

Introduction to Experimental Methods in Economics

Term paper

Objective: Your task is to conduct an experiment which tests the anchoring effect, and write a short research paper.

Research question: Your experiment will attempt to answer the following research question: "Does the anchoring effect influence Y?", where Y is a decision, estimate, judgment, or behavior of your choice. When defining Y, rely on the existing scientific literature, but try to be as original and creative as possible.

Your secondary research question will be in the following form: "Does factor Z weaken the anchoring effect?". Factor Z should represent an individual trait, which can be reliably measured, and which can be expected to strongly correlate with your Y.

Example (very unoriginal and uncreative): Does the anchoring effect influence answers to a question of how many people live in Africa? Is the anchoring effect weakened by good knowledge of geography?

Literature: You can learn about the anchoring effect in a number of scientific studies. Start with the following three papers:

- Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases: Biases in judgments reveal some heuristics of thinking under uncertainty. *Science*, 185(4157), 1124-1131. Link: <https://www.jstor.org/stable/pdf/1738360.pdf>
- Furnham, A., & Boo, H. C. (2011). A literature review of the anchoring effect. *The Journal of Socio-Economics*, 40(1), 35-42.
- Bahník, Š., English, B., & Strack, F. (2016). Anchoring effect. In *Cognitive illusions* (pp. 223-241). Psychology Press. Link: <https://osf.io/preprints/psyarxiv/h2wfu/download>

The paper can be written in pairs or in groups of three. It can earn you a total of 20 points towards your final grade, structured as follows:

- 5 points for the originality of your research question
- 5 points for motivation and literature review
- 5 points for the description of your experimental design
- 5 points for statistical analysis, interpretation of results, and discussion

During week 5 of the semester, you will be presenting your experimental designs (max. 5 points). During week 13, you will be presenting your results (max. 5 points). Papers must be submitted via Turnitin by May 4th, 2025. Please register your pairs/groups, in the following spreadsheet:

https://docs.google.com/spreadsheets/d/1krBOMTHHm1UfwyilbH8fUQ7LrQEosMfA-k8eCXA_Pqw/

Framework for your experimental design

In the first step, consult the relevant scientific literature and pick your variables Y and Z. It is important that you can reliably measure both variables. For example, if variable Y is the answer to a question of how many people live in Africa, it is relatively simple. For more original ideas, coming up with good measurement can be more complicated. If variable Z represents knowledge of geography, it can be measured directly (e.g., through a simple quiz) or indirectly (e.g., by high school geography grade).

Your experiment should consist of 3 groups (treatments):

1. Control group – Y is not affected in any way within the experiment
2. Low-anchor group – Before measuring Y, you influence the participant by presenting an unrealistically low level of Y
3. High-anchor group – Before measuring Y, you influence the participant by presenting an unrealistically high level of Y

Example (measuring variable Y):

- Control group: How many people do you think live in Africa?
- Low-anchor group: Do you think there are fewer or more than 200 million people living in Africa? How many people do you think live in Africa?
- High-anchor group: Do you think there are fewer or more than 3 billion people living in Africa? How many people do you think live in Africa?

Collect data from at least 40 participants for each treatment. It is critically important that each participant is **randomly** assigned to only one treatment. You must ensure that a participant never appears in more than one treatment.

Additionally, for each participant, collect data about variable Z, as well as some basic demographic information (e.g., gender, exact age in years, etc.).

The experiment can be conducted with participants in person (e.g., by giving them different forms based on the treatment) or online (e.g., by using different questionnaires, depending on the treatment). You cannot use other students of this course as your participants.

Statistical Analysis

Since each participant is assigned to a different treatment, you are collecting independent observations (also called a between-subjects design). First, analyze the variable Y for all three treatments combined (using ANOVA and Kruskal-Wallis tests), and then evaluate differences between the three pairs of treatments (using t-tests and Mann-Whitney tests).

If you know the true value of Y (note: for the population of Africa, it is easy, but for other variables Y, you may not know the true value), you can also use t-tests to check if the averages of Y in the different treatments are sufficiently close to the true value.

Test the robustness of your results using regression analysis with three models:

- Model 1: Dependent variable Y. Independent variables are treatment dummies (low-anchor treatment, high-anchor treatment)
- Model 2: Dependent variable Y. Independent variables are treatment dummies (low-anchor treatment, high-anchor treatment) and variable Z, along with other demographic variables.
- Model 3: Dependent variable Y. Independent variables are treatment dummies (low-anchor treatment, high-anchor treatment), variable Z, other demographic variables, and interactions between treatment dummies and variable Z.

Structure of the paper

- Abstract – A brief summary of the most important points (approx. half a page)
- Introduction – A short introduction to your topic, motivation, and research question (approx. 1-2 pages)
- Brief overview of related literature (relevant scientific articles, no Wikipedia or "internet" sources) and its relation to your study (1-2 pages). Write it as a narrative, not as a list of papers you have read.
- Hypotheses and Experimental Design (1-2 pages). Write it so that anyone reading it will know exactly what you did, how you did it, and why you did it.
- Data Collection Description (1 page) – e.g., procedures, sample, etc.
- Data Analysis (2-3 pages) – Start with descriptive statistics, then move on to hypothesis testing (see above), and conclude with regression analysis (see above). For each hypothesis, describe how you tested it, the results of the test, and what it means (interpretation of your results). Include graphs (e.g., box plots of Y by treatment). Please, do not include pie charts of the gender distribution or similar irrelevant and uninteresting stuff.
- Discussion and Conclusions (1 page) – What do your results mean for practitioners and for future research? What are the limitations of your research? What do you recommend for future research?
- References
- Appendices – e.g., used questionnaires, etc.

You can find an example of a term paper at www.lorko.sk/lectures.

Looking forward to your papers and presentations.

M.