Momentum UK
Household Financial Wellness Index
Quantitative Methodology

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May 2016

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1 Overview of the Momentum UK Household Financial Wellness Index

The Momentum Index of Financial Wellness brings together macro- and micro-level data to paint a picture of individual and household finances in the UK. The Index, developed for Momentum UK by the Personal Finance Research Centre (PFRC) at the University of Bristol, runs from a scale of 0 to 100, where higher scores represent greater Financial Wellness.

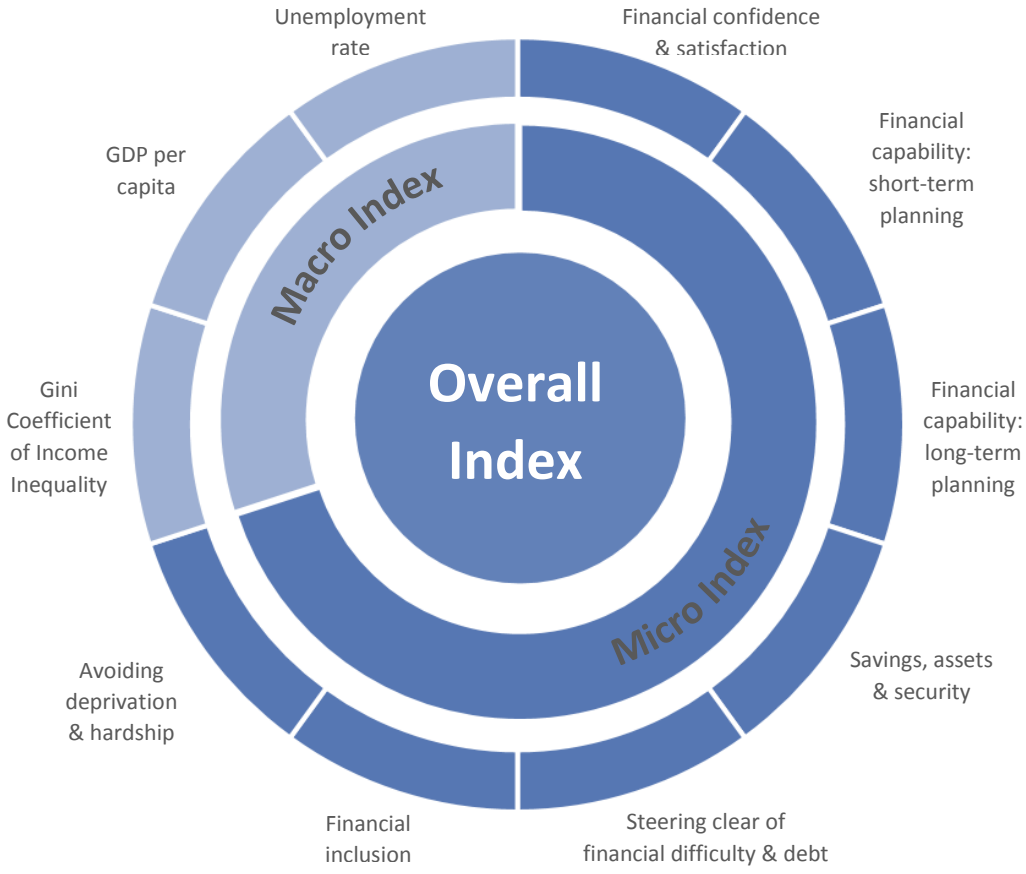


Figure 1: The composition of the Momentum Index of Financial Wellness

As can be seen from Figure 1 above, 70 per cent of the overall Index score comes from a Micro Index, which looks at individuals' personal and household finances, while the remaining 30 per cent is made up of a Macro

Index, which provides an overview of the broader economic situation in the UK.

The Micro Index is based on a UK-wide survey of approximately 2,000 individuals conducted in November-December 2015. Each survey respondent receives an overall Micro Index score out of 70, which is the sum of the following seven 'domains' of Financial Wellness (worth up to ten Index points each):

- Financial confidence and satisfaction
- Financial capability: short-term planning
- Financial capability: long-term planning
- Savings, assets and security
- Steering clear of financial difficulty and debt
- Financial inclusion
- Avoiding deprivation and hardship

Within each of these domains are three to four survey questions all of which capture an element of Financial Wellness specific to that domain. These questions are rescaled and rescored so that more 'financially well' answers score higher and so that all questions within each domain are equally weighted. The questions were initially mapped onto their separate domains using a conceptual model developed as part of an initial scoping study conducted by PFRC on behalf of Momentum UK. They were then further informed by a statistical method called principal component analysis, which resulted in minor adjustments to the definitions and compositions of the domains.

In addition to their Micro Index score, all survey respondents also receive a Macro Index score out of 30. This is based on three macro-economic indicators:

- Unemployment rate
- Annual percentage change in GDP per capita
- Gini coefficient of income inequality

The most recent values for each of these are again rescaled to a score out of ten based on their recent historical trends. As with the Micro Index, higher scores on the Macro Index show greater Financial Wellness, i.e. lower unemployment, faster growth in GDP per capita and lower inequality.

Each survey respondent therefore is given an Overall Index score out of 100, based on their individual Micro Index score out of 70 and the overall Macro Index score out of 30. This allows for a UK-wide average Index score to be calculated when the survey respondents' scores are weighted to be representative of the wider UK population. Scores are broken down further to look at the average Financial Wellness scores for different social and economic demographic groups. A statistical technique called multiple linear

regression is used to analyse the unique influence of these different groups when controlling for other social and economic factors.

The following document outlines in more detail the methodology used to create the Index. In section 2, the construction of the Macro Index is described, including the rationale for the selection of the three macroeconomic indicators chosen. Then in section 3 we turn to the methodology behind the Micro Index and the creation of the seven micro domains of Financial Wellness. Finally, section 4 contains a description of the analytical techniques used to evaluate and break down the Index.

2 Constructing the Macro Index

2.1 Overview

A 'Macro Index', designed to paint an overarching picture of the UK economy as whole, provides 30 per cent of the overall Financial Wellness Index. The Macro Index is based on three indicators of macroeconomic performance:

1) **The unemployment rate** – the proportion of the economically active population aged 16+ that is unemployed;
2) **Changes in GDP per capita** – a measure of average income per person in the country; and
3) **The Gini coefficient of income inequality** – an internationally used measure of income inequality within a country.

The most up-to-date data for each of these three indicators are rescaled to give a score out of ten, with higher scores representing a more positive economic situation, i.e. higher GDP per capita, lower unemployment and less inequality. These scores are then summed to give an overall Macro Index score out of 30.

2.2 Rationale for the selection of the three macro indicators

When designing the Macro Index it was crucial that the individual indicators used to calculate it were as robust and widely-recognised as possible, but also intuitive to consumers and policy-makers alike. As such, desk research was carried out in order to identify the most appropriate indicators to include in the Index. The following three indicators were subsequently selected:

1) Unemployment rate

The unemployment rate gives the proportion of the economically-active adult population that is out of work and currently seeking a job. It is published by the Office for National Statistics (ONS) and is frequently updated.[1] It was selected for inclusion in the Index because of how widely reported and understood it is and because it is, arguably, the best indicator of how strong the overall economy is.

2) Annual change in GDP per capita (adjusted for Purchasing Power Parity)

GDP per capita is fundamentally calculated by dividing the total Gross Domestic Product (GDP) of a country by its population to give an overall average income per person. The data we used, taken from the World Bank,[2]

[1] Unemployment figures are published by the Office for National Statistics at: http://ons.gov.uk/ons/taxonomy/Index.html?nscl=Labour+Market

[2] GDP per capita figures can be found on the World Bank website at: http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD

is also adjusted by Purchasing Power Parity, which takes into account the cost of living in different countries. It is also held in constant 2011 international dollars to ensure that different years are comparable, regardless of exchange rates.

The main rationale for including this as one of the three macro indicators is that it is a widely known and very intuitive measure. It is something that is commonly taught in schools and frequently appears within the media, largely because the concept is quite simple: if GDP per capita goes up then the economy is growing. This indicator also has the advantage over measures such as average weekly earnings in that it is easy to find and compare with data from other countries, which allows for the overall Financial Wellness Index to be more easily applied internationally should this be required in future.

3) Gini coefficient of income inequality

The Gini coefficient is the most commonly used indicator of income inequality at country-level.[3] It is a measure based on how equally or unequally income is distributed across a population and is calculated by comparing the actual distribution of income with a theoretical perfectly equal distribution of income. A Gini coefficient of 0 represents perfect equality (in which 10 per cent of the population receive 10 per cent of the national income, 50 per cent receive 50 per cent, etc.) whilst a coefficient of 100 represents perfect inequality (in which just one person receives 100 per cent of the income).

It was selected for inclusion in the Index because it was deemed important to capture not just whether the economy as a whole is improving but also whether such improvements are filtering down to some of the poorest people within society. It has been argued that more equal societies function better and are more cohesive, so we wanted to capture this element in the Index.[4] The Gini coefficient specifically was chosen for inclusion because it is the most commonly used international measure of inequality and, although perhaps cited less often than GDP per capita or unemployment, is still often referred to within the media.

A number of other possible options were identified but rejected for various reasons:

- The **Consumer Price Index (CPI)** – a measure of inflation based on the annual change in the total cost of a 'basket' of over 700 goods and services. As the central focus of UK monetary policy and given its importance for

[3] Gini coefficient figures taken from the following ONS report: http://www.ons.gov.uk/ons/dcp171778_407906.pdf

[4] See, for example, Wilkinson, R. & Pickett, K. (2010) *The Spirit Level: Why equality is better for everyone*. London: Penguin Books.

consumers' standard of living, we seriously considered including the CPI in the macro Index; however, there were a number of problems with doing so.

Firstly, there was a significant issue surrounding the interpretation of the inflation rate. Changes in the price of goods and services are affected either by demand or supply and, depending on which of these is the main driver of inflation, the CPI may be interpreted differently. For example, a low or negative rate of inflation (deflation) may be caused either by a lack of demand in the economy or an oversupply of goods and services, but whereas limited demand suggests signs of economic weakness as it shows consumers have limited money to spend, an oversupply of goods and services may mean that the economy is improving with advances in technology or increased productivity leading to better value for money for consumers. The opposite meanwhile is true for high rates of inflation. We therefore felt that if CPI were to be included in the Index it would become much less intuitive.

Another factor that drove the decision not to include the inflation rate in the Index was the fact that the Government sets the Bank of England's Monetary Policy Committee (MPC) a target rate of inflation of two per cent. If we were to include CPI in our macro Index then a CPI rate of two per cent would 'have to' be given a score of ten out of ten, whilst rates further above or below two per cent would receive lower scores. This would give those viewing our Index an indication as to how far CPI is from the target rate of inflation, but would tell them nothing about whether inflation is higher or lower than the target rate. It was agreed that this would not be intuitive for users of the Index.

- **Interest rates** – the Bank of England Base Rate set by the Monetary Policy Committee (MPC) in order to target inflation at two per cent. The Base Rate, which the Bank of England uses for lending to other banks, gives an indication as to the strength of the overall economy. The MPC use interest rates mainly to influence demand-side, rather than supply-side, inflation, so low interest rates are indicative of relatively weak demand within the economy whilst high interest rates generally suggest that demand is strong and that borrowing possibly needs to be reined in. On the face of it this is rather intuitive; however, when one considers the differing impacts that changing interest rates have on borrowers and savers it again becomes more difficult to include in an Index. Whilst high interest rates are enormously positive for those with savings, they have a negative effect on those wishing to borrow and even more negative effects for those already over-indebted (and vice versa for low interest rates). For this reason it was deemed unfeasible to include interest rates in the Macro Index.
- **Average earnings** – we considered including the annual percentage change in average weekly earnings but instead opted for GDP per capita because it is a more widely recognised indicator of the overall macro-economy and

also because it has the advantage of being more easily internationally-comparable.

- A number of other indices, including the United Nation's **Human Development Index (HDI)**, the OECD's **'Better Life' Index** and the Boston Consulting Group's **'Sustainable Economic Development Assessment'**, were also considered for inclusion in our macro Index. Whilst these bring together a wealth of economic and social data, it was decided that including indices in an Index was somewhat counterintuitive and that the Index would be stronger if it used simpler, better known indicators.

2.3 Methodology

Stage 1 – Obtaining most recent data available

Once the three indicators had been selected, the most recent data available for each of the three indicators was obtained. Unemployment rate is taken from the year of the survey data, while we use the most recent GDP and Gini data available (from the preceding year). This is applied in 2015, but also retrospectively to allow for robust comparisons over time.

Stage 2 – Rescale figures from 0 to 10

In order to calculate the three Index scores, it was necessary to consider historical data for each indicator, as well as the most recently published figures. As such, we obtained figures going back to the early 1990s for GDP per capita and unemployment and as far back as 1977 for the Gini coefficient. Despite being able to access a long time-series of data it was decided that the focus should only be on the years since 2000, as this was deemed sufficient in order to place 2015 values in their recent historical context, as well as providing a more contemporary picture of the economic situation of the UK. Using the range of figures for each of the indicators since the year 2000 we were able to determine the values to be worth between 0 and 10 points respectively on each of the three indices.

Since 2000 the unemployment rate (averaged out over the course of a year) has never fallen below 4.7 per cent and has never risen above 8.4 per cent. This suggests that in the next five to ten years it is reasonable to expect the unemployment rate to remain somewhere in between these boundaries, so it would have been possible to give 4.7 per cent unemployment a score of 10 on our Index and 8.4 per cent unemployment a score of 0. For 'protection' against future extreme economic changes, however, it was decided that a cushion (of ten per cent of the mid-point between these two values) should be put around these historical highs and lows. The upper and lower limits are therefore given by the following formulae:

$$Upper\ limit = Historic\ high + (Mean\ of\ historic\ high\ and\ historic\ low \times 0.1)$$

$$Lower\ limit = Historic\ low - (Mean\ of\ historic\ high\ and\ historic\ low \times 0.1)$$

Using the above formulae gives a lower limit of 4.0 per cent unemployment and an upper limit of 9.0 per cent. The following formula is then used to calculate Index scores for each year of data:

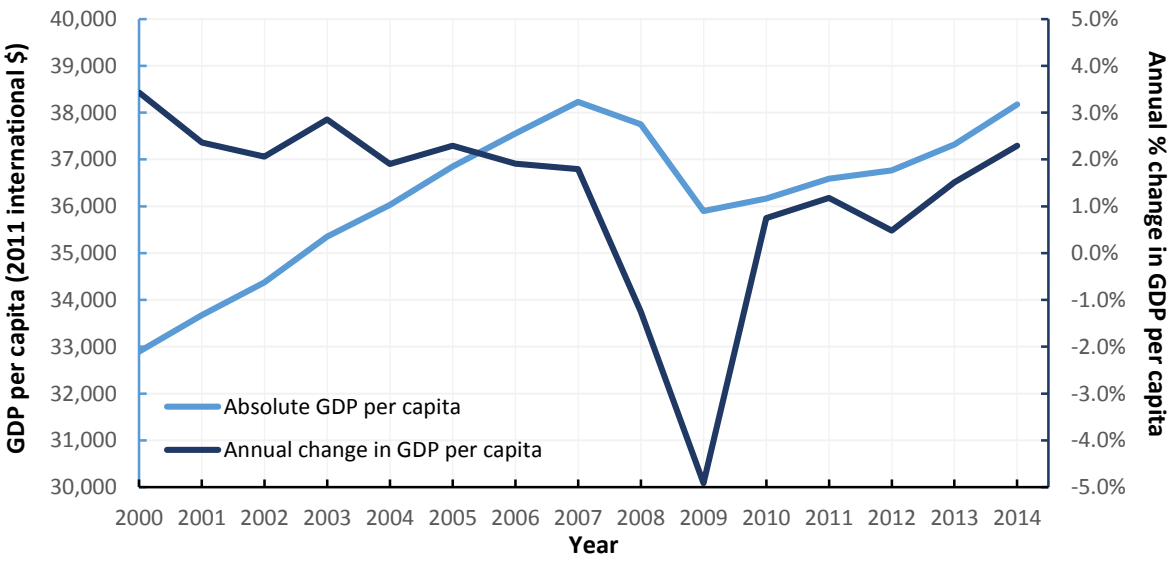
$$Unemployment\ Score = 10 - \left((Unemp.rate - Lower\ limit) \times \frac{10}{(Upper\ limit - Lower\ limit)} \right)$$

Note that the "$10 -$"at the start of the formula is used in order to reverse the Index scores so that low unemployment rates receive high Index scores and high unemployment rates receive low Index scores. An unemployment rate of 4.0 per cent therefore scores 10 (i.e. extremely good), while rates of 9.0 per cent score 0 (i.e. extremely bad). The average UK unemployment rate for 2015 of 5.4 per cent gives a Macro Index figure in 2015 of 7.3.

The same methodology is also applied for the Gini coefficient. This gives an Index where a Gini coefficient of 39.6 scores 0, while a coefficient of 28.9 scores 10. The most recent coefficient of 32.4 therefore gives a score of 6.7.

A slightly different methodology is used for calculating the Index for GDP per capita. On inspection of the historical trends it was observed that GDP per capita only seems to rise in the long-term, as shown in Figure 2. Even in the recession of 2008/09 the figure remained higher than the period from 2000-2003, despite the material situation of the economy being considerably worse. It did not seem appropriate that a year featuring the worst recession in a generation should receive a higher Index score than a period of relative prosperity just a few years previously, which would be the case if the Index were based on absolute GDP per capita. This persistent upward trend would also make it difficult to assign an Index fixed

Figure 2 – Comparison between absolute GDP per capita and annual percentage change in GDP per capita over time since the year 2000.



between two absolute values, as GDP per capita would eventually exceed the upper boundary and then consistently receive a score of 10 on the Index in subsequent years. Even if a very high upper boundary was set (at say $100,000), this would still not be appropriate because it would make anything less than extraordinary economic growth result in almost negligible changes on the Index when rescaled to a score out of 10.

It was necessary therefore to instead use the annual percentage change in GDP per capita which, as shown in the graph above, shows greater variation depending on how fast or slowly the economy is growing or shrinking. This was deemed more suitable for inclusion in an index fixed between 0 and 10. Based on rates since the year 2000 the boundaries were set so that a 5 per cent decrease in GDP per capita would equal 0 on the Index, while a 5 per cent increase in GDP per capita would result in an Index score of 10. As shown below, the formula used for calculating the scores is the same as given above for unemployment, except that the " $10 -$ " at the start of the formula is removed as there is no need to reverse the values because faster growth is intuitively more financially well:

$$GDP\ per\ capita\ Score = (Annual\ \%\ Change - Lower\ limit) \times \frac{10}{(Upper\ limit - Lower\ limit)}$$

Based on the most recent annual percentage change in GDP per capita of 2.3 per cent and setting the lower limit at -5 per cent and the upper limit at 5 per cent, an Index score of 7.3 is reached.

Stage 3 – Combine Indices to form overall Macro Index

After obtaining indices for each of the three indicators we simply added them together to give an overall Macro Index score out of 30. The most recent data available for each of the three indicators was used, so the overall Index for 2015 is based on unemployment data for the whole of 2015 and the Gini coefficient and GDP per capita from 2014. To be consistent, this was also done retrospectively for all years going back to the year 2000.

Table 1 gives the actual values and Index Scores for each of the three indicators in 2015, while Figure 3 shows the individual Index scores for each year since 2000 and Figure 4 gives the overall Macro Index scores since 2000, calculated by summing together the three Macro Index scores:

Table 1 – Actual values and Index Scores for the Macroeconomic Indicators

Year	Macroeconomic Indicators						Overall Macro Index Score *(out of 30)*
	Unemployment Rate		GDP per capita		Income Inequality		
	Actual Rate	*Index Score*	*Annual percentage change*	*Index Score*	*Actual Gini coefficient*	*Index Score*	
2015	5.4%	7.3	2.3%	7.3	32.4	6.7	21.3

Figure 3 – Index Scores for each of the three macroeconomic indicators since 2000.

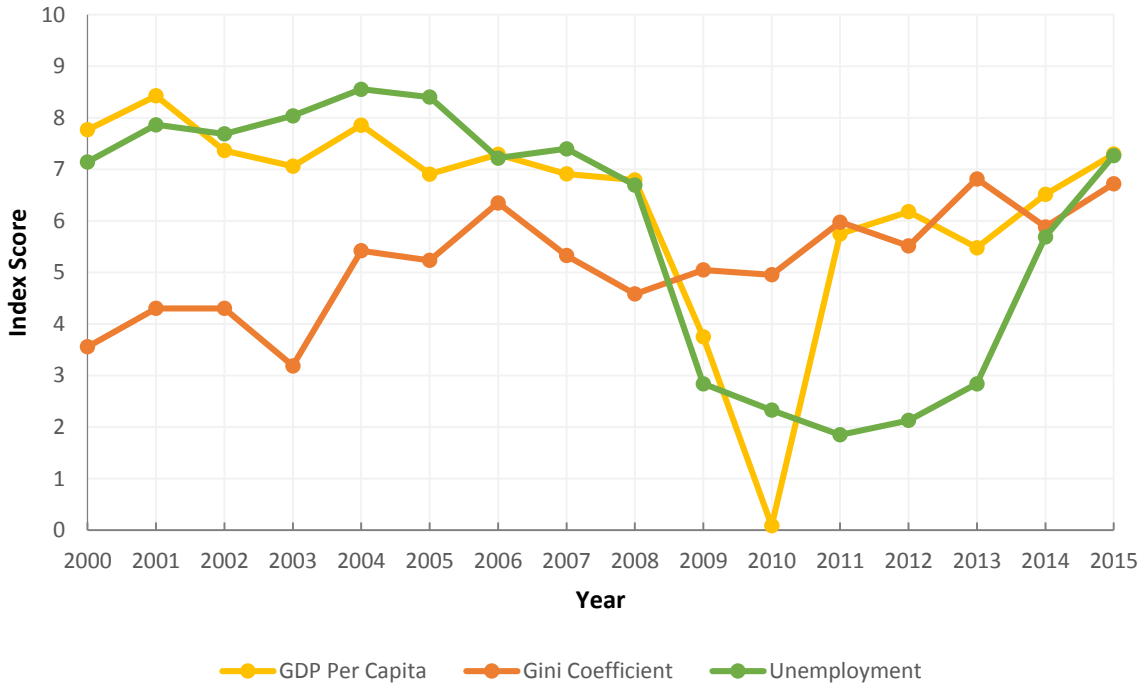
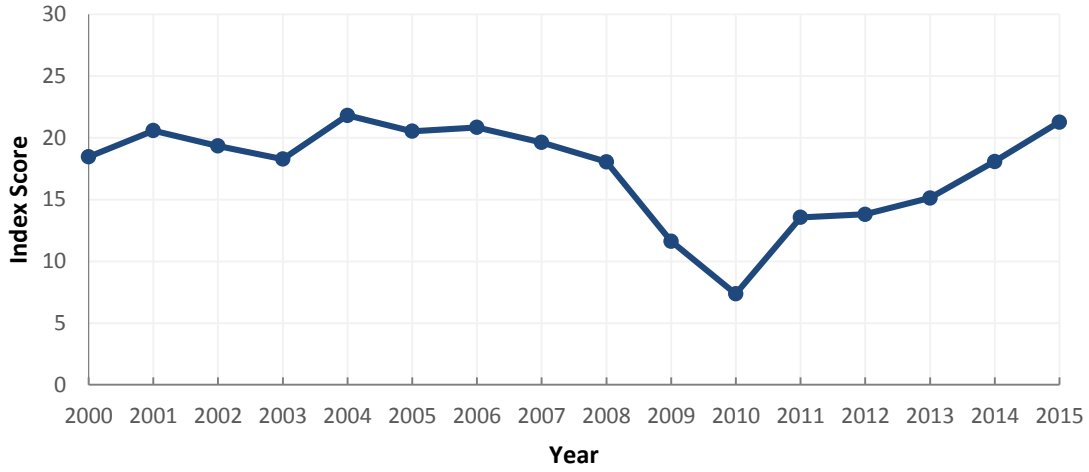


Figure 4 - Overall Macro Index scores for all years since 2000



3 Constructing the Micro Index

3.1 Overview

A 'Micro Index', calculated from the results of a UK-wide survey of nearly 2,000 individuals, provides 70 per cent of the overall Financial Wellness Index score. The Index is made up of the following seven different domains, each worth up to ten Index points:

- Financial confidence and satisfaction
- Financial capability: short-term planning
- Financial capability: long-term planning
- Savings, assets and security
- Steering clear of financial difficulty and debt
- Financial inclusion
- Avoiding deprivation and hardship

Each of the above domains consists of three to four equally-weighted survey questions, with respondents receiving different scores depending on their answers. Higher scores indicate greater Financial Wellness.

The domains and the individual survey questions within them were initially conceptualised as part of a scoping study conducted by PFRC in early 2015. Once the data had been collected however, these were slightly revised following exploration of the survey questions using principal component analysis (a type of factor analysis). This ensured that the seven domains accurately reflected different aspects of Financial Wellness and were best suited to individuals' real-life situations. Only minor modifications to the domains and the questions they comprised needed to be made at this stage.

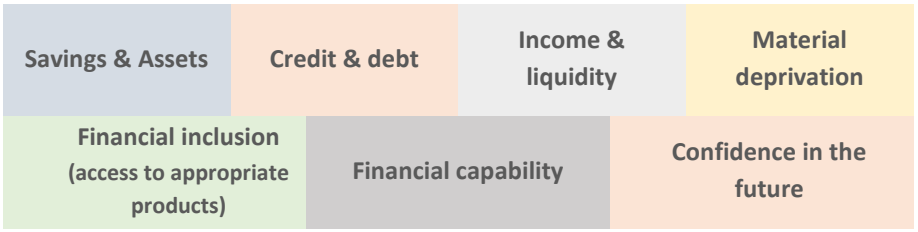
3.2 Methodology

Stage 1 - Scoping study

In early 2015, PFRC conducted a scoping study on behalf of Momentum UK to inform the development and construction of the Momentum UK Financial Wellness Index. This involved:

1) Searching through existing surveys that could potentially be used to inform an Index
2) Identifying other surveys with the potential to add bespoke questions
3) Literature and methodological reviews
4) Defining the financial dimensions that would help to inform the Index
5) Exploring the use of the Experian Financial Strategy Statements

This study informed the construction of a conceptual model of Financial Wellness in which the following seven domains were identified:



Stage 2 – Survey design

Having conceptualised seven domains of the Micro Index during the Scoping Study, a large number of questions previously used in other surveys of financial wellbeing or financial capability were collated. These questions were sorted into the seven conceptual domains they were deemed to be relevant to, with some being placed under more than one heading. Some questions were re-worded for our survey, whilst a number of other questions were developed where it was deemed a specific component of Financial Wellness was not being sufficiently captured. The questions were then subject to a sifting process, in which only those most relevant to the components were kept.

The chosen questions were then piloted on members of the public, following which some minor changes to question wording were made before the survey was finalised.

Stage 3 – Data collection

In November and December 2015, GfK, a market research organisation, conducted the survey across the UK via face-to-face interviews with participants in their homes. The questions forming the wellness survey were asked as part of a larger routine 'omnibus' survey. This data was collected in all regions of the United Kingdom and Northern Ireland, to be nationally representative. Weights have also been calculated to ensure that the data is as representative as possible.

Stage 4 – Clean-up of data and deriving variables

On receiving the data from the fieldwork company it was thoroughly checked and cleaned. This involved verifying the completeness of responses to individual questions (by checking the numbers of respondents), and identifying the completeness and relevance of demographic and socio-economic characteristics as defined by the omnibus survey.

Initial checks revealed that a high number of respondents (49 per cent) had failed to provide their household income as part of the socio-demographic data that was collected alongside the main Index questions. In the UK it is not uncommon for survey respondents to refuse such questions. We considered using our remaining socio-demographic variables to impute household income for those who had failed to provide it. This would involve identifying the relationships between the other variables and household income for those who had provided their income and using these

relationships to predict income values for those who had not provided it. However it was deemed unnecessary to do so given that household income was only intended to be used as an explanatory variable rather than included in the construction of the index. Because of the large sample size collected, it was still possible to test for statistical differences in Financial Wellness by household income within our analysis and, by including a 'missing' household income category in our regression analysis, all respondents could continue to be fully utilised in the analysis, ensuring that it remained robust and inclusive.

It was necessary to remove a small number of respondents from the analysis because they had either answered 'don't know' or refused on ten or more key Index questions, preventing them from receiving a valid Index score. This left a total of 1,918 cases for analysis.

After these initial checks it was necessary to recode response categories within most questions and derive new variables from others. At its simplest, it was necessary to ensure that each response category of a derived variable carried a *score* relative to other 'better' or 'worse' categories on that same measure. One example of this derivation comes from a survey question which asked respondents about the various accounts or savings products that they currently have. It was possible to derive two variables from this question. The first of these is a variable relating to exclusion from banking and shows whether respondents have a current account, a basic bank account or no bank account at all. The second was simply a count of the number of different savings products that the respondents have, providing a proxy measure for the strength of respondents' saving portfolios.

Careful consideration was given to the treatment of the small amount of item missing responses (when respondents answer 'don't know' or 'refused' to isolated questions). This was undertaken parsimoniously, either being absorbed into a middle or neutral category within a list, or the modal (most popular answer). We also resolved the bases to ensure that respondents who were filtered away from a question (because it would not be relevant to ask it of them), were brought back in to a revised version of the variable, in order to include all respondents in all Index questions.

All measures were derived to ensure that they were on a scale, an essential requirement of the principal component analysis (PCA).

Following the creation of the items to be included in the factor analysis, we examined the pairwise correlations between all of the variables proposed for use in the PCAs. This helped to ensure that we were not including any pairs of variables which would correlate highly by definition (for example, because they wholly shared a category of respondents) and helped us to interpret the results of the subsequent PCAs.

Stage 5 – Determining final Index domains

Principal component analysis was used to inform the construction of the final Index. PCA, which is a type of statistical analysis designed to reduce a large set of questions or variables down to a smaller number of 'components' (i.e. domains), allowed us to explore the ways in which our conceptual model fitted the real-world survey data. This was important for determining:

1) whether seven domains would be necessary and sufficient for an index of Financial Wellness;
2) which questions most appropriately mapped onto (represented) which domain.

Several initial PCA models were run. The results of these models suggested that it would be appropriate to adopt anywhere between five and nine domains to sufficiently capture Financial Wellness.

The 'component loadings' within each PCA model, which show how strongly different questions/variables map onto different components, encouraged us to slightly modify the conceptual model in order to form the strongest components possible. This meant that it was necessary to combine the conceptualised 'Income and liquidity' and 'Confidence' domains into a broader 'Financial confidence and satisfaction' domain, and to divide the conceptualised 'Financial capability' domain into two separate domains: 'Short-term planning' and 'Long-term planning'. Aside from these small changes the overall model as originally conceived proved robust.

As well as the overall PCAs described above, individual PCAs were run for each of the seven resulting domains, using only those questions/variables deemed conceptually and statistically applicable to that specific domain. Those variables with weak component loadings were largely deemed unnecessary as they added little to the overall strength of the domain.[5]

This process enabled us to settle upon the seven-domain solution shown below in Table 2 and represented by the items shown:

[5] After the PCA, and as expected, six questions that were asked in the survey were not deemed suitable for inclusion in the final Index. These are likely not to be asked in subsequent years.

Table 2 – Final Index domains and the questions/variables included in each.

Domain	Items included
1) Financial confidence and satisfaction	1a) Confidence in short-term financial situation 1b) Confidence in long-term financial situation 1c) "My income is enough to meet the cost of my everyday outgoings." 1d) "I am satisfied with my current standard of living."
2) Financial capability: Short-term financial planning	2a) How well respondent knows how much money they currently have to spend. 2b) How closely respondent plans how they will spend their money when they receive their income. 2c) How closely respondent keeps track of their day-to-day spending.
3) Financial capability: Longer-term financial planning	3a) "I always make sure that I have money saved for a rainy day." 3b) "I am very organised when it comes to managing my money day to day." 3c) "I have adequate arrangements in place to cover me in my retirement." 3d) Ease of finding the money to meet an unexpected major expense without having to borrow.
4) Savings, assets and security	4a) Number of different types of savings products 4b) Amount of money saved in total 4c) Number of different types of other assets, e.g. pension, second property 4d) Number of different types of insurance products
5) Steering clear of financial difficulty and debt	5a) Frequency of being unable to make the minimum repayments on any cards, loans or other credit agreements in the last 12 months. 5b) Whether respondent or their household has been unable to pay any bills at the final reminder due to lack of money in the last 12 months. 5c) Use of alternative credit in the last 12 months, e.g. high cost credit, informal loans, credit union loans and other sources of non-mainstream credit
6) Financial inclusion	6a) Whether respondent has a current account, basic bank account or no bank account. 6b) Number of different types of savings products 6c) Number of different types of insurance products

7) Avoiding deprivation and hardship	7a) Number of answers selected in response to the question: "In the last 12 months, have you gone without any of the following things because of a lack of money?" 7b) Number of answers selected in response to the question: "In the last 12 months, which, if any, of the following things have you done in order to make ends meet?" E.g. cut back spending on food, worked extra hours, taken out new loans. 7c) Whether respondent or their household has been unable to pay any bills at the final reminder due to lack of money in the last 12 months. 7d) Number of common problems respondent has experienced in their home in the last 12 months, e.g. damp or mould, leaky roof.

Stage 6 – Calculating individual domain scores

We decided that within each domain each of the three or four component items should be given an equal weighting so as to make the Index as intuitive as possible. This meant that if there were four items in a domain – bearing in mind each domain is worth ten Index points – each one would be worth a maximum of 2.5 points. If, however, there were three items in a domain then each is worth a maximum of 3.3 points.

Our next step was to determine how each of the items should be scored in terms of Index points. Here, different scores were given depending on the scale determined by each item. For attitudinal questions, for example, where respondents selected an answer from 0 (Not at all) to 10 (Completely) there are eleven possible values with a straightforward hierarchy: therefore, for a four-value domain the highest value (10 – Completely) scores 2.5 points, while the lowest (0 – Not at all) scores 0 and each value in between scores an additional 0.25 points (2.5 divided by 10). Meanwhile, if this question was in a three-value domain then the highest value would score 3.33 points, while the lowest would score 0 and each value in between scores an additional 0.33 points (3.3 divided by 10). Other items, where there are fewer possible answers, are scored differently and, in some cases, become binaries (e.g. 3.33 points or 0 points).

Once respondents' scores for each of the items had been calculated, these were summed to provide a score out of ten on each domain for each respondent.

Stage 7 – Calculating overall Micro Index scores

After all of the Micro Index domain scores had individually been calculated, these were also summed together to give each respondent an overall Micro Index score out of 70.

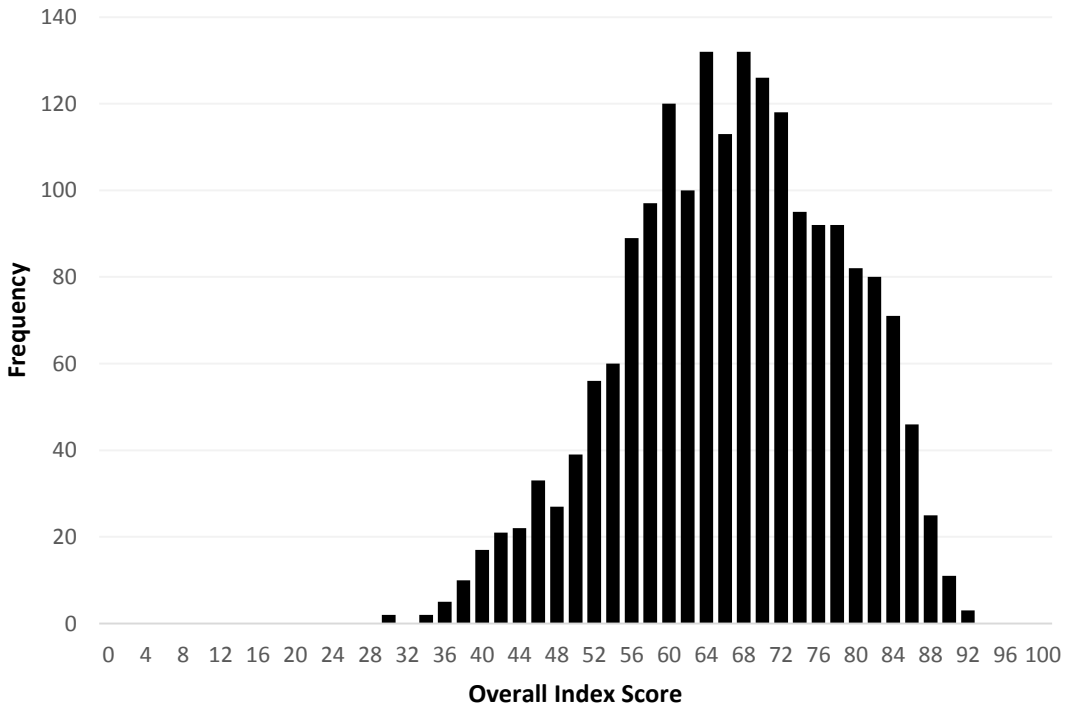
4 Analysing the Index

4.1 Testing the Index

Having calculated Overall Index scores for all of the respondents (by summing the Micro Index and Macro Index scores) it was necessary to test the robustness of the results by examining some test statistics.

The histogram shown below in Figure 5 was created to analyse the distribution of scores. As can be seen, the distribution creates a bell-shaped, 'normal' curve, whereby small numbers score very highly or very lowly while the majority are somewhere in the middle. It is perhaps slightly skewed to the right, in that the majority of respondents are marginally nearer the higher end of the Financial Wellness scale; however, this is not a cause for concern as the macro Index score gives all respondents a certain number of points, regardless of individual Financial Wellness.

Figure 5 – Histogram of Overall Index Scores



Test statistics also suggest that the Index is robust. The mean, median and five per cent trimmed mean all give similar results at 67.4, 68.1 and 67.7 respectively, thus indicating that the mean is not skewed by extreme values at either end. Tests for skewness and kurtosis both also gave acceptable values.

4.2 Descriptive statistics

In order to gain a greater understanding of how financially well different groups of the population are, the mean scores of each Index domain and the Overall Index were calculated based on a range of different social, economic and geographical factors:

- Gender
- Age
- Marital status
- Working status
- Region and country of the UK
- Household size
- Social class
- Any children in household
- Gross household income
- Ethnic group
- Housing tenure
- Education level
- Broadband in home
- Experian Segmentation

This demographic data was collected alongside the main Index questions by the fieldwork company, GfK. The Experian Financial Strategy Statements, however, were added to the dataset by GfK after data collection, based on respondents' postcodes.

The three Macro Indices were also included in this analysis, although given that all respondents within each year receive the same Macro Index scores these clearly do not vary by any of the demographic characteristics.

Analysing the Momentum categories of Financial Wellness

In addition to the above descriptive statistics, the dataset was also split into four categories of Financial Wellness conceptualised by Momentum, with the aim of facilitating conversation and comparison to the results of Momentum's previous South African Index.

These four categories were created by taking the overall range in scores (i.e. the difference between the highest and lowest scoring individuals on the Index) and dividing this by four, to give the interval between each category. As the range between the lowest score of 28 and the highest score of 91 was 63, the interval was calculated at just below 16 Index points. This was then added to the lowest score to give the first 'break', then added again and again to give the second and third 'breaks'. This gave the following four categories, with their names replicating those used in the South African Index:

- 'Financially Distressed' – less than 44.1 Index points
- 'Financially Unstable' – between 44.1 and 59.8 Index points
- 'Financially Exposed' – between 59.8 and 75.6 Index points
- 'Financially Well' – greater than 75.6 Index points

Once respondents had been assigned to one of these four categories, it was possible to examine descriptive statistics for each category to determine the typical characteristics of those in each.

4.3 Regression analysis

Linear regression analysis was used to explore the distribution of Financial Wellness across various demographic and socio-economic groups, and to identify the characteristics of the least and most financially well. Linear regression identifies the unit change in an outcome measure (in this case Index points) that is associated with the unit change of a particular 'predictor' characteristic (e.g. respondents' age). Multiple linear regression analysis in turn considers the influence of multiple predictors simultaneously in the same model, enabling the unique influence of each predictor on Index scores to be determined while holding all else constant.

Two final multiple linear regression models were run, both of which contained the following predictor variables:

- Gender
- Age
- Marital status
- Region and country of the UK
- Household size
- Social class
- Any children in the household
- Gross household income
- Ethnic group
- Housing tenure
- Education level
- Broadband in home

The second regression model included all of the above predictor variables but also with the addition of the Experian Financial Strategy Statements. The R-Squared statistics for each model (at 0.46 and 0.47) showed that the included predictor variables explain nearly half of the variance in Index Scores between the survey respondents.

A variable showing respondents' working status (full-time, part-time, self-employed, full-time education, retired, unable to work, unemployed or other not working) was also considered for inclusion in both of the models; however, due to multicollinearity and a considerable number of zero-cells when the predictor variables were cross-tabulated, it was deemed impractical to include. This was mainly because there was considerable overlap between work status and age, whereby there were no young people who fell into the 'retired' category and likewise very few very older people working or in full-time education. Age was therefore felt to be the more important characteristic to represent in the analysis. A regression model was run with the working status variable included in place of age to test whether it added anything to the explanatory power of the model, but it did not improve the model or significantly alter the estimates associated with the other predictor variables.

A power analysis was also conducted, which showed that the sample size is sufficient to conclude that a one point difference on the Index between years would likely be statistically significant.