

# Guidelines for Writing a Thesis at the Chair of Empirical Economics

## 1 Preliminaries

These guidelines should help students who write a seminar paper, a bachelor thesis, or a master thesis at the chair of Empirical Economics. In addition to the formal requirements for the paper, this guide provides information on literature research and on how to properly structure a scientific paper. A scientific paper contains a leitmotif around which the text is structured. The goal of a scientific paper is to answer a specific economic research question using the relevant scientific literature and applying scientific methods.

Please note that the formal requirements **must** be followed. Any deviation from the formalities (including the correct quotation) described below will result in a lower grade. Furthermore, any papers handed in after the deadline will automatically result in a failing grade.

## 2 Organizational framework conditions

The organizational framework conditions for your bachelor or master thesis are determined by the examination office. If you have any questions about the registration procedure, processing time, or submission deadline, please have a look at your examination regulations and at the examination office's website: <https://www2.wiwi.rub.de/informationen-uebersichten/>.

Organizational conditions for seminar papers are determined by the chair of Empirical Economics. Thus, organizational information should be contained in the module description of the seminar and/or they are announced by the contact person.

## 3 Literature research

The foundation of (and the best way to start) a scientific paper is thorough literature research. If your supervisor provides introductory literature, use it to get acquainted with your topic. You do not have to use the suggestions of your supervisor but usually these suggestions are made for a reason. In any case, you have to do additional literature

research in order to cover your topic. Concerning literature, the key to success is quality and relevance, not quantity. In general, you should concentrate on scientific articles and working papers instead of textbooks.

Not every resource is appropriate for a final paper in economics. Here are some examples of sources you should **not** use in your paper:

- Wikipedia or other online encyclopedia
- Magazines and newspapers such as Men's Health, Bild, Juice, Apotheken-Umschau
- Magazines and newspapers such as Spiegel, Financial Times, The Economist and Süddeutsche Zeitung can be used but really carefully and only if they contribute to your topic

If this is your first time writing a scientific paper, it might be helpful to participate in an introduction offered by the university library.

For a focused literature research you can find several catalogues and literature databases on the internet. Some of those databases are only fully accessible at university computers or via a VPN connection.

Possible databases are:

- ideas.repec
- RUB-OPAC (complete catalog of the university library of Bochum)
- EZB (electronic journals library)
- Econbiz
- JSTOR
- econpapers
- Google Scholar
- ... and more

If a piece of literature is not available at the RUB, it may be possible to order it via "Fernleihe".

## 4 Formal requirements

Please follow the following guidelines concerning the formal structure of your paper. Non-compliance will result in a lower grade or even failing.

## 4.1 Length of the paper

Including tables, graphs, the list of literature, and the appendix, the length of a seminar paper is limited to 20 pages, the length of a Bachelor thesis to 25 pages. The length of a Master thesis depends on the topic and how much processing time you have. Usually, a Master thesis is around 60 pages long. If your thesis is longer than 60 pages, you should contact the assistants at the chair. In general, quality is more important than quantity, so do not stretch your paper for the sake of more pages.

## 4.2 Structure

A final paper should consist of the following elements:

- cover page without page number
- table of contents with Arabic numerals, but Roman page numbers
- list of tables and list of figures with Arabic numerals, but Roman page numbers (not for seminar papers)
- text with Arabic page numbers
- Appendix with notation “A1”, “A2” etc., Arabic page numbers.
- Affirmation

## 4.3 Format of the text

Ideally, you should set the format of your paper in your word processing program (MS Word, LaTeX) before you start writing it. The following requirements are mandatory:

| <b>Text element</b>   | <b>Formal requirement</b>                  |
|-----------------------|--|
| Left margin           | 2.5cm                                      |
| Right margin          | 2.5cm                                      |
| Upper margin          | 2.5cm                                      |
| Lower margin          | 2.0cm                                      |
| Linespacing text      | 1.5  |
| Linespacing footnotes | 1  |
| Text alignment        | Justify (Blocksatz) with syllable division |
| Footnote alignment    | Justify (Blocksatz) with syllable division |
| Font                  | Times New Roman                            |
| Font size text        | 12   |
| Font size footnotes   | 10   |

## 4.4 Tables and figures

Tables and figures have to be numbered consecutively. Furthermore, every table and figure has to have a title, a citation/source, and, if necessary, an explanation. The title of the table/figure should be informative allowing to understand what the figure/table contains without being required to read the corresponding explanation of the content in the text. Nonetheless, the content of the table/figure has to be explained within the text.

Table 1: Informative Example Title

| Characteristic | Item 1   | Item 2   | Item 3   |
|----------------|----------|----------|----------|
| X              | A        | B        | C        |
| Y              | a        | b        | c        |
| Z              | <i>a</i> | <i>b</i> | <i>c</i> |

Source: Hirshleifer (1998, p. 5).

## 4.5 Formulas

Formulas should only be used if they contribute to your analysis. They have to be displayed in a separate line and numbered consecutively with Arabic numerals. All variables and the meaning of the formula have to be explained in the text. Common mathematical knowledge (i.e., the Binomial theorem) does not have to be explained.

Example:

$$a^2 + xy = cx + F \quad (1)$$

## 5 Citation

Other people's ideas and findings have to be indicated in the text. Always try using primary literature and be consistent in the way you cite. If you want to cite an author literally, you should put the quote in quotation marks and in italics. After the quote, you have to indicate the source. Indirect citations are indicated after the sentence or the part of your text, respectively. The following rules are based on the citation style of the *American Economic Association (AEA)*, which means that the German citation style using footnotes is not allowed.

Examples:

*“This is a direct quote, which can be shortened using [...], if some parts of it are irrelevant for your analysis. Direct citations should be used if you want to stress the authors' choice of words.”* (Last name, year, page)

This is an indirect quote, which is used to point out the meaning of the original text, without using the exact words. This is the most common form of citation (Last Name, year, page).

If you cite a source from more than two authors, all authors but the first are to be abbreviated with et al.. If you use multiple works by the same author from the same year, this has to be indicated by putting a letter after the year. The order of the letters has to follow the order in which you use the works in your paper.

Examples:

“Quote” (Doe, 1999a, p. 25)

“Quote” (Doe and Bloggs, 1999, p. 25)

“Quote” (Doe et al., 1999, p. 25)

“Quote” (Doe, 1999a, pp. 25 - 28)

In case you are citing a news paper article, an institution, or a source from the internet, use the name of the respective source instead of the author.

Examples:

In an interview with the New York Times, John Doe said ... (New York Times, 2014, pp. 12 – 13). The United Nations are concerned that ... (United Nations, 2015).

At times an author writes about research that someone else has done, but you are unable to find the original research document. In this case, you only include the source you used in your references. Use the words 'cited in' in the in-text citation to indicate that you have not read the original source. In the list of references, record the publication you actually sourced.

Example:

Doe's study (cited in Bloggs, 1999, p. 20) found that ....

If you want to cite from a textbook, please make sure you are using the latest issue.

**Important piece of advice: Every time you use an idea that is not your own, you have to provide the reference. A missing citation, or the provision of an incorrect source constitutes as an attempt to cheat and will be considered as plagiarism. Any case of plagiarism will result in a failing grade and the chair is obliged to inform the examination office. Plagiarism in a final thesis will lead to exmatriculation and the prohibition of finalizing your studies at other universities. In some circumstances, even monetary penalties are possible. Plagiarism is considered a criminal offence.**

## 6 List of literature

Every source cited in your paper has to be listed in the list of literature. Sources you read but did not use are not to be listed. The list is alphabetical and follows the style of the *American Economic Association (AEA)* (see: <https://www.aeaweb.org/journals/policies/sample-references>). However, consistency is important.

Journal articles:

Single-author journal article:

**Surname, first name.** Year. "Title". *Journal name*, volume number (issue number): page numbers.

Example:

**Angrist, Joshua D.** 1990. "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records." *The American Economic Review*, 80(3): 313-336.

Two-author journal article:

**1<sup>st</sup> author's surname, 1<sup>st</sup> author's first name and 2<sup>nd</sup> author's first name 2<sup>nd</sup> author's surname.** Year. "Title". *Journal name*, volume number (issue number): page numbers.

Example:

**Card, David and Alan B. Krueger** 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *The American Economic Review*, 84(4): 772-793.

More-than-two-author journal article and multiple works by same author(s):

Examples:

**Becker, Gary S., Michael Grossman, and Kevin M. Murphy.** 1991. "Rational Addiction and the Effect of Price on Consumption." *American Economic Review Papers and Proceedings*, 81(2): 237-241.

— 1994. "An Empirical Analysis of Cigarette Addiction." *American Economic Review*, 84(3): 396-418.

(Please note that the line in the second entry, indicating the same authors, is not underscores. It is three em dashes with no spaces in between, which can be included via the symbols menu in MS Word.)

Forthcoming articles:

This format may be used for journal articles that are officially announced to be published by a journal, but for which the exact year, volume, and page numbers are not yet known.

Example:

**Stafford, Tess M.** (Forthcoming) "What Do Fishermen Tell Us That Taxi Drivers Don't? An Empirical Investigation of Labor Supply." *Journal of Labor Economics*.

Books:

Single-author book:

**Surname, first name.** Year. *Title of the book.* Place of publication: publisher.

Example:

**Friedman, Thomas L.** 2005. *The World Is Flat: A Brief History of the Twenty-First Century.* New York: Farrar, Straus and Giroux.

Two-author book:

1<sup>st</sup> author's surname, 1<sup>st</sup> author's first name and 2<sup>nd</sup> author's first name 2<sup>nd</sup> author's surname. Year. *Title of the book.* Place of publication: publisher.

Example:

**Angrist, Joshua D. and Jörn-Steffen Pischke.** 2009. *Mostly Harmless Econometrics: An Empiricist's Companion.* Princeton: Princeton University Press.

A book with an edition number:

Example:

**McCullagh, Peter and John A. Nelder.** 1989. *Generalized Linear Models.* 2<sup>nd</sup> ed. London: Chapman & Hall.

Collective volume:

Such as encyclopedias or series of publications over several years, as well as within a year.  
**Surname, first name,** editor. Year. *Title of the series.* Volume. Place of publication: publisher.

Example:

**Kusuoka, Shigeo and Akira Yamazaki,** editor. 2006. *Advances in Mathematical Economics.* Vol. 8. New York: Springer.

Chapter or other part of a book:

**Surname, first name.** Year. "Title of the article." In *title of the book*, Volume, editor, page numbers. Place of publication: publisher.

Example:

**Lerman, Steven R. and Charles F. Manski.** 1981. "On the Use of Simulated Frequencies to Approximate Choice Probabilities." In *Structural Analysis of Discrete Data with Economic Applications*, edited by Charles F. Manski and Daniel McFadden. Cambridge, Massachusetts: MIT Press.

Working papers or other unpublished work:

Working papers can only be declared as such if they are published by an institution as a part of a series of this institution. They contain a specific working paper number, which has to be stated.

Example:

**Augurzky, Boris, Thomas K. Bauer, Arndt R. Reichert, Christoph M. Schmidt, and Harald Tauchmann.** 2012. "Does Money Burn Fat? Evidence from a Randomized Experiment." Ruhr Economic Papers #368.

**Zimmermann, Klaus F., Thomas K. Bauer, and Magnus Lofstrom.** 2000. "Immigration Policy, Assimilation of Immigrants and Natives' Sentiments towards Immigration: Evidence from 12 OECD-Countries." IZA Discussion Paper No. 187.

Papers that are not yet published but can be found on the Internet (such as the author's website of the university website) can be cited using the following format:

**Surname, first name.** Year. "Title." URL (date of access).

Example:

**Zitzewitz, Eric.** 2006. "How Widespread Was Late Trading in Mutual Funds?" <http://facultygsb.stanford.edu/zitzewitz> (date of access: June 24, 2008).

If the paper is not available through the internet, please use the following citation:

**Surname, first name.** Year. "Title." Unpublished.

Example:

**Acemoglu, Daron, Pol Atràs, and Elhanan Helpman.** 2006. "Contracts and Technology Adoption." Unpublished.

Dissertations:

**Surname, first name.** Year. "Title." University.

Example:

**Nash, John.** 1950. "Non-Cooperative Games." PhD diss., Princeton University.

Internet sources:

Whenever sources from the internet are cited it is necessary to provide a complete URL as well as the date of access.

**Name of the Website.** Year created/last updated. Publisher/company. URL (date of access).

Examples:

**Biography Resource Center.** 2006. Thomas Gale. <http://www.galegroup.com/BiographyRC/> (date of access: September 25, 2006).

**OECD Stat.** 2021. OECD. <http://stats.oecd.org/wbos/Index.aspx?usercontext=sourceoecd> (date of access: December 08, 2021).



Newspapers:

**Name of the newspaper.** Year. “Title of the article.” Date, page numbers.

Examples:

**Handelsblatt.** 2008. “Sieben Top-Ökonomen klagen an.” March 13, 2008, 1.

**Frankfurter Allgemeine Sonntagszeitung.** 2007. “Rekrutierungsbüros in jeder Fußgängerzone?” August 26, 2007, 5.

## 7 Content and style

### 7.1 Structure

Developing a structure for your paper before you start writing makes it easier for you to keep track of what parts you have finished, and what parts you have to complete. If you cover more than one theory or hypothesis in your main part, they should be separated by sections and subsections. Note that subsections should never stand alone, i.e., if there is a 2.1, there should be a 2.2 as well. If absolutely necessary, you can use subsections (e.g., 2.2.1 and 2.2.2), but please try to avoid more levels than that.

The written part of your paper should consist of

- Introduction
- Main part
- Conclusion

#### 7.1.1 Introduction

The introduction gives the reader a first idea of what to expect from the paper. It covers the following aspects:

- The goal of the paper
- Importance/relevance of the topic
- Clear distinction of the topic
- Methodology
- Status quo of research
- Structure of the paper

The introduction develops the leitmotif on which the text builds. Since you can always return to the leitmotif during your paper, it appears structured at any point in the text. The introduction should not have subsections.

### 7.1.2 Main part

In the main part of your paper you analyze your topic and develop a line of argumentation. Depending on your line of argumentation, you chose how to separate the main part into subsections. The sections have to be connected logically and comprehensible in a way that the leitmotif does not get lost. Furthermore, the main part should contain a theoretical introduction to your topic, a differentiated analysis and/or a comparison/difference to a finding that differs from yours.

### 7.1.3 Conclusion

The conclusion should summarize your findings briefly and reveal possible consequences of your findings. If possible, the question you mentioned in your introduction should be answered in the conclusion. As the introduction, the conclusion should not be separated into subsections. Furthermore, it should amount to a maximum of 10% of the whole text.

### 7.1.4 Example of a table of contents

Table of contents

1. Introduction
2. Theoretical background
  - 2.1 Human capital model
  - 2.2 Migration incentives
3. Identification strategies
  - 3.1 Ordinary least squares
  - 3.2 Instrumental variables
  - 3.3 Fixed effects
4. Empirical findings
  - 4.1 Ordinary least squares
  - 4.2 Instrumental variables
  - 4.3 Fixed effects
5. Conclusion

## 7.2 Style

Your final paper is supposed to be a scientific paper implying that your language style has to be appropriate. An appropriate language style does not mean you have to formulate long and complicated sentences. Short, precise, and well structured sentences are the way to go since you do not want people to read your sentences two or three times in order to understand them. The conclusion should be written in your own words. This means you should not adapt the language of the last paper you read. Please do not use filler words such as “well, . . .” or colloquial expressions like “cool” or “stupid”. Symbols, metaphors, and other stylistic tricks are to be used with caution. Only use them if appropriate. Furthermore, try to avoid “I”, “me”, and “we”. Use the passive form instead, e.g., “In the next section, the following problem will be analyzed . . .” Always use your spell checker and let some friends or family members proof-read your work!

## 8 Affirmation

The affirmation needs to be attached to your thesis. In this affirmation you declare that the thesis is your own work and that you only used the indicated sources. The affirmation is located at the end of your thesis and is bound together with the other pages. The affirmation has no page number and thus it is not part of the table of contents.

Example affirmation:

I hereby confirm that I have written this bachelor/master thesis on my own and that I have not used any other aids than the ones referred to in this thesis. I only used the indicated sources. All literally or analogously translated paragraphs of the original sources are marked as such. The work has not been submitted to any examination office in the same or a similar form.

Bochum, (date)

(Signature)

## 9 Cover page (example)



**Ruhr-University Bochum**  
**Faculty of Management and Economics**

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Title

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Thesis submitted for the degree of  
Bachelor/Master of Science in (Management and) Economics/Economic  
Policy Consulting

**Submitted to:** Chair of Empirical Economics  
Prof. Dr. Thomas K. Bauer  
2<sup>nd</sup> examiner

**Author:**

**Matriculation number:**

**Address:**

**Date of submission:**