

## *For the Student*

### **A PhD Thesis without Tears**

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#### **1. Introduction**

Many students are nowadays keen to complete a PhD and, although they clearly understand what is involved in doing the coursework component, starting a PhD thesis is typically a leap in the dark. This naturally leads to anxieties. While such a substantial project should not be taken lightly, and it cannot be denied that doing research is hard work and has inevitable frustrations, I believe that it should largely be a pleasant and rewarding experience. Students should gradually acquire a substantial range of skills and, above all, obtain an understanding of the standards required of scholarship and eventually develop the crucial ingredient of confidence in their ability to take on a research project.

It is perhaps natural for most students initially to focus on the final destination, but it is nevertheless important to appreciate that, as with many other aspects of life, it is really the journey that matters. The aim of this article is therefore to offer some advice to help make the PhD journey more pleasant, less stressful and more rewarding. Inevitably these are personal

views involving subjective judgements based on my own experience as a supervisor. The advice is primarily directed towards students, although some supervisors may also benefit. In writing this article I mainly have in mind relatively young full-time students who are doing a PhD soon after completing undergraduate studies, the majority of graduate students.<sup>1</sup> For obvious reasons this article is directed towards economics students, as the nature of PhD work varies among different disciplines. The advice is perhaps more relevant for theses in Australian and UK universities, compared with US universities, where coursework plays a more significant role. Furthermore, the role of the supervisor differs among countries. However, there are obviously many common features.

I have written elsewhere about the processes of starting and writing research, and publishing articles and books; see Creedy (2001, 2006). Hence, the present article should be read in conjunction with those articles, particularly the first. Emphasis here is on aspects which are particularly relevant when doing the kind of large-scale and substantial work involved in a PhD thesis. It is valuable to think explicitly about the processes involved in doing this work, rather than stumbling from stage to stage in an unconscious manner.

Section 2 considers the nature of a PhD thesis. The selection of a topic is discussed briefly in Section 3. Section 4 considers some aspects of life as a PhD student and features associated with working towards a thesis. Section 5 makes some suggestions regarding an approach to tackling such a large project, involving breaking it down into smaller components. The

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important role of the supervisor is then discussed in Section 6. Some suggestions regarding non-PhD activities are made in Section 7 and final brief comments are in Section 8.

## 2. What is a PhD?

Research is a process of making discoveries: these may be new empirical regularities, new theoretical insights and an improved understanding of economic problems. A PhD as a research degree therefore needs to say something quite new, rather than collating or rehearsing existing knowledge. This presents a difficult challenge. Contrary to a popular illusion, such progress is largely achieved by making a series of small steps, rather than taking giant leaps. A distinguishing feature of research is that it is the researcher who formulates the precise questions to be examined and decides on the approaches used. Indeed, the clear specification of the problem is an important element in planning a project. The question has to be clearly defined and seen to be worthy of attention. Eventually, you should be able to state clearly what you have contributed to knowledge.

The understandable tendency to look at the final destination instead of the closer road ahead is reflected in the first question often asked by PhD students. They want to know what is expected of them—what do they have to do to get their PhD? The standard answer is of course that a PhD is normally described as containing material for three publishable papers. This response is nevertheless both vague and an oversimplification. The thesis should have a central ‘core’ or theme which ties the separate contributions together, although the closeness between topics differs significantly among theses. There is a huge variation in the quality of theses produced, even within the same university department. What all students need to aim for is a high standard of work which can be recognised as demonstrating a mature approach to research.

## 3. Selecting a Topic

Most students have a broad idea of the area of research they would like to pursue. This may

come from previous reading required for coursework or it may be stimulated by attending research seminars. But in deciding on a PhD topic the first step is to refine the statement of the problem, in particular to narrow the scope of the project so that it is more clearly defined and manageable. As part of this process it is extremely important for you to be able to express the topic in the form of an explicit question; if this cannot be done, it is likely that the subject is not well defined. The initial temptation, to be strongly resisted, is to raise ‘big’ questions which would occupy a lifetime of research.

The process of arriving at a clear question and hence starting point begins in the library. The process of investigating the literature has been considerably eased by the existence of computer search facilities. But great care needs to be taken in using these aids. Only a familiarity with the subject can provide an indication of the keywords that are likely to be fruitful. Some bibliographic databases are limited to journals (and necessarily only a selection of these), so that important contributions in books may be overlooked. There is no alternative to getting your hands dirty in a library. Examine the relevant journals and follow up the references given in the articles to other work which appears relevant. During this stage you will need to develop an idea of which journals are most important and who are the major contributors to the area of research.

When carrying out the preliminary reading, it is important always to ask yourself questions—do not simply read passively. The types of question are as follows. Can the approach used in a study be applied to other contexts, countries or time periods? What assumptions are implicit? Are all the assumptions sensible? To what extent might the results be sensitive to the assumptions? How can they be relaxed? Are there any unnecessary assumptions? Is the approach used the most appropriate one? Have new techniques been developed since the paper was first written? Have all relevant statistical tests been carried out? Are the results consistent with expectations, or earlier work? Are the surrogate or constructed variables the most appropriate for the task and can anything be said

about likely biases? Are there any implications of the study which have not been fully drawn out by the author? Can these be exploited in your work? In thinking about possible extensions to applied work it will be necessary to check if necessary datasets are available.

Your supervisor will be important in influencing the way you begin. But do not expect a supervisor to place a topic in your lap. Finding a research subject is your responsibility.

A supervisor will nevertheless lead you towards getting a clear focus to start the first paper, and will form a judgement about whether there is likely to be ‘mileage’ in any suggested topic. Various simplifications or types of modelling strategy may be suggested, and your supervisor may offer valuable warnings against initially taking on too much. In describing what you want to investigate, you should be able to frame a clear question. In these early stages when you are reading widely, your supervisor is likely to ask questions such as, ‘what was the question motivating this paper?’, ‘what are the author’s major results?’, ‘what do you regard as the main limitations of the approach?’, and ‘in what ways do you expect your research to extend existing literature?’ Be prepared to answer those questions.

In some cases a supervisor may suggest starting your PhD by working jointly on a well-defined topic. You can learn a lot from closely seeing your supervisor working. But if working with a supervisor, you should discuss the question of authorship right at the beginning. Ask directly by saying something like, ‘do you have in mind producing a joint paper under both of our names and, if so, would the names be listed in alphabetical order?’ It is nevertheless very important that this kind of direction changes in nature. If you are given such a start, you must ‘run with it’. You should independently chase up further literature and constantly be on the lookout for ways in which extensions could be made. You need to offer your own constructive suggestions. Eventually you will be on your own. However, universities have different regulations regarding the use of joint work, so it is important to check your own university rules. For more advice on starting research, see Creedy (2001).

#### 4. Life as a PhD Student

Life as a PhD student is completely different from that experienced as an undergraduate, so this section offers some general advice about research on a thesis.

##### 4.1 Costs and Benefits

First, no one should be under any illusion—completing a PhD thesis is hard and at times exhausting work. It will involve long hours of tedious work. Some inviting avenues will turn into dead ends.<sup>2</sup> There will be times of despondency where it seems that nothing worthwhile is going to be achieved. Research is hard, and often comes with occupational hazards like sleepless nights and bad headaches. Many sacrifices need to be made. But at the same time it should be highly rewarding. There is a considerable sense of achievement and often excitement in making progress with a research project. To anyone with intellectual curiosity—surely the first important ingredient needed for research—the ability to carry out a substantial piece of original research is a privilege. The freedom to pursue a subject of special interest over a long period is of great value.

It is also worth keeping in mind that for the vast majority of people, the period of PhD study is the only time in their life when it is possible to pursue a concentrated piece of research in one area, without the other heavy responsibilities and endless deadlines and interruptions which come with employment. Although work for a PhD may appear to involve much pressure, after full-time graduate work virtually no one has the luxury of devoting all their energy to a single piece of work. This fine opportunity should never be wasted—lost time cannot be recovered.

It is also for most students a period in life which is marked by a rapid growth in understanding and increased maturity. The ability to absorb new material and learn new skills is great. This all brings its rewards—of a non-pecuniary kind in addition to the standard returns accruing to investment in education and training.

#### 4.2 *The Working Routine*

It is important to start the PhD journey by establishing good research and organisational habits. Develop a disciplined working routine regarding the organisation of your time. Your commitment should be at least that of a full-time job. Plan each working day's tasks before you even arrive at the office or library. Have a daily working schedule, including a fixed starting time each morning. Above all, write as you go along.

Always keep full bibliographical information about papers and books consulted. Record all details of data sources used and any adjustments you might make. If you produce any computer programs, provide lots of comments and write brief documents describing how to use the programs, including how the input data must be arranged. Decide right at the beginning which word processing package you prefer to use, and develop the appropriate formats and styles, bearing in mind that any separate papers you produce will eventually form the basis of one or more chapters: all these things are tedious to change at a later stage.<sup>3</sup> Keep materials in well-organised folders rather than in piles on your desk or floor. Regularly make several digital backups of everything, and store them in different locations. On other advice regarding the process of research itself, and writing papers, see Creedy (2001).

### 5. **The Journey as a Sequence of Steps**

Instead of thinking of the substantial challenge ahead—akin to climbing a mountain—it is advisable to think in terms of taking just one step at a time. Put the final destination of the journey out of your mind. It is not possible anyway to anticipate at the outset precisely where work on a thesis is likely to lead. There are several benefits of beginning simply with the idea of writing one paper, even though it will be seen as leading to further research. One important role of the supervisor is obviously to judge whether there is likely to be further 'mileage' in the topic: this is where the supervisor's research experience and judgement are helpful.

One of the hardest problems facing students is to learn to appreciate the standards needed: the importance of mastering this cannot be exaggerated. Eventually you must be able to view your own work critically and realistically, as if it had been written by someone else. Sometimes the strongest students actually undervalue what they have produced, and need to be encouraged not to throw it out, but more usually the difficult problem is to realise when more work needs to be done. Much of this learning can be achieved during the writing of a first paper.

There are many skills—not least of which is the ability to write clearly—required to produce a mature paper.<sup>4</sup> It is likely that this first paper will involve the greatest struggle of any part of the thesis. Compared with some other disciplines, results in economics often come slowly and it can take some time to develop a clear understanding of just what has been achieved. You may wonder when your supervisor will finally stop telling you to make revisions. Importantly you will wonder when your own understanding of precisely what you have contributed, and how it fits into the wider literature, will stabilise. But avoid the temptation to become impatient to get on with something new. Above all, do not leave the paper in a 'nearly complete' state with the idea of going back to it. It is very important to get into the habit of finishing things.

You will of course go back to the paper later, but important lessons are learnt in first getting it to a standard where it can be circulated. After successfully accomplishing this first stage, most students find that the next papers are produced much more quickly and with far fewer problems. With a decent paper, you are also in a position to present seminars and workshops, which can be valuable for producing feedback and meeting other people with similar interests. The discipline and concentration needed to prepare and give a seminar are also valuable.

The elusive but highly desirable quality needed for the PhD journey is that of 'momentum'. With this quality, one piece of research will naturally lead to another—although, understandably, this may seem unlikely for

those just setting out. Indeed, if things are going well, a crucial role of the supervisor is to call things to a halt. A point will be reached where the supervisor can say, ‘OK, it is splendid that you can see all these interesting places to go, but you have to stop here and consolidate everything’. It is much more comfortable to be told that you have in fact nearly reached this (now limited) destination, than constantly to be in a state of anxiety about whether the finish line will ever come into sight.

Once this point is reached, you can then review the various papers and, with advice from your supervisor, work out what is needed to prepare the thesis itself. The papers can be organised, and sometimes divided, into chapters. It should be clear where additional material, such as introductions and linking material, is needed. The relative ‘weight’ of different sections will also become evident and may need adjustment. Decisions can be made about moving material to or from appendices. The complete work can then be polished and improved by the addition of various elaborations, cross-references and further signposts. In doing this you will learn to handle a large manuscript, while having the pleasure of seeing all the work come together in a single integrated document. This last stage is pleasant and quite relaxing, but it cannot be completed quickly.

Many students are given the impression that they must write a ‘literature review’ chapter, but this is not correct. This is fortunate as a good literature review is extremely hard to produce. However, the thesis must demonstrate an awareness of the relevant literature and the reader must be able to see clearly how the thesis extends existing work. But this does not mean that a separate chapter is necessarily required. Indeed, it is usually much better to refer to most earlier work at appropriate points in the development of your own analysis, and in motivating the approach adopted and the questions asked. This also helps to make it clear to the reader precisely where your work departs from established work: a very common fault of many PhD theses is that such points of departure are not made explicit.<sup>5</sup>

## 6. Working with Your Supervisor

The route to a PhD thesis has many dangers, disappointments and dead ends, as well as high vantage points offering splendid views and fresh perspectives. Always remember, especially in the hard times, that you are not alone. You have the encouragement, support and guidance—with sometimes a restraining influence—of your supervisor. Indeed, the importance of your supervisor cannot be exaggerated. This section is written as if there is just one supervisor, but some students have joint supervisors. Nevertheless, there is usually more contact with one of them, though the weights may vary over time. In the early stages, particularly involving the choice of a precise research question, meetings will usually involve both supervisors. It is always necessary to keep both people fully informed about your progress.

### 6.1 The Working Relationship

It is necessary to establish a congenial working relationship with your supervisor, but there are few general rules about this. Each case is different depending on the personalities and abilities involved. A supervisor should be flexible. A good supervisor does not want to produce a disciple or clone, or a research assistant, but aims to help prepare students to make their own individual way and develop their own interests and style.

A good supervisor therefore treats each student differently, making a judgement about each student’s abilities and character. For example, some students benefit by being pushed hard and being given regular tight deadlines. Other students work best when they are given more time and space to work at their own speed. Some students need more encouragement and moral support than others—often students become very anxious about their progress and need to be reassured, while others need prodding. A supervisor should not be miserly with praise but should also be clear if work is not up to standard.

There are also no rigid rules regarding the frequency of meetings with your supervisor. At

the early stages, these are obviously likely to be more frequent but will vary. Nevertheless, it is something that should be discussed explicitly and some universities actually have clear regulations about meetings. If your work is going well, it is useful just to keep your supervisor informed with a quick progress report. Make good use of your supervisor—the university is after all making a valuable scarce resource available to you. If you are having serious difficulties with an aspect of the research, such as obtaining empirical results or solving a difficult problem, or are anxious about whether a result is of any value, go to see your supervisor rather than struggling or worrying alone. It is often the case that a supervisor can ‘cut through’ the problem quickly or suggest an alternative approach.

The choice of supervisor is so important that you should always endeavour to take the initiative. Consider the alternatives available and decide who you would like to be your supervisor. Do not be afraid to ask. The supervisor need not necessarily be working in the field you have in mind. Indeed, some people may welcome students with other interests. Expert knowledge of the specific field is only one of many characteristics of supervision, and it is usually possible for a supervisor to arrange for someone who is closer to the field to look at the work at various points. You will eventually become the expert in your field and your supervisor cannot be expected to know all the papers you have read, so ensure that you accurately report the contents of papers in any discussions.

In selecting a supervisor, do take care to avoid anyone who is known to be unhelpful, sarcastic or negative, or who communicates poorly. And avoid those who are not themselves productive. It is easy to obtain CVs these days from departmental web sites. Remember that at various times you will need to ask advice about things other than the thesis work, such as future jobs or dealing with difficult situations, so trust and sympathy are important.

## 6.2 *Some Rules of Conduct*

Although you will want to build a pleasant and trusting working relationship, you should actu-

ally be a little hesitant before approaching your supervisor. Think twice before asking anything. Before asking any question, always first ask yourself if you have done enough to answer it by yourself. Make sure you can explain the problem sufficiently clearly—rehearsing an explanation can often lead you to the answer. Ensure that you are fully prepared, so that you avoid wasting the time of someone who is inevitably very busy. Always ask yourself if the work you are about to hand over could be better: ensure that you have done yourself justice. However, if you do not fully understand what your supervisor is asking you to do, ask for further clarification in order to avoid wasting time in the future.

There are some things you should not do regarding your supervisor. Never look ‘pained’ or unwilling to try suggested changes to the modelling specification or estimation method, or extensive revisions to drafts. If you think your supervisor is wrong about something, do not argue but express your desire to try to rewrite your analysis more clearly for future discussion. Do not take a pile of computer output and expect your supervisor to sieve through all the detail—you should abstract what is important first. Do not ask your supervisor to read a scrappy or highly provisional piece of work (unless you are specifically asked to present a sketch or outline of a particular section). Do not ignore, or treat lightly, suggestions regarding reading matter or modelling approaches: if you do so, you can expect to find that constructive suggestions simply come to an end and your meetings become rather short. And do not ask to borrow your supervisor’s books.

It is important to listen closely for hints from your supervisor. In many cases these may not be explicit or obvious. Your supervisor may simply be thinking aloud and saying something like ‘that is curious’, or ‘I wonder if ...’. Follow up on any questions that you had difficulty answering. Also take an interest when your supervisor talks about other work or economists. Follow any allusions to books, economists or articles which are not familiar to you. In this way you will increase your breadth of knowledge. Indeed, it is often during such digressions

and discussions of epiphenomena that you can learn a great deal.

## 7. Non-PhD Activities

Work on a thesis involves sustained concentration—the second important ingredient needed for research—on a single piece of work. However, it is important to allocate time to keep up with background reading. This period is also the time to read widely in the vast broader non-textbook literature of economics—learn to place modern work in a wider perspective. Read biographies of famous economists. It may seem that such wider reading has to compete against time spent on the more urgent primary task of work on the thesis, but I believe it is complementary and worthwhile, and can be done after the more demanding work of the day. Go to seminars, whatever the topic, to get an insight into the issues which interest other people and the way they go about their own work. Observe what makes their presentations successful. Good seminars can also be inspiring even if the topic is far removed from your own work. Talk to other students about their work and ask them to comment on your drafts.<sup>6</sup>

It has been stressed that work on a PhD involves many hours of concentrated effort, but that the period of full-time graduate study should also be a period in which you can broaden your appreciation of economics. It is also important to spend time during this period reading even more widely. Turning to entirely different subjects can be a valuable distraction from a narrow piece of research and it helps to keep things in perspective. For example, this is a time to read high-quality literature and broaden one's tastes in music and other arts. Such wider reading will, furthermore, contribute towards the maturing process that is so important for producing a serious piece of work such as a PhD thesis.

Many graduate students also find that participation in regular sporting activities, or other non-intellectual pursuits, provides a valuable diversion from work. These are useful for their own sake and, after grappling with a difficult problem for some time, it is often possible to

make more rapid progress following physical exercise. Sensible organisation of your time will allow room for such extracurricula activities.

## 8. Conclusions

This article has aimed to suggest some ways in which the route towards a PhD thesis can be made more fulfilling and less stressful. It should be a hard but rewarding task, rather than one that is full of anxiety. The ability to work on a PhD thesis is a golden opportunity not only to develop research skills, confidence and judgement, but it should also be a period of wider personal development and growing maturity. Research towards a PhD is associated with the transition from being a student to working as a professional economist.

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## Endnotes

1. Those who are part-time PhD students face particular challenges, not discussed here.
2. Going down a dead end for a while should not be considered as wasted time, as it is a normal part of research, and valuable insights are usually gained. But judgement is needed about the time to turn back and try a different route: again this is where the supervisor's judgement can help.
3. At an early stage, check with your Graduate Office regarding any special style requirements.
4. On writing research papers see Creedy (2001) and the references given there to a number of guides to writing.
5. Here, I am not ruling out the inclusion of a literature review which helps to motivate the thesis, if it is done well. But it is usually the weakest part of a thesis. You should of course begin to produce a bibliography at the start of your research.

6. There was a time when PhD study involved a lonely existence. Graduate students were 'second class' citizens, had no resources and had to struggle to find a seat in the library to do their work. There were few others in the same situation with whom they could share experiences. All this has now changed.

#### **References**

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