lifestyles	Age band	Age band: 0–14, 15–24, 25–44, 45–64, 65 and over	Census 2021 (EW) Census 2022 (S)
	Energy consumption	No central heating	ibid.
		Median electricity consumption, median Gas consumption	ONS (2023)
	Health and Disability	Bad and very bad health, Disabled	Census 2021 (EW) Census 2022 (S)
	Education	Highest level of qualification: no and level 1 qualification	ibid.
	Living arrangement	One person household: aged 66 and over, aged below 66	ibid.
		Single family household: All aged 66 years and over, couple no children, couple with dependent children, couple with all non-dependent children, lone parent family with dependent children, lone parent family with all children non-dependent	
		Non-single household types: With dependent children, Other	

ensure access to a wide variety of socio-economic and demographic datasets, and are commonly used in government and for policy planning applications. Therefore, many well-established geodemographic classifications or geographic indices in the UK such as the Index of Multiple Deprivation (IMD) and Internet User Classification (Singleton et al., 2020), are based on these geographic zones. LSOA/DZ effectively balance between fine spatial granularity, disclosure and robustness of resulting estimations. Specifically, England and Wales contain 35,672 LSOA zones, each comprising 400 to 1200 households (ONS, 2022); while Scotland has 7392 Data Zones, with each representing 500 to 1000 households (Scottish Government, 2024).

3.1. Data sources for direct measurements

The Census 2021 (England & Wales) /2022 (Scotland) provide data on the socio-economic and demographic of characteristics of residents and households; covering a breadth of topics from household composition, age, health, disability, education levels to economic activities, social class, occupation, and housing tenure or circumstances. The latest Census 2021/2022 outcomes of the Great Britain was used to derive most of the measures that fall within the domains of "Employment", "Household assets" and "Lifestyles". For variables not available from 2022 Scotland Census, such as "Part-time: 15 hours or less", "Full-time: 49 hours or more" and "owning more than 2 cars", data from the 2011 Scotland Census were used instead and spatially redistributed to the 2022 Data Zone areal units. They were as percentages against a denominator of households within the LSOA of each measure. It is important to note that for England and Wales the Census was conducted in April 2021, whereas in Scotland, this occurred in April 2022, so there is a small temporal mismatch between the three countries. "Housing cost account for net household income", "Second address as Holiday home" and "Second address is outside the UK" were removed due to the lack of Scotland data sources.

For the "Income and Benefits" domain, the measures within the "Household Income" dimension were based on annual estimates of the gross disposable household income (GDHI) per head derived from the ONS (2024), while the dimension "Social Benefit" comprised measures that included Universal Credit and Personal Income Payment (PIP) claimants that were both derived from Department for Work and Pensions (DWP) Statistics (DWP, 2024).

The "Energy" dimension of the "Resident Lifestyles" domain contained measures extracted from Energy Efficiency Statistics from Department for Energy Security and Net Zero (DESNZ) (DESNZ, 2024). Additionally, within the "Household Asset" domain, the "Housing Price" dimension measure for sales and rental were supplied by the ESRC Geographic Data Service (GeoDS) (GeoDS, 2025). Financial Conduct Authority (FCA)'s records on the banking and finance industry in the UK, are used to compute the outstanding value of residential mortgage loans and personal insecure loans in each LSOA/DZ per 1000 usual residents (Mortgage Lending Statistics, 2022). The "Debt" dimension derives measures from County Court Judgement (CCJ) total value per 1000 usual residents within each LSOA/DZ, and are also supplied by GeoDS (GeoDS, 2025).

3.2. Small area estimation for financial liability measures

To enable the most comprehensive representation of financial precarity, further measures were required that could not be extracted from nationally extensive data sources. In such instances, various survey data were identified with target attributes, and though small area estimation, measures derived at the LSOA/DZ level for the national extent. The method implemented a spatial microsimulation model using an Iterative Proportional Fitting Procedure (IPFP) following (Singleton et al., 2020). IPFP (Iterative Proportional Fitting Procedure) adjusts survey weights to make individual-level data representative of small geographic areas by matching known population benchmarks from external sources (Lomax & Norman, 2016). The method works by filling in the cells of an n-dimensional contingency table when the marginal totals are known but the individual cell values need to be estimated. In this study, IPFP generated weights that aligned the survey's demographic distribution with Census 2021/2022 data for each LSOA and DZ across Great Britain. The procedure iteratively reweighted individual survey responses until their marginal distributions matched the corresponding Census variables for each small area, based on shared local demographic characteristics from the Census 2021/2022 (see Appendix Table A.1 and Table A2).

Within the "Financial Liabilities" domain, the dimensions of "Gambling Behaviours" and "Savings and Investments" were not directly measurable from any known source, but related measures could be derived from several surveys including the GambleAware Treatment and Support Survey and the Financial Lives Survey by the FCA. These two consumer behaviour surveys were also supplied by the GeoDS. The GambleAware survey is an annual and representative survey of adult gambling harms in Great Britain (GambleAware, 2023). The datasets comprise 70,383 individuals surveyed since 2019 to 2022, and it generates for each respondent a Problem Gambling Severity Index (PGSI) based on their gambling behaviours reflecting by the questionnaire answers. The Financial Lives Survey is a nationally representative survey of financial behaviours and experiences, and is conducted by the FCA, which included 19,147 responses in 2022 (FCA, 2023). Measures extracted from these surveys related to the PGSI and saving and investment values were used to estimate rates within all LSOAs/DZs based on the spatial microsimulation model. While regional disaggregation before the small area estimation could better capture the regional differences evident in both surveys, further subdividing the existing observations would lead to very small sample sizes in some regions and potentially increase bias in resulting estimates. Therefore, small area estimation was implemented at the national scale, and the resulting estimates should be interpreted with caution, as they are based on limited sample sizes pooled across multiple years, and on surveys not originally intended for direct small area estimation.

For both the GambleAware and FLS surveys, we set $n = 3$ when constructing contingency tables for the iterative proportional fitting procedure (IPFP). This choice balances computational efficiency with estimate quality, with three categories per dimension creating manageable table sizes that allow the IPFP algorithm to run efficiently while preserving the reliability and stability of the resulting estimates. In the GambleAware survey, 11 variables (including age band, gender, and ethnicity) were used to create a $7 \times 2 \times 2$ weighted contingency matrix. While for the FLS, 35 variables (including age band, ethnicity, and employment status) were incorporated to produce a $7 \times 18 \times 10$ contingency table. These matrices were then used in the IPFP, in which the selected variables serves as constraints to align the sample distributions with the target marginal distributions from the 2021/2022 Census local characteristics for each LSOA/DZ. The resulting IPFP outputs provided estimated PGSI and saving and investment values across all LSOAs/DZs in our study area.

3.3. Input preparation

All of the variables, whether measured directly or as estimated values from large sample surveys, correspond to different facets of financial precarity. However, to represent the overall latent geography of financial precarity it was necessary to bring these measures together into a composite indicator. Geodemographic classification has demonstrated utility for presenting the multidimensional characteristics of neighbourhoods and has wide application across public and private sector. They are generated by assigning a set of measures to small areas and using these as input to a cluster analysis that groups together areas with the most similar characteristics. Many geodemographic classification are created for general purpose use, for example, the UK Output Area Classification that have been created following the release of

decennial Census since 2001 (Gale, Singleton, Bates, & Longley, 2016; Vickers & Rees, 2007; Wyszomierski, Longley, Singleton, Gale, & O'Brien, 2024). Application-specific geodemographic classifications have also been developed, tailored to specific application uses or localities (Ashby et al., 2007; Singleton et al., 2020; Singleton & Longley, 2024).

K-Means is the most widely adopted clustering algorithm in geodemographic classification, with a long history of established practice (Harris et al., 2005). It emphasises the identification of shared characteristics rather than capturing spatial associations among areas, and is therefore preferred over alternative spatial clustering methods for national-scale classifications, as it provides a practical balance of computational efficiency, interpretability of cluster centroids, and complete cluster assignment (Leventhal, 2016; Singleton, Pavlis, & Longley, 2016). Therefore, we employ K-Means as the clustering method in this research and followed established methodology used when building existing national classifications within the UK and US (Singleton & Spielman, 2014). First we standardise all candidate variables listed in Table 1 using z-scores and applying a Box-Cox transformation for normalisation, this process unified variable scales and reduced skewness, and therefore ensured that distance-based clustering was not distorted by non-normal distributions. We then trimmed down highly correlated variables to avoid over emphasis of any particular dimension. The correlation matrix was built using the Pearson's correlation coefficient between each pair of variables, as presented in Fig. 1 (with variables and their description in Appendix Table A.3). The brown to purple spectrum represents the Pearson's coefficient ranging from −1.0 (most negative) to 1.0 (most positive), with deeper colour indicating stronger relationships correlation. Variables exhibiting pairwise correlations exceeding an absolute value of 0.70 were considered strongly correlated. The threshold was selected after a series of tests to best reduce multicollinearity while maintaining a balanced selection of variables across domains. In such cases, one of the correlated variables was removed iteratively until no pairwise correlation above this threshold remained. This process reduced the initial 67 candidate variables to a final set of 39.

3.4. Cluster analysis

K-Means clustering requires that the number of clusters (k value) be specified a priori. We used a Clustergram to support this decision which presents a range of potential k values on the x axis, alongside cluster

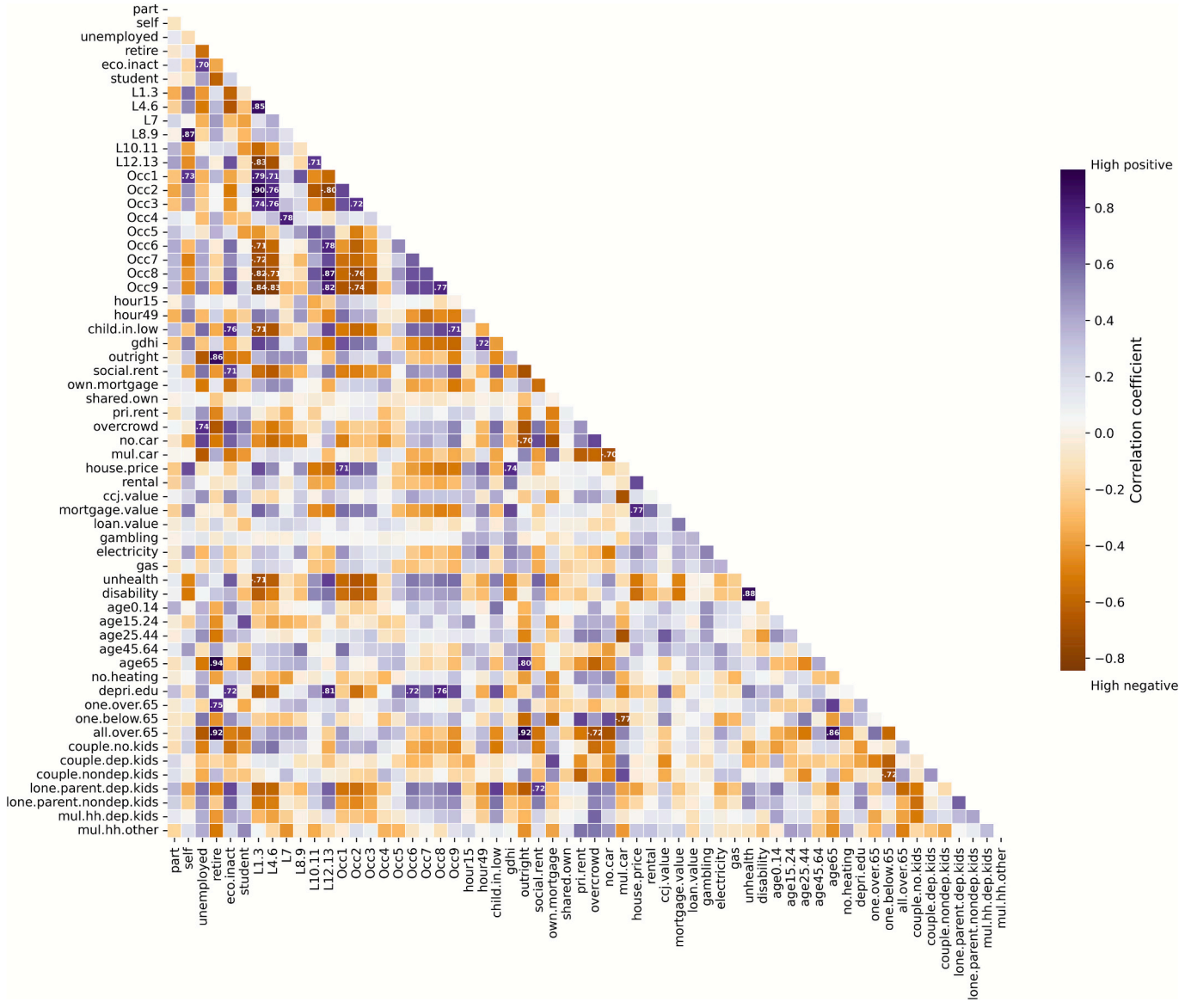


Fig. 1. Variable selection based on the correlation matrix.

weighted means of the first component of a Principal Component Analysis (PCA) on the y axis (Fleischmann, 2023). Fig. 2 presents the Clustergram for the k values from 1 to 14, with the PCA weighted mean of clusters shown as red dots. Fig. 2 presents the Clustergram for the k values from 1 to 14, with the PCA weighted mean of clusters shown as red dots. In general terms, a more effective partitioning is one where the red dots are well spaced. With the increase of k, the Clustergram also shows how larger clusters gradually split into smaller ones based on the thickness of the connecting lines. We identified that k = 5 yielded the most interpretable result, considering both the characteristics of the cluster centroids and the spatial distribution of cluster memberships when these were mapped. K-Means was run on the input data with 10,000 iterations, selecting the result that had the lowest within sum of squares. To develop a classification hierarchy, these initial partitions were then used to split the input dataset, and the process of fitting Clustergrams was repeated for each subset. The final structure of the geodemographic classification comprised five Supergroups and thirteen Groups, with the splits shown in Table 2.

4. A National map of financial precarity

The outcome of the cluster analysis in Section 2 assigned each LSOA/DZ into one of 5 Supergroups and 13 nested Groups. As a measure of robustness, the squared difference between each area and the mean of its assigned Group cluster was mapped for each LSOA/DZ (Fig. 3). A higher score indicates a worse fit, as the area shares less in common with other members of the same Group cluster. Fig. 3 suggests that the cluster fit scores were reasonably well spread, without bias to urban or rural areas in England, but do marginally fit worse in the rural areas in Scotland. This could because some input variables in Scotland were derived from less recent census data, which may not reflect the current status of Scotland. Additionally, it may also reflect the unique characteristics of certain areas in Scotland given the different thresholds used to derive DZ. The number of DZs in Scotland is for example only one-sixth of the number of LSOAs in England and Wales.

To describe the salient characteristics of each Supergroup and Group

Table 2
A summary of the 5 FPC supergroups and 13 groups.

Supergroup	LSOA/ DZ %	Group	LSOA/ DZ%
A: Emerging Financial Climbers	9.3	A01: Wealthy Independent Workers and Professionals	6.33
		A02: Student and Young City Strivers	3.02
B: Suburban Financial Balancers	18.7	B03: Balanced Homeowning Families	6.92
		B04: Young Striving Families	3.72
		B05: Senior Asset Owners	8.09
C: Mature and Financially Secure	32.5	C06: Secure Lone Pensioners	13.32
		C07: Financially Leveraged Seniors	9.92
		C08: Stable Intermediate Families	9.30
D: Financially Precarious Families	23.6	D09: Ageing Renters	14.46
		D10: Vulnerable Lone-Parent Households	9.15
E: Highly Vulnerable Families	15.8	E11: Overcrowded and Overburdened	5.88
		E12: Underprivilege dependent	5.23
		E13: Ageing Blue-collar households	4.65

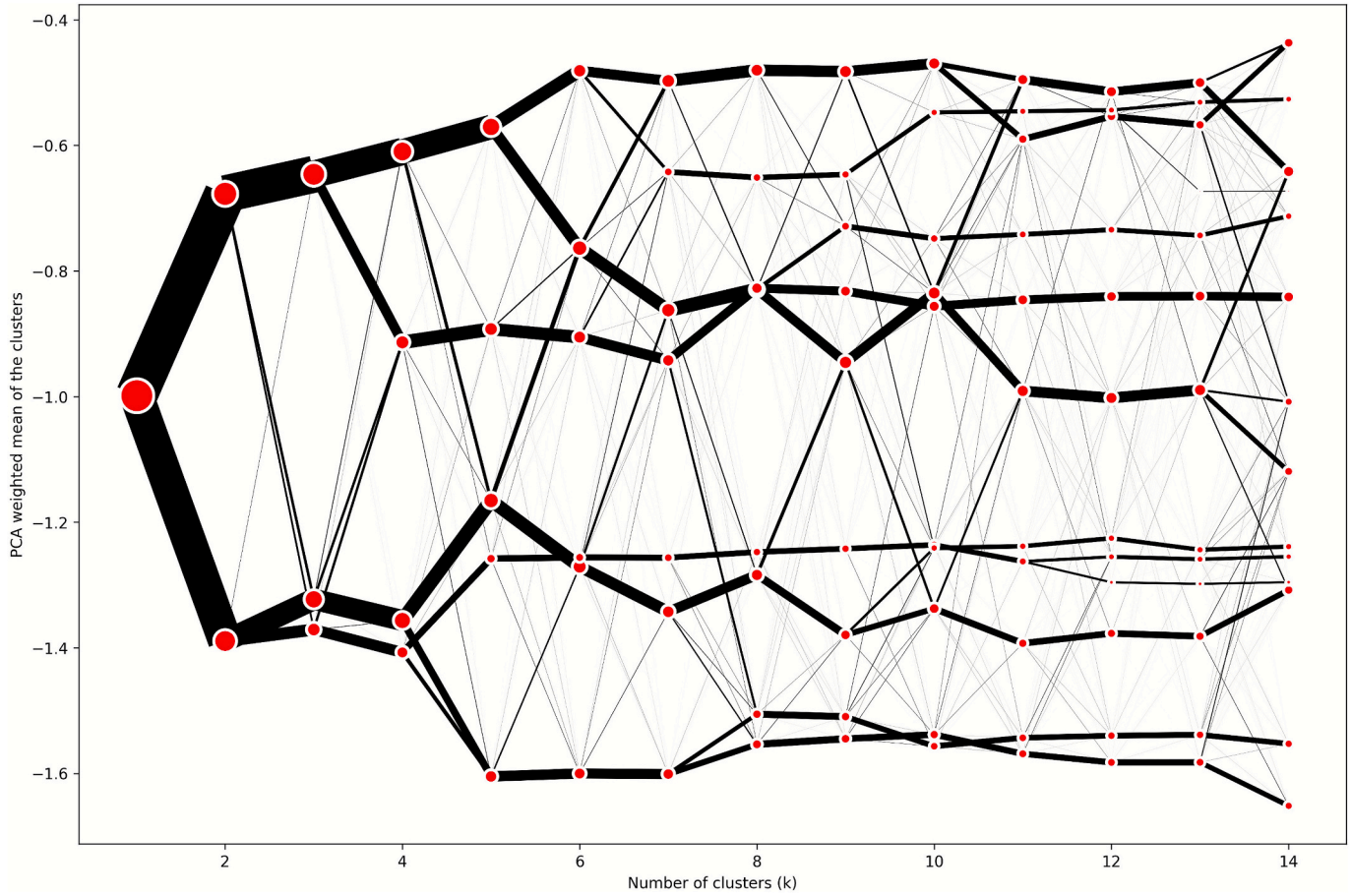


Fig. 2. Clustergram exploring k partitioning.

in the classification, the input variables were compared with the mean scores of their corresponding cluster. In this analysis, the full set of variables listed in Table 1 was employed to depict the defining characteristics of each Supergroup and Group. Index scores were calculated and are visualised in Fig. 4. An index score of 100 represents a national average for the characteristic, a score of 50 a half and 200 would be double. By examining these scores, each Supergroup and Group can be profiled, thereby facilitating the development of an appropriate label and a detailed "pen portrait" description of the cluster.

The geodemographic classification results are shown at the national level in Fig. 5, with each LSOA/DZ in Great Britain labelled according to its Group. The variegated classification map in Fig. 5 illustrates the disparity and mixed nature of financial precarity in neighbourhood areas, revealing significant variations not only across regions but also at a highly localised level. Table 2 summarises the proportion of LSOAs/DZs within each financial precarity cluster in Great Britain. The "pen portrait" descriptions of each Supergroup and Group are presented below.

4.1. A: Emerging financial climbers

Residents of this Supergroup are characterised by having a higher tendency for private rental, and lower rates of couples with non-dependent children. The Supergroup is predominantly located in London and other provincial cities in England. It comprises well-educated, young professionals and full-time students, many of whom are below 45, and working in professional and technical occupations, with high per capita disposable income but lower rates of house ownership. When in cities, residents of these areas typically reside within expensive neighbourhoods and pay high private rentals, often in over-occupied

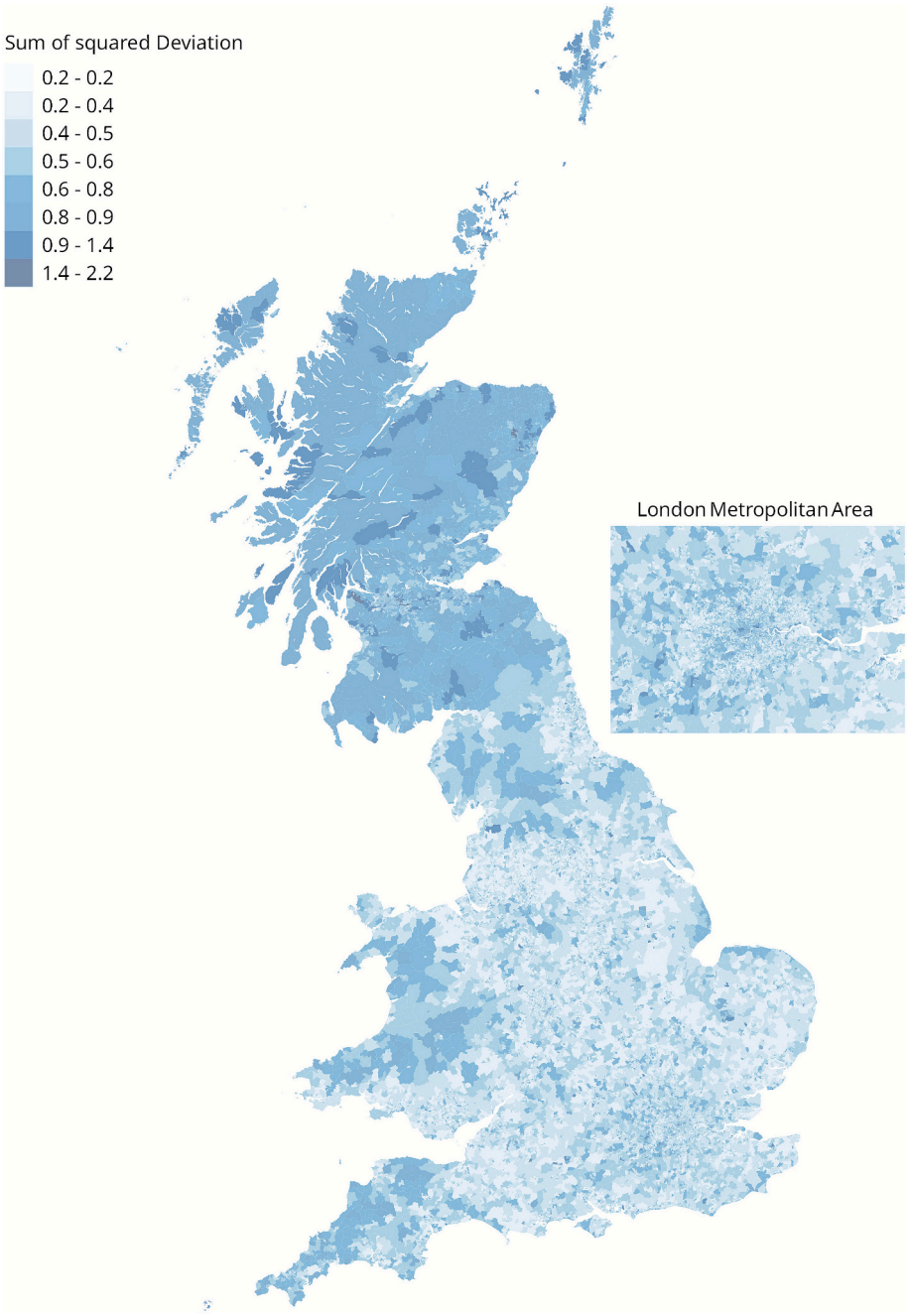


Fig. 3. Cluster fit scores presented for the GB national extent by LSOA/DZ.

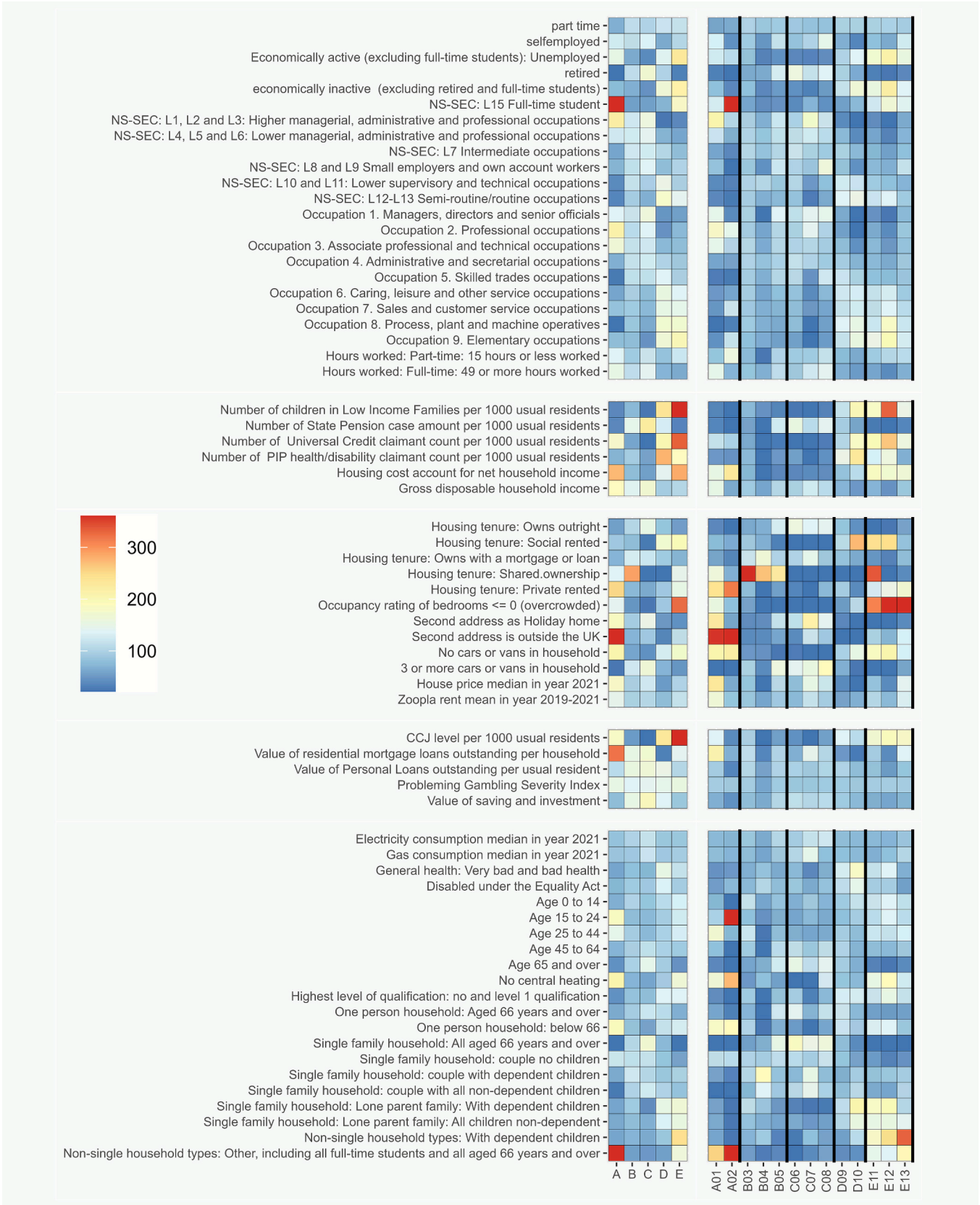


Fig. 4. Index scores for the Financial Precarity Classification. Red colours indicate values above the national mean, while blue colours indicate values below the national mean. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

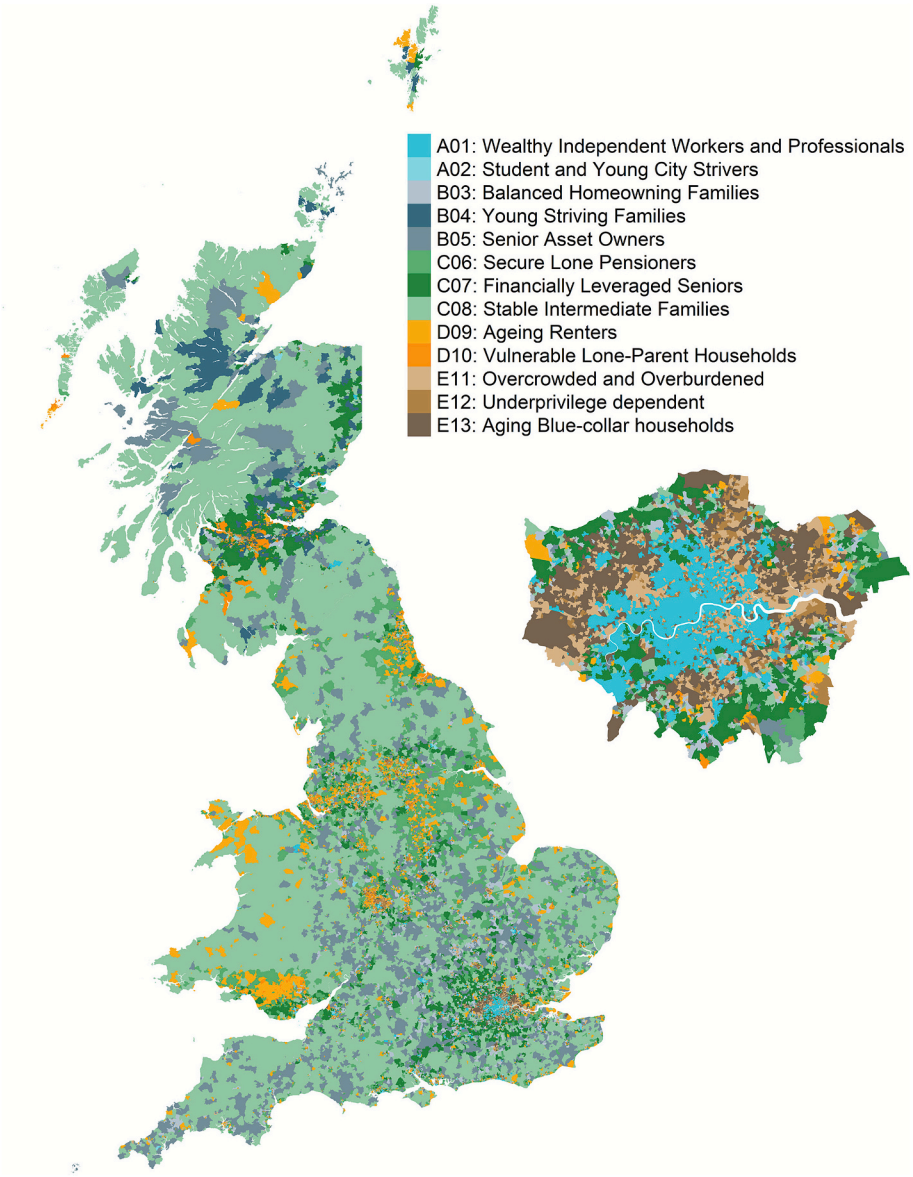


Fig. 5. A Map of the Financial Precarity Classification for Great Britain.

houses without central heating and with housing cost consuming a greater portion of their income. Given the younger age profile of this Supergroup, this is also associated with resident having generally better health, despite their tendency to work longer than 49 h per week. This group also contains a high number of second addresses found overseas, which may be a result of the international student population.

4.1.1. A01 wealthy independent workers and professionals

This Group has more senior residents than Group A02, with many employed in higher managerial, professional and technical occupations, or self-employed, and more likely to work longer hours surpassing 49 h per week on average. Residents of these areas have relatively higher household incomes per person. They are more likely to own their house than the parent Supergroup, and more typically live alone or as couples with children. The prevalence of holiday home ownership is also higher. There are also higher rates of self-employed small business owners and own account workers, which may create fluctuations in their financial stability.

4.1.2. A02 student and young city strivers

Residents of these areas are typically of a younger age, with many in their 20s. Correspondingly, this group has lower savings and investments. Those who are not working are typically full-time students, with many living alone in shared houses that are privately rented. Although they live in neighbourhoods with relatively lower house prices and more over-occupied rooms compared to Group A01, their housing cost proportion of income is higher. Employment within this Group is characterised by a concentration in professional and technical occupations, with many individuals also working fewer than 15 h per week. They are also less likely to own cars.

4.2. B: Suburban financial balancers

The Suburban Financial Balancers Supergroup predominantly comprises family households residing in suburban areas, often consisting of couples with dependent children, possessing multiple cars. There is a notable prevalence of shared ownership of houses, ownership of

properties with a mortgage or outright, and greater prevalence of personal loans. Many houses are under-occupied and housing cost are not deemed as a significant burden. The energy consumption levels are also moderate. This Supergroup has a higher employment rate, with residents working in various occupations.

4.2.1. B03 balanced homeowning families

B03 has much less shared ownership compared to the parent Supergroup. Residents of this group have secure employment, moderate income, and have more lone parents with dependent children than the Supergroup. Residents tend to possess fewer outright housing assets, but exhibit extremely high incidence of shared ownership, hence leading to higher levels of loans. Compared to the parent group, housing costs takes a relatively higher proportion of their household income. B03 is generally a financially balanced group containing residents of all age ranges and various household compositions.

4.2.2. B04 young striving families

This group follows many of the characteristics of the parent Supergroup but with a notably higher proportion of young couples with dependent children, many own homes as shared ownership or with mortgage, but at a lower value of loans. Residents in this group have the lowest rate of CCJ in all the subgroups and are in better health condition. They have a higher proportion of employees engaged in technical occupations but less as self-employed. Although a humbler household income within the Supergroup, B04 locates in affordable neighbourhoods, so the housing cost is also relatively lower and therefore many also have correspondingly reasonable financial status to support their lifestyle.

4.2.3. B05 senior asset owners

Compared to the parent Supergroup, this Group has a more ageing demographic. Although many residents are at the age of retirement with state pension, those still of working age show a higher tendency towards self-employment or are employed in higher managerial, administrative and professional occupations. Households within this Group have a better financial status in comparison to the parent Supergroup, with many owning their large and under-occupied homes outright, having substantial saving and investments, and a higher GDHI per head.

4.3. C: Mature and financially secure

Many of the residents of these areas are above the age of 45, with particularly high concentrations and couple households. While retirement and state pensions are common, these areas also observe a prevalence of skilled traders and small employers and own account workers. Occupiers of these areas often have robust property assets including outright ownership of their under-occupied homes, holiday homes and multiple cars, although do not necessarily live in the most upscale neighbourhoods. Residents tend to live comfortably with housing cost being only a minor financial burden relative to their income.

Despite not having a highest gross household income per head, this group has a robust financial status - with very few social benefit claimants, and extremely low instances of CCJ debts and the highest levels of saving and investments. Although these areas have senior populations, their health is still above the national average.

4.3.1. C06: Secure lone pensioners

Residents of these areas tend to be more senior than the parent Supergroup, with a greater number at retirement age or pensioners. Characteristics shared with the parent group include a higher prevalence of outright homeowners and under-occupied households, with savings and investments also being at higher rates. There is also a high rate of one person households aged over 66. Health tends to be more of a concern for the residents in this Group. Relative to the Supergroup, this Group often are found within more affordable neighbourhoods, with less small employers and own account workers.

4.3.2. C07 Financially leveraged seniors

Although following the characteristics of the parent Supergroup with many mature residents in households over 65 and in retirement with state pension. Many residents of these areas have higher educational attainment and are employed in senior managerial roles, and hence have a higher GDHI per head. House values and rental prices are elevated within these areas, and many have second addresses that are holiday homes or outside the UK. Many properties within these areas are larger and under occupied, with this group also having higher energy consumption. Larger mortgages are common in these more expensive neighbourhoods, with residents more generally financially leveraged.

4.3.3. C08 stable intermediate families

Residents in this Group follow many of the features of the Supergroup, however, more households are couples with children and own their houses with mortgage. This Group also represents areas with some younger aged residents between 45 and 64 who are financially stable in terms of employment status and property assets. More residents are classified as skilled trades occupations and more self-employed business owners than the parent group. There are also more households owns multiple cars.

4.4. D: Financially precarious families

Residents of this Group often work in blue collar occupations and live within socially rented housing. There are also higher incidences of poor health and disabilities, and as a result, there are many claiming PIP benefits, although more moderate UC claimants. Residents also tend to have relatively lower level of education. Poorer health also leads to economic stress, through higher unemployment, outstanding debts, and the lowest GDHI per head. Employment tends to be in operational and elementary occupations, routine or semi-routine, service and sales jobs.

Residents often to reside in low-cost housing areas, and with limited car ownership. The presence of higher rates of lone parents with dependent or non-dependent children is also notable within these areas and thereby which further adds to the financial challenges faced by many residents of this Group.

4.4.1. D09 ageing renters

D09 is characterised by a higher proportion of one-person households over the age of 65 who live in the areas with lowest rental prices at the outskirt of urban areas. Many are at retirement age and state pensioners. For residents who are still employed, these rates are better than the parent Supergroup, and are more likely in semi-routine and routine occupations.

Although many live in socially rented property, there is also a higher prevalence of private rented accommodation in less desirable neighbourhoods, and in property that is less overcrowded compared to the Supergroup. Relative to the Supergroup, the residents of this Group present a marginally better financial situation, with better employment and property ownership characteristics, alongside a slightly higher GDHI per head and less debt; but, this group does however have higher outstanding personal loans.

4.4.2. D10 vulnerable lone-parent households

Residents of these areas stands out for its exceptional high rate of social rented housing, including more non-single households with dependent children compared to the parent Supergroup. Residents more typically have lower level of car ownership, and face severe challenges from higher rates of unemployment and occupy more overcrowded socially rented accommodation. There are also higher rates of PIP benefit claimants within these areas.

4.5. E: Highly vulnerable families

This is overall the most financially vulnerable Supergroup,

predominantly found within large or smaller cities, with high levels of unemployment, higher rates of problem gambling, outstanding debts and housing cost, but lower rates of income. Residents trend towards younger or middle age groups and face employment challenges. Given their financial disadvantage, rates of savings and investments or other property assets like houses or cars are very low. Residents reside in overcrowded social or privately rented houses, with many living in non-single households with their dependent children at school age, including numerous lone parents. Housing costs are an acute burden considering the residents low household income. Therefore, these areas present the highest rate of children living within low-income households.

If employed, more residents work in semi-routine or routine occupations such as sales, operative and elementary jobs. They have lower education attainment than other areas, and the high levels of unemployment leads residents to be heavily reliant on social benefits like Universal Credit, as well as amassing outstanding debts.

4.5.1. E11 overcrowded and overburdened

Residents of these areas generally have better financial status than the parent Supergroup. This group does however see a larger proportion of shared ownership housing with greater rates of personal loan values. Although the houses are overcrowded, the housing cost still pose a significant burden on their household income.

4.5.2. E12 underprivileged dependent

Residents of these areas are younger, aged under 44 and exhibiting severe financial hardship due to higher levels of unemployment and aligned social benefits. There is a notable presence of lone parents and a high rate of dependent children living in low-income families. Residents in this group predominantly live in overcrowded social rented accommodation near the city centres and with the lowest house prices. If employed, more households work in elementary and operational occupations. This Group is the most financial vulnerable, with the highest rates of Universal Credit claimant count and CCJ debt value. Residents have poorer health, also leading to higher rates of PIP claimants.

4.5.3. E13 Ageing blue-collar households

This group has an older age profile relative to the parent Supergroup, with residents more typically living in non-single households with dependent children. Although following the Supergroup in terms high levels of unemployment, overcrowded housing, debts and dependent children, this group lives in neighbourhood out of city centres, and typically in areas of higher housing prices. Residents are mainly employed in semi-routine and routine jobs, higher rates of self-employment and a lighter dependency on social benefits. Therefore, although housing cost is still a burden, the Group presents more private rental and house ownership, likely as a result of marginally better employment status and lighter debt.

5. External validation: Financial precarity and consumer lifestyles

An effective method to externally validate a new geodemographic classification is through its application in a focused case study utilising data that were not included in the classification itself (Singleton et al., 2020). In our case, we investigate the potential effectiveness of our financial precarity classification in to explore a real-world case study that examines financial investment responses within a national consumer lifestyle survey.

The PDV Consumer Lifestyle Survey data was supplied by the GeoDS and provides a very comprehensive UK-wide consumer lifestyle survey at household scale. Data are gathered on a wide spectrum of consumer lifestyle topics across a variety of socio-economic characteristics, including shopping, housing, outdoor, home hobbies, holiday and travel etc. Family investment is a further topic and explores whether a household owns investment, property investment status, other investment products and the value of investments. PDV collected 77,577 respondents (approximately 1 % of the total survey) on their household investment value, selected from the categories: 0-£5000; £5000–£10,000; £10,000–£20,000; over £20,000, alongside their residential postcodes. We marked respondents with household investment exceeding £20,000 as high-investment household. By aggregating these respondents within their respective LSOAs/DZs and comparing the proportion of high-investment household in each Financial Precarity Group to the national mean ratio, we derived an average investment index for each Financial Precarity Group. This index reflected the relative investment levels of local areas in comparison to the national benchmark (Fig. 6).

Generally, Supergroup A, B and C present greater household investments levels compared to the counterpart Supergroup D and E, according to Fig. 6. There are five FPC Groups, out of the total 13 that are above the GB national mean level. This dichotomy broadly represents the split between the least and most financially precarious areas. The Group B04 Young Striving Families and C07 Financially Leveraged Seniors have the highest level of the investment index, followed by C08 Stable Intermediate Families, A01 Wealthy Independent Workers and Professionals, B05 Senior Asset Owners, A02 Student and Young City Strivers and, by the order of decreasing household investment index. Both Groups (D09 and D10) within Supergroup D Financially Precarious Families are the lowest among all the 13 Groups. As a financial challenging group, Supergroup E Highly Vulnerable Families are also all below national average but slightly higher than Supergroup D, which we posit is largely because Supergroup E are generally more senior, especially for the E13 Ageing Blue-collar households, and therefore more likely to have greater investment over time. The Groups in Supergroup B and C are differentiated by below (B03 and C06), marginally over (B05) and far over national average (B04 and C07). The findings from PDV investment survey support the effectiveness of our financial precarity classification and might be useful to develop strategies of financial supports and inclusive plans.

6. Discussion and conclusions

This work has presented the first national map of Financial Precarity in Great Britain, illustrating geographic variation and those differentiated challenges local areas are facing. By integrating a range of small-area measures across five interconnected domains—employment, income and benefits, household assets, financial liabilities, and resident lifestyles—the classification moves beyond conventional labour-based definitions to capture the broader socioeconomic and spatial drivers of financial precarity.

A multidimensional and spatially referenced framework refines our understanding by capturing how diverse drivers of precarity coalesce and operate at the neighbourhood scale. Our approach leverages established geodemographic methods—traditionally utilised in consumer profiling and national resident classifications to map the variegated geographies of financial precariousness that standard labour-oriented or single-variable analyses risk overlooking. In doing so, it not only enriches the conceptual underpinnings of financial precarity studies, but also generates an evidence base for more nuanced spatial policymaking and targeted interventions aimed at mitigating financial insecurity across different locales and demographic groups. Local authorities can use the classification to provide debt advice, benefit support, and financial education towards high-precarity neighbourhoods, or optimise housing, transport, and employment initiatives to better support areas of concentrated vulnerability. More broadly, the classification may facilitate the spatial equity of fiscal and welfare policies, ensuring that interventions address the varying needs from rural and urban areas, city centres and peripheries, and coastal and inland communities. This created a two-tier nested Financial Precarity Classification (FPC) classification that comprised 5 Supergroups and 13 nested Groups.

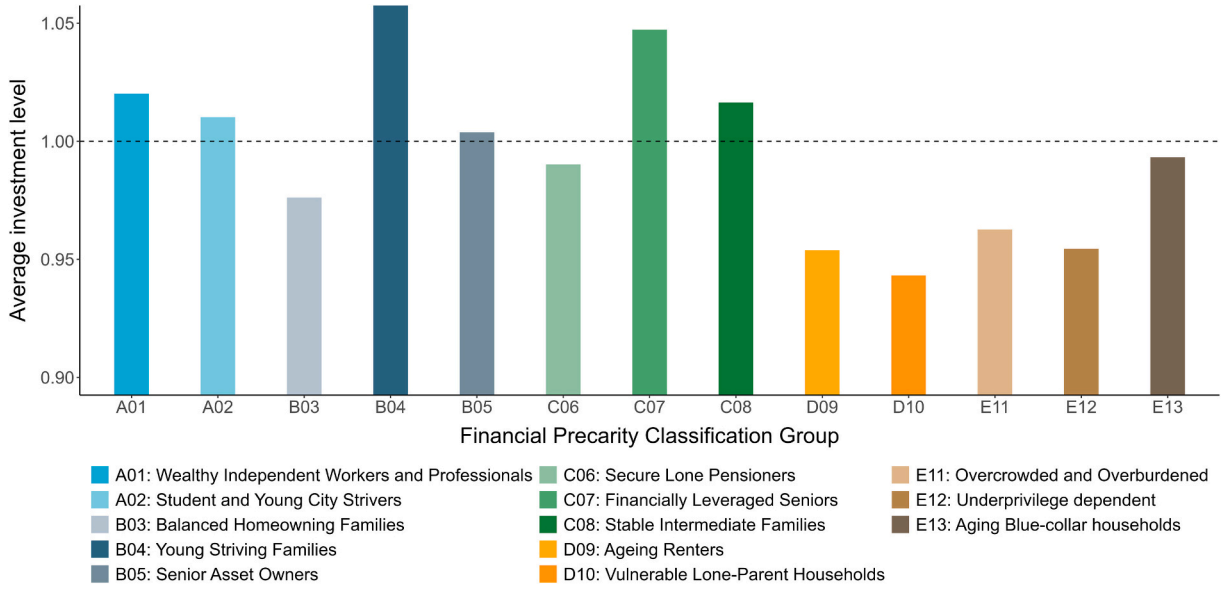


Fig. 6. Average investment index of each FPC group based on the PDV survey investment values.

The FPC as shown in Fig. 5 reveals significant intra- and inter-regional distinctions in Great Britain, highlighting how precariousness emerges from overlapping factors such as unstable work arrangements, constrained housing options, low asset ownership, and heavy debt burdens. The FPC as shown in Fig. 5 reveals significant intra- and inter-regional distinctions in Great Britain, highlighting how precariousness emerges from overlapping factors such as unstable work arrangements, constrained housing options, low asset ownership, and heavy debt burdens. It indicates that 15.8 % of the neighbourhoods are classified as Supergroup E: Highly Vulnerable Families, which is the most financial insecure supergroup characterised by the high levels of unemployment and debts and lower household income. These areas are predominately located in large or medium-sized cities - such as London, Manchester, Birmingham, Liverpool, Sheffield, Leicester, Bradford - typically clustered around the peripheral zones of city centres. This spatial pattern likely reflects neoliberal institutional reforms since the 1980s that promoted the privatization of social housing in prime urban locations and transformed housing into a financialized commodity, which have increased inner-city property values and displaced vulnerable populations to peripheral areas. Meanwhile, the Subgroups of the Classification also provide further insight into localised vulnerabilities. For example, Group E11: Overcrowded and Overburdened **is prevalent in** London**,** Milton Keynes and other southern England cities**, while** Group E12: Underprivileged Dependent **appears more frequently around the inner zones of northern England cities such as** Birmingham**,** Liverpool**, and** Bradford**. Some cities, such as** Manchester**,** Portsmouth**, and** Brighton**, exhibit a blend of both subgroups. The** halo zones **surrounding cities like London,** Leicester**,** Northampton and Luton **often include a mix of** E12 **and** E13: Ageing Blue-collar Households**.**

The classification also indicates that 23.6 % of neighbourhoods fall into Supergroup D: Financially Precarious Families, comprising primarily blue-collar and lone-parent households residing in social housing, often contending with health or disability-related challenges. They are distributed across the outskirts of many cities and towns in northern England, southern Wales, central Scotland, with coastal areas such as northeast England and northern Wales, showing a higher prevalence of Group D09 Ageing Renters. In contrast, the largest supergroup C: Mature and Financially Secure, represents the most economically secured groups of a large number of rural neighbourhoods. The FPC also identified 18.7 % of the small areas are classified as Supergroup B: Suburban Financial Balancers, including 6.92 % B03 Balanced Homeowning Families who reside in the suburban areas mainly in southern England and larger northern cities. Finally, 9.3 % of the small areas are assigned to Supergroup A: Emerging Financial Climbers, found largely in major city centres (mostly in London), with concentrated **students, young professionals**, and **self-employed individuals** who are at the early stages of building financial stability. Taken together, these findings illustrate the deep and varied characteristics of financial precarity between neighbourhoods, while also informing policies that are aimed at mitigating vulnerability.

Unlike poverty or hardship in other areas of life, financial precarity often remain unnoticed or manifests in subtle ways that are to recognise (Meuris & Gladstone, 2023). Nevertheless, it can have far-reaching consequences, affecting health, cognitive capacity, work performance, and a household's ability to withstand future risk (Leana, 2019). While previous research has highlighted the importance of socioeconomic, demographic, and place-based factors, these have often been examined in isolation or with minimal attention to the nuanced ways they intersect geographically. By emphasising fine-grained spatial differences and adopting an 'unbounded approach' (Ettlinger, 2007) to reflect the interplay of workplace and everyday life conditions, this paper broadens the conceptual and practical understanding of how financial precarity is experienced and can be more effectively addressed. An external validation using household investment data highlights the classification's analytical robustness, demonstrating for this example, that it effectively differentiates areas according to likely investment behaviours.

There are also some limitations that we identified during the research. First, some of the recognised indicators of financial precarity that were supported by the literature are hard to access at a fine scale of LSOA/DZ that we employed in the study. For example, the work-related injuries, diseases and dangerous occurrences (RIDDOR) are only available at the region level from Health and Safety at Work statistics, while the British Workplace Employment Relations Survey (WERS) has no updates since 2011 workplaces (Van Wanrooy, Bewley, & Bryson, 2013). Such data would bring more granular insight about workplace injuries and illnesses and working time arrangements like shift working, annualised hours and zero-hour contracts at workplaces. Further studies could combine measures such as use of food banks and homelessness when sufficient geographic granularity and national coverage are available. It would also be valuable to trace the historical trajectories of financial precarity by applying the classification retrospectively to earlier Census and survey datasets. This would enable a deeper understanding of the dynamics and structural persistence of financial precarity across Great Britain. The Financial Precarity Classification also

offers opportunities for further investigation into the spatial association between financial precarity and other societal factors, such as ethnic composition and migrant status at the local areas, as well as the impact of urban form (e.g. accessibility, transport connections, land use mix) on the financial precarity across different locations.

CRediT authorship contribution statement

Zi Ye: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Alex Singleton:** Writing – review & editing, Supervision, Project administration, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

This research was funded by ESRC grants ES/L011840/1; ES/Z50273X/1.

Appendix A. Appendix

Table A1
Common variables between census and the GambleAware survey.

Domain	List of variables
Age band	18–24; 25–34; 35–44; 45–54; 55–64; 65–74; 75+
Gender	Female; male
Ethnicity	White; BAME
Education level	Level 1–2; Level 3; Level 4 or apprenticeship
Social grade	ABC1; C2DE

Table A2
Common variables between census and the financial life survey.

Domain	Variables
Age band	18–24; 25–34; 35–44; 45–54; 55–64; 65–74; 75+
Gender	Female; male
Ethnicity	African, Arab, White British; White Irish; White Other; Indian; Pakistani; Bangladeshi; Caribbean; Chinese; Gypsy or Irish traveller; white and Asian, White and Black African, White and Caribbean; Other Asian; Other Black; Mixed; Other.
Education level	Level 1; Level 2; Level 3; Level 4+; Apprenticeship; Other qualifications
Marital Status	Single; formerly in a civil partnership now legally devoiced; separated, but still in a registered partnership; surviving partner from civil partnership; separated, but still married
Employment	Full-time; part-time; unemployed; Looking after home or family; self-employed full-time; self-employed part-time; long-term sick or disabled; looking after home or family; self-employed full-time; other.
House tenure	owns outright; owns with a mortgage or loan; shared ownership; Social rented; private landlord or letting agency; lives rent free; other private rented.

Table A3
Variables and their descriptions for the correlation network analysis in Fig. 1 (Bold font as selected variables in following classification).

Domain	Name	Description
	part	Part-time employed
	self	Self-employed
	unemployed	Economically active (excluding full-time students): Unemployed
	retire	retired
	eco.inact	economically inactive (excluding retired and full-time students)
	student	NS-SEC: L15 Full-time student
	L1.3	NS-SEC: L1, L2 and L3: Higher managerial, administrative and professional occupations
	L4.6	NS-SEC: L4, L5 and L6: Lower managerial, administrative and professional occupations
	L7	NS-SEC: L7 Intermediate occupations
	L8.9	NS-SEC: L8 and L9 Small employers and own account workers
	L10.11	NS-SEC: L10 and L11: Lower supervisory and technical occupations
	L12.13	NS-SEC: L12-L13 Semi-routine/routine occupations
	Occ1	Occupation 1. Managers, directors and senior officials
	Occ2	Occupation 2. Professional occupations
	Occ3	Occupation 3. Associate professional and technical occupations
	Occ4	Occupation 4. Administrative and secretarial occupations
	Occ5	Occupation 5. Skilled trades occupations
	Occ6	Occupation 6. Caring, leisure and other service occupations
Employment	Occ7	Occupation 7. Sales and customer service occupations

(*continued on next page*)

Table A3 (*continued*)

Domain	Name	Description
	Occ8	Occupation 8. Process, plant and machine operatives
	Occ9	Occupation 9. Elementary occupations
	hour15	Hours worked: Part-time: 15 h or less worked
	hour49	Hours worked: Full-time: 49 or more hours worked
	gdhi	Gross disposable household income
	child.in.low	Number of children in Low Income Families per 1000 usual residents
	stat.pension	Number of State Pension case amount per 1000 usual residents
	uc.claim	Number of Universal Credit claimant count per 1000 usual residents
Income and Benefits	pip.claim	Number of PIP health/disability claimant count per 1000 usual residents
	housing.cost	Housing cost account for net household income
	outright	Housing tenure: Owns outright
	social.rent	Housing tenure: Social rented
	own.mortgage	Housing tenure: Owns with a mortgage or loan
	shared.own	Housing tenure: Shared ownership
	pri.rent	Housing tenure: Private rented
	overcrowd	Occupancy rating of bedrooms ≤ 0 (overcrowded)
	holiday.home	Second address as Holiday home
	out.UK	Second address is outside the UK
	house.price	House price median in year 2021
	rental.price	Zoopla rent mean in year 2019–2021
	no.car	No cars or vans in household
	mul.car	3 or more cars or vans in household
Household Assets	sav.invest	Value of saving and investment
	ccj.value	CCJ level per 1000 usual residents
	mortgage.value	Value of residential mortgage loans outstanding per household
	loan.value	Value of Personal Loans outstanding per usual resident
Financial Liability	gambling	Probleming Gambling Severity Index
	electricity	Electricity consumption median in year 2021
	gas	Gas consumption median in year 2021
	unhealth	General health: Very bad and bad health
	disability	Disabled under the Equality Act
	age0.14	Age 0 to 14
	age15.24	Age 15 to 24
	age25.44	Age 25 to 44
	age45.64	Age 45 to 64
	age65	Age 65 and over
	no.heating	No central heating
	depri.edu	Highest level of qualification: no and level 1 qualification
	one.over.65	One person household: Aged 66 years and over
	one.below.65	One person household: below 66
	all.over.65	Single family household: All aged 66 years and over
	couple.no.kids	Single family household: couple no children
	couple.dep.kids	Single family household: couple with dependent children
	couple.nondep.kids	Single family household: couple with all non-dependent children
	lone.parent.dep.kids	Single family household: Lone parent family: With dependent children
	lone.parent.nondep.kids	Single family household: Lone parent family: All children non-dependent
	mul.hh.dep.kids	Non-single household types: With dependent children
Residential Lifestyles	mul.hh.other	Non-single household types: Other, including all full-time students and all aged 66 years and over

Data availability

Data will be made available on request.

References

Alberti, G., Bessa, I., Hardy, K., Trappmann, V., & Umney, C. (2018). In, against and beyond precarity: Work in insecure times. *Work, Employment and Society, 32*(3), 447–457. https://doi.org/10.1177/0950017018762088

Anderson, B. (2010). Migration, immigration controls and the fashioning of precarious workers. *Work, Employment and Society, 24*(2), 300–317. https://doi.org/10.1177/0950017010362141

Apouey, B., Roulet, A., Solal, I., & Stabile, M. (2020). Gig workers during the COVID-19 crisis in France: Financial precarity and mental well-being. *Journal of Urban Health, 97*(6), 776–795. Scopus https://doi.org/10.1007/s11524-020-00480-4.

Ashby, D. I., Irving, B. L., & Longley, P. A. (2007). Police reform and the new public management paradigm: Matching technology to the rhetoric. *Environment and Planning. C, Government & Policy, 25*(2), 159–175. https://doi.org/10.1068/c0556

Barnes, T. (2021). Pathways to precarity: Work, financial insecurity and wage dependency among Australia's retrenched auto workers. *Journal of Sociology, 57*(2), 443–463. https://doi.org/10.1177/1440783320925151

Barnes, T., & Weller, S. A. (2020). Becoming precarious? Precarious work and life trajectories after retrenchment. *Critical Sociology, 46*(4–5), 527–541. https://doi.org/10.1177/0896920519896822

Betti, E. (2018). Historicizing precarious work: Forty years of research in the social sciences and humanities. *International Review of Social History, 63*(2), 273–319. https://doi.org/10.1017/S0020859018000329

Burlinson, A., Giulietti, M., Law, C., & Liu, H.-H. (2021). Fuel poverty and financial distress. *Energy Economics, 102*, Article 105464. https://doi.org/10.1016/j.eneco.2021.105464

Chen, M., Robinson, C., & Singleton, A. (2025). Mapping multidimensional energy deprivation: Socio-spatial inequalities and policy implications in Great Britain. *Computers, Environment and Urban Systems, 121*, Article 102324. https://doi.org/10.1016/j.compenvurbsys.2025.102324

Christophers, B. (2021). A tale of two inequalities: Housing-wealth inequality and tenure inequality. *Environment and Planning A: Economy and Space, 53*(3), 573–594. https://doi.org/10.1177/0308518X19876946

Christophers, B. (2023). The rentierization of the United Kingdom economy. *Environment and Planning A: Economy and Space, 55*(6), 1438–1470. https://doi.org/10.1177/0308518X19873007

Clark, A. A., Davies, S., Owen, R., & Williams, K. (2024). Beyond individual responsibility – Towards a relational understanding of financial resilience through participatory research and design. *Journal of Social Policy, 1–18*. https://doi.org/10.1017/S0047279423000685

DESNZ. (2024). *Statistics at DESNZ*. GOV.UK. https://www.gov.uk/government/organisations/department-for-energy-security-and-net-zero/about/statistics.

Doogan, K. (2009). *New Capitalism? Polity*.

DWP. (2024, November 28). *DWP benefits statistics*. GOV.UK. https://www.gov.uk/government/collections/dwp-statistical-summaries.

Ettlinger, N. (2007). Precarity unbound. *Alternatives: Global, Local, Political, 32*(3), 319–340. https://doi.org/10.1177/030437540703200303
Evans, J., Collard, S., Fruijtier, E., Dawson, H., Ferreira, L. C., & Harris, E. (2023). *Financial wellbeing of disabled people*. Personal Finance Research Centre: University of Bristol.
FCA. (2023, July 17). *Financial lives 2022 survey*. FCA. https://www.fca.org.uk/financial-lives/financial-lives-2022-survey.
Gale, C. G., Singleton, A. D., Bates, A. G., & Longley, P. A. (2016). Creating the 2011 area classification for output areas (2011 OAC). *Journal of Spatial Information Science, 12*. Article 12.
GambleAware. (2023). Annual GB treatment and support survey. GambleAware https://www.gambleaware.org/our-research/publication-library/treatment-and-support-survey/.
GeoDS. (2025). County Court Judgements (CCJs) (Individual Records and LSOA Geography)—Geographic Data Service. https://data.geods.ac.uk/dataset/county-court-judgements-ccjs-secured.
Graham, M., Hjorth, I., & Lehdonvirta, V. (2017). Digital labour and development: Impacts of global digital labour platforms and the gig economy on worker livelihoods. *Transfer: European Review of Labour and Research, 23*(2), 135–162. https://doi.org/10.1177/1024258916687250
Haile, G. A. (2023). Precarious employment and workplace health outcomes in Britain. *Social Science & Medicine, 320*, Article 115694. https://doi.org/10.1016/j.socscimed.2023.115694
Harris, R., Sleight, P., & Webber, R. (2005). Geodemographics, GIS and neighbourhood targeting. In *Geodemographics, GIS and Neighbourhood Targeting*. https://doi.org/10.1057/palgrave.dddmp.4350070
Jachimowicz, J. M., Szaszi, B., Lukas, M., Smerdon, D., Prabhu, J., & Weber, E. U. (2020). Higher economic inequality intensifies the financial hardship of people living in poverty by fraying the community buffer. *Nature Human Behaviour, 4*(7), 702–712. https://doi.org/10.1038/S41562-020-0849-2
Probing precarious work: Theory, research, and politics. In Kalleberg, A. L., & Vallas, S. P. (Eds.), *Vol. 31. Research in the sociology of work*, (pp. 1–30). (2017) (pp. 1–30). Emerald Publishing Limited. https://doi.org/10.1108/S0277-283320170000031017.
Lain, D., Airey, L., Loretto, W., & Vickerstaff, S. (2019). Understanding older worker precarity: The intersecting domains of jobs, households and the welfare state. *Ageing and Society, 39*(10), 2219–2241. https://doi.org/10.1017/S0144686X18001253
Leana, C. (2019). The Cost of Financial Precarity. www.ssir.org.
Leventhal, B. (2016). Geodemographics for Marketers: Using Location Analysis for Research and Marketing. Kogan Page. https://books.google.co.uk/books?id=eUNqrgEACAAJ.
Lewis, H., Dwyer, P., Hodkinson, S., & Waite, L. (2015). Hyper-precarious lives: Migrants, work and forced labour in the global north. *Progress in Human Geography, 39*(5), 580–600. https://doi.org/10.1177/0309132514548303
Lomax, N., & Norman, P. (2016). Estimating population attribute values in a table: "Get me started in" iterative proportional fitting. *The Professional Geographer, 68*(3), 451–461. https://doi.org/10.1080/00330124.2015.1099449
Meuris, J., & Gladstone, J. (2023). Contextual inequality in the performance costs of financial precarity. *Journal of Management*. https://doi.org/10.1177/01492063231153136, 01492063231153136.
Meuris, J., & Leana, C. (2018). *The Price of Financial Precarity: Organizational Costs of Employees' Financial Concerns*. https://doi.org/10.1287/Orsc.2017.1187, 29(3), 398–417. doi:10.1287/ORSC.2017.1187.
Millar, K. M. (2017). Toward a critical politics of precarity. *Sociology Compass, 11*(6), Article e12483. https://doi.org/10.1111/soc4.12483
Mortgage Lending Statistics. (2022). FCA. https://www.fca.org.uk/data/mortgage-lending-statistics.
Muggleton, N., Parpart, P., Newall, P., Leake, D., Gathergood, J., & Stewart, N. (2021). The association between gambling and financial, social and health outcomes in big financial data. *Nature Human Behaviour, 5*(3), 319–326. https://doi.org/10.1038/s41562-020-01045-w
Mulvey, B., Morris, A., & Ashton, L. (2024). Differentiated experiences of financial precarity and lived precariousness among international students in Australia. *Higher Education, 87*(3), 741–760. https://doi.org/10.1007/s10734-023-01033-9
Newman, F., & Humphrys, E. (2020). Construction Workers in a Climate Precarious World. *Critical Sociology, 46*(4–5), 557–572. https://doi.org/10.1177/0896920519880951
Noibi, T. O., Pandey, D., & Mares, A. B. (2022). Understanding the concept of the precarity: mirroring colonia Mexico 68. *GeoJournal, 87*(6), 5251–5263. https://doi.org/10.1007/S10708-021-10562-8
ONS. (2022). Census 2021 geographies—Office for National Statistics. https://www.ons.gov.uk/methodology/geography/ukgeographies/censusgeographies/census2021geographies#lower-layer-super-output-areas-lsoas.
ONS. (2024). Gross Disposable Household Income—Office for National Statistics. https://www.ons.gov.uk/economy/regionalaccounts/grossdisposablehouseholdincome.
Parfitt, C., & Barnes, T. (2020). Rethinking economic security in a precarious world. *Critical Sociology, 46*(4–5), 487–494. https://doi.org/10.1177/0896920519850266
Pósch, K., Cockbain, E., Beadsworth, J., Scott, S., & Bradford, B. (2024). Measuring the scale and nature of labour market non-compliance affecting people in precarious work in the UK: First project report. *Director of Labour Market Enforcement.*
Pósch, K., Scott, S., Cockbain, E., Bradford, B., Taylor, M., Harrison, T., Hunt, B., & Lally, R. (2020). Scale and nature of precarious work in the UK. In *Director of Labour Market Enforcement*.
Robinson, R. N. S., Martins, A., Solnet, D., & Baum, T. (2019). Sustaining precarity: Critically examining tourism and employment. *Journal of Sustainable Tourism, 27*(7), 1008–1025. https://doi.org/10.1080/09669582.2018.1538230
Scottish Government. (2024). Small Area Statistics. https://www.gov.scot/collections/small-area-statistics/.
Singleton, A., Alexiou, A., & Savani, R. (2020). Mapping the geodemographics of digital inequality in Great Britain: An integration of machine learning into small area estimation. *Computers, Environment and Urban Systems, 82*, Article 101486.
Singleton, A., & Longley, P. A. (2024). Classifying and mapping residential structure through the London output area classification. *Environment and Planning B: Urban Analytics and City Science*. https://doi.org/10.1177/23998083241242913, 23998083241242913.
Singleton, A., Pavlis, M., & Longley, P. A. (2016). The stability of geodemographic cluster assignments over an intercensal period. *Journal of Geographical Systems, 18*(2), 97–123. https://doi.org/10.1007/s10109-016-0226-x
Singleton, A. D., & Spielman, S. E. (2014). The past, present, and future of geodemographic research in the United States and United Kingdom. *The Professional Geographer, 66*(4), 558–567. https://doi.org/10.1080/00330124.2013.848764
Standing, G. (2011). *The precariat: The new dangerous class*. Bloomsbury Academic. https://doi.org/10.5040/9781849664554
Strauss, K. (2018). Labour geography 1. *Progress in Human Geography, 42*(4), 622–630. https://doi.org/10.1177/0309132517717786
Van Wanrooy, B., Bewley, H., & Bryson, A. (2013). *Employment relations in the shadow of recession: Findings from the 2011 workplace employment relations study*. Bloomsbury Publishing.
Vickers, D., & Rees, P. (2007). Creating the UK National Statistics 2001 output area classification. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 170*(2), 379–403. https://doi.org/10.1111/j.1467-985X.2007.00466.x
Waite, L. (2009). A place and space for a critical geography of precarity? *Geography Compass, 3*(1), 412–433. https://doi.org/10.1111/j.1749-8198.2008.00184.x
Wang, H., Li, W., & Deng, Y. (2017). *Urban geography precarity among highly educated Migrants: College graduates in Beijing, China*. https://doi.org/10.1080/02723638.2017.1314170
Wyszomierski, J., Longley, P. A., Singleton, A. D., Gale, C., & O'Brien, O. (2024). A neighbourhood output area classification from the 2021 and 2022 UK censuses. *The Geographical Journal, 190*(2), Article e12550. https://doi.org/10.1111/geoj.12550
Xiang, L., Stillwell, J., Burns, L., Heppenstall, A., & Norman, P. (2018). A geodemographic classification of sub-districts to identify education inequality in Central Beijing. *Computers, Environment and Urban Systems*. https://doi.org/10.1016/j.compenvurbsys.2018.02.002