Arild Angelsen, HH-NMBU, arild.angelsen@nmbu.no   *March 2019*

The PhD thesis introduction

The rules and regulations

PhD regulations of NMBU, section 10.1(3):

"If the thesis consists of several shorter papers, it must also contain an introductory chapter which summarises and compares the research questions and conclusions presented in the shorter works in an overall perspective, and which also documents the coherence of the thesis."

The Supplementary regulations of the School of Economics and Business (HH), § 20:

"The introduction shall provide an overview of the PhD thesis, outline the common research topic(s), theories and methods of the articles, and relate it to the broader literature and research field. An appropriate length is 20-30 pages (6-9 000 words), and approximately one month of work."

Keywords: summarize, overview, coherence/linking.

What is expected?

The recommended format of the PhD thesis introduction varies enormously across disciplines and the globe; from brief 5 pagers to >100 providing an in-depth literature review, synthesis of the papers, and recommendations. Our format is a mid-range option.

A good introduction

- Puts the thesis in context; the reader gets to know what is needed to understand the thesis
- Establish your niche: convince the reader that this is a contribution, and on an important topic
- Gives the reader some value added.
    - Overview of the literature in the field
    - Linking of the thesis to that literature
    - Synthesis of the findings
    - Explains how papers are linked, to the extent that they are ☺
- 3-4 tables and/or figures that help illustrate – and *organize* the writing!

A poor introduction

- The literature review is too general (btw: ok with some overlap with the more pointed reviews in the thesis papers)
- Just a summary, no synthesis, with long summaries of each paper, so become half of the introduction
- Conclusions/recommendations are too broad, or to specific (and thus not based on the thesis)

Useful hints

- The introduction is less technical than the papers, and can be read by a wider audience. Think of the reader being someone that just started on the PhD.
- You normally write the introduction at the end, but create the "Introduction PhD – notes" document at least one year before the planned submission. Put your ideas in that document: a good review article, a general methods point that you cannot include in a paper, and interesting finding related to a policy debate, a brilliant idea for a conceptual figure, etc.
- The hardest part is often the theory overview, fortunately many have done the job before you. Look in handbooks, review journal (JEP, JEL, REEO, etc.), or the introductions of papers in the field.
- Many have a chance to write an overview paper for one of the PhD courses; do so with the Introduction in mind and kill two birds with one stone.
- Test and discuss the structure and key ideas on your supervisors and peers (before writing it all up).
- You will, most likely, not fail due to the introduction, but it's the first impression for the reader! And, **"you only get one chance to make a first impression"**!

A possible outline (approx. # of pages)

1. **Introducing the thesis (2)**
    - Aim (objective) and focus of the thesis
    - Introduce the main research question
    - The following format is often useful:
        a. Define the territory
        b. Limit the territory, define your niche
        c. Occupy the territory

2. **The topic/problem area (3)**
    - Present the problem you are addressing, e.g., poverty, climate change, tax evasion (may not be relevant for all thesis)
    - Why is worth writing a thesis about this topic?
    - A description of the geographical area can also fit in here, if central in the thesis

3. **The theory/methods: literature – and your thesis (5)**
    - Overview of relevant theories
      Note: this is often tricky: how broad should I start? A good question to discuss with your supervisor!
    - Overview of relevant methods
      Note: may be relevant to discuss some broad methods issues here, that were too general for each paper. May have a separate chapter on methods.
    - How the thesis fit in (linking to the literature)?
    - The overall contribution, and the contribution of each paper
      Note: if the thesis contain different categories of papers, say one experiment in Papua New Guinea and one econometrics study from Alaska, don't try to make, have separate theory and methods sections for each part.

4. **Overview of the thesis (3)**
   - A conceptual framework? (see example)
   - The research questions?
   - How are the chapters related?

5. **Synthesis (not just summary) of papers (6)**
   - Mandatory, but max 1 page per paper if have a 1:1 summary (i.e., first paper 1, then paper 2,…)
   - A table is useful (see example)
   - Compare theories, methods, data, findings

   Note: May merge 4 and 5.

6. **Limitations, and implications**
   - Limitations of thesis
   - Suggestions for future research: theories, methods, thematic focus
   - Policies: pick a few and be concrete, but base them on your findings. A tricky balance!

Note: the format and emphasis depend on the thesis, for example:

- if a hot policy topic: more on the policy debate and how the thesis relates to that;

- if based on major fieldwork, tell about that;

- if using exciting experimental methods, provide an overview of various methods, and tell what and why;

- how well connected the papers are: don't create an artificial umbrella.

Examples from the PhD thesis of Hambulo Ngoma

Table 1: A snapshot of the thesis

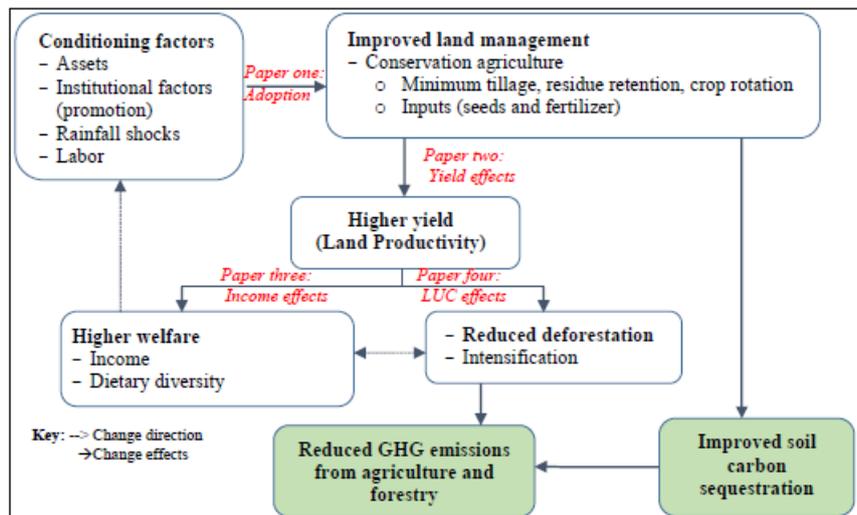| Paper	Research question	Hypotheses	Theory	Data	Empirical methods	Key findings
I	How does the uptake of minimum tillage respond to rainfall variability and promotion?	1) Low seasonal rainfall does not increase uptake of minimum tillage. 2) Being in districts where promotion has been concentrated for at least 10 years does not increase uptake.	Random utility model	Nationally representative crop forecast survey data, 2010-2014	Double Hurdle models implemented via control function approach.	1) Low seasonal rainfall increases uptake of minimum tillage. 2) Being in districts where promotion is concentrated only increases uptake of ripping and not basin tillage.
II	Does minimum tillage raise maize yields?	Ripping and basin tillage do not raise maize yield.	Production function framework	Nationally representative crop forecast survey data, 2008-2011	Correlated random effects model	1) Ripping and basin tillage raise yields if tillage (planting) is done in the rainy season, with fertilizers and improved seed, inter alia. 2) The average gains are higher from ripping than basins, relative to their conventional tillage systems. 3) There are significant yield loses for delayed tillage (planting).
III	Does minimum tillage improve farmer welfare?	Minimum tillage does not improve household and crop income in the short-term	Random utility model	Primary data, 2014	Endogenous switching regression and counterfactual analysis	1) Minimum tillage does not improve farmer welfare in the short-term. 2) Endowment heterogeneity account for most of the differences in outcomes by adoption status.
IV	Does minimum tillage reduce cropland expansion (deforestation)?	1) Minimum tillage does not reduce cropland expansion into forests. 2) Crop yield does not increase expansion.	Agricultural household model (Chayanovian model)	Primary data, 2014	Double Hurdle and two stage least squares (2SLS) models	1) Overall, minimum tillage does not reduce expansion. 2) Labor availability stimulate expansion.

Figure 3: Land management, conditioning factors and livelihood outcomes: a schematic overview of papers in the thesis.

Some useful pages:

https://www.scribbr.com/dissertation/introduction-structure/

https://jameshaytonphd.com/leaving-your-thesis-introduction-till-last-it-could-be-a-mistake/