How we analysed the data to create key questions for the CYP Financial Capability Tool

Step 1

The first step was to uncover the structure of the dataset and pull out the key themes and concepts, such as savings mindset. We employed two exploratory data analysis techniques, exploratory factor analysis (EFA) and minimum spanning tree (MST).

This helped condense the dataset into a set of factors and branches, revealing the underlying data structure. We then synthesised the two techniques to firm up the concepts. More specifically, we plotted the factors derived from the EFA on the branches produced by the MST.

Step 2

After plotting the factors on the branches of the tree, we drew a circle around the central zone of the tree and expanded this to ensure all the branches and factors were included, thereby retaining all the key themes whilst eliminating variables which had low bivariate correlations. This shortened the list to a smaller number of measures.

Step 3

To further condense the shortened list of questions, we carried out two more analytical exercises - namely a Cronbach's alpha optimisation process and stepwise regression. These techniques aim to optimise the best cohesion of related items and retain the best breadth of topics respectively.

We ran these methods in parallel, rather than sequentially, in order to reduce the number of questions whilst optimising the cohesion and breadth of topics as mentioned above. We extracted the top 10 candidate questions from each of these techniques and then plotted them on a Venn diagram. This condensed the number of questions further and allowed us to see which questions were common across both analytical methods and which questions were unique.

Step 4

The Venn diagram demonstrated where there was an overlap across the two techniques, and what questions came out as candidates unique to that technique. There were four common questions which came out as top candidates from both techniques, therefore, it was considered essential to include these four measures in the final set of shortened questions.

Running the remaining questions derived from the two analytical exercises through another Cronbach's alpha optimisation process further condensed the questions and gave us the final set of questions.

We then reviewed the proposed set of final questions with our Children and Young People's policy colleagues and looked at the available academic literature on childhood indicators of adult financial capability to ensure we were capturing the relevant components of financial capability, and that it was overall a suitable measure for children.

Step 5

Using an element of judgement to ensure that we covered the questions included in the Financial Foundations National Goals (or close proxies where the actual question wasn't appropriate), we settled on 14 questions for the seven to 11-year-olds and 12 questions for the 11 to 17-year-olds.

Both sets of questions retained a high Cronbach's Alpha of .68 and .69 respectively.

Many of these questions tap into key constructs such as saving mindset, confidence and financial control and aspirations.

Step 6

We assigned a scoring system using a mix of judgement and support from the data and existing literature.

This was designed to give the questions that tap into the most important themes of financial capability a higher number of points, and vice versa.

By doing this we ensured that more weight was applied to the most central themes and that there was sufficient variation in the overall Financial Capability score.