



Financial Vulnerability in the United Kingdom

From Brexit to the COVID-19 Pandemic

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Financial well-being is multifaceted—reflecting people's ability to manage daily finances, resilience to economic shocks (such as an income drop or unexpected expense), and capacity to pursue financial opportunities to move ahead. This brief provides new insights about the ability of UK families to manage daily finances and buffer against economic shocks. We developed an index that measures the overall extent of household financial vulnerability in the UK and its individual nations, regions, and parliamentary constituencies. We present our Financial Vulnerability Index findings from the third quarter of 2017 through to the second quarter of 2020, a three-year period covering the Brexit transition and the early months of the COVID-19 pandemic. This is the first in a series of ongoing insights.

Using both Lowell research and operational data and publicly available data to build our index, we find that households in North East England are consistently more likely to be financially vulnerable than any other UK region or nation over the reported time period. In contrast, households in South East England are the least vulnerable. Blackpool South, Liverpool Walton, and Middlesbrough are the three most financially vulnerable constituencies in the second quarter (Q2) of 2020. Finally, we describe a rapid increase in financial distress during the COVID-19 pandemic across all UK nations and regions, with households in London experiencing the highest relative increase in financial vulnerability.

Our work builds on recent literature that measures UK households' financial well-being. The University of Bristol's UK Financial Wellness Index ¹ measured the average financial wellness of the UK population in 2015 and concluded that although families in the UK were relatively financially well, they had considerable room for improvement. Researchers at the Financial Conduct Authority found that borrowers who fall into financial distress tend to be clustered in urban areas, ² while the Office for

National Statistics reported that, for the first time since 1988, UK households became net borrowers in 2017.³ Our contribution provides a new household financial vulnerability measure capturing the early effects of the COVID-19 pandemic at the parliamentary constituency level, as well as the UK as a whole and national and regional levels. In doing so, we provide new data for local, regional, and national policymakers to better understand the financial health of UK residents, thereby highlighting the degree to which people are struggling and where to target resources.

What Is the Index Based On?

The Financial Vulnerability Index (FVI) is based on six components that capture a household's ability to manage daily finances and resilience to economic shocks: (1) carrying defaulted debt, (2) using alternative financial products, (3) claiming social benefits, (4) lacking emergency savings, (5) holding a high-cost loan, and (6) relying heavily on credit. These components are measured using Lowell's research and operational data, the 2017 UK Financial Lives Survey, and data from the UK's Department for Work and Pensions and Office for National Statistics. We created the index by standardizing each component, weighting each component using factor analysis, and normalizing the index from 0 to 100. Details on why we chose these components, how they are defined, data sources, and the index methodology are available in the appendix. The index score provides relative financial vulnerability levels that can be used for comparison across geography and time; it does not provide an absolute measure of financial vulnerability within a geographic area.

How Did Financial Vulnerability Change in the UK?

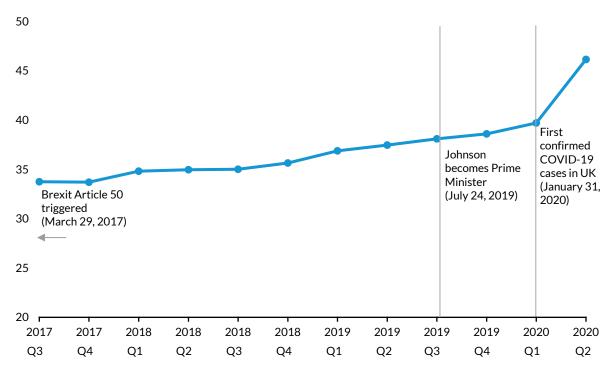
UK household financial vulnerability, as measured by our index, was relatively stable in the period after Brexit Article 50 was triggered, increased as Brexit negotiations unfolded, and accelerated dramatically with the start of the COVID-19 pandemic. The FVI for all UK households was relatively stable between Q3 2017 and Q3 2018, rising from 33.8 to 35.0 (a 3.5 percent increase; figure 1). This corresponds to the period after the UK invoked Article 50 of the Treaty on European Union and began its official withdrawal from the economic block. The index then jumped 10 percent from Q3 2018 (35.0) to Q4 2019 (38.6), during which numerous meetings were held between UK and EU negotiators to develop a framework for post-Brexit relations between the two parties.

The financial vulnerability level accelerated significantly at the onset of the COVID-19 crisis in the UK, when many people suddenly found themselves out of work. From Q1 to Q2 2020, the FVI increased 16 percent to 46.2, its highest point over the entire period. This sharp increase is consistent with other economic trends in the United Kingdom during the pandemic: by summer 2020, 444,000 more people were in poverty (Legatum Institute 2020) because of the COVID-19 pandemic, and from August to October 2020, 280,000 fewer adults were employed in the UK compared with a year earlier. This result is also consistent with new evidence from the Financial Lives survey (FCA 2021) that shows the number of adults with low financial resilience increased by 3.5 million between March and October 2020.

FIGURE 1

UK Financial Vulnerability Increased Steadily during Brexit Negotiations and Accelerated Dramatically Following the Detection of COVID-19

UK FVI (0–100) over time



Sources: Authors' analyses of Lowell research and operational data, Department for Work and Pensions data on Jobseeker's Allowance and Universal Credit claims, the Financial Conduct Authority's 2017 Financial Lives survey, and Office for National Statistics population estimates.

Notes: The FVI is based on the following components: share of adults who are Lowell consumers in default, share of adults using alternative financial products, share of adults claiming social benefits, share of adults without emergency savings, share of Lowell consumers with high-cost loans, and average credit use among Lowell consumers. To combine the index components, we use factor analysis and normalize the index so that scores fall between 0 and 100.

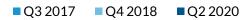
All time-varying components of the FVI increased from Q3 2017 to Q2 2020, with the largest increase occurring from Q4 2018 to Q2 2020 (figure 2). The share of adults claiming social benefits showed the largest gain, increasing slightly from 4.5 to 5.3 percent between Q3 2017 and Q4 2018 and then more than doubling to 13.5 percent by Q2 2020. This reflects the massive increase in Universal Credit and Jobseeker's Allowance claims made during the pandemic (up about 115 percent between March and November 2020). As discussed in the data section (see appendix), this increase is explained by both changes in the number of people who were out of work and workers who were furloughed or had their hours cut because of the pandemic.

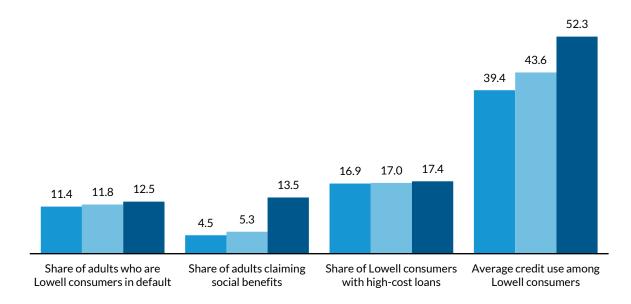
Credit use among Lowell consumers increased substantially after the onset of COVID-19: from 43.6 percent in Q4 2018 to 52.3 percent in Q2 2020. This suggests that while households with higher incomes spent less, increased savings, and paid off existing debt⁶ during the pandemic, people in financial distress (e.g., many Lowell consumers) likely relied on credit cards to buffer against negative economic shocks. In contrast with the other index components, the shares of adults who are Lowell consumers in default and have high-cost loans showed much smaller increases over the three years.

FIGURE 2

Each FVI Time-Varying Component Increased from 2017 to 2020

Time-varying components of the FVI (percent)





Sources: Authors' analyses of Lowell research and operational data, Department for Work and Pensions data on Jobseeker's Allowance and Universal Credit claims, and Office for National Statistics population estimates.

Notes: Share of adults who are Lowell consumers in default is the number of Lowell consumers with at least one debt in default as a share of the adult population. Share of adults claiming social benefits is the number of Universal Credit claimants who are required to seek work plus Jobseeker's Allowance claimants as a share of the adult population. Share of Lowell consumers with high-cost loans is the share of Lowell consumers with a subprime loan. Average credit card use among Lowell consumers is the average ratio of credit usage and total available credit for Lowell consumers.

Regional Variation in Financial Vulnerability

Households in North East England were the most financially vulnerable during the full period of analysis (table 1). This result is not surprising because North East England is the region with the highest unemployment rate⁷ and one of the regions with the highest share of people with low incomes⁸ (after considering housing expenses). Families in South East England were the least financially vulnerable during this time period, enjoying the UK's second highest disposable household incomes⁹ (after London) and a lower likelihood of poverty (Francis-Devine 2020).

The FVI reveals a small increase in household financial vulnerability for all regions and nations from 2017 to 2018 and a much larger increase from 2018 to 2020, which includes the onset of COVID-19 (table 1). London experienced the largest increase in household financial vulnerability following the onset of COVID-19, with an overall 41 percent increase in its FVI score from Q4 2018 to Q2 2020. London's economy is highly dependent on the service sector (an estimated 92 percent ¹⁰ of London jobs are in the service sector), which deteriorated badly as a result of COVID-19. Moreover, recent results from the Financial Lives survey (FCA 2021) reveal that adults in London are most likely to say their financial situation has worsened during the COVID-19 pandemic.

TABLE 1
Significant Increases in Financial Vulnerability for All Nations and Regions after 2018
FVI (0–100) by nation and region over time

Nation/region	Q3 2017	Q4 2018	Q2 2020
North East	45.4	47.5	57.5
North West	38.3	40.3	51.5
Yorkshire and the Humber	38.7	40.6	51.2
Northern Ireland	40.6	41.8	50.9
Wales	37.3	38.9	48.6
West Midlands	35.1	37.4	48.5
Scotland	37.8	38.7	47.7
London	30.6	32.8	46.1
East Midlands	32.3	34.1	44.1
East of England	29.7	31.7	41.6
South West	29.0	31.0	40.3
South East	27.4	29.4	39.1

Sources: Authors' analyses of Lowell research and operational data, Department for Work and Pensions data on Jobseeker's Allowance and Universal Credit claims, the Financial Conduct Authority's 2017 Financial Lives survey, and Office for National Statistics population estimates.

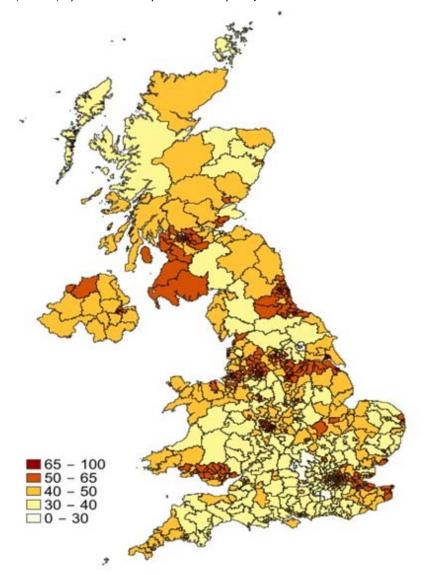
Note: See figure 1 notes for how the FVI is calculated.

Measuring Financial Vulnerability in UK Parliamentary Constituencies

Household financial vulnerability varied significantly across the UK's 650 parliamentary constituencies (figure 3). Households in Blackpool South, Liverpool Walton, and Middlesbrough were the most financially vulnerable in Q2 2020, with index scores 65 percent (76.1), 55 percent (70.3), and 52 percent (71.6) higher than the national average (46.2), respectively. Zooming in on index components for these three parliamentary constituencies, roughly one in four adults were Lowell consumers in default (28 percent, 28 percent, and 27 percent, respectively) or held high-cost loans (24 percent in Blackpool South, 23 percent in Middlesbrough, and 21 percent in Liverpool Walton), and more than one in four adults claimed social benefits (30 percent in Blackpool South, 27 percent in Middlesbrough, and 28 percent in Liverpool Walton). These results are consistent with other economic hardship measures, as Blackpool, Middlesbrough, and Liverpool carried high levels of financial deprivation, ¹² with Middlesbrough and Blackpool ranking as the most deprived districts as measured by income deprivation affecting children.

In contrast, families in York Outer, Mole Valley, and Richmond Park were the least financially vulnerable in Q2 2020, with index scores of 29.1, 29.2, and 29.4, respectively. These parliamentary constituencies contained a low share of adults who are Lowell consumers in default (5 percent in York Outer, 5 percent in Mole Valley, and 7 percent in Richmond Park) or with high-cost loans (13 percent, 12 percent, and 7 percent, respectively), as well as a small number of adults claiming social benefits (6 percent, 7 percent, and 9 percent, respectively).

FIGURE 3
Significant Variation in Financial Vulnerability across the United Kingdom FVI (0–100) by Parliamentary Constituency in Q2 2020



Sources: Authors' analyses of Lowell research and operational data, Department for Work and Pensions data on Jobseeker's Allowance and Universal Credit claims, the Financial Conduct Authority's 2017 Financial Lives survey, and Office for National Statistics population estimates.

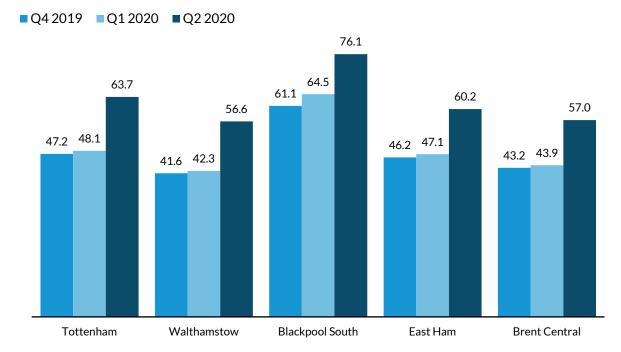
Note: See figure 1 notes for how the FVI is calculated.

Four of the five parliamentary constituencies that experienced the largest financial vulnerability increases between Q4 2019 and Q2 2020 were in London: Tottenham, Walthamstow, East Ham, and Brent Central (figure 4). This result is consistent with our global finding that London was the region with the greatest increase in household financial vulnerability and is mainly explained by an increase in the share of adults claiming social benefits. For example, in Tottenham, fewer than one in ten adults (11.3 percent) applied for social benefits during Q4 2019. By Q2 2020, more than one in four adults submitted applications (27.5 percent). Similarly, East Ham saw a jump in social benefit claims (from 7.9 percent to 21.4 percent). Credit card use also increased slightly over this time period from 45.8 percent to 47.8 percent in Walthamstow and from 46.6 percent to 47.1 percent in Brent Central.

FIGURE 4

Parliamentary Constituencies in London Experienced the Highest Increase in Financial Vulnerability during COVID-19

FVI (0-100)—top-five increases between Q4 2019 and Q2 2020



Sources: Authors' analyses of Lowell research and operational data, Department for Work and Pensions data on Jobseeker's Allowance and Universal Credit claims, the Financial Conduct Authority's 2017 Financial Lives survey, and Office for National Statistics population estimates.

Note: See figure 1 notes for how the FVI is calculated.

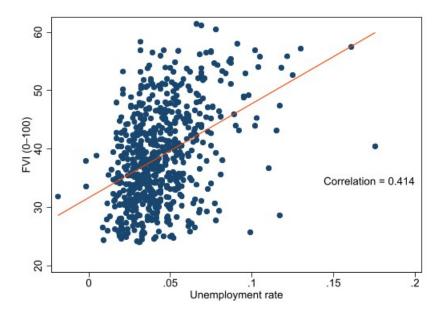
Comparisons with Other Indicators

How does our FVI contrast with other indicators of economic distress? To answer this question, we compare our index with the UK unemployment rate, the share of UK adults reporting low financial satisfaction, and the English index of deprivation. We find that both the unemployment rate and share of adults reporting low financial satisfaction are moderately positively correlated with our FVI (correlations of 0.41 and 0.36, respectively). The moderate relationship between these measures (i.e., less than 0.5) indicates that household **financial vulnerability cannot be solely measured by employment status or level of satisfaction with one's finances**. By contrast, we find a strong positive correlation between the English index of deprivation and our FVI (correlation of 0.81). Given that deprivation is defined as the general absence of resources (including, but not limited to, income and employment), it stands to reason that the FVI is trending in similar ways. Overall, these results highlight the **importance of a multifaceted approach to measuring household financial well-being**.

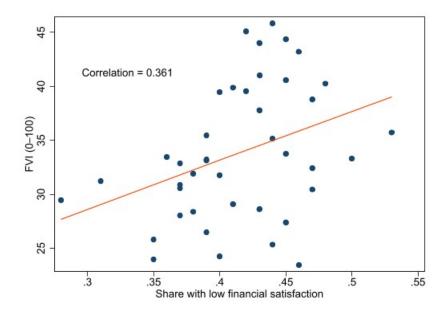
FIGURE 5

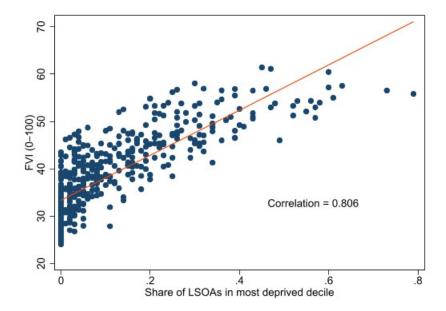
The FVI Is Positively Correlated with Unemployment, Share of Adults with Low Financial Satisfaction, and the English Deprivation Index

(a) FVI (0-100) correlated with the unemployment rate: parliamentary constituency level in Q4 2019



(b) FVI (0–100) correlated with the share of adults with low financial satisfaction: NUTS2 level in Q4 2017





Sources: The Labour Force Survey and authors' analyses of Lowell research and operational data, Department for Work and Pensions data on Jobseeker's Allowance and Universal Credit claims, the Financial Conduct Authority's 2017 Financial Lives survey, and Office for National Statistics population estimates.

Notes: See figure 1 notes for how the FVI is calculated. (a) Each dot represents a parliamentary constituency in Q4 2019. (b) Each dot represents a NUTS2 region in Q4 2017. (c) Each dot represents an English parliamentary constituency in Q4 2019. The English deprivation index indicates the share of Lower Layer Super Output Areas (LSOAs) in a parliamentary constituency classified as *highly deprived*, defined as the top decile of deprivation in England.

What Do These Findings Mean?

A household's ability to manage daily finances and effectively respond to economic shocks is crucial to both household financial well-being and the economic health of communities (McKernan et al. 2016). During economic crises, financially healthy households can better weather the storm and contribute to economic recovery. But financial health, like economic recovery, is unevenly distributed. The FVI is designed to help national and local leaders assess the state of their constituents' financial health and target resources to advance an inclusive recovery.

Financial vulnerability varies significantly across the United Kingdom. Many areas that have historically relied on heavy industrial manufacturing (such as North East England and Middlesbrough) and some coastal towns (such as Blackpool South) showed consistently greater financial vulnerability than other parts of the UK from Q3 2017 through Q2 2020. We measure a rapid increase in financial hardship in areas of London (such as Tottenham, Walthamstow, and East Ham) during the onset of the COVID-19 pandemic. The increase in household financial vulnerability in these areas might reflect changes in the labor market during the pandemic, as workers in London rely heavily on service jobs.

The FVI reveals that UK household financial vulnerability was relatively stable in the period after Brexit Article 50 triggered, increased as Brexit negotiations and press coverage continued, and accelerated dramatically when the COVID-19 pandemic started. Future research could disentangle the causes of the increase in financial distress among households in the UK. For example, the descriptive

results presented in this brief cannot tell us whether financial vulnerability caused Brexit, vice versa, or if other underlying trends or UK policies are driving the changes we observe.

Appendix. Index Construction

Here we describe the construction of the Financial Vulnerability Index and provide additional detail on the index components, data sources, and analytic methods.

Index Components

The components used in the FVI are selected to capture different aspects of financial vulnerability, with a focus on two financial well-being concepts: people's ability to manage their daily finances and their resilience to economic shocks. The selection of specific financial or economic measures corresponding to those concepts depended, in part, on data quality and availability (see discussion of Data Sources below). Starting with a list of 12 consumer financial indicators, the resulting index components are (1) carrying defaulted debt, (2) using alternative financial products, (3) claiming social benefits, (4) lacking emergency savings, (5) holding a high-cost loan, and (6) relying heavily on credit (table A.1).

TABLE A.1

Components of the Financial Distress Index

Component	Definition	Туре	Time variation
Share of adults who are Lowell consumers in default	Number of Lowell consumers with defaulted debt divided by the adult population of the area	Ability to manage daily finances	Variant
Share of adults using alternative financial products	Share of adults with one or more of the following: hire purchase, rent-to-own (other than for a motor vehicle), payday loans, short-term instalment loans, home collected loans, pawnbroking, or logbook loans	Ability to manage daily finances and resilience	Invariant
Share of adults claiming social benefits	Number of Universal Credit claimants who are required to seek work plus the number of Jobseeker's Allowance claimants divided by the adult population of the area	Ability to manage daily finances	Variant
Share of adults without emergency savings	Share of adults who have less than £5,000 in savings	Resilience	Invariant
Share of Lowell consumers with high-cost loans	Number of Lowell consumers with a subprime loan divided by the number of Lowell consumers in the area	Resilience	Variant
Average credit use among Lowell consumers	Average ratio of credit usage to credit limit for Lowell consumers in the area	Ability to manage daily finances and resilience	Variant

The first three components capture an individual's ability to manage daily finances. Having debt in default indicates that people could not (or would not) pay certain bills. Using alternative financial products, such as payday loans, suggests that people's needs are not met by their current income sources or the traditional financial sector; it can also signal that people are having trouble managing

their daily finances and have less access to safe, affordable loan products to help them weather unexpected financial needs. Applying for government assistance through Universal Credit or Jobseeker's Allowance is often triggered by job loss or a negative income shock. It also indicates that a household cannot sustain itself without government help.

The remaining three components principally capture people's resilience to economic shocks. People without emergency savings are less likely able to weather negative economic shocks. Having a high-cost loan signals low economic resilience and the need to use high-cost credit, while high average credit use reflects borrowing approaching, or at, the limit of the credit available to the consumer (indicating a lack of credit buffer).

Data Sources

Data and measures for index components are from several sources, including Lowell's research and operational data as well as publicly available data (table A.2). Lowell is one of the UK's largest firms engaged in the purchase and collection of defaulted consumer debt. The FVI relies principally on Lowell data for our measures of credit health, including the number of consumers in default, share of Lowell consumers with high-cost loans (loans with interest rates that are higher than the prime rate), and average credit use. These data include information on approximately nine million consumers (approximately 17.6 percent of all UK adults) and span both active accounts (as of July 2020) and accounts closed after June 2018. These data also include residential postcodes, which we use to construct index values for different geographic regions. Lowell consumers are typically in financial distress, having defaulted on at least one unsecured credit account (and often more than one). Lowell has detailed credit records for each consumer from two major credit reference agencies, including data on the balances of all debt types, credit use, and default indicators from Q3 2017 to Q2 2020.

One potential concern with Lowell's data is whether they are representative of the overall UK population. Although Lowell does not search for a specific consumer type, its consumers are typically in financial distress. As a result, Lowell's consumer-level data are less likely to reflect the financial well-being of financially secure people. However, for the purposes of the index, the geographic distribution of Lowell consumers may well reflect the distribution of financially vulnerable consumers in the UK. To answer this question, we compare the location of Lowell consumers with other consumers in default using May 2020 credit record data grouped up to the NUTS3-level ¹⁴ from one of the UK's major credit reference agencies. ¹⁵ We find that Lowell consumers are located in the same local areas as other consumers in default and calculate a very strong (0.97) correlation between the share of adults who are Lowell consumers in default in a NUTS3 area and the share of consumers whose credit file contains a defaulted debt in the same area.

We complement the Lowell data with publicly available data. The Office for National Statistics (ONS) releases national and subnational midyear adult population estimates for the UK.¹⁶ Estimates are produced using the cohort component method, which updates the population base from census estimates based on population change. We linearly interpolate midyear population estimates to obtain a quarterly measure of the adult population at the parliamentary constituency level. These population estimates provide the denominator for our index components that are measured as adult population shares.

For data on alternative financial products and emergency savings, we draw on the 2017 Financial Lives survey conducted by the Financial Conduct Authority. ¹⁷ This survey was administered in the first half of 2017 and asked approximately 13,000 UK adults about their financial situation and experiences with financial products using a random probability sample design based on respondents' addresses. From this survey, we obtain the share of adults who report using alternative financial products and the share without emergency savings at the NUTS2 level. ¹⁸ Note two complicating features of these data for the purpose of building our index: first, because these data are not available at the parliamentary constituency level, we assign values from the NUTS2 level to all parliamentary constituencies within that area. Second, because at the analysis stage of this brief we only observe a single observation for these measures, the two components of the FVI based on this source do not vary over time in our tracking period (as described in table A.1). Despite these limitations, we include these two components for two reasons: (1) they measure important aspects of people's financial well-being from a nationally representative sample of adults that includes adults who are *underbanked* or *credit invisible*, which are missing from the Lowell data; (2) a second wave of the Financial Lives survey was released in 2021, ¹⁹ which will allow us to explore the time variation of these measures in future updates of the index.

Finally, we use data from the Department for Work and Pensions (accessed via Nomis) ²⁰ on the number of people who have submitted a claim for Universal Credit who are required to seek work and the number of Jobseeker's Allowance claimants, both at the parliamentary constituency level. We combine these figures, expressed as a share of adults, to calculate our component measure: share claiming social benefits. This statistic seeks to measure the number of people claiming social benefits principally for unemployment, although those claiming unemployment-related benefits (either Universal Credit or the Jobseeker's Allowance) may be fully unemployed and seeking work or may be employed but eligible for unemployment-related benefit support because of low income or low work hours. ²¹ Consequently, while most movement in the claimant count reflects changes in the number of people who are out of work, to a lesser extent it also reflects workers who were furloughed or had their hours reduced. ²²

TABLE A.2

Data Sources

Data source	Component	Geographic unit	Time coverage	Frequency
Lowell research and operational data	Lowell consumers in default, Lowell consumers with high-cost loans, average credit use	Parliament constituencies	Past three years	Monthly
ONS population estimates	Adult population	Parliament constituencies	2017-18	Annually
2017 Financial Lives survey	Share using alternative financial products and share without emergency savings	NUTS2	2017	Single observation
Nomis/ Department for Work and Pensions	Universal Credit claimants who are required to seek work plus Jobseeker's Allowance claimants	Parliament constituencies	2017-20	Quarterly

Index Methodology

To create the FVI using observations for all parliamentary constituencies from Q3 2017 to Q2 2020, we first standardize each component of the index to create z-scores. This standardization process assures that we can aggregate components measured in different units.

Next, we select a suitable weighting and aggregation method. We use factor analysis ²³ to derive the weights for each component. The idea behind factor analysis is to account for the highest possible variation in the set of indicators using the smallest possible number of factors, which we define below. This statistical procedure identifies the common variance among a set of observed variables (i.e., the index components) and creates a factor composed of that common variance. The factor scores are calculated with a linear equation that incorporates a weighted contribution of each variable included in the analysis. The weight of each variable is relative to the amount of variance it shares in common with the other variables. To perform the factor analysis, we use parliamentary constituency level observations from Q3 2017 to Q2 2020.

Finally, we normalize the index to range from zero to 100. To do that, we implement the following steps:

- 1. Identify the lowest and highest values of *each index component* observed across all parliamentary constituencies during the period of analysis.
- 2. Set the value of the index when each component is 1.1 times its highest observed value as equal to 100.
- 3. Set the value of the index when each component is 0.4 times its lowest observed value as equal to zero.
- 4. Normalize the index to all parliamentary constituencies during the period of analysis as the distance between these lowest and highest reference points.

By making these adjustments, we ensure that index values calculated during the analysis are between zero and 100 and allow room for future index values, calculated during planned periodic updates, to be within the same range.

The index was created at the lowest geographical level (parliamentary constituency) for each quarter between Q3 2017 and Q2 2020. To obtain indices consistent across geographic levels, we constructed the index at broader geographic areas using a simple weighted average of smaller geographies' indices. For example, the FVI for Region and Nation R in period t is

$$Index_{Rt} = \sum_{p \in R} \omega_p Index_{pt}$$

where $Index_{pt}$ is the FVI of parliamentary constituency p in region R in period t, and ω_p is the share of the population of region R residing in constituency p. In the same way, the FVI for the United Kingdom is a population-weighted average of the index for all parliamentary constituencies:

$$Index_{UKt} = \sum_{p \in UK} w_p Index_{pt}$$

 w_p is the share of United Kingdom population in constituency p.

Notes

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Unemployment rate data come from the Labor Force Survey, which the team accessed via Nomis: "Dataset Selection," Nomis: official labour market statistics, accessed February 19, 2021, https://www.nomisweb.co.uk/query/select/getdatasetbytheme.asp?theme=35. The most recent unemployment rate measured at the parliamentary constituency level is from 2019. Financial satisfaction data come from the "2017 Financial Lives Survey" conducted by the Financial Conduct Authority (updated February 11, 2021, https://www.fca.org.uk/publications/research/financial-lives) and are only measured in 2017 and at the NUTS2 geographic level (see appendix). The social deprivation index is from the House of Commons Library using data published by the Ministry of Housing, Communities and Local Government (MHCLG): "Deprivation in English Constituencies, 2019," House of Commons Library, October 1, 2019, https://commonslibrary.parliament.uk/research-briefings/cbp-7327/. Deprivation index measures are only

created for parliamentary constituencies in England in 2019 and are produced by combining a wide range of data for small areas on various aspects of deprivation, including income, employment, health, education, crime, barriers to housing, and the living environment. The statistics indicate the share of Lower Layer Super Output Areas (LSOAs) in a parliamentary constituency is classified as highly deprived (defined as England's top decile of deprivation).

- 14 "Your Key to European Statistics," Eurostat, accessed February 19, 2021, https://ec.europa.eu/eurostat/web/nuts/background.
- ¹⁵ The lowest level of geography available in the credit bureau data was NUTS3.
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- Under Universal Credit a broader span of claimants became eligible for unemployment-related benefits than under the previous benefit regime. During the rollout of the Universal Credit program, movements in the claimant counts might have been significantly affected by this expanded eligibility. This impact has led to the claimant count being reclassified as an Experimental Statistic: "Guide to Experimental Statistics," Office for National Statistics, accessed February 19, 2021, https://www.ons.gov.uk/methodology/methodologytopicsandstatisticalconcepts/guidetoexperimentalstatistics.
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