

Financial Literacy Assessment Tool Instructions

Our financial literacy assessment tool needs a running version of R and R studio, as well as the text file “assessment_tool.txt” and the excel file “Survey_ItemBank_for_R.xlsx”. R is free statistical software that can be downloaded from <https://www.r-project.org/>. RStudio is an application that helps you write in R. It is also free and can be downloaded from <https://posit.co/products/open-source/rstudio/?sid=1>.

Instructions for PC owners

You need to open the text file “assessment_tool.txt” and put the excel file “Survey_ItemBank_for_R.xlsx” in a known location on your computer, preferably in the folder you keep your R data and enter the path to that location in line 12 of the text file “assessment_tool.txt”

In case, you are not familiar with R, just create the folder C:\R and place your excel file therein and use the uploaded version of the instructions file.

Once you added the correct path into the “assessment_tool.txt” file, you can copy paste the whole text, except the last paragraph (called #Finish; the last 7 lines of the files) into the workspace of R Studio and execute these commands.

The tool is asking you the first question to which you have to reply by giving your answer and hitting the enter key.

The computer shows you the correct answer, as well as the current estimate of your financial literacy competence level and asks the next question.

After having replied to 10 questions, you get your final estimate.

You can now copy paste the final paragraph of the “assessment_tool.txt” file into the workspace of R studio. This creates a CSV file called “assessment_log.csv” in your working folder which contains your answers to all questions, as well as the estimates of your competence at each step.

The competence is supposed to follow a standard normal distribution, so in practice the score is a number between -4 and +4.

Instructions for Mac owners

You need to open the text file “assessment_tool.txt” and put the excel file “Survey_ItemBank_for_R.xlsx” on your desktop. Then replace `excel_path <- "C:/R/Survey_ItemBank_for_R.xlsx"` in line 12 of the text file “assessment_tool.txt” by `excel_path <- "~/Desktop//Survey_ItemBank_for_R.xlsx"`.

Once you added the correct path into the “assessment_tool.txt” file, you can copy paste the whole text, except the last paragraph (called #Finish; the last 7 lines of the files) into the workspace of R Studio and execute these commands.

The tool is asking you the first question to which you have to reply by giving your answer and hitting the enter key.

The computer shows you the correct answer, as well as the current estimate of your financial literacy competence level and asks the next question.

After having replied to 10 questions, you get your final estimate.

You can now copy paste the final paragraph of the “assessment_tool.txt” file into the workspace of R studio. This creates a CSV file called “assessment_log.csv” in your working folder which contains your answers to all questions, as well as the estimates of your competence at each step.

The competence is supposed to follow a standard normal distribution, so in practice the score is a number between -4 and +4.

Remarks

The current version of the tool cannot yet be seen as a complete assessment tool. Indeed, having just 24 test items limits precise estimations of the financial literacy competence in some areas of possible results.

But the choice of an IRT model-based CAT allows for future projects to build on this one to develop a larger item database. One of the major advantages of the IRT is that parameter estimation is independent of the population from which the estimation is derived and subjects can be tested with different items, appropriate to their skill level, while maintaining the comparability of their scores. It is hence possible to add items by doing future surveys with other subjects, containing just a few of our items plus many others, then estimate the IRT parameters of all these new items and add them to our item pool.

This would create over time a big item database that can be used to improve the precision of the assessment test over the whole continuum of the possible item parameters.

In its current version the assessment tool always asks 10 questions to each candidate. This can easily be changed in the config section of the “assessment_tool.txt”. In case of a sensibly larger item database, one different possible stopping criteria could be to determine a given precision in the measurement of the estimated competence parameter.