

Multilevel Modelling in the Social Sciences (SSPS10024)

Mid-semester assignment

February 2024

This mid-term assignment is worth 25% of your final mark

Submissions are due on **29th February 2024 (23:59)**

For this exercise you will use an extract of data from the European Social Survey that is available on Learn. A full description of the dataset and of the variables it contains is provided below. The data can be found in the datafile ESSprac2.dta on Learn in the Mid-semester assignment folder. You should perform analysis using Noteable. You should extract key results and present these within your report which should be submitted as a Word or a PDF file.

In the survey, questions are asked of **individuals**, who are nested within **countries**.

This exercise uses the variable “Universalism” as the dependent variable: see below for a description of the questionnaire items that were used to construct the scale. Survey respondents with high values of this scale tend to place more value on universalism (e.g. treating people equally, understanding people with different points of view, care for the environment).

In your answer, you should include relevant statistical output to illustrate the models you have chosen to run, and to justify any conclusions you present.

Question 1 (300 words excluding statistical output) [5 marks in total]

In question 1 you will investigate the variation in the dependent variable ‘Universalism’ across countries.

Run a Variance Component Model with Universalism as the dependent variable, and a structure where respondents are clustered within countries. What percentage of variance in Universalism is associated with the country level? Show how you calculated this figure. **[2 marks]**

Give an appropriate graphical display of the variation among countries. **[1 marks]**

Briefly comment on your output, what patterns, if any, do you notice across countries? **[2 marks]**

Question 2 (1200 words excluding statistical output) [25 marks in total]

- a. In this question you will investigate the association between Universalism and three independent variables including gender, age and one variable of your choice. For each independent variable in your model state a plausible hypothesis of its relationship with respondents’ Universalism. **[3 marks]**
- b. Run a random intercept model including all three independent variables (you can recode, transform and centre your explanatory variables as needed, but remember to explain your reasoning). Provide a table of the estimates for your final model. **[4 marks]**

- c. Describe the results of your model in technical terms. You should cover the extent to which there is variation in Universalism between countries, including identifying any change from the pattern found in your Variance Component model above. You should reflect on the statistical significance of each independent variable, and describe its impact of the Universalism variable.
[5 marks]
- d. Briefly discuss how the findings of your model relate to the hypotheses you stated at the start of your report and comment on the relative importance of the three variables you have considered.
[3 marks]
- e. Investigate the extent to which any association between Universalism and Gender varies between countries. Your answer should include any output (either numeric or graphical) which is needed to support your answer.
[5 marks]
- f. Fit a final model to assess whether the relationship between Universalism and age varies between countries? Your answer should also briefly reflect on the meaning of the covariances observed between the random terms within your model.
[3 marks]
- g. Reflect on any relevant model diagnostics to establish the appropriateness of the final model fitted.
[2 marks]

Notes on assignment:

- Presentation matters in this report, including presentation of tables/charts.
- With only 1500 words your writing needs to be concise and precise. Each sentence should contribute something meaningful towards answering the assignment! Highest grades will back up points with specific reference to evidence in the charts/tables produced.
- Tables and figures (including titles and footnotes) are not included in your word count – but your assignment will be much clearer, and therefore better, if you only include output which is relevant to the question/your answer.
- See overleaf for more details on the ESS dataset

Details of ESSprac2.dta

The data in the file ESSprac2.dta are taken from the 2002 wave of the European Social Survey (ESS)¹. Individual respondents are nested within 20 European countries.

The variables Conformity, Tradition, Benevolence, Universalism, SelfDirection, Stimulation, Hedonism, Achievement, Power and Security were created using several items each from the downloaded dataset, by following the instructions in [Chapter 4 of the “Human Values”](#) tutorial on the ESS website. (The English versions of) the items used are shown in Table 1 (below). (There was also a version of the questionnaire which used female pronouns). For each item, respondents had to rate how similar the person described was to themselves, with possible answers being “very much like me”, “like me”, “somewhat like me”, “a little like me”, “not like me”, and “not like me at all”.

The main steps involved in translating the items to values were to average each group of items to create 10 new variables, then subtract from each of these the average of the 10 variables to arrive at the final set of variables. (For full details, see the tutorial in the link above) After the tutorial had been followed, each variable was multiplied by 10 to make them easier to work with as response variables. High numbers mean the value is important to the individual, low numbers mean the value is not very important to the individual.

Items of the Human Values Scale (ESS)

Subscale	Item
Self-Direction	Thinking up new ideas and being creative is important to them. They like to do things in their own original way.
	It is important to them to make their own decisions about what they do. They like to be free and not depend on others.
Power	It is important to them to be rich. They want to have a lot of money and expensive things.
	It is important to them to get respect from others. They want people to do what they say.
Universalism	They think it is important that every person in the world should be treated equally. They believe everyone should have equal opportunities in life.
	It is important to them to listen to people who are different from them. Even when they disagree with them, they still want to understand them.
	They strongly believe that people should care for nature. Looking after the environment is important to them.
Achievement	It's important to them to show their abilities. They want people to admire what they do.
	Being very successful is important to them. They hope people will recognise their achievements.
Security	It is important to them to live in secure surroundings. They avoid anything that might endanger their safety.
	It is important to them that the government ensures their safety against all threats. They want the state to be strong so it can defend its citizens.
Stimulation	They like surprises and is always looking for new things to do. They think it is important to do lots of different things in life.

	They look for adventures and likes to take risks. They want to have an exciting life.
Conformity	They believe that people should do what they're told. They think people should follow rules at all times, even when no-one is watching.
	It is important to them always to behave properly. They want to avoid doing anything people would say is wrong.
Tradition	It is important to them to be humble and modest. They try not to draw attention to themselves.
	Tradition is important to them. They try to follow the customs handed down by their religion or their family.
Benevolence	It's very important to them to help the people around them. They want to care for their well-being.
	It is important to them to be loyal to their friends. They want to devote themselves to people close to them.
Hedonism	Having a good time is important to them. They like to "spoil" ¹ themselves.
	They seek every chance they can to have fun. It is important to them to do things that give them pleasure.