THE STRUCTURE AND CONTENT OF UNDERGRADUATE ECONOMICS CURRICULA OFFERED BY SOUTH AFRICAN UNIVERSITIES

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ABSTRACT

THE STRUCTURE AND CONTENT OF THE UNDERGRADUATE ECONOMICS CURRICULA OFFERED BY SOUTH AFRICAN UNIVERSITIES

Key words: Economics curriculum, economics courses, economics textbooks, student-lecturer ratios, South African universities.

Often academic departments have little knowledge about the course content that is presented by similar departments at other universities. This study aims to investigate the economics curricula offered by South African universities in order to contribute to the quality and content of the economics courses. International best practices with regard to the structure and content of, as well as the logistics behind an economics curriculum are identified, and the economics curricula offered by South African universities are compared to these international best practices. This study is attempted through gathering of available open source information as well as conducting a survey study to determine the status quo situation with regard to various issues relating to the economics curricula offered at South African universities.

In terms of the structure of an economics curriculum, a benchmark tree structure is drawn from international best practices. To compare the structure of the economics curricula offered by the South African universities included in this study to international best practices, a tree structure of each university's curriculum is drafted in the same format as the benchmark tree structure. These tree structures are used to determine how each university's curriculum complies to international best practices.

The textbooks that are used in a course are thought to be an indication of the content of that course. Therefore, the textbooks that are used by the different universities in each course are indicated in this study.

With regard to the logistical aspects of an economics curriculum, e.g. student-lecturer ratios, the actual situation at most universities differs substantially from international best practices. International best practices suggest class sizes of no more than 25 students. Student-lecturer ratios in economics courses offered by South African universities are far remote from this.

OPSOMMING

DIE STRUKTUUR EN INHOUD VAN DIE VOORGRAADSE EKONOMIE KURRIKULUMS WAT AANGEBIED WORD DEUR SUID-AFRIKAANSE UNIVERSITEITE

Sleutelwoorde: Ekonomie kurrikulum, ekonomie modules, ekonomie handboeke, student-dosent verhoudings, Suid-Afrikaanse universiteite.

Die akademiese departemente van universiteite beskik dikwels oor weinig kennis aangaande die kursusinhoud van soortgelyke departemente by ander universiteite. Die doel van hierdie studie is om die voorgraadse ekonomie kurrikula van Suid-Afrikaanse universiteite te ondersoek ten einde die struktuur en inhoud daarvan te vergelyk.

Beste internationale gebruike word geïdentifiseer ten opsigte van *struktuur*, *inhoud* en *logistieke* aspekte van ekonomie kurrikula. Inligting aangaande die ekonomie kurrikula van Suid-Afrikaanse universitiete is verkry vanaf departementele webtuistes, jaarboeke en 'n vraelys. Hierdie inligting is gebruik om die ekonomie kurrikula van Suid-Afrikaanse universiteite te vergelyk met die beste internationale gebruike.

'n Boomstruktuur is opgestel waarin die beste internasionale gebruike en opsigte van die *struktuur* van ekonomie kurrikula vervat is. Hierdie boomstruktuur is gebruik in die vergelyking van die struktuur van ekonomie kurrikula van Suid-Afrikaanse universiteite met die beste internatiosionale gebruike.

Die *inhoud* van ekonomie kurrikula word weerspieël in die ekonomie handboeke wat deur universiteite gebruik word. In hierdie studie word die ekonomie handboeke wat deur Suid-Afrikaanse universiteite gebruik word aangedui.

Die student:dosent ratio is 'n *logistieke* aspek by Suid-Afrikaanse universiteite wat ver verwyder is van die beste internasionale gebruik. Beste internasionale gebruike in terme hiervan is dat ekonomieklasse nie groter as 25 studente per dosent moet wees nie. In Suid-Afrika is dit egter nie die geval nie.

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CHAPTER 1

INTRODUCTION

1.1 Problem statement

The purpose of this study is to assess the structure, content and certain logistical aspects (student numbers and student-lecturer ratios) of the economics curricula[1] offered by economics departments[2] at South African universities. The study firstly focuses on identifying international best practices for an economics curriculum and, secondly, provides information on the economics curricula offered by South African universities and then compares this information to the international best practices.

1.2 Motivation

> *"Academic quality can be defined as the merit of being among the best or at least good enough to compete with programmes at other institutions. It can also be defined as the effective meeting of goals or objectives"* (Lategan, 1997:4).

1.2.1 Academic quality assessment in South Africa

The Higher Education Quality Committee (HEQC) of the Council on Higher Education is a statutory body that advises the government on higher education issues and policies (Study South Africa, 2006). The HEQC is in the process of

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[1] For the purposes of this study, an economics curriculum refers to the economics courses/ modules offered by a particular economics department to students specialising in economics or any sub-field thereof.

[2] Most South African universities have economics departments, but there are some that are called schools of Economics. For the purposes of this study, the term "economics department" also refers to schools of economics.

evaluating all South African tertiary institutions to ensure quality within higher education and training.

As stated by Lategan (1997:4), academic quality can be assessed if you have all the necessary comparative information to evaluate whether you are among the best, or are at least good enough to compete with programmes at other institutions. Therefore, with respect to the regular quality evaluations performed by the HEQC, the information provided in this study would assist economics departments to ensure academic quality of the economics curricula they offer.

1.2.2 Comments from the Luiz-study

Luiz (2004:187-206) addresses a broad range of issues to assess the state of economics at South African universities which include staff qualifications, student numbers and research output. He also touched on courses and curricula by giving information on whether or not Honours, Masters and PhD programmes are offered by the participating economics departments, and by giving the number of students doing core courses in economics (Macroeconomics, Microeconomics and Econometrics). This study by Luiz (2004:187-206) is the only South African study that has similar objectives to this study, although Luiz (2004:187-206) provides a more general overview of economics at South African Universities. Luiz (2004:195) states that South African economics departments offer very heterogeneous products (curricula). He argues that this is particularly problematic when assessing student applications from other universities, as economics departments at Universities in South Africa generally have very little knowledge of what is happening at other institutions. Luiz (2004:196) states that he did not address details about course curricula, but that it would be an important next step.

It is therefore clear that there is a general need for information about the economics curricula offered by different economics departments at South African universities. Although some of the information is available on departments'

websites and in faculty yearbooks, it would be time consuming for any head of department to collect and summarise the information for him/her to compare the curriculum offered by his/her department to those of other departments.

This study sets out to contribute to the better understanding of, and insight into, the economics curricula offered by economics departments at South African universities. This will be done by firstly identifying international best practices for an economics curriculum against which each economics department included in this study could be compared. Secondly, information regarding the economics curricula offered by the selected economics departments in South Africa will be given. By providing economics departments with the above-mentioned information, each department can assess how their curriculum compares to the international best practices that will be identified in this study.

Summary reports of the findings of this study will be sent to all participating heads of departments. The heads of departments will therefore be provided with information regarding the international best practices identified in this study and the economics curricula that are offered by the economics departments included in this study. This information will serve as a means of improving academic quality and assessing student applications from other universities.

For the School for Economics, Risk Management and International Trade at the Potchefstroom Campus of the North-West University, this study will give valuable comparative data to enhance academic quality of the courses/modules offered. Furthermore it will assist decision makers in the realignment of economics curricula between the economics departments at the different campuses of the North-West University, due to the merger between the Potchefstroom University for Christian Higher Education (Potchefstroom and Vaal Triangle Campusses) and the University of the North-West (Mafikeng Campus) in 2004. The North-West University will also undergo an institutional audit performed by the HEQC

(see 1.2.1) in August 2008, and the information provided in this study will be of assistance in the preparation for this audit.

Associations, such as the Economics Society of Southern Africa (ESSA), and employers of economic graduates will most probably also be interested in the information provided by this study for they are concerned with the academic quality of economics offered at tertiary level in South Africa.

1.3 Research objectives

The main objective of this study is to contribute to the improvement of the academic quality of economics curricula offered by economics departments at South African universities by:

- identifying international best practices (e.g. goals, structure, content, class sizes) for an economics curriculum to which each economics department in South Africa can compare its curriculum
- commenting on how the economics curricula offered by the economics departments included in this study in general comply with the international best practices identified
- providing information regarding the economics curricula offered by selected economics departments at South African universities. This information includes the courses that are offered by the different departments, the number of semesters assigned to each course, the year level on which it is offered, the compulsory / elective nature of each course, the textbooks that are used in each course and student-lecturer ratios.

By achieving these objectives, this study will contribute not only to better overall academic quality of the economics curriculum offered on tertiary level in South Africa, but also the academic quality of each individual economics department included in this study.

1.4 Research method and design

The methodology of this study included a literature study and empirical survey. The literature study was undertaken in order to identify international best practices of an economics curriculum and highlighted the goals, structure, content and logistics (e.g. class size, teaching and assessment methods) of an economics curriculum as presented in several studies.

The empirical study entailed the sending of questionnaires to the heads of departments of the 17 universities in order to obtain the information that was not available from open sources (university websites and year books) and to evaluate whether the information that had been collected from open source searches, was up to date. All 17 universities responded to the questionnaire, although some did not provide all the information that was asked. The empirical research methodology will be discussed in more detail in chapter 3.

1.5 Demarcation of the study

This study was undertaken in 2005 and therefore information regarding the 2005 undergraduate economics curricula offered by each department was gathered.

All the tertiary institutions that existed before the merger of the universities were included in this study (for more information regarding the mergers between South African tertiary institutions see 3.2). Therefore, all universities (universities that merged with other universities) and comprehensive universities (universities that merged with technikons) were included in this study, but universities of technology (technikons that merged with other technikons) were excluded (the reasons for this are discussed in 3.2).

The type of information needed for this study was determined by the international best practices identified in this study (see 2.3.3), and by asking the opinions of a

focus group (see 3.3). The information that was gathered regarding the 2005 undergraduate economics curricula offered at the different universities can therefore be divided into the different aspects of the international best practices investigated in this study, namely the *structure*, *content* and *logistics* of these economics curricula.

Information regarding the *structure* of the economics curricula offered by the economics departments included in this study include the courses/modules offered, the year level on which each course is offered, the number of semesters assigned to each course, as well as the compulsory/elective nature of each course.

The *content* of economics courses offered by the economics departments is thought to be revealed in the textbooks that are used for each course. The textbooks that are used for each course offered by the economics departments included in this study were identified.

Information regarding the *logistics* behind the economics curricula includes the number of students taking each course and the number of lecturers teaching each course. This information will be used to calculate student-lecturer ratios for each economics course. With large groups it is difficult for lectures to facilitate active learning and the development of writing and oral skills. Therefore, information regarding student-lecturer ratios gives an indication of the logistical aspects of the economics curricula offered by the economics departments included in this study.

1.6 Division and summary of chapters

Chapter 2 contains a literature overview of the international best practices of an economics curriculum. These international best practices include aspects such

as the goals of an economics curriculum, the skills graduate economics students[3] should have, the structure of an economics curriculum, economics textbooks, class size, assessment methods and teaching.

In chapter 3, the methodology that was followed in this study is discussed. This includes the following methodological steps:

- identifying the South African universities to include in this study;
- identifying the information needed;
- open source searches;
- GAP-analysis;
- designing the questionnaire;
- creating awareness of the study;
- distributing the questionnaires;
- response and follow-up;
- final GAP-analysis and follow-up; and
- writing up the results.

In chapter 4, the state of the economics curricula offered by economics departments at South African universities is discussed. Information regarding the economics curriculum offered by each of the departments included in this study is given and these curricula are compared to the international best practices identified in chapter 2. In this chapter, the degree to which the heads of departments agree with the goals of an economics curriculum set out in chapter 2, the textbooks used in the different economics courses offered by the departments, as well as student numbers and student-lecturer ratios in each course are discussed.

Chapter 5 includes a summary, conclusions and recommendations.

[3] Economics students refer to students following a degree that includes economics as a major subject. In other words, economics students refers to students specializing in economics or any sub-field thereof.

CHAPTER 2

LITERATURE OVERVIEW: INTERNATIONAL BEST PRACTICES FOR AN ECONOMICS CURRICULUM

2.1 Introduction

In chapter 1, an introduction was given on the motivation, objectives, and methodology of this study. From chapter 1 it is clear that this study will focus on the economics curricula offered by departments of economics at selected South African universities. In order to make a useful contribution to curriculum planners and heads of economics departments at South African universities, it is important to look at opinions and guidelines on this topic, as presented in international literature. This will enable economics departments in South Africa not only to compare themselves to other South African universities, but also to international best practices.

In this chapter, a background will firstly be given on available literature on the broader topic of economics teaching and research. Further, international best practices for an economics curriculum as part of a Commerce degree will be discussed under the following headings:

- the goals of an economics curriculum
- the skills or proficiencies that graduate economics students should have
- the 'Siegfried blueprint' for the structure of an economics curriculum
- the inclusion of the lecture-and-laboratory format in certain courses/modules of an economics curriculum
- economics textbooks
- class size, assessment methods and teaching methods in an economics curriculum

2.2 Background

The state of economics teaching and research has been widely researched over the last few decades. Studies mainly focus on the following topics:

- the goals of an economics curriculum and the proficiencies or skills needed by graduating economics students (Hansen, 1986:149-152; Siegfried *et al.*, 1991: 197-224)
- the structure and content of an economics curriculum (Siegfried *et al.*, 1991:197-224; Siegfried and Wilkinson, 1982: 125-138)
- the ranking of economics departments based on their research output. Such studies have been conducted in the United States (Dusansky and Vernon, 1998:157-170), Canada (Lucas, 1995:945-961), Europe (Kalaitzidakis and Mamuneas, 1999:1150-1168), United Kingdom (Payne and Coupe, 2000:85) and Australia (Harris, 1990:249-260). Coupe (2003:1309-1346) provides a comprehensive ranking of economics departments worldwide
- the ranking of economics departments based on their academic excellence. The U.S. News and World Report yearly publishes a book called "America's Best Colleges", which provides information on how programmes compare, in which areas various departments specialise, and the strengths and weaknesses of each department
- the teaching and the logistics behind the teaching of economics. This includes topics such as class size and methods of assessment and teaching (Bartlett and King, 1990:181-193; Becker and Watts, 1996:448-453; Becker and Watts, 1999:344-349; Siegfried and Fels, 1979:923-969) and faculty workload and support (Dearden *et al.*, 2001:387-396)

The following diagram (diagram 2.1) puts these into perspective:

Diagram 2.1: Economics teaching and research

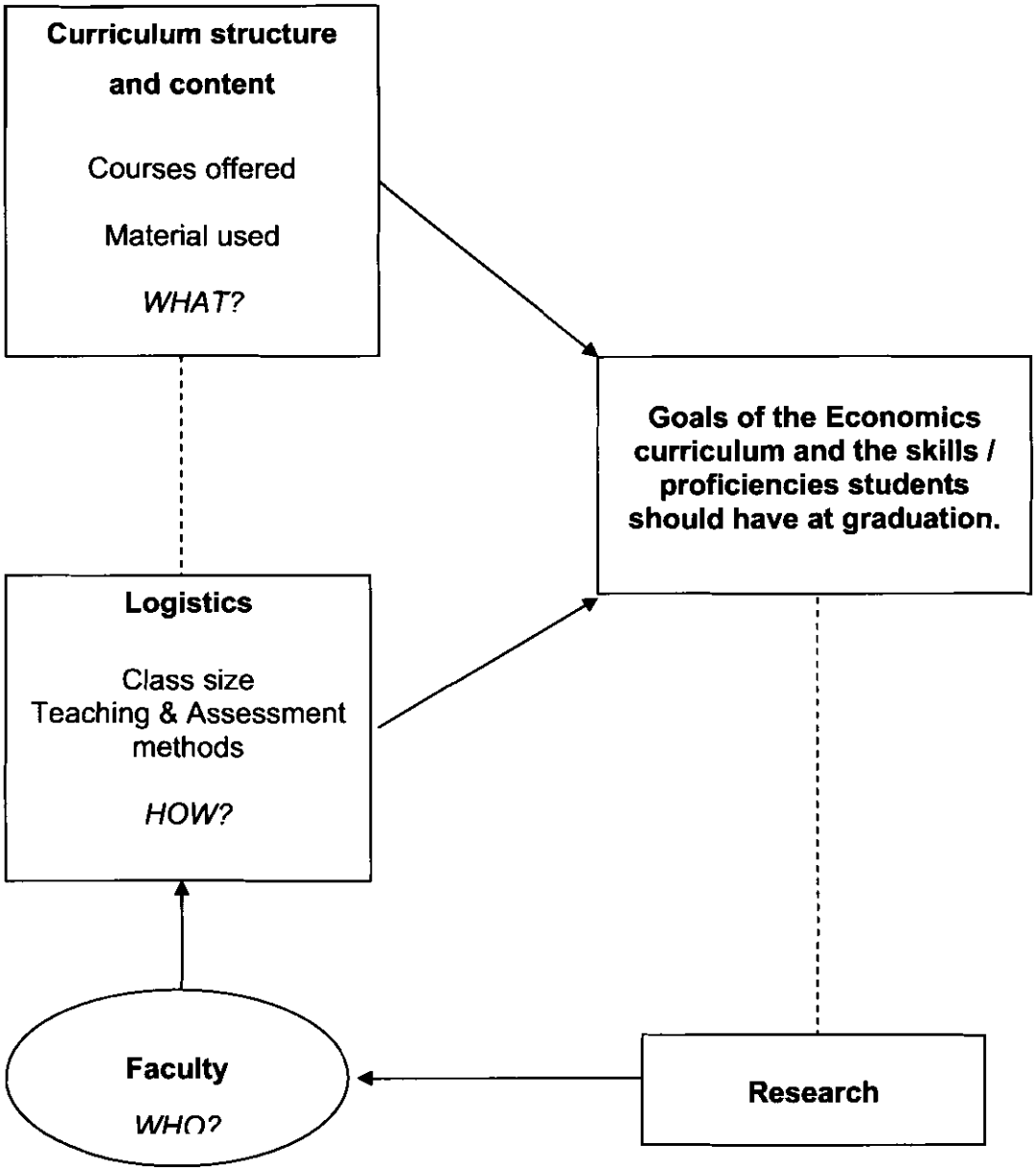


Diagram 2.1 illustrates that there are two main aspects that facilitate the achievement of the goals of an economics curriculum. These are the structure and content of an economics curriculum (what is taught?) and the logistics behind it (how it is taught?). The content and structure of an economics curriculum includes the courses that are taught, the levels on which these

courses are taught and the materials that are used in these subjects. The logistics aspect includes teaching methods, assessment methods and class size. The faculty members of a particular institution influence the content of the curriculum, and the logistics behind it. Faculty members are, in their turn, influenced by research goals as part of their workload. The goals of an economics curriculum include students being able to conduct independent research. This again links the research aspect to the goals of an economics curriculum.

In this study, the focus is on the goals, structure, content and logistical aspects of an economics curriculum. In the following section, international best practices for an economics curriculum will be discussed. The discussion includes the goals, structure, content and logistics of an economics curriculum.

2.3 International best practices for an economics curriculum

2.3.1 The goals of an economics curriculum

As stated by Lategan (1997:4), academic quality involves the effective meeting of goals or objectives (see 1.1). In order to achieve certain goals, and therefore enhancing academic quality, the first step would be to set goals. In this section, typical goals of an economics curriculum are identified.

According to Siegfried *et al* (1991:21) the all-embracing goal of an economics curriculum is "for students to be able to think like economists". But what does thinking like an economist involve? Based on their extensive research in the field of economics education and survey information gathered in the United States of America, Siegfried *et al* (1991:21) suggests the following answer to this question:

> "Thinking like an economist involves using chains of deductive reasoning, in conjunction with simplified models (such as supply and demand, cost-benefit analysis and comparative advantage) to help

understand economic events and facts … Thinking like an economist also involves identifying and evaluating tradeoffs in the context of constraints, distinguishing positive from normative analysis, tracing of behavioural implications of change while abstracting from aspects of reality. It moreover involves describing redistributive implications of change, amassing data to evaluate economic events, and testing hypotheses about how consumers and producers make choices and how the economy works. Finally, thinking like an economist involves examining many problems through a filter of efficiency – coping with limited resources".

2.3.2 The skills of an economics graduate

In another, similar article by Siegfried *et al* (1991:199–200) it is stated that thinking like an economist includes certain skills. These are problem solving and creative skills.

Problem solving skills emphasise analytical reasoning using the techniques and principles of economics. These skills include deductive reasoning, the use of models that focus on specific economic forces, the appropriate use of fundamental principles of economics and decision-making techniques such as examining tradeoffs, measuring opportunity cost, constrained maximisation and efficiency. These skills are used to formulate hypotheses, construct appropriate models, assemble empirical observations, and test hypotheses. According to Siegfried et al (1991:199–200), having these problem-solving skills will help to increase students' understanding of economic behaviour and improve their ability to predict the consequences of changes in economic forces.

Creative skills include identifying economic problems, framing these problems in ways other people do not see, devising policy proposals to deal with these

problems, analysing the effects of these policies and devising innovative methods to estimate the magnitude of these effects (Siegfried *et al*, 1991: 200).

Hansen (1986:150-151) proposed a list of skills or proficiencies an economics graduate should have. The list reflects his ideas, responses to surveys of graduate students, conversations with employers and discussions with a range of economics faculty, faculty from other disciplines and high-level executives in both government and business. The list of proficiencies includes the following:

(1) *Gaining access to existing knowledge.*

This involves locating economic data and published research.

(2) *Displaying command of existing knowledge.*

This can be achieved by, for example, by summarising existing knowledge of a current condition of the economy or a controversy in economic literature.

(3) *Displaying ability to draw out existing knowledge*

This can be achieved by, for example, writing a précis of a published journal article; reading and interpreting a theoretical/quantitative analysis reported in an economics journal article or showing which economic concepts and principles are used in an economic analysis published in newspaper or magazine articles.

(4) *Using existing knowledge to explore issues.*

This can be achieved by asking students to write an analysis of a current economic problem or to prepare a decision memorandum for a superior that recommends some action on an economic decision faced by the organisation.

(5) *Creating new knowledge*

This involves identifying and formulating a question or series of questions about a particular economic issue, preparing research proposals and completing a research study.

The American Economics Association's Commission on Graduate Study in Economics has also identified seven skills that reflect the essential competencies of economists. These are analytics, critical judgement, mathematics, computation, application, communication and creativity (Siegfried *et al*, 1991: 220).

From section 2.3.1 and 2.3.2 it could therefore be said that, ideally, graduate economics students should be able to think like economists and have problem solving, creative, analytical, computation, application, communication and exploration skills.

With the goals of an economics curriculum and the skills of economics graduates defined, the question arises - how could these goals be achieved in an economics curriculum? Diagram 2.1 illustrates that the structure and content of an economics curriculum (what is taught) and the logistics behind it (how it is taught) are the two main aspects that are facilitating the achievement of the goals of an economics curriculum. The content and structure of an economics curriculum includes the courses that are taught, the levels on which these courses are taught and the materials that are used in these subjects. The logistics aspect includes teaching methods, assessment methods and class size.

In sections 2.3.3, 2.3.4 and 2.3.5, the structure and content of an economics curriculum will be discussed. Section 2.3.3 contains a blueprint for an economics curriculum presented by Siegfried *et al* (1991:21-25) (henceforth referred to as the 'Siegfried blueprint'). In section 2.3.4, the inclusion of a lecture-and-laboratory format for certain courses/modules in an economics curriculum proposed by Bartlett and King (1990:184-197) is discussed. Section 2.3.5 includes some comments on economics textbooks as an indication of the content of economics courses. It should be noted that the different discussions on the content and structure of an economics curriculum inevitably includes comments on logistical matters such as teaching and assessment methods.

In section 2.3.6 the logistics behind an economics curriculum will be discussed. This discussion includes topics such as class size, teaching and assessment methods in economics courses/modules.

2.3.3 The 'Siegfried blueprint' for the structure of an economics curriculum

Before the 'Siegfried blueprint' is discussed, it is important to provide information on how it was constructed. A Committee on Economic Education of the American Economic Association participated in a "Study in Depth" project initiated by the Association of American Colleges. The goal of the project was to evaluate the economics curriculum. A report was drawn up focusing on the goal of the curriculum and recommendations for the improvement thereof. The facts in the report relied extensively on a survey of economics departments and students, conducted by Siegfried (Siegfried and Wilkinson, 1982; Siegfried and Raymond 1984). Nine undergraduate economics students at five different institutions read a draft of the report and offered useful advice. The report was also sent to 100 other economists and their feedback was incorporated in subsequent versions of the report. In May 1990, a survey of economics faculty at 127 institutions in America was conducted to evaluate the main conclusions and recommendations in the report (Siegfried *et al*, 1991:20-21). This resulted in a 'blueprint' for an economics curriculum.

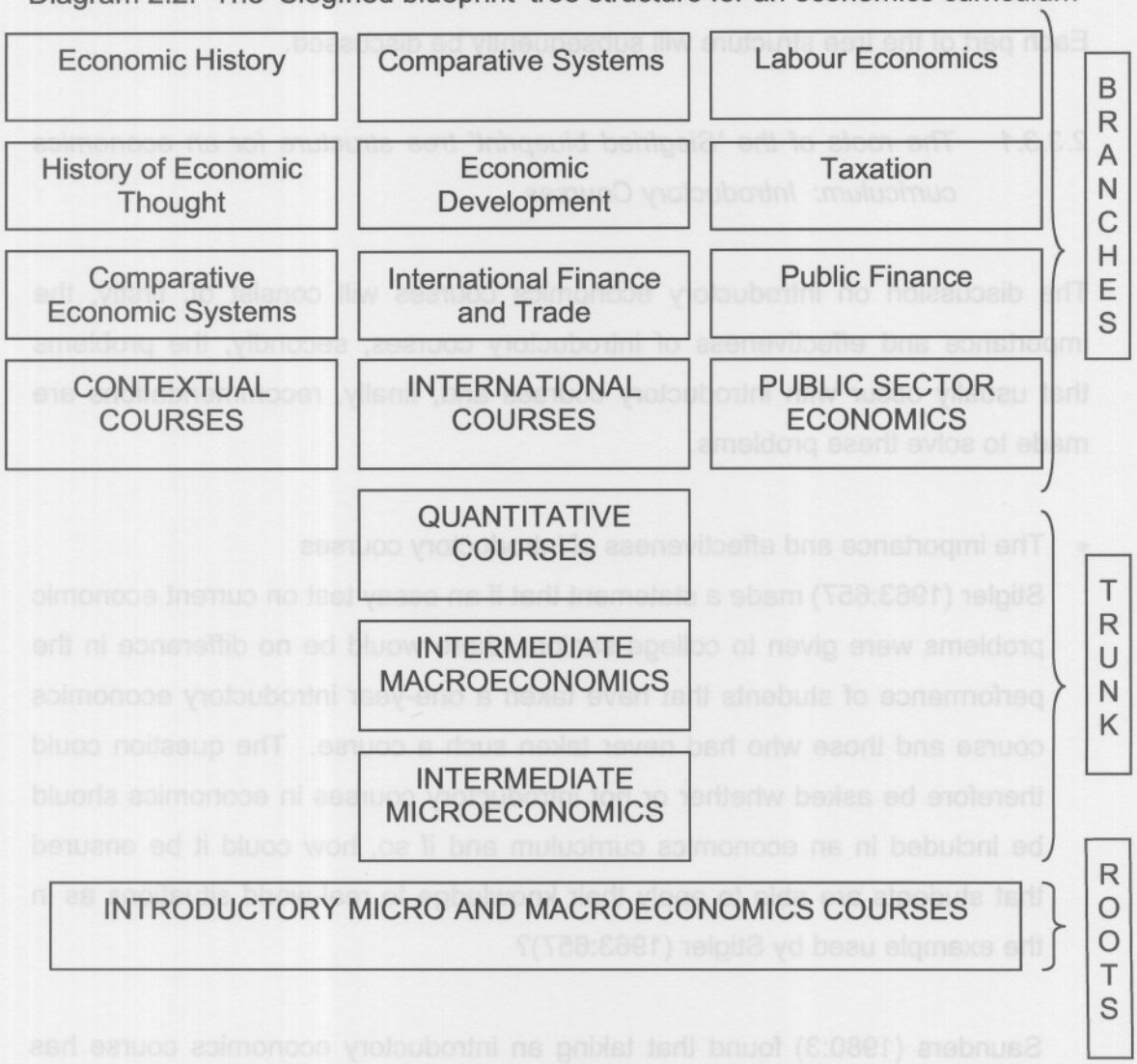
According to Siegfried *et al* (1991:21-25) the blueprint economics curriculum should consist of the following components: (1) foundations, namely Introductory Macro- and Microeconomics, Intermediate Macro- and Microeconomics and Quantitative Economics, (2) breadth, obtained by offering several elective courses and (3) depth, where students apply their knowledge through research and writing in different fields (elective courses) as well as a final research project.

Siegfried *et al* (1991:202) formulated the above into a tree structure (see diagram 2.2).

According to Siegfried *et al* (1991:202) the roots of the tree are the Introductory Micro- and Macroeconomic courses that introduce students to economic concepts and thinking.

The trunk is Intermediate Macroeconomics and Microeconomics and Quantitative Methods courses that equip students with a set of principles and quantitative skills that are widely used in the economic profession (Siegfried *et al*, 1991:202).

Diagram 2.2: The 'Siegfried blueprint' tree structure for an economics curriculum



The branches of the tree are the elective courses that provide breadth for students to explore sub-fields and topics within economics. The branches also create the opportunity to establish depth in an economics curriculum. Depth can be achieved by requiring students to do research and writing in the different fields provided by elective courses. Students are thus given opportunities to delve into economic problems and find the answers themselves. Elective courses therefore provide an environment where research in economics can be conducted as well as quantitative methods and skills can be applied (Siegfried *et al*, 1991:202).

Each part of the tree structure will subsequently be discussed.

2.3.3.1 The roots of the 'Siegfried blueprint' tree structure for an economics curriculum: Introductory Courses

The discussion on introductory economics courses will consist of, firstly, the importance and effectiveness of introductory courses, secondly, the problems that usually occur with introductory courses and, finally, recommendations are made to solve these problems.

- The importance and effectiveness of introductory courses

  Stigler (1963:657) made a statement that if an essay test on current economic problems were given to college seniors, there would be no difference in the performance of students that have taken a one-year introductory economics course and those who had never taken such a course. The question could therefore be asked whether or not introductory courses in economics should be included in an economics curriculum and if so, how could it be ensured that students are able to apply their knowledge to real-world situations as in the example used by Stigler (1963:657)?

  Saunders (1980:3) found that taking an introductory economics course has both an immediate and lasting effect on scores in the Test of Understanding

in College Economics (TUCE). Although Saunders did not use essay questions in his study, his finding casts some doubt on Stigler's statement. Also, Stigler himself was on the TUCE committee that formulated the test questions used in Saunders's study. For more information on the TUCE test, see Saunders (1973), Saunders and Welsh (1975), Fels (1967), and Welsh and Fels (1969).

Another study that examined the importance and effectiveness of introductory courses was undertaken by Jackstadt *et al* (1990:80). They compared student responses to certain economic statements to the responses of professional economists. Kearl *et al* (as quoted by Jackstadt et al, 1990:80) recorded the responses of professional economists in a study about the ways in which economists disagree about a wide variety of economic issues. A questionnaire identical to the one used by Kearl *et al* (as quoted by Jackstadt et al, 1990:80) was used to compare student responses to those of professional economists. The results of this study by Jackstadt *et al* (1990:80) show that the first year of economics instruction has a significant impact on how students think about the world. Prior to instruction, economics students' responses to the survey could not be distinguished from the control group (students not enrolled for economics courses). After completing introductory economics courses the responses of economics students indicated that they no longer viewed the world like non-economics students. Their responses correlated more with those of professional economists. The results of this study are another indication of the positive effects of introductory economics courses.

The results of the two studies mentioned above underline the importance and effectiveness of introductory courses. It can therefore be said that an economics curriculum should typically begin with introductory courses.

- Problems that usually occur with introductory courses

  Although the need for introductory courses is clear, Siegfried *et al* (1991:21) state that problems with these courses are that they are often too formal and concentrate on the theory so that application is neglected. This underlines the statement by Stigler (1963:657) that students to whom introductory economics were taught too formally would most probably not be able to write a proper essay on current economic problems.

- Recommendations to solve the above-mentioned problems

  A recommendation from Siegfried *et al*'s study (1991:21) is that the application of the most important concepts and theoretical tools to a variety of problems should be emphasised, rather than covering, in detail, a large array of topics contained in most textbooks.

  Stigler (1963:658) also recommends that introductory economics courses should concentrate on fewer topics to ensure that students better understand what they learn. These fewer topics should be developed in sufficient detail and applied to a variety of actual economic problems.

  In a study by Saunders (1980:2,12) the performance of students who have taken introductory economics courses are compared with students that have not taken such courses. The comparison was made at three different times, immediately after the introductory economics courses, two years after taking the courses and five years after taking the courses. Three different types of questions were asked in a Test of Understanding in College Economics, recognition and understanding (RU) questions, simple application (SA) questions and complex application (CA) questions. The results show that the retention rates on simple application and complex application questions are higher than on recognition and understanding questions. The results of this study also support the recommendation that lecturers teaching introductory

economics courses should concentrate on only a few important topics and their application.

In conclusion, it can be said that introductory economics courses are both important and effective, and should therefore be included in an economics curriculum to introduce students to the basic economic concepts and thinking of economics. Special care must be taken when offering these courses to emphasise the application of the most important economic concepts and theory, rather than covering a vast number of topics and teaching them too formally.

In the following paragraphs, attention will be given to the trunk of the Siegfried blueprint tree structure (see diagram 2.2).

2.3.3.2 *The trunk of the 'Siegfried blueprint' tree structure for an economics curriculum*

The trunk of the tree structure consists of Intermediate theory courses and Quantitative methods courses. The content of these courses will subsequently be discussed.

2.3.3.2.1 *Intermediate theory courses*

The introductory courses are followed by intermediate courses in macroeconomics and microeconomics. The discussion on intermediate theory courses will consist of the goals and common deficiencies of these courses, followed by recommendations to overcome these deficiencies.

- The goals of intermediate theory courses

  Siegfried *et al* (1991:22) state that intermediate theory courses accomplish three goals. Firstly, they show students how theory and real-world events interact to produce new knowledge, concepts and theories about the

economy. Secondly, they provide the tools needed to do economic analyses in the elective courses. Thirdly, they give important information to economics students about which content must be mastered, which skills must be developed and which standards must be met to successfully complete an economics curriculum.

- Main deficiencies of intermediate theory courses

  Siegfried *et al* (1991:22) again identify the lack of the application of theoretical work as a common deficiency of the intermediate theory courses. Another problem that may occur with intermediate theory courses is that the content covered in the courses differs from instructor to instructor. There is therefore usually no foundation or core of knowledge and skills that other lecturers and employers can rely on (Siegfried *et al*, 1991:22) (Gärtner, 2001:219).

- Recommendations

  Siegfried *et al* (1991:22) recommend that the theory needs to be evaluated by confronting it with data. Furthermore, models must be applied to various problems and the outcomes of alternative theoretical constructs must be compared. They further state that the theory must be shown to be relevant. In other words, theory must be applied to help students realize what the importance of it is. Students must therefore be able to use the theory they are taught.

Bartlett and King (1990:183) state that students are expected to learn to think like economists, but there is no provision made for them to learn how economists go about "doing" economics. Jill Larkin (as quoted by Bartlett & King, 1990: 183), a Carnegie-Mellon psychologist, argued that she has never known anyone skilful in their field that acquired their skills only through studying textbooks. She stresses the fact that skills are acquired through practice. A student who has learned all principles in a certain field still has no meaningful way of deciding which principle to apply to a problem he or she is

faced with. According to her, students often complain that although they study the text, they are unable to solve problems.

On this statement, Bartlett and King (1990:183) comment that few economics students learn to think like economists from classroom presentations. Also, students cannot learn economic theory and empirical analysis without personal experience in designing and performing economic research.

Hartman (1978:17-22) conducted a study that further underlines the importance of the application of theoretical work in intermediate courses. He examined how well students learn micro- and macroeconomic concepts, and how well they are able to apply these concepts. He states that the goal of an economics curriculum should be that students must be able to use economic tools to answer real world questions. He attempted to measure students' knowledge of micro- and macroeconomic theory and their ability to apply this knowledge by using their scores in an exam at Harvard University. Graders were asked to assign each student a grade in the following categories: micro theory, macro theory, micro application and macro application. Regressions were run to estimate the impact of intermediate micro and macro courses on each of the categories mentioned above. He found that an intermediate microeconomics course appears to have a small impact on both students' knowledge of micro theory and their ability to apply it to real world problems at the end of their academic careers. On the other hand, the intermediate macro course gives evidence of improving macro theory scores, but its effect on students' ability to apply those concepts is below usual significance standards. Hartman (1978:22) admits to this being rough statistical conclusions, but still states that this identifies a problem with the economics curriculum. He states that from Harvard's experience students learn significantly more difficult material by reading extensively and working on independent assignments than by being taught formally in intermediate micro- and macroeconomics courses. He also states that without experience in

problem solving, undergraduates does not learn to apply the theory they are taught.

On the problem of the difference in the content of intermediate theory courses that are taught by various lecturers, Siegfried *et al* (1991:22) recommend that the content of intermediate theory courses needs to be coordinated to establish a foundation of knowledge and skills on which other lecturers can rely.

Gärtner (2001:219) supports this recommendation in the European context. He states that the diversity in the economics curriculum in Europe should be limited and contents should be coordinated over time. He argues that the success of economists in the workplace depends on whether universities provide them with a large core of knowledge. This enhances communication on economic and related matters, both among current economics students and among different generations of economists. To function successfully, economists need a shared way of looking at things and an arsenal of standard models. According to him, this will benefit the European labour market.

To conclude, it should therefore be ensured that students have an appropriate amount of opportunities to apply the theoretical knowledge they acquire in intermediate micro- and macroeconomics courses. The importance of students doing economics could not be stressed more.

Academic institutions should coordinate the content of intermediate micro- and macroeconomics courses internally and externally (with other institutions). This will provide a foundation of knowledge and skills on which other lecturers (internally and externally) can rely, and it will benefit the labour market.

2.3.3.2.2 Quantitative methods courses

Quantitative methods courses teach students the techniques for testing and evaluating economic events and behaviour. These courses usually emphasise mathematical and statistical skills. The discussion of quantitative methods courses will consist firstly of problems that tend to occur when offering quantitative methods courses; secondly, recommendations are made to solve the problems identified and, finally, the concepts that should be included in complementary Statistical and Mathematical courses are mentioned.

- The problems that usually occur when offering Quantitative Methods courses
  Although quantitative methods courses are intended to provide students with an empirical foundation to enrich their understanding of economic events and behaviour, this goal is often not reached. Siegfried *et al* (1991:22) again identify the lack of the application of mathematical and statistical skills as the main deficiency of quantitative methods courses. They state that more attention is given to the formal aspects of statistical analysis, rather than teaching students how to apply mathematical and statistical methods in the empirical work that economists perform. The criteria and methods of choosing the appropriate data to use in empirical analysis are also neglected. Quantitative methods courses are often overloaded and taught at too fast a pace. Consequently, important issues like survey design, sampling procedures, data accuracy and the limitations of hypothesis testing and regression analysis are not adequately covered in these courses. Courses become mere training in statistics and mathematics rather than equipping students with sophistication in empirical work (Siegfried *et al*, 1991: 204).

- Recommendations to solve the above-mentioned problems
  Recommendations made by various authors to address these problems include the following:

- Quantitative Methods courses should be reoriented from their mainly statistical orientation to include the quantitative methods most widely used by economists in their empirical research and economic analyses (Siegfried *et al*, 1991:22).
- More attention must be given to teaching students how data of poor quality or inappropriate data can limit empirical work, and how these difficulties may be overcome in creative ways (Siegfried *et al,* 1991:22).
- Students must be taught the following skills to create a broader quantitative methods course that gives them a better sense of what is involved in research: the measurement of economic events and behaviour, the organisation and manipulation of data, hypothesis testing and the interpretation of the results from statistical procedures. This will create a broader quantitative methods course that gives students a better sense of what is involved in research (Siegfried *et al*, 1991:22).
- A shift must be made from the use of cleverly planned numerical examples to the use of real data (Siegfried *et al*, 1991:204; Becker and Greene, 2001:170).
- The application of statistical measures and the interpretation, limitations and significance of statistical techniques for economists must be emphasised (Becker, 1987:19).
- Students should not be expected to merely memorise definitions, duplicate proofs or perform repetitive computations. They should rather be doing exercises and case studies and solving problems that reflect what economists do (Becker, 1987:19).
- Lecturers should ensure that their presentations and instructional materials aim at problem solving and do not reflect only a preconceived notion about what topics must be covered. If a certain topic is covered, it does not mean that students can actually do it (Becker, 1987:19).
- Students must realise that the problem dictates the data needed and the analytical techniques used. They must also learn how to select the appropriate concept and technique for solving a specific problem by

starting with a limited number of statistical concepts and analytical techniques (Becker, 1987:19-20).

- The content of statistical and mathematical courses

  Becker and Green (2001:173) identify a few fundamental concepts and skills that are essential for any course in Statistics and Econometrics. The calculation and use of descriptive statistics (mean, median, standard deviation etc.), data management, computation and graphing are the fundamental skills required. With these skills in place, concepts such as probability, sampling distribution of an estimator, hypothesis testing, regression to the mean, the least squares estimator and alternatives to the least squares estimator need special attention for students to be able to analyse actual situations with which they will be confronted as economists.

  Siegfried et al (1991:204) suggest that a Calculus course for economics students should cover partial and total differentiation, constrained and unconstrained maximisation and integration. They further recommend that such a course should emphasise application and interpretation, rather than drills and formal proofs of theorems. The content proposed by Becker and Green (2001:173) and Siegfried et al (1991:204) are clearly supported by the above-mentioned recommendations by other authors.

To summarise, the main goal of Quantitative Methods courses is to provide students with an empirical foundation to enrich their understanding of economic events and behaviour. Problems that usually occur when offering Quantitative Methods courses include the lack of application, the fact that courses are overloaded and taught at too fast a pace and that Quantitative Methods courses often becomes mere training in Statistics and Mathematics, rather than equipping students to understand economic events and behaviour. Recommendations to solve these problems include emphasis on interpretation and application as well as the use of real data in exercises.

This concludes the discussion on the trunk of the tree structure. The following paragraphs will focus on the branches of the Siegfried blueprint tree structure (see diagram 2.2).

2.3.3.3 The branches of the 'Siegfried blueprint' tree structure for an economics curriculum: elective courses

Siegfried *et al* (1991:216) suggest that breadth and depth in an economics curriculum could be achieved through requiring students to take a number of elective courses. This discussion will cover the proposed ways in which breadth and depth could respectively be achieved in an economics curriculum.

- Breadth

  Siegfried *et al* (1991:216) state that a "respectable" economics curriculum requires at least five (usually between three and six) courses beyond the foundations (roots and trunk) to achieve breadth in the curriculum. Thereby, students are given the opportunity to apply economic principles and concepts in different contexts and to explore sub fields and topics within economics.

  Siegfried *et al* (1991:23) suggest that, to produce greater breadth, at least one course in each of the following categories must be included:

  (1) Contextual courses, including Economic History, History of Economic Thought and Comparative Economic Systems.

  (2) International courses, including International Trade and Finance, Economic Development and Comparative Systems.

  (3) Public Sector Economics courses, including Public Finance and Taxation and Labour Economics.

  Siegfried *et al* (1991:217) recommend that all elective courses should contain a substantial active-learning component. Active learning includes oral and/or

written reports, interactive computer simulations, class discussions or laboratory exercises and should draw on a broad array of source materials. Assignments should reinforce students' understanding of empirical methods acquired in the core quantitative methods course.

The goal of these courses would be to bring economic principles, analytical methods and quantitative skills together to solve problems in diverse contexts.

To achieve the required breadth in an economics curriculum, at least one course in each category (Contextual courses, International courses and Public sector courses) should be offered; but preferably more courses in each category to give students a wider choice of courses.

- Depth

  Siegfried *et al* (1991:24) state that, to achieve depth in an economics curriculum, students should be required to apply what they have learned to economic problems. According to this study, it requires lecturers to go beyond the coverage of the textbook of elective courses and show students how current knowledge evolved and how new knowledge is developed in the field. Lecturers in elective courses should link general principles introduced in the theory courses to important ideas. This study further recommends that students should be required to examine how economic events and behaviour are observed and measured, and how data is selected, organised and analysed. This depth requirement should be implemented in each elective course and completed through the establishment of a "capstone experience" (Siegfried *et al*, 1991:24).

  A capstone experience is usually in the form of a senior thesis or research project where students should be required to formulate questions, gather, structure and analyse information, draw conclusions and communicate these

conclusions to others in an oral and/or written form (Siegfried *et al*, 1991:24). According to Siegfried *et al* (1991:24) such an experience can help complete the process of intellectual maturation. It also gives students the opportunity to do economics and acquire an increased capacity to think like an economist.

Therefore, to achieve depth in the curriculum, students should be required to apply their knowledge to economic problems. This could be achieved by implementing this in elective courses and requiring students to do a research project at the end of their studies.

This concludes the section about the Siegfried blueprint for the structure (and content) of an economics curriculum. To summarise: the Siegfried blueprint for an economics curriculum consist of introductory economics courses, intermediate theory courses, quantitative methods courses and a variety of elective courses. The main challenge for lecturers that offer the different courses/modules that form part of the proposed curriculum, is that they should not neglect the application of the theory and principles that they teach their students. General consensus exists that by doing practical economics, students learn more and they remember better what they have learned .

With the Siegfried blueprint defined, the lecture-and-laboratory format for certain courses/modules in an economics curriculum can be discussed.

2.3.4 The lecture-and-laboratory format for courses in an economics curriculum

From the previous section, it can be stated that the application of economic theory is essential for economics students to achieve the goals set out for them. Siegfried *et al* (1991:21-25) stressed the importance of the "doing" of economics in every component of an economics curriculum. In this section the recommendation of Bartlett and King (1990:184-190) to use a lecture-and-

laboratory format in certain courses/modules of an economics curriculum will be discussed to supplement the Siegfried blueprint in the achievement of the goals set out in section 2.3.1 of this chapter.

Bartlett and King (1990:184-188) state that students cannot learn economic theory and empirical analysis without personal experience in designing and performing economic research. They suggest that laboratory components need to be developed for at least intermediate micro- and macroeconomics and quantitative methods courses. According to Bartlett and King (1990:186) lecturers should cover the theory and concepts that need to be mastered during the usual instructional sessions and then make use of laboratory sessions to reinforce the students' understanding of these concepts by discovering, expanding and applying the theory themselves. Laboratory exercises would typically revolve around the use of personal computers. Offering the usual lectures and supplementing them with laboratory sessions will subsequently be referred to as the lecture-and-laboratory format for a specific course.

The discussion about the proposed incorporation of laboratory sessions will continue by including the motivation, progression and timing thereof.

- Motivation for the incorporation of the lecture-and-laboratory format in certain courses: Bartlett and King (1990:184) argue that laboratory sessions would give students continued opportunities for hands-on experience, direction and support for the course of their studies and not just at the end of or at a few points during their academic studies. They also state that by reorganising courses to incorporate laboratory components, undergraduate economics courses would emphasise "learning by doing" (Bartlett and King, 1990:186).

  Bartlett and King (1990:188) emphasise that it is important to note that the purpose of the laboratory is not to have students answer workbook questions or problem sets on a computer, but to use the computer as a tool for

collecting, manipulating and analysing their own data. In this manner, students not only learn what economists should know, but also how they go about discovering their knowledge (Bartlett and King, 1990:188).

- Progression in laboratory sessions
  Bartlett and King (1990:184) suggest that the beginning laboratory sessions be devoted to making sure that students understand basic definitions. Thereafter, the next sequence of exercises could help students discover laws of supply and demand by manipulating price and cost functions on a spreadsheet and simultaneously graph the changes. Eventually, students would be able to build and use their own models.

- The timing of incorporating laboratory sessions
  Bartlett and King (1990:186-187) warn that delaying the opportunity for students to "do" economics until the end of the students' academic career is problematic for several reasons. Firstly, students need to apply their knowledge throughout the duration of the theory courses for them to develop a better understanding of the theoretical material covered. Secondly, when students are merely expected to memorise theoretical material, they very often don't draw connections between courses. They often treat each course as an unrelated entity and, by getting the chance to apply their knowledge while studying different courses, they would discover that both theoretical and empirical skills acquired in one course are used in the next course. Students may also find that they use the same databases in different courses. The third problem identified by Bartlett and King (1990:187) is that, in most economics curricula, quantitative methods courses are separated by several semesters from the final year research project or courses in which students are given the opportunity to do practical economics. Without constant use and reinforcement of empirical tools, students quickly lose their ability to apply analytical skills to research questions. Students then have to relearn some econometric principles in their final year to be able to "do" economics. Bartlett

and King (1990:187) suggest that these problems could be overcome by integrating the application of economic principles across the curriculum.

To conclude, it is clear that the incorporation of laboratory sessions into an economics curriculum could facilitate the important issue of giving students opportunities to apply their knowledge.

The researcher agrees that an economics curriculum should consist of all the components of the Siegfried blueprint and, in addition, that intermediate micro- and macroeconomics, econometrics and other quantitative methods courses should be offered in a lecture-and-laboratory format. By incorporating laboratory sessions in the elective courses, the implementation of the depth requirement, suggested by Siegfried *et al* (1991:24), could further be facilitated.

The following discussion will concentrate on economics textbooks as a reflection of the content of economics courses (see diagram 2.1).

2.3.5 Economics textbooks

In this section, general problems with economics textbooks are discussed, together with recommendations to resolve these problems.

- Problems experienced with economics textbooks

  Becker (1996:19) states that because economics textbooks generally do not have adequate examples of real-world applications, students of economics experience unnecessary difficulties.

  This statement is supported by the argument of Siegfried *et al* (1991:210) that students are not learning the importance of carefully observing the world, when problem sets given in textbooks are carefully designed to ensure definite answers. They argue that, because of this, students might think that

answers can be derived from theories with little basis in reality. Also, if textbook problem sets are merely exercises in calculus, students are taught little about economics.

Bartlett and Weidenaar (1988:109) report on the proceedings of the 1987 Invitational Conference on the Principles of Economics Textbooks. Professor Michael J. Boskin from Stanford University identifies problems with textbooks. He states that textbooks tend to grow in size because new topics are explored but previous material is not deleted. Also that information in textbooks is not up to date because of the lags of writing, reviewing, publication and distribution. He also argues that lecturers tend to let textbooks set the agenda in the classroom, rather than the other way around.

Hansen (1982:221) also argues that the trouble with textbooks is that they must "cover" a vast multitude of topics and present all sides of every issue. He states that everything cannot be covered in the theory courses, and even if it could, students would be unlikely to master all of it anyway.

- Recommendations

  Siegfried *et al* (1991:210) recommend that problem sets in textbooks should ask students to identify important constraints and that this should make it easier for students to bring intellectual order out of the confusion of the world. They also state that problem sets should make it easier for students to learn economics and to express their ideas about economics.

  Other speakers at the Invitational Conference on the Principles of Economics Textbooks (Bartlett and Weidenaar, 1988:109), made a few recommendations concerning economics textbooks. Professor Kenneth E. Boulding, the keynote speaker, stated that a textbook should have, at the very least, some combination of data and theory. According to him, the theory should help explain the data, and the data should illustrate the theory. Professor Carolyn

Shaw Bell from Wellesley College believes that students should be taught to think like economists and that they need to analyse real-world examples drawn from their own experiences. She also believes that students need data to at least understand the dimensions of the problems and that data in textbooks is inadequate. Bell wants her students to have a fundamental and working knowledge of the economic world in which they live.

Hansen (1988:271) suggests that economics textbooks should be used together with, as he calls it, "real" books. Real books are books that reveal how economists think about important economic problems and issues. It reveals how economists practice economics. Students will learn how economists approach their work and see how they give life to the concepts and approaches in textbooks.

Siegfried *et al* (1991. 210) suggest that regular computer assignments should be given throughout the duration of the theory courses to overcome the problem of inadequate examples and problem sets in textbooks.

To summarise, the problems identified with economics textbooks include the lack of using real-world data, the growth in topics covered, the out-datedness of the information in textbooks and the fact that textbooks set the agenda in the classroom rather than the lecturer. Using textbooks together with real books and computer assignments could help overcome some of these problems. By implementing the lecture-and-laboratory format in an economics curriculum, the problem of inadequate textbook examples and problem sets could be overcome.

Some thoughts on the logistics behind an economics curriculum will now be discussed.

2.3.6 The logistics behind an economics curriculum: class size, teaching methods and assessment methods.

That students be able to "think like economists" and to "do economics" are the most important goals set out for an economics curriculum (see section 2.3.1). The achievement of these goals requires smaller classes, considerably more instructional resources, evaluation methods that give students opportunities to develop their writing and oral skills and opportunities for students to learn more actively (Siegfried *et al*, 1991:24).

Siegfried *et al* (1991:24) suggest that intermediate micro- and macroeconomics courses are taught most effectively in classes of 20 to 25 students. They also suggest that courses where writing, oral presentations and research projects are emphasised should have a class size of 15. This could be very expensive and heads of departments may feel that compromises should be made. Siegfried *et al* (1991:24) emphasise the fact that when compromises are made on class size the goals and standard of an economics curriculum are sacrificed. With larger classes, lecturers are forced to use lecture formats in teaching instead of class discussions. Multiple-choice exams also become a better option with larger classes, compromising on writing, oral presentations and essay types of questions that give a better indication of student understanding.

Siegfried *et al* (1991:24) propose that appointing more lecturers or limiting the access to the economics curriculum could solve this problem. Appointing more faculty members will most probably not be financially feasible for many institutions and the limiting of access to the economics curriculum might be in conflict with the philosophy of many institutions. Siegfried *et al* (1991:24) further suggest that institutions should rather offer intellectually challenging intermediate microeconomics, intermediate macroeconomics and quantitative methods courses whose "reputation" ensures that student numbers do not exceed the capacity of the department of economics. They emphasise that "intellectually

challenging" does not mean unfair grading or unreasonable assignments. Instead, it means that students should be asked to apply economic ideas to unfamiliar problems.

The lecture-and-laboratory format for courses in an economics curriculum (see 2.3.4) can provide a solution to problems with the logistics of implementing the ideal economics curriculum. Giving lecture sessions to larger groups and then dividing the group into smaller groups for laboratory sessions could overcome the problem of having inadequate financial resources to ensure smaller classes. Student assistants who are familiar with the work could be appointed to help lecturers in the laboratory sessions. This will still be costly, but not as expensive as appointing a large number of permanent lecturers.

In conclusion, it is important to note that the ideal class size for the achievement of the typical goals for an economics curriculum (see section 2.3.1) is 15 to 25 students. When compromises are made on class size, lecturers are forced to use lecture formats in teaching instead of class discussions and multiple-choice exams instead of essay types of questions that will develop writing abilities. Compromising on class size will also lead to fewer active-learning opportunities for the enhancement of student understanding. Recommendations to avoid this include appointing more lecturers, offering intellectually challenging intermediate theory and quantitative courses with a "reputation" and incorporating laboratory sessions where large groups can be divided into smaller groups.

This concludes the discussion on the international best practices of an economics curriculum. In the researcher's view, the result of the implementation of these international best practices will be that, as Hansen (1986:152) puts it:

> "…students will be taught less, but will learn more, and learn what they do learn better now."

A summary of this chapter is now provided.

2.4 Summary

In this chapter, a background was firstly given on the available literature on the broader topic of economics teaching and research. In diagram 2.1, the different aspects included in the broader topic of economics teaching and research are illustrated. Diagram 2.1 also illustrates that the structure and content of an economics curriculum (what is taught) and the logistics behind it (how it is taught) are the two main aspects that are facilitating the achievement of the goals of an economics curriculum. The content and structure of an economics curriculum includes the courses that are taught, the levels on which these courses are taught and the materials that are used in these subjects. The logistics aspect includes teaching methods, assessment methods and class size.

Studies on the content, structure and logistical aspects of an economics curriculum were researched, and the views of the different authors were used to identify international best practices for an economics curriculum. These international best practices for an economics curriculum are discussed under the following headings:

- the goals of an economics curriculum
- the skills or proficiencies graduate economics students should have
- the 'Siegfried blueprint' for the structure of an economics curriculum
- the inclusion of the lecture-and-laboratory format in certain courses/modules of an economics curriculum
- economics textbooks
- class size, assessment methods and teaching methods in an economics curriculum

A summary of each of these sections will now be given.

- The goals of an economics curriculum and the skills or proficiencies graduate economics students should have

Graduate economics students should be able to "think like economists" (see 2.3.1) and have problem solving, creative, analytical, computation, application, communication and exploration skills

- The Siegfried blueprint for the structure of an economics curriculum (see diagram 2.2)

  The Siegfried blueprint consists of the following:

  - Introductory courses that stress the application of economic principles to a variety of problems
  - Intermediate micro- and macroeconomics courses that actively engage students in doing economic analysis
  - Quantitative methods courses (including Statistics, Econometrics and Mathematics) that focuses the application of the techniques used in economics
  - Three to six elective courses that provide breadth to the curriculum. These courses should emphasise writing, oral presentations and research projects to also provide depth to the curriculum. Elective courses could also include laboratory sessions to further facilitate the active learning requirement for these courses
  - A capstone experience in the form of a final research project that would complete the process of intellectual maturation and that gives students the opportunity to acquire an increased capacity to "think like an economist"

  The application of economic theory and concepts at every level in an economics curriculum could not be more strongly stressed. The emphasis of economics courses should not be on formally teaching theoretical material, covering a vast number of topics with students memorising definitions, formal proofs and theoretical concepts. It should rather be on students discovering the theory for themselves, working with real world data, problems and situations

- The inclusion of the lecture-and-laboratory format in certain courses/modules of an economics curriculum

Students should learn economic theory and empirical analysis through personal experience in designing and performing economic research. To facilitate this, lecturers should cover the theory and concepts that needs to be mastered during the usual instructional sessions and then make use of laboratory sessions to reinforce the students' understanding of these concepts by discovering, expanding and applying the theory themselves. Offering the usual lectures and supplementing them with laboratory sessions are referred to as the lecture-and-laboratory format for a specific course.

The incorporation of laboratory sessions into an economics curriculum could therefore facilitate the important issue of giving students opportunities to apply their knowledge. The lecture-and-laboratory format should be implemented in at least intermediate micro- and macroeconomics, Econometrics and other quantitative methods courses. By incorporating it in the elective courses, the implementation of the depth requirement, suggested by Siegfried *et al* (1991:24), could further be facilitated.

- Economics textbooks

  In this section special attention was given to economics textbooks as a reflection of the content of economics courses. The problems identified with economics textbooks include the lack of using real-world data, the growth in topics covered, the out-datedness of the information in textbooks and the fact that textbooks set the agenda in the classroom rather than the lecturer. Using textbooks together with real books and computer assignments could help overcome some of these problems. By implementing the lecture-and-laboratory format in an economics curriculum, the problem of inadequate textbook examples and problem sets could be overcome.

- Class size, assessment methods and teaching methods in an economics curriculum.

  To best achieve the goals set out for an economics curriculum, no more than 25 students per class can be acceptable. Compromising on class size will lead to fewer active-learning opportunities (writing, oral presentations and

research projects) for students to enhance their understanding and develop a way of thinking like an economist. The lecture-and-laboratory format will provide solutions to the problems with the logistics of implementing the ideal economics curriculum. Giving lecture sessions to larger groups and then dividing the group into smaller groups for laboratory sessions could overcome the problem of having inadequate financial resources to ensure smaller classes. Student assistants who are familiar with the work could then be appointed to help lecturers in the laboratory sessions.

The implementation of these international best practices for an economics curriculum would result in students having a better understanding of economics and being able to do economics when they leave university. Economics would be more exciting and challenging to students and the effect of completing an economics degree would be longer lasting.

The international best practices for an economics curriculum that were identified in this chapter will be used in chapter 4 as a guideline or benchmark to which economic curricula that are offered at economics departments at selected South African universities can be compared.

Before this comparison can be made, the methodology that was followed to identify the Universities that were included in this study, and to gather the information needed for this study will be discussed in chapter 3.

CHAPTER 3

METHODOLOGY

3.1 Introduction

In Chapter 2, a literature overview of the international best practices for an economics curriculum was presented. The methodological steps that will be discussed in this chapter enabled the researcher to compare the economics curricula of economics departments at South African universities to the international best practices as presented in chapter 2. The methodological steps include the following:

- Identifying the South African universities to include in this study;
- Identifying the information needed
- Open source searches
- GAP-analysis
- Designing the questionnaire
- Creating awareness of the study
- Distribution of the questionnaires
- Response and follow-up
- Final GAP-analysis and follow-up
- Writing up of results

In the last section of this chapter, a brief overview of the problems experienced during the course of the methodological process is given.

3.2 Identifying the South African universities to include in this study

Higher education in South Africa has undergone a substantial transformation in recent years. The post-apartheid South Africa was tasked with two major challenges. The one was to build democracy and pursue social equity, development and economic growth. The other was to respond to the challenges

of globalisation (Study South Africa, 2006). The achievement of these goals would result in an increasingly competitive, knowledge-driven economy. The demands of these challenges on higher education is obvious – higher education should produce graduates who can participate effectively in the development of the country and the achievement of the above-mentioned goals (Study South Africa, 2006). This called for higher education in South Africa to be restructured. The restructuring of the higher education system in South Africa therefore aims to (South Africa.info, 2003):

- solve problems of duplication and fragmentation in the higher education system and the lack of access to the higher education system in parts of the county
- improve the quality of higher education in South Africa
- better meet the social, economic and human resources requirements of the country
- increase the number of students in the higher education system over the next 10 to 15 years
- increase the number students from previously disadvantaged groups in the higher education system

The Council on Higher Education (CHE), a statutory body that advises government on higher education issues and policy, investigated the situation and advised government that the restructuring of higher education in South Africa should be done through mergers and incorporations of tertiary institutions. The number of tertiary institutions was thus reduced through mergers and campus incorporations. Some universities were not affected by the mergers (these include the Universities of Cape Town, the Witwatersrand and Stellenbosch) and others merged with other universities or technikons. Where two or more technikons merged, the new institutions are called universities of technology and where universities merged with technikons; comprehensive universities are created (Study South Africa, 2006).

Most mergers and incorporations took place in 2004 and 2005 and were overseen by a merger unit in the National Education Department. Higher education now includes 23 institutions including 11 universities, 6 universities of technology and 6 comprehensive universities (universities that merged with technikons). Universities have strong research capacity and high proportions of postgraduate students, while universities of technology are orientated towards vocational qualifications, with some postgraduate and research capacity. Comprehensive universities are a new kind of institution that offers technikon-type programmes as well as a range of relevant university-oriented programmes. (Study South Africa, 2006).

The institutions in the new higher education system were constructed as follows:

Table 3.1: The composition of the institutions in the new higher education system.

	NAME OF INSTITUTION	COMPOSITION
	UNIVERSITIES	
1.	University of Cape Town =	University of Cape Town
2.	University of Fort Hare =	University of Fort Hare + Rhodes University's East London Campus
3.	University of the Free State =	University of the Free State + Vista University (Bloemfontein) + University of the North (Qwa-Qwa).
4.	University of Pretoria =	University of Pretoria + Vista University (Mamelodi).
5.	Rhodes University =	Rhodes University.
6.	University of Stellenbosch =	University of Stellenbosch.

7.	University of the Western Cape =	University of the Western Cape + University of Stellenbosch Dental School.
8.	University of the Witwatersrand =	University of the Witwatersrand.
9.	University of KwaZulu Natal =	University of Durban Westville + University of Natal.
10.	University of Limpopo	= University of the North + Medical University of South Africa.
11.	North-West University =	Potchefstroom University of Christian Higher Education + University of North West + Vista University (staff and students of Sebokeng).
	COMPREHENSIVE UNIVERSITIES	
12.	University of Venda for Science and Technology =	University of Venda.
13.	University of Zululand =	University of Zululand.
14.	University of Johannesburg =	Rand Afrikaans University + Technikon Witwatersrand + Vista University (East Rand and Soweto).
15.	Nelson Mandela Metropolitan University =	University of Port Elizabeth + Port Elizabeth Technikon + Vista University (Port Elizabeth).
16.	University of South Africa =	University of South Africa + Technikon South Africa + Vista University Distance Education Centre.

17.	Water Sisulu University of Technology and Science =	University of Transkei + Border Technikon + Eastern Cape Technikon.
	UNIVERSITIES OF TECHNOLOGY	
18.	Central University of Technology =	Technikon Free State + Vista University (Welkom).
19.	Mangosuthu Technikon =	Mangosuthu Technikon.
20.	Vaal University of Technology =	Vaal Triangle Technikon + Vista University (infrastructure and facilities of Sebokeng).
21.	Cape Peninsula University of Technology =	Cape Technikon + Peninsula Technikon.
22.	Durban Institute of Technology =	ML Sultan Technikon + Natal Technikon + Mangosuthu Technicon (still to come) + Durban campus of the University of Zululand (still to come).
23.	Tshwane University of Technology =	Technikon of Pretoria + Technikon North-West + Technikon Northern Gauteng.

Source: Study South Africa, 2006.

It can be noted that the Vista University is the only university that has been fully dismantled and its campuses around the country have been incorporated into those universities and technikons closest to each campus (Study South Africa, 2006; South Africa. info, 2003).

For the purposes of this study the following institutions were included (in alphabetical order by name e.g. Cape Town, Fort Hare, Free State):

1. University of Cape Town
2. University of Fort Hare
3. University of the Free State
4. University of Johannesburg
5. University of KwaZulu Natal
6. University of Limpopo
7. Nelson Mandela Metropolitan University
8. North-West University
9. University of Pretoria
10. Rhodes University
11. University of Stellenbosch
12. University of South Africa
13. University of Venda for Science and Technology
14. Walter Sisulu University of Technology and Science (see 3.10)
15. University of the Western Cape
16. University of the Witwatersrand
17. University of Zululand

There are several reasons for including these institutions. The mergers and incorporations of higher education institutions took place during 2004 and 2005 and this study was undertaken in 2005. This was thought to be an appropriate time to conduct this study, particularly because a contribution can be made in terms of the realignment of curricula and courses between the different campuses of merged institutions.

Unfortunately, it was also a very difficult time to conduct the study. Firstly, heads of economics departments were faced with an additional workload because of the merger process. Secondly, it was difficult to determine which institutions to include in the study, because all institutions were in the process of merging. A

decision was made to include only the institutions that incorporated the universities[4] that existed before the mergers. Therefore all universities and comprehensive universities were included in this study, but universities of technology were excluded. This also made it easier to compare the results of this study to the only other study on the state of economics at South African universities conducted by Luiz (2004).

In the next few paragraphs, the steps that were followed in order to identify and collect the information needed for this study, will be discussed.

3.3 Identifying the information needed

The information needed was firstly identified from the international best practices discussed in chapter 2. This includes the following:

- The degree to which the heads of the different economics departments agree with the goals of the economics curriculum that are set out in chapter 2.
- The courses offered by each department of economics; the year level on which each course is taught; and the elective or core nature of each course. This information can be used to establish the structure of the economics curriculum offered by each economics department.
- The textbooks that are used in each course. This information can be used to compare the content of the courses offered by the different departments.
- Student numbers and the number of lecturers that teach each course. This information can be used to calculate student-lecturer ratios to give an indication of the logistics behind the economics curriculum offered by the different economics departments. Although it is not the primary focus of this study to investigate and comment on student-lecturer ratios, it is important to have an idea of the general situation in South Africa, and how

[4] Vista University was not included, because of its total dismantlement.

the economics departments included in this study compare with international best practices.

A focus group consisting of the programme leaders of the School for Economics, Risk Management and International Trade at the Potchefstroom Campus of the North-West University was formed to verify whether the information identified from the literature study is adequate, and to identify additional information that is necessary for the comparison. The focus group agreed that all the information mentioned in the previous paragraph must be included. In addition they suggested that the number of semesters and lectures per week devoted to each course offered by the different economics departments be included in the questionnaire.

3.4 Open source searches

Firstly, open source searches were undertaken to collect the information needed. Open sources include economics departments' websites and faculty yearbooks. The main reason for this was to minimise the amount of information asked from each economics department. It would also minimise the amount of time the heads of departments had to spend in assisting us with this study.

3.5 GAP-analysis

After searching and sifting through all the different information available from the open sources discussed in 3.4, a GAP-analysis was performed. Mostly, there was no indication in open source information of student numbers and the number of lecturers teaching each course (in order to calculate student-lecturer ratios). In general, there was also little information on the number of lectures devoted to each course per week. Relatively little information was available on textbooks, although some economics departments provide the names of the textbooks they use on their web sites. Some departments provide very detailed information on

the compulsory/elective status of courses, and others have no information available in this regard.

On the other hand, most of the economics departments provide information on the courses they offer, the year level of each course and the number of semesters the courses are offered.

3.6 Designing the questionnaire

A copy of the questionnaire is included in Appendix A.

3.6.1 Construction of a basic format for the questionnaire

The basic structure of the questionnaire was compiled according to the information needed from the international best practices (see 3.3). The additional information, that was identified during discussions with the focus group (see 3.3), was also included in the questionnaire. The basic structure of each questionnaire consisted of the following:

- A covering letter from the Director of the School of Economics, Risk Management and International Trade at the North-West University, Potchefstroom Campus. This letter explains the goals and methodology of the study. Apart from this, the letter urged the economics departments to participate in this research project so that each department could be reflected in the results of the study. Finally, a request was made to economics departments to check the accuracy of the available information, as well as filling in the missing data, as indicated in each attached questionnaire.
- A table for each of the economics courses offered by a particular department. The tables consist of the following columns:
  - the name of the course (in some cases the exact name of the course differs from the course category it was assigned to. An example of this

is "African Economic History" and "South African Economic History" are both categorised under "Economic History"
  - the textbook used
  - the year level on which the course are offered
  - the number of semesters devoted to the course
  - the number of students taking the course
  - the number of lecturers that offer the course
  - the number of lectures per week
  - an indication whether the course are compulsory (C) or elective (E)

  A request was also made that 2005 information had to be provided.
- Provision for heads of departments to indicate whether there are additional courses that were not included in the questionnaire. The same table as in the previous point are used here
- The heads of the different economics departments were also asked to indicate how strongly they agree or disagree with the goals of an economics curriculum set out in chapter 2 (see 2.3.1). Each goal is stated and participants are asked to give a score for each goal on a scale of 1 (totally disagree) to 5 (totally agree)
- The questionnaire also provides for heads of departments to indicate whether they want to receive a summary report of the findings of this study

After the compilation of the basic structure of the questionnaire, members of the focus group (see 3.3) were asked to comment on the structure and content of the questionnaire.

3.6.2 Construction of individual questionnaires

The information gathered from open sources and the GAP-analysis referred to in 3.3.3 enabled the researcher to construct an individual questionnaire for each economics department included in the study. Each questionnaire had the same basic format (see 3.6.1), but included the unique information for each department that had been gathered from open sources. This enabled each economics

department to verify the information obtained from open sources and to fill in only the gaps.

3.7 Creating awareness of the study

A work-in-progress paper of this study was presented at the bi-annual Economic Society of South Africa (ESSA) conference on 9 September 2005. The paper included a literature overview and preliminary results from open source searches. The main purpose for presenting this paper was to make economists at different economics departments aware of the study and to encourage them to participate. During the course of the conference, most of the heads of economics departments were approached personally to inform them about the study and to get their correct contact details.

3.8 Distribution of the questionnaire

On 30 November 2005 the questionnaires were posted to the different economics departments. E-mails were also sent at this time to the heads of the different departments. Physical and e-mail addresses were gathered from each department's website, or from business cards obtained at the ESSA conference mentioned in 3.7. Heads of departments were requested to return the completed questionnaire by 20 January 2006.

3.9 Responses

By 20 January 2006, six responses had been received. At this time, e-mails were sent to all those universities. No responses were received.

Follow-up calls were made to heads of departments on 10 February 2006. Most of them promised to send responses as soon as possible, and the questionnaires were e-mailed again to most of those departments that still needed to reply. The

due date that was set after these follow-up calls and e-mails was 14 February 2006. At some universities there was no answer to the telephone calls made. The Economic Society of South African was contacted to verify the contact information of these institutions. If the contact details differed from those obtained from open sources and business cards, it was changed and followed up with calls and/or e-mails.

By 14 February 2006, responses from another five universities were received, and by the end of February, another two. During March 2006, e-mails were sent to those heads of departments from whom no response has had yet been received. Heads of departments were requested to reply by 15 March 2006 and 31 March 2006 respectively.

No response was received by the middle of April 2006, and follow-up calls were made again on 18, 19 and 20 April. The due date set at this stage was 5 May 2006. On 24 April another one of the outstanding questionnaires was received.

No responses were received during May 2006 and follow-up calls were made again on 9 June 2006. The due date set this time was 30 June 2006. By early July 2006, all responses were received[5]. It was very important to have a 100% response rate to be able to reflect on the South African situation.

3.10 Final GAP-analysis and follow-up

As the different questionnaires were received over time, it became clear that all the required information had not been filled in on the questionnaires. This called for another GAP-analysis to determine what information was still needed from each economics department. On 22, 23, 25 and 30 August 2006, calls were made, and e-mails were sent to five departments to ask for the information that was identified in the GAP-analysis. Some of the heads of departments requested that an e-mail with the questionnaire they completed must be sent to

[5] Except for the response of the Walter Sisulu University of Technology and Science – see 3.10.

them. This was done, and by 31 August 2006 three of these departments replied with the outstanding information. Another responded by the end of September 2006. After various calls and e-mails, the outstanding information from the University of Venda could not be gathered by the time the results of this study were written up.

During the time the final GAP-analysis was conducted, it occurred to the researcher that, although the Walter Sisulu University of Technology and Science appears to be a University of Technology, which is excluded from this study, the previous University of the Transkei now forms part of this institution. Therefore, this University had to be included in this study. At this stage, all the information that could be gathered from internet sources was used to compile a questionnaire for this University. A call was made to the economics department of the Walter Sisulu University of Technology and Science on 24 August 2006, requesting their head of department to participate in the study and to respond to the questionnaire as soon as possible. She indicated that they would like to participate in the study and the questionnaire was sent via e-mail. A response was received within a week, and by the end of August 2006, the information obtained from this university could be included in this study.

3.11 Writing up of results

With the receipt of all the responses from all the economics departments included in this study, the information indicated in each questionnaire could be used to derive results.

3.12 Problems experienced

In one or two cases, it was observed that, although 2005 data were requested, 2006 data were given. This was observed by comparing the data provided in the responses with information available on departments' websites.

Furthermore, there seemed to be some confusion as to exactly what was meant by the number of lectures that are taught per week in each course. Some departments noted that they did not include tutorial sessions in the number of lectures they indicated on the questionnaire, but one cannot be certain whether other departments included tutorial sessions or not. One department indicated the number of lectures for full-time and part-time groups, while the others gave no indication of this. Again there is no way to be certain whether or not the number of lectures per week indicated by the different departments includes part-time lectures. Another problem is that there is no indication of the duration of lectures at different institutions.

Because of these problems, the number of lectures per week assigned for teaching each course is not included in the results in chapter 4. Therefore, the feedback received on the number of lectures per week will only be presented to the focus group (see 3.3) who requested this aspect to be included in the questionnaire.

3.13 Summary

In this chapter, an overview was given on the methodological steps that were followed to be able to arrive at the results of this study. These steps include the identification of the South African universities to include in this study, the identification of the information needed, open source searches, initial GAP-analysis, designing the questionnaire, creating awareness of the study,

distributing the questionnaires, initial responses and follow-up, the final GAP-analysis and follow-up as well as writing up the results.

With responses received from all the economics departments included in this study, the information indicated in each questionnaire could be used to derive results. These results are subsequently discussed in chapter 4.

CHAPTER 4

THE ECONOMICS CURRICULA OFFERED BY SOUTH AFRICAN UNIVERSITIES

4.1 Introduction

In chapter 2, the international best practices of an economics curriculum were discussed. These international best practices pertain to the goals and (see 2.3.1) structure (see 2.3.3) of, as well as the textbooks used in (see 2.3.5), and the logistics behind (see 2.3.6), an economics curriculum. In this chapter, the international best practices identified and discussed in chapter 2 will be used as a benchmark to which economics curricula that are offered by the economics departments at South African universities included in this study (see 3.2), can be compared. By following the methodological steps discussed in chapter 3, information regarding the economics curriculum offered by each economics department was gathered, and this information will subsequently be used to reveal the state of the economics curricula offered by economics departments at South African universities.

In section 4.2 the degree to which the heads of economics departments at South African universities agree with the goals of an economics curriculum set out in chapter 2 (see 2.3.1), will be discussed.

In section 4.3 the structure of the economics curriculum offered by each economics department that is included in this study will be investigated. In order to compare each economics department's curriculum to the international best practices identified in chapter 2, the Siegfried blueprint tree structure of an economics curriculum (see diagram 2.2) will be used. For the sake of readability, a tree structure (which will take the basic format of the Siegfried blueprint tree structure) of only one economics department, that of the North-West University,

will be drawn in this section. The rest of the tree structures of the different departments will be presented in Appendix B. A summary of how the South African economics departments included in this study comply in general with the international best practices regarding the structure of an economics curriculum (see 2.3.3), will also be presented in this section.

In section 4.4, the textbooks that are used in each course/module offered by the different economics departments included in this study will be listed as an indication of the content that is covered in each course/module.

In section 4.5, student numbers and student-lecturer ratios for each course/module offered at the different economics departments will be discussed.

4.2 The goals of an economics curriculum: do South African heads of departments agree?

The heads of the different economics departments included in this study were asked to indicate how strongly they agree or disagree with the goals of an economics curriculum set out in chapter 2 (see 2.3.1). Each goal was stated, and participants were asked to give a score for each goal on a scale of:

1 - totally disagree
2 - slightly disagree
3 - slightly agree
4 - agree
5 - totally agree

The average scores for each goal included in the questionnaire (see Appendix A) were as follows:

Table 4.1: Average score for each goal of an economics curriculum

	Graduate students in economics should be able to:	Score
1.	have a self-sustaining capacity to think and learn.	**4.5**
2.	know how to pose questions, collect information, identify and use an appropriate framework to analyse information, and come to a conclusion.	**4.44**
3.	make informed decisions about their lives and communities long after their tertiary learning experience.	**3.56**
4.	use chains of deductive reasoning, in conjunction with simplified models, to help understand economic events.	**4**
5.	speak publicly in front of large audiences.	**3.5**
6.	distinguish between positive and normative analysis.	**4.38**
7.	identify tradeoffs, given certain constraints.	**4.44**
8.	identify and abstract from other real-life situations, the behavioural implications of some change in the economy.	**4.06**
9.	explore the consequences of aggregation.	**3.5**
10.	describe the redistributive implications of changes in economic institutions and policies.	**3.75**
11.	collect data to evaluate and refine his/her understanding of the economy;	**4.27**
12.	test alternative hypotheses about how consumers and producers make economic choices and how the economic system works.	**4.19**

Note that goal number 5 in the above table is not one of the goals set out in chapter 2 (see 2.3.1) and was inserted to be able to test the internal consistency of the questions.

Cronbach's alpha values were calculated to test the reliability and consistency of these questions. The Cronbach's alpha is a coefficient of internal consistency that measures the degree to which the questions are homogeneous and reflect the same underlying constructs (Cooper & Emory, 1995: 155). According to

Santos (1999) the coefficient varies from 0 to 1 and an alpha value of above 0.7 normally indicates an acceptable reliability of the internal consistency of the data.

The Cronbach's alpha value for all twelve goals is 0.898, and the Cronbach's alpha value with the fifth goal excluded is 0.931. The questions posed thus effectively measure the degree to which heads of departments agree with the goals of an economics curriculum set out in chapter 2.

The average score for eight of the eleven goals of an economics curriculum (as proposed by Siegfried *et al*, 1991:21) is above 4, while the other three goals scored 3,75; 3,563 and 3,5 respectively. Therefore it appears that, on average, heads of economics departments at South African universities agree with the goals set out in chapter 2.

As stated by Lategan (1997:4), academic quality involves that goals or objectives are effectively met (see 1.1). The goals included in the international best practices (see 2.3.1) can be used by heads of departments to evaluate and reformulate their goals and, by achieving these goals, academic quality is assured.

4.3 Tree structures of the economics curricula offered by South African economics departments

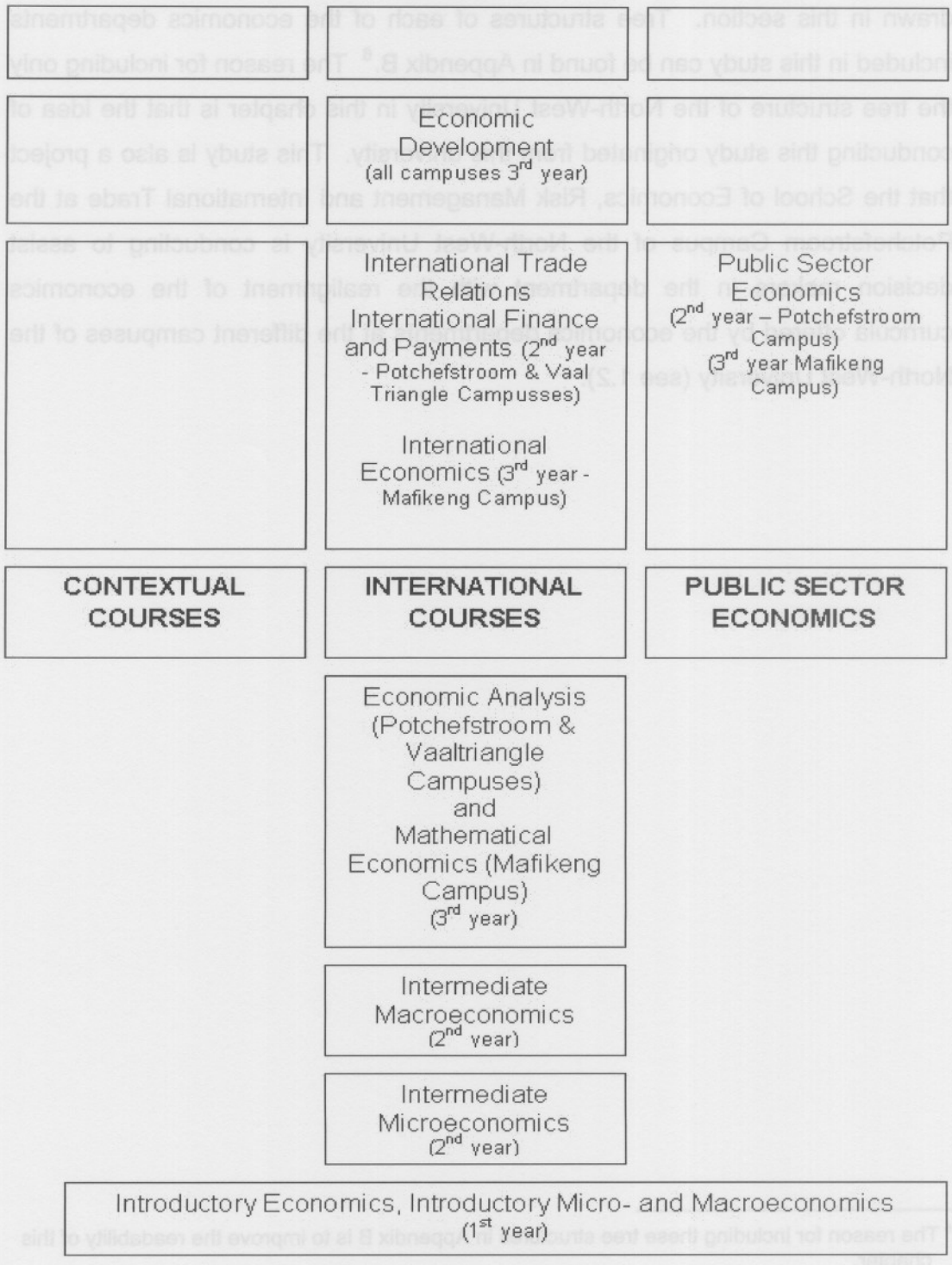
In this section, the courses offered by the economics departments included in this study will be structured according to the Siegfried blueprint tree structure for an economics curriculum (see diagram 2.2). This will be done to determine the ways in which the South African economics departments included in this study compare to the international best practices identified in chapter 2 (see 2.3.3). It can therefore be established how the economics curricula offered in South Africa comply in general to these international best practices. Shortcomings can then be identified.

A tree structure of the economics curriculum offered by the economics departments on the different campuses of the North-West University will be drawn in this section. Tree structures of each of the economics departments included in this study can be found in Appendix B.[6] The reason for including only the tree structure of the North-West University in this chapter is that the idea of conducting this study originated from this university. This study is also a project that the School of Economics, Risk Management and International Trade at the Potchefstroom Campus of the North-West University is conducting to assist decision makers in the department with the realignment of the economics curricula offered by the economics departments at the different campuses of the North-West University (see 1.2).

[6] The reason for including these tree structures in Appendix B is to improve the readability of this chapter.

4.3.1 The tree structure of the North-West University

Diagram 4.1: The tree structure of the economics curriculum offered by the Economics Department of the North-West University.



Comments:

- The Schools of Economics at the Potchefstroom and Vaal Triangle Campuses of the North-West University offer the following courses that are not included in the tree structure because they are not included in the Siegfried blueprint tree structure:
  - Bank Risk Management (third year course); and
  - Financial markets and the Equity market (third year course)

  The Mafikeng Campus offers Economic Planning on second and third year level and these courses are not included in the tree structure indicated in diagram 4.1.
- The core/elective nature of the different courses:

  Potchefstroom and Vaal Triangle Campuses:

  All courses are compulsory for students specialising in Economics.

  Mafikeng Campus:

  Development Economics, International Economics and Economic Planning are elective courses.
- The number of semesters assigned to each course:

  The Potchefstroom and Vaal Triangle Campuses:

  Introductory Micro- and Macroeconomics are offered together in one semester, and also Intermediate Micro- and Macroeconomics. All other courses are one-semester courses.

  The Mafikeng Campus:

  Introductory Economics is a two-semester course. The third year Economic Planning course is also offered in two semesters. All other courses offered by the economics department of the Mafikeng Campus are one-semester courses.
- Fields of specialisation:

  In the questionnaire (see Appendix A) participants were asked to indicate in which fields they specialise. The Potchefstroom and Vaal Triangle Campuses indicated that they specialise in International Trade and Bank Risk

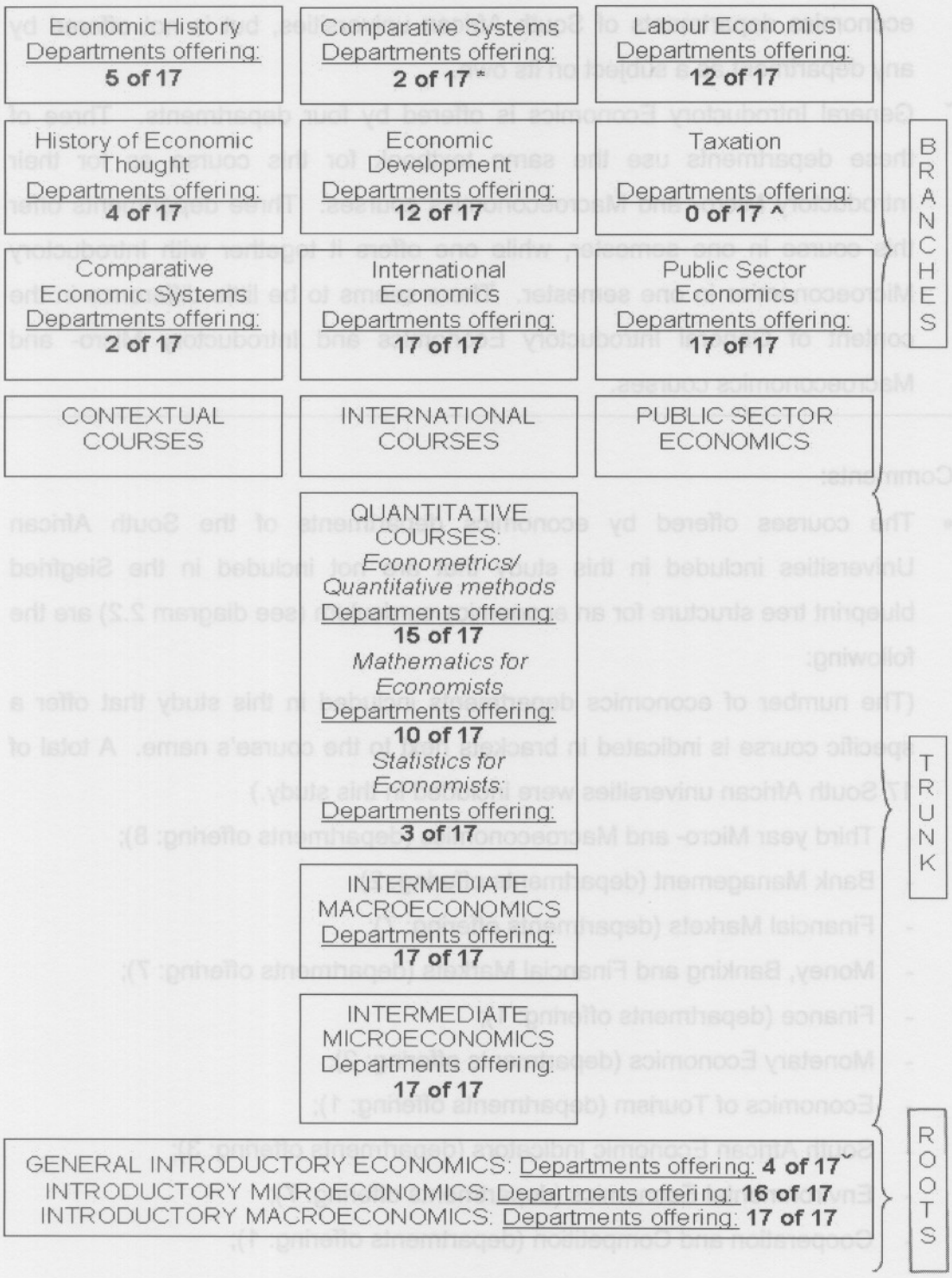
Management, while the Mafikeng Campus specialises in Economics Planning.

The structure of the economics curriculum offered at the North-West University complies with the international best practices identified in chapter 2 (see 2.3.3) in terms of the roots and trunk of the tree structure. On the other hand, there are some gaps in the branches of the tree. Taxation, Labour Economics, Comparative Economic Systems, Economic History and History of Economic Thought are courses that are included in the branches of the Siegfried blueprint tree structure for an economics curriculum (see diagram 2.1), but are not offered by this university. Special attention should therefore be given to the Contextual branch of the North-West University's tree structure in order for it to be more in line with the international best practices identified.

4.3.2 Summary: The Siegfried blueprint tree structure in the South African context

If the Siegfried blueprint tree structure was redrawn, and the number of economics departments that offer each course was filled in on the tree structure, diagram 4.2 would be created. This tree structure reveals how South African economics departments comply in general with the international best practices (see 2.3.3).

Diagram 4.2: The Siegfried blueprint tree structure in the South African context: The number of economics departments offering each course included in the tree structure



* For the purposes of this study, Comparative Systems are assumed to be more or less the same as Comparative Economic Systems.

^ The topic Taxation might be included in the content of courses offered by economics departments of South African universities, but is not offered by any department as a subject on its own.

ˇ General Introductory Economics is offered by four departments. Three of these departments use the same textbook for this course as for their Introductory Micro- and Macroeconomics courses. Three departments offer this course in one semester, while one offers it together with Introductory Microeconomics in one semester. There seems to be little difference in the content of General Introductory Economics and Introductory Micro- and Macroeconomics courses.

Comments:

- The courses offered by economics departments of the South African Universities included in this study that are not included in the Siegfried blueprint tree structure for an economics curriculum (see diagram 2.2) are the following:

  (The number of economics departments included in this study that offer a specific course is indicated in brackets next to the course's name. A total of 17 South African universities were included in this study.)

  - Third year Micro- and Macroeconomics (departments offering: 8);
  - Bank Management (departments offering: 2);
  - Financial Markets (departments offering: 7);
  - Money, Banking and Financial Markets (departments offering: 7);
  - Finance (departments offering: 1);
  - Monetary Economics (departments offering: 2);
  - Economics of Tourism (departments offering: 1);
  - South African Economic Indicators (departments offering: 3);
  - Environmental Economics (departments offering: 7);
  - Cooperation and Competition (departments offering: 1);

- Management Economics (departments offering: 2);
- Health Economics (departments offering: 3);
- Agricultural Economics (departments offering: 1);
- Economic Planning (departments offering: 1);
- Economic Policy (departments offering: 4);
- Economics of Education (departments offering: 1);
- Industrial Economics (departments offering: 2);
- Economics of Africa (departments offering: 2); and
- Political Economics (departments offering: 1).

- It is clear that, in general, most of the South African universities included in this study offer the courses in the roots and trunk of the Siegfried blueprint tree structure of an economics curriculum. Furthermore, most of the economics departments offer Public Sector Economics and International Economics courses, while Development Economics and Labour Economics courses are also widely offered. There seem to be fewer departments that offer Economic History, History of Economic Thought and Comparative Economics Systems courses.

  When considering the three categories of branches in the tree structure, South African economics departments, mostly offer (at least) some courses in the Public Sector Economics and International categories respectively (see 2.3.3.3), but the contextual courses are mostly not offered in the South African context.

It could therefore be said that the South African universities included in this study mostly comply with the international best practices for the structure of an economics curriculum in terms of the roots and trunk of the tree structure, whereas the contextual category of the branches is not covered extensively. Economics departments might consider including Taxation, Comparative

Economics Systems, History of Economic Thought and Economic History in economics curricula.

Heads of departments are referred to chapter 2 (see 2.3.3), where each part of the Siegfried blueprint tree structure is discussed. Each head of department can evaluate his/her department's courses in terms of the common deficiencies identified for the different courses in the tree structure and make use of the recommendations given.

4.4 Textbooks used in the courses/modules offered by economics departments at South African universities

In this section, the textbooks that are used for each course/module offered by the different economics departments included in this study will be listed as an indication of the content that is covered in each course/module.

In table 4.2, the textbooks that are used for each course are listed, and an indication is given of the number of economics departments that use the book. Please note that all the departments did not indicate which textbook they use in each and every course. An indication will therefore be given in the table of the number of departments that filled in this part of the questionnaire.

Table 4.2: Textbooks used in each of the courses offered by economics departments at the South African universities included in this study.

Course	Textbooks used	Number of economics departments using the textbook
General Introductory Economics Four departments offer this course. The University of the Free State uses two textbooks.	CHETTY. Fundamental Economic Theory	1 of 4
	McCONNEL & BRUE Economics	1 of 4

Course	Textbooks used	Number of economics departments using the textbook
General Introductory Economics (continues)	BLACK, HARTZENBERG & SLANDISH. Economics: Principles and Practice.	1 of 4
	ROUX, A. Everyone's guide to the Economy.	1 of 4
	MOHR, P. & FOURIE, L. Economics for South African students.	1 of 4
Introductory Microeconomics A total of sixteen universities offer this course. Two of these did not indicate which textbook they use.	MOHR, P & FOURIE, L. Economics for SA students.	5 of 16
	McCONNEL, C.R. & BRUE, S.L. Economics: Principles, Problems and Policies.	2 of 16
	CHETTY. Fundamental Economic Theory	1 of 16
	MANKIW. Principles of Microeconomics.	1 of 16
	PARKIN, M., POWELL, M. & MATTHEWS, K. Economics.	4 of 16
	OWN TEXTBOOK	1 of 16
Introductory Macroeconomics All seventeen Economics departments offer this course. Two of these departments did not indicate which textbooks they use.	MOHR, P & FOURIE, L. Economics for SA students.	5 of 17
	McCONNEL, C.R. & BRUE, S.L. Economics: Principles, Problems and Policies.	3 of 17
	CHETTY. Fundamental Economic Theory	1 of 17
	ARNOLD. Macroeconomics. 6th ed. South Western.	1 of 17
	PARKIN, M., POWELL, M. & MATTHEWS, K. Economics.	4 of 17

Course	Textbooks used	Number of economics departments using the textbook
Introductory Macroeconomics (continues)	OWN TEXTBOOK	1 of 17
Intermediate Microeconomics All seventeen universities offer this course. Two of these did not indicate which textbooks they use. At the campuses of the North-West University use two different textbooks.	VILJOEN. Microeconomics	2 of 17
	FRANK, R.H. Microeconomics and Behaviour.	1 of 17
	MANSFIELD. Micro-Economics.	2 of 17
	GRIFFITH & WALL. Intermediate microeconomics theory and applications.	2 of 17
	MIGNON. Pricing practices in oligopoly markets.	1 of 17
	PINDYCK, R. & RUBINFELD, R. Microeconomics.	2 of 17
	OWN TEXTBOOK	2 of 17
	GOTTHEIL. Principles of Microeconomics	1 of 17
	VARIAN, H.R. 2003. Intermediate Microeconomics: A Modern Approach.	1 of 17
	NICHOLSON, W. 2000. Intermediate Microeconomics and its Application.	1 of 17
	PERLOFF, J.M. Microeconomics	1 of 17
Intermediate Macroeconomics All seventeen universities offer this course. One of these did not indicate which textbooks are used. The North-West University and the University of Johannesburg each use two textbooks.	BLANCHARD. Macroeconomics	3 of 17
	FROYEN, R. Macroeconomics: Theories & Policies.	5 of 17

Course	Textbooks used	Number of economics departments using the textbook
Intermediate Macroeconomics (continues)	DORNBUSCH, FISHER & STARZ Macroeconomics	3 of 17
	NATTRASS, WAKEFORD & MAURADQIKWA. Macroeconomics: Theory and Policy in South Africa.	1 of 17
	FOURIE. How to Think and reason in Macroeconomics	3 of 17
	GYLFASON Principles of Economic Growth	1 of 17
	COLANDER, D.C. & GRAMBER, E.N. Macroeconomics.	2 of 17
3rd year level Microeconomics Eight Economics departments offer this course. One did not indicate which textbook is used. The University of Stellenbosch, The University of the Witwatersrand and the University of Fort Hare all use two textbooks for this course. UNISA uses a study guide	VARIAN. 2003. Intermediate Microeconomics A Modern Approach	2 of 8
	PINDYCK & RUBINFIELD. Microeconomics.	3 of 8
	DUTTA. Strategies and Game Theory and Practice.	1 of 8
	MIIGROM, P. & ROBERTS, J. Economics, Organisation & Management.	1 of 8
	PASHIGAN, B.P. 1008 Price Theory and Applications. 2nd ed.	1 of 8
	NICHOLSON, W. Microeconomics Theory: Basic Principles and Extension.	1 of 8
3rd year level Macroeconomics Eight universities offer this course. All universities indicated which textbooks they use and all of them use only one textbook each.	JONES. Introduction to Economic Growth.	1 of 8
	BLACKHARD. Macroeconomics.	1 of 8
	BAILEY, M. N. & FRIEDMAN, P. Macroeconomics, Financial Markets and the International Sector.	2 of 8

Course	Textbooks used	Number of economics departments using the textbook
3rd year level Macroeconomics (continues)	ABEL, A.B. & BERNANKE, B.S. Macroeconomics	1 of 8
	FROYEN, R.T. Macroeconomics: Theories and Policies.	1 of 8
	CHRYSTAL. Controversies in Macroeconomics	1 of 8
	NATTRASS, N. Macroeconomics. Latest ed. David Philip Publishers.	1 of 8
Public Sector Economics All seventeen universities offer this course. Three of these did not indicate which textbooks are used. The University of Limpopo uses two textbooks.	BLACK, CALITZ & STEENEKAMP Public Economics for SA students	10 of 17
	ROSEN. Public Finance	2 of 17
	BROWNING Public Finance and the price system	1 of 17
	MUSGRAVE. Public Finance in Theory and Practice.	1 of 17
	SLIGLITZ, J.E. Economics of the Public Sector.	1 of 17
Development Economics Twelve universities offer this course. One of these did not indicate which textbook is used. The University of Limpopo uses two textbooks.	TODARO & SMITH. Economic Development	7 of 12
	THIRLWALL. 2003 Growth and Development	1 of 12
	HOGENDORN. F. 1996. Economic Development.	1 of 12
	GHATAK, S. Introduction to the development products.	1 of 12
	NAFZIGER, E.W. Economics of Developing countries	1 of 12

Course	Textbooks used	Number of economics departments using the textbook
Development Economics (continues)	GILLIS, PERKINS, ROEMER & SNODGRASS. Economics of Development.	1 of 12
International Economics This course category includes: International Economics; International Trade; and International Finance. All seventeen Economics departments offer this course. Two did not indicate which textbooks are used. The following universities use two textbooks each in this course: - The University of South Africa; - The University of Cape Town; - The University of the Free State; - Walter Sisulu University of Technology and Science. The following universities use three textbooks each in this course: - The University of Limpopo; and - The North-West University (in total on all three campuses).	JEPMA. Introduction to International Economics	1 of 17
	KREININ. 2002 International Economics: a policy approach	2 of 17
	KRUGMAN, P.R. & OBSTFELD, M. International Economics: Theory and Policy.	3 of 17
	SOLVATORE. International Economics.	4 of 17
	SCHOTT. The WTO after Seattle. Institute for International Economics.	1 of 17
	INGHAM, B. International Economics: A European Focus	1 of 17
	PUGEL, T. International Economics.	1 of 17
	APPLEYARD & FIELD International Economics.	4 of 17
	DU PLESSIS, S.P.J., SMIT, B.W. & McCARTHY, C.L. International Economics.	3 of 17
	MOOSA, I.A. International Finance: an analytical approach. 2nd ed. Thomson South.	1 of 17
	ITRISA. International Trade Relations	1 of 17
	ITRISA. International Finance and Payments	1 of 17

Course	Textbooks used	Number of economics departments using the textbook
Quantitative Economics Fifteen universities offer this course. Three of these did not indicate which textbooks are used. The University of Johannesburg uses two different textbooks in this course category.	Addison-Wesley. Using Econometrics: A practical guide.	1 of 15
	GUJARATI, D.N. Basic Econometrics.	10 of 15
	KOOP. Analysis Of Economic Data.	1 of 15
	GREENBERG, D.H., VIRING A.R. & WEINER, D.L. Cost-Benefit Analysis	1 of 15
Mathematics for Economists Ten universities offer courses in this course category. One of these did not indicate which textbooks are used. The University of the Witwatersrand uses three different Textbooks in this course category. The University of the North-West (in particular the Mafikeng Campus) uses two different textbooks in this course category.	SYDSAETER, K. & HAMMOND, P.F. Essential mathematics for Economic Analysis.	1 of 10
	DOWLING, E.T. Introduction to Mathematical Economics.	4 of 10
	KLEIN, M.W. 2002 Mathematical Methods for Economics.	1 of 10
	BRADLEY & PATTON Essential Mathematics for Economics and Business	2 of 10
	ROSSERM. Basic Mathematics for Economists.	1 of 10
	CHAIANG, A.C. & WAINWRIGHT, K. Fundamental Methods of Mathematical Economics.	2 of 10
	DOWLING, E.T. Schaum's outline of Mathematical Methods for Business & Economics	1 of 10
Statistics for Economists Three universities offer courses in this course category. One of these did not indicate what textbooks are used. The University of the Witwatersrand uses two different textbooks in this course category.	GUJARATI, D.N. Basic Econometrics	1 of 3
	SALVATORE, D. & REAGLE,D. 2002 Statistics for Econometrics	1 of 3
	LIND. Statistical Techniques in Business and Economics	1 of 3

Course	Textbooks used	Number of economics departments using the textbook
Labour Economics Twelve universities offer courses in this course category. Two of these did not indicate which textbooks are used. The University of Fort Hare uses two different textbooks in this course category. One university indicated that they use various texts in this course category.	HAMERMESH. The Economics of work and pay.	1 of 12
	EHRENBERG & SMITH. Modern Labour Economics	2 of 12
	BARKER, F. The South African Labour Market.	5 of 12
	SMITH, S.W. Labour Economics.	1 of 12
	BORJAS, G.J. Labour Economics.	1 of 12
Bank Management Two universities offer courses in this course category. Each one of them uses only one textbook.	ROSE, P.S. Bank Management & Financial Services.	1 of 2
	KOCH, T.W. & MACDONALD, S.S. Bank Management.	1 of 2
Finance One university offers three different courses in this course category. They use one textbook is each course. That sums to three textbooks.	FIRER, ROSS, WESTERFIELD & JORDAN. Fundamentals of Corporate Finance.	1 of 1
	BODIE, KANE & MARCUS. Essentials Of Investments.	1 of 1
	ROSS, WESTERFIELD & JAFFE. Corporate Finance.	1 of 1
Financial Markets Seven universities offer courses in this course category. One of these did not indicate which textbooks are used. One of the universities indicated that they use internal notes for this course.	VAN ZYL & BOTHA Understanding SA financial markets.	3 of 7
	CHOUDHRY, M. Bond Market Securities.	1 of 7
	HOWELL, P. & BIAN, K. Economics of Financial Markets.	1 of 7

Course	Textbooks used	Number of economics departments using the textbook
Money, Banking and Financial Markets Seven universities offer courses in this course category. One of these did not indicate which textbooks are used.	MISHKIN, F. S. The Economics of Money, Banking & Financial Markets	6 of 7
Economics of Tourism One university offers this course.	BULL. 1995. The economics Of travel and tourism	1 of 1
History of Economic Thought Four universities offer this course. Two of these did not indicate which textbooks are used.	BRUE. History of Economic thought.	2 of 4
Economic History Five universities offer courses in this course category. Nelson Mandela Metropolitan University uses two textbooks. Three other universities that offer this course make use of reading packs, study guides or handouts.	CAMERON, R. A. Concise Economic History of the World.	1 of 5
	FOREMAN-PECK, J. A History of the World Economy.	1 of 5
	HEILBRONER. Worldly Philosophers	1 of 5
South African Economic Indicators Three universities offer this course. One of these did not indicate which textbooks are used.	MOHR Economic Indicators	2 of 3
Environmental Economics Seven universities offer course. Three of these did not indicate which textbooks are used. The University of KwaZulu Natal uses various texts and the University of Cape Town uses a reader. Rhodes University uses two different textbooks for this course, while the University of Limpopo uses three books.	HUSSEN, A. Principles of Environmental Economics: Economics, Ecology & Public policy.	2 of 7
	CALLAN S.J. & THOMAS, J.M. Environmental Economics & Management.	1 of 7
	FIELD, B.C. & FIELD, M.K. 2002. Environmental Economics: An Introduction.	1 of 7
	BLIGNAUT, J. & DE WIT, M.A. Sustainable options: Development lessons from Applied Environmental Economics.	1 of 7

Course	Textbooks used	Number of economics departments using the textbook
Cooperation & Competition Only the University of Cape Town offers this course. They use two textbooks.	DIXIT & SKEATH. Games of Strategy.	1 of 1
	SKYRMS Evolution of social contract.	1 of 1
Managerial Economics Two universities offer this course. One of these did not indicate which textbooks are used.	HIRSCHEY. Managerial Economics.	1 of 2
Monetary Economics Two universities offer this course. One of these uses a study guide.	DENNIS. Monetary Economics	1 of 2
Health Economics Three universities offer this course. One of these did not indicate which textbooks are used and one uses various texts. The University of Limpopo uses three books.	HENDERSON, W.J. Health Economics and Policy.	1 of 3
	McPAKE B, KUMARANAYAKE L, & NORMAND C. Health Economics An International Perspective	1 of 3
	SANTERRE, E.R & NEUN, S.P. Health Economics.	1 of 3
Agricultural Economics One university offers this course.	Various texts	1 of 1
Economic Planning One university offers this course. This university uses two textbooks.	CONYERS, D & HILLS,P. Introduction to dev. Planning	1 of 1
	THORBECK, P. Planning Techniques for a better future.	1 of 1
Economic Policy Four universities offer this course. Two of these did not indicate which textbooks are used. UNISA uses a study guide.	ANDERSON, J.E. Public Policy-making.	1 of 4
Comparative Economic Systems Two universities offer this course. One did not indicate the book used.	ROSSER & ROSSER. Comparative Economics in A Transforming World Economy. Irwin.	1 of 2

Course	Textbooks used	Number of economics departments using the textbook
Economics of Education One university offers this course.	NO TEXTBOOKS INDICATED	
Industrial Economics Two universities offer this course.	NO TEXTBOOKS INDICATED	
Economics of Africa Two universities offer this course.	NO TEXTBOOKS INDICATED	
Political Economics One university offers this course.	NO TEXTBOOKS INDICATED	

To conclude this section and to give an easy reference guide to the textbooks frequently used, table 4.3 lists the textbooks that are used by 4 or more universities, as well the courses for which these textbooks are used.

Table 4.3. Textbooks that are used by four or more universities

Course	Textbooks
Introductory Microeconomics	MOHR, P & FOURIE, L. Economics for SA students. & PARKIN, M., POWELL, M. & MATTHEWS, K. Economics.
Introductory Macroeconomics	MOHR, P & FOURIE, L. Economics for SA students. & PARKIN, M., POWELL, M. & MATTHEWS, K. Economics.
Intermediate Macroeconomics	FROYEN, R. Macroeconomics: Theories & Policies.
Quantitative Methods	GUJARATI, D.N. Basic Econometrics.
Mathematics for Economists	DOWLING, E.T. Introduction to Mathematical Economics.

Course	Textbooks
Public Sector Economics	BLACK, CALITZ & STEENEKAMP Public Economics for SA students
Development Economics	TODARO, P.M. & SMITH, S.E. Economic Development
International Economics	SOLVATORE. International Economics. & APPLEYARD & FIELD International Economics.
Labour Economics	BARKER, F. The South African Labour Market.
Money, Banking and Financial Markets	MISHKIN, F. S. The Economics of Money, Banking & Financial Markets

With regard to the international best practices suggested for economics textbooks in chapter 2 (see 2.3.5), each economics department should assess whether or not their course materials are up to date, includes adequate real-world applications, and does not cover too many topics while the application of these topics is neglected. If difficulties regarding textbooks are experienced, economics departments are advised to use 'real' books together with textbooks (for more detail see 2.3.5), to decrease the number of topics covered, and create more opportunities for students to apply their knowledge (see 2.3.5). Furthermore, each economics department has the option of incorporating the lecture-laboratory format (see 2.3.4) in some of their courses, which will ensure that students apply their knowledge and will help overcome the general problems with textbooks.

In the following section, student numbers and student-lecturer ratios in the courses/modules offered by South African economics departments will be under investigation.

4.5 Student numbers and student-lecturer ratios in the South African context

In chapter 2 (see 2.3.6), it is stated that the achievement of the goals of an economics curriculum requires smaller classes, considerably more instructional resources, evaluation methods that give students opportunities to develop their writing and oral skills, and opportunities for students to learn more actively (Siegfried *et al*, 1991:24). With large classes it is almost impossible for lectures to facilitate active learning and the development of writing and oral skills. Therefore, this section sets out to investigate student numbers and student-lecturer ratios in the South African context.

Table 4.4 Course offerings, student numbers and student-lecturer ratios

Name of course	Percentage of departments that offer the course	Total national university enrolments[7]	Average student-lecturer ratio
Introductory Economics	23,53% 4 of 17	6476	345,84:1
Introductory Microeconomics	94,12% 16 of 17	45847	337,60:1(excl. UNISA) 837,56:1 (incl. UNISA) 13 of 16[8]
Introductory Macroeconomics	100% 17 of 17	35273	358,25:1(excl. UNISA) 610,09:1 (incl. UNISA) 14 of 17
Intermediate Microeconomics	100% 17 of 17	11136	316,41:1(excl. UNISA) 369,84:1(incl. UNISA) 14 of 17
Intermediate Macroeconomics	100% 17 of 17	10243	271,82:1(excl. UNISA) 308,05:1(incl. UNISA) 14 of 17
3rd year level Microeconomics	47,06% 8 of 17	1728	163,92:1(excl. UNISA) 228,36:1(incl. UNISA) 7 of 8

[7] University enrolments refer to the total number of students enrolled for each course/module at the different universities included in this study. These aggregate figures do not include student numbers of the University of Venda, for this information was not filled in on their questionnaire.

[8] This indicates that there are 13 of the 16 departments that offer this course that provided all necessary information to calculate student-lecturer ratios.

Name of course	Percentage of departments that offer the course	Total national university enrolments	Average student-lecturer ratio
3rd year level Macroeconomics	47,06% 8 of 17	1498	122,29: 1 7 of 8
Quantitative Methods	88,24% 15 of 17	2482	117,19:1 (incl. UNISA) 101,13:1 (excl. UNISA) 12 of 15
Mathematics for Economists	58,82% 10 of 17	928	93,09:1 8 of 10
Statistics for Economists	17,65% 3 of 17	480	102,5:1 2 of 3
Public Sector Economics	100%	3966	184,87:1 (incl. UNISA) 168,61:1 (excl. UNISA) 14 of 17
Development Economics	70,56% 12 of 17	1822	115,28:1 (incl. UNISA) 98,75:1 (excl. UNISA) 10 of 12
International Economics (including International Finance and Trade)	100% 17 of 17	4221	199,21:1 (incl. UNISA) 159,87:1 (excl. UNISA) 14 of 17
Labour Economics	70,59% 12 of 17	1885	159,26:1 (incl. UNISA) 106,54:1 (excl. UNISA) 9 of 12
Money, Banking and Financial Markets: - Bank Management - Financial Markets - Money, Banking and Financial Markets	 11,76% 2 of 7 41,18% 7 of 17 41,18% 7 of 17	 374 2733 859	 109:1 2 of 2 305,1:1 (incl. UNISA) 146,5:1 (excl. UNISA) 5 of 7 113,5:1 5 of 7
Finance	5,88% 1 of 17	600	100:1 Only KZN offers this course
Monetary Economics	11,76% 2 of 17	1199	299,75:1 (incl. UNISA) 75:1 (excl. UNISA) 2 of 2
Economics of Tourism	5,88% 1 of 17	117	117:1 Only UNISA offers this course

Name of course	Percentage of departments that offer the course	Total national university enrolments	Average student-lecturer ratio
Comparative Economic Systems	11.76% 2 of 17	352	202:1 1 of 2
History of Economic Thought	23,53% 4 of 17	416	138,67:1 3 of 4
Economic History	29,41% 5 of 17	682	49,83:1 (incl. UNISA) 51,44:1 (excl. UNISA) 4 of 5
South African Economic Indicators	17,65% 3 of 17	1530	382,5:1 (incl. UNISA) 175:1 (excl UNISA) 2 of 3
Environmental Economics	41,18% 7 of 17	270	61,25:1 4 of 7
Cooperation and Competition	5,88% 1 of 17	500	166,66:1 Only UCT offers this course
Management Economics	11,76% 2 of 17	179	29:1 1 of 2
Health Economics	17,65% 3 of 17	170	72,5:1 2 of 3
Agricultural Economics	5,88% 1 of 17	90	90:1 Only Zululand offers this course
Economic Planning	5,88% 1 of 17	110	44:1 Only North-West University, Mafikeng Campus offers this course
Economic Policy	23,53% 4 of 17	996	208,29:1 (incl. UNISA) 72,71:1 (excl. UNISA) 4 of 4
Economics of Education	5,88% 1 of 17	This information was not indicated by the department in question	The information necessary to calculate these figures was not provided by the department in question.
Industrial Economics	11,76% 2 of 17	70	70:1 1 of 2
Economics of Africa	11,76% 2 of 17	25	25:1 1 of 2
Political Economics	5,88% 1 of 17	25	The information necessary to calculate these figures was not provided by the department in question

Comments:

- Department offerings:

  These figures give an indication of the percentage of departments offering each economics course.

- Student numbers:

  These figures give an indication of the total number of students enrolled in each of the economics courses offered by the economics departments included in this study.

  In order to establish whether the number of students enrolled for economics courses in South Africa is increasing or decreasing, the information gathered in this study was compared to Luiz' (2004:193) results obtained from his study on the state of economics at South African Universities. Luiz (2004:193) provided the number of students enrolled for Economics I, II and III for some of the universities included in this study (before the mergers). Table 4.5 illustrates the comparison between Luiz' (2004:193) 2002 figures and the student numbers for 2005 obtained in this study. It is important to note that the student numbers in this study were gathered per course and the enrolments for Economics I, II and III indicated in table 4.5 are based on these figures. For this reason the 2005 figures might not be precise, but give an indication of the student numbers.

Table 4.5: Student numbers compared to Luiz' (2004:193) study.

University	Total number of Econ I, Econ II and Econ III students from Luiz' study (2002)	Total number of Econ I, Econ II and Econ III students in this study (2005)	% change
Cape Town	3198	3600	12.57%
Pretoria	3680	3550	-3.53%
Rhodes	1384	1270	-8.24%

University	Total number of Econ I, Econ II and Econ III students from Luiz' study (2002)	Total number of Econ I, Econ II and Econ III students in this study (2005)	% change
Stellenbosch	2652	2684	1.21%
Witwatersrand	2481	2683	8.14%
Zululand	678	1350	99.1%
Total	**14073**	**15137**	**7.56%**

Twelve universities were included in Luiz' (2004:193) study. The six universities included in table 4.5 have not changed much in the merger process and therefore these universities were used for the sake of comparison with the information gathered in this study.

From table 4.5 it can be seen that, although the total student numbers at the University of Pretoria and Rhodes University decreased slightly, the total student enrolments at the six economics departments included in this table has increased from 2002 to 2005 by 7,56%. The total enrolments in 2005 for each course/module as indicated in table 4.5 can be used as a basis for future studies to calculate growth or decline in student numbers (see 5.4.2), taking into account that calculations on the two years of comparison differed slightly.

- Student-lecturer ratios:

  The average student-lecturer ratio for each of the courses indicated in table 4.4 was calculated by firstly calculating an average student-lecturer ratio for each department offering the course and then calculating the average student-lecturer ratio of all the departments offering that course.

  According to the international best practices identified in chapter 2, class sizes should be between 15 and 25 (see 2.3.6). The student-lecturer ratios in table 4.4 were calculated by dividing the total number of students that take a

specific course by the total number of lecturers offering that course at each university. This does not directly reflect on class size because students could be divided into groups that are taught by the same lecturer, making the actual class size smaller than the student-lecturer ratio calculated in table 4.4. Nevertheless, the student-lecturer ratios indicated in table 4.4 give an estimate of class sizes.

It is clear that 270 to 315 students per lecturer in the Intermediate theory courses is far removed from the ideal of 15 to 25 students per class as specified in the international best practices (see 2.3.6). This is one of the biggest challenges faced by economics departments at South African Universities, and also one of the biggest challenges for the implementation of the international best practices identified in this study.

The information regarding student-lecturer ratios gathered in this study can again be compared to the results of Luiz' (2004:194) study. To be able to compare the results from this study to Luiz' results, table 4.6 was drafted. The results of six of the twelve universities that were included in Luiz' (2004:194) study were again used to compare with the information gathered in this study. Luiz (2004:193-194) calculated the student-lecturer ratios in his study by dividing the total number of economics students at each department by the total number of full time staff at that department. In this study, information regarding the number of students and lecturers in each separate course/module was gathered and not the aggregate numbers. Therefore the average student-lecturer ratios for all the courses offered by a specific economics department were calculated for use as comparative figures. Although the methods of calculation between the two studies differ, one could still get an indication whether or not average student-lecturer ratios increased or decreased at the six institutions that could be used for the comparison.

Table 4.6 Student-lecturer ratios compared to Luiz' (2004:194) study

University	Student-lecturer ratios: Luiz 2002	Student-lecturer ratios: This study 2005	% change
Cape Town	128.4:1	204.2:1	59,03%
Pretoria	172.2:1	212.3:1	23.29%
Rhodes	103.8:1	168.8:1	62.62%
Stellenbosch	182.4:1	303.3:1	66.28%
Witwatersrand	93.6:1	74.2:1	-20.73%
Zululand	167.8:1	239.2:1	42.55%
Total average	**141.4:1**	**200.3:1**	**41.65%**

From table 4.6, it is clear that, on average, for the six universities used in the comparison, the student-lecturer ratio increased by 41,65% between 2002 and 2005. Although the University of the Witwatersrand's student-lecturer ratio decreased by 20,73%, the other five universities experienced increases of up to 66% in the student-lecturer ratio. It seems that the problem of large groups is increasing in the South African context. This is a point of concern for all South African economics departments, and heads of departments will need to do everything in their power to decrease these ratios. A few suggestions in this regard were made in chapter 2 (see 2.3.6). These suggestions include appointing more faculty members and limiting the access to the economics curriculum. Appointing more faculty members will most probably not be financially possible for many institutions, and the limiting of access to the economics curriculum might be in conflict with the philosophy of many institutions. Siegfried *et al* (1991:24) suggest that institutions should rather offer "intellectually challenging" Intermediate Microeconomics, Intermediate Macroeconomics and Quantitative methods courses whose "reputation" ensures that student numbers do not exceed the capacity of the school or department of economics (for more detail see 2.3.6).

The lecture-and-laboratory format for courses in an economics curriculum (see 2.3.4) can also provide a solution to this problem. Giving lecture sessions to larger groups and then dividing the group into smaller groups for laboratory sessions could overcome the problem of having inadequate financial resources to ensure smaller classes. Student assistants who are familiar with the work could be appointed (at a much lower cost than appointing faculty members) to help lecturers in the laboratory sessions.

4.6 Summary

This chapter set out to compare the economics curricula offered by the South African universities included in this study to the international best practices identified and discussed in chapter 2. This comparison had to be made in terms of all the different aspects of the international best practices including the goals of an economics curriculum, the structure of an economics curriculum, the content of the courses/modules included in an economics curriculum and the logistics behind the economics curriculum. A summary of the findings that were made regarding each of these aspects will now be discussed.

- The degree to which heads of departments agree with the goals of an economics curriculum, as identified in chapter 2 (see 2.3.1)

  Heads of departments were asked in the questionnaire to assign a score from 1 to 5 to each goal identified in chapter 2 as an indication of the degree to which they agree with each goal. It appears that, on average, heads of economics departments at South African universities agree with these goals
- The structure of the economics curricula offered by the departments included in this study

  In general, the economics departments included in this study offer Introductory Micro- and Macroeconomics, Intermediate Micro- and Macroeconomics and Quantitative Economics courses. International Economics, Public Sector Economics, Development Economics and Labour

Economics are also widely offered, while fewer departments offer Economic History, History of Economic Thought and Comparative Economics. When considering the Siegfried blueprint tree structure for an economics curriculum (which forms the basis on which the comparison of the structure of South African economics curricula to the international best practices are made (see diagram 2.2), most of the economics departments included in this study offer the courses in the roots and trunk of the tree structure. With regard to the three categories of branches in the Siegfried blueprint tree structure (see 2.3.3.3), South African economics departments mostly offer some courses in the Public Sector Economics and International categories respectively, while the Contextual branch are mostly neglected (see diagram 4.2)

- The content of the courses/modules included in the economics curricula offered at the economics departments included in this study

  The content of a course/module is thought to be revealed in the textbooks that are used for that course. In table 4.2, the textbooks that are used for each course offered by the economics departments included in this study are listed. Table 4.3 provides a summary of the textbooks that are used by 4 or more departments. The conclusion which can be drawn from the above-mentioned tables is that a wide variety of textbooks are used by the economics departments included in this study.

- The logistics behind the economics curricula offered at the economics departments included in this study: student numbers and student-lecturer ratios

  Table 4.4 includes the total number of students enrolled, as well as student-lecturer ratios for each course/module offered by the economics departments included in this study

  With regard to student numbers, a comparison was made between the information gathered in this study and the results of Luiz (2004:193) in order

to establish whether or not student enrolments at South African universities are increasing. Six universities could be used in the comparison and, as indicated in table 4.5, student numbers in Economics I, II and III have increased by 7,56% from 2002 to 2005

A similar comparison was made to Luiz' (2004:193) study with regard to student-lecturer ratios. In table 4.6 it is indicated that student-lecturer ratios have increased by a total average of 41,65% from 2002 to 2005 at the six universities included in the comparison

From the information in table 4.4 it is also clear that student–lecturer ratios of 270 to 315 students per lecturer in Intermediate Micro- and Macroeconomics courses are remote from class sizes of 15 to 25 students as suggested in the international best practices (see 2.3.6). This one of the biggest challenges faced by economics departments at South African Universities in effectively implementing the international best practices identified in this study. Furthermore, it seems as though the situation is worsening because student-lecturer ratios have increased by more than 40% over the last few years at the six universities used in the comparison.

With the results of this study discussed, final conclusions can be drawn and recommendations made.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The main objective of this study was to contribute to the improvement of the academic quality of economics curricula offered by economics departments at South African universities by:

- identifying international best practices (e.g. goals, structure, content, class size) for an economics curriculum to which each economics department in South Africa can compare its curriculum
- providing information regarding the economics curricula offered by selected economics departments at South African universities. This information includes the courses that are offered by the different departments, the number of semesters assigned to each course, the year level on which it is offered, the compulsory / elective nature of each course, the textbooks that are used in each course as well as student-lecturer ratios
- commenting on how the economics curricula offered by the economics departments included in this study comply in general with the different aspects of the international best practices identified

Table 5,1 provides a summary of how these objectives were reached:

Table 5.1: Meeting the objectives

Objectives:		Where reached:
1.	Identifying international best practices for an economics curriculum. The different aspects include: • The goals of an economics curriculum	In chapter 2, international best practices for an economics curriculum are identified by means of a literature study. See 2.3.1 and 2.3.2

	• The structure of an economics curriculum	See 2.3.3 and 2.3.4
	• The content of an economics curriculum: the textbooks used.	See 2.3.5
	• Class size, assessment methods and teaching in an economics curriculum	See 2.3.6
2.	Providing information regarding the economics curricula offered by selected economics departments at South African universities. This information can also be divided into the different aspects of the identified international best practices:	Information regarding the economics curricula offered by the economics departments included in this study was provided in chapter 4 and appendix B.
	• Information regarding the structure of the economics curricula offered by the economics departments included in this study. This information includes:	See 4.3 and Appendix B
	- the courses that are offered by the different departments	See 4.3 and Appendix B
	- the year level on which it is offered	See 4.3 and Appendix B.
	- the number of semesters assigned to each course	See 4.3 and Appendix B.
	- the compulsory / elective nature of each course	See 4.3 and Appendix B.
	• Information regarding the content of the economics courses offered by the economics departments included in this study. The content of a course is thought to be revealed in the textbook that is used for that particular course. Therefore information regarding the textbooks that are used for each course offered by the	See 4.4

	economics departments included in this study were listed. • Information regarding class size. Class size is thought to be the key determinant of teaching and assessment methods. Information regarding the student-lecturer ratios in each economics course offered by the economics departments included in this study was provided.	See 4.5
3.	Commenting on how the economics curricula offered by the economics departments included in this study comply in general with the different aspects of the international best practices identified, in terms of: • the structure of the economics curricula • the content of the economics curricula: the textbooks used • the student-lecturer ratios in each course	See 4.3.2 and diagram 4.2 See 4.4 See 4.5

5.2 Summary

In chapter 2, a background was firstly given on the available literature on the broader topic of economics teaching and research. In diagram 2.1 the different aspects included in the broader topic of economics teaching and research were illustrated. Diagram 2.1 also illustrates that the structure and content of an economics curriculum (what is taught) and the logistics behind it (how it is taught) are the two main aspects that are facilitating the achievement of the goals of an economics curriculum. The content and structure of an economics curriculum includes the courses that are taught, the year levels on which these courses are taught and the materials that are used in these subjects. The logistical aspect includes teaching methods, assessment methods and class size.

Studies on the content, structure and logistical aspects of an economics curriculum were researched in this study and the views of the different authors were used to identify international best practices for an economics curriculum. These international best practices were discussed under the following headings:

- the goals of an economics curriculum
- the skills or proficiencies graduate economics students should have
- the 'Siegfried blueprint' for the structure of an economics curriculum
- the inclusion of the lecture-and-laboratory format in certain courses/modules of an economics curriculum
- economics textbooks
- class size, assessment methods and teaching methods in an economics curriculum

A summary of each of these sections will now be given.

- The goals of an economics curriculum and the skills or proficiencies graduate economics students should have

  Graduate economics students should be able to "think like economists" (see 2.3.1) and have problem solving, creative, analytical, computation, application, communication and exploration skills (see 2.3.2)
- The Siegfried blueprint for the structure of an economics curriculum (see 2.3.3 and diagram 2.2)

  The Siegfried blueprint consists of the following:
  - Introductory courses that stress the application of economic principles to a variety of problems
  - Intermediate Micro- and Macroeconomics courses that actively engage students in doing economic analysis
  - Quantitative methods courses (including Statistics, Econometrics and Mathematics) that focus the application of the techniques used in economics

- Three to six elective courses that provide breadth to the curriculum. These courses should emphasise writing, oral presentations and research projects to also provide depth to the curriculum
- A capstone experience in the form of a final research project that would complete the process of intellectual maturation and which gives students the opportunity to acquire an increased capacity to "think like an economist"

The application of economic theory and concepts at every level in an economics curriculum could not be overemphasised. The emphasis of economics courses should not be on formally teaching theoretical material, covering a vast number of topics with students memorising definitions, formal proofs and theoretical concepts. It should rather be on students discovering the theory for themselves, working with real world data, problems and situations.

- The inclusion of the lecture-and-laboratory format in certain courses/modules of an economics curriculum.

Students should learn economic theory and empirical analysis through personal experience in designing and performing economic research. To facilitate this, lecturers could cover the theory and concepts that need to be mastered during the usual instructional sessions and then make use of laboratory sessions to reinforce the students' understanding of these concepts by discovering, expanding and applying the theory themselves. Offering the usual lectures and supplementing them with laboratory sessions is referred to as the lecture-and-laboratory format for a specific course.

The incorporation of laboratory sessions into an economics curriculum could therefore facilitate the important issue of giving students opportunities to apply their knowledge. The lecture-and-laboratory format should therefore be implemented in at least Intermediate Micro- and Macroeconomics, Econometrics and other Quantitative methods courses. By also incorporating

it in the elective courses, the implementation of the depth requirement, suggested by Siegfried *et al* (1991:24), could further be facilitated.

- Economics textbooks

  In this section (see 2.3.4) special attention was given to economics textbooks as a reflection of the content of economics courses. The problems identified with economics textbooks include the lack of use of real-world data, the growth in topics covered, the out-datedness of the information in textbooks and the fact that textbooks, rather than the lecturer, set the agenda in the classroom . The recommendations made in this regard are stated in section 5.4.

- Class size, assessment methods and teaching methods in an economics curriculum (see 2.3.5).

  To best achieve the goals set out for an economics curriculum, no more than 25 students per class can be acceptable. Compromising on class size will lead to fewer active-learning opportunities (writing, oral presentations and research projects) for students to enhance their understanding and develop a way of thinking like an economist. Recommendations in this regard are covered in section 5.4.

The implementation of these international best practices for an economics curriculum would result in students having a better understanding of economics and being able to "do economics" when they leave university. Economics would be more exciting and challenging to students and the effect of completing an economics degree would be longer lasting.

The international best practices for an economics curriculum that were identified in chapter 2 were used in chapter 4 as a guideline or benchmark to which Economic curricula that are offered at economics departments at selected South African universities can be compared.

Before this comparison could be made, the methodology that was followed to identify the universities that were included in this study and to gather the information needed for this study first had to be discussed.

Therefore, chapter 3 provided an overview of the methodological steps that were followed to be able to arrive at the results of this study. These steps included the following:

- The identification of the South African universities to include in this study.
  Due to the mergers and incorporations of higher education institutions that took place during 2004 and 2005, it was difficult to determine which institutions to include in the study. A decision was made to include only the institutions that incorporated the universities that existed before merging (and not technikons). Therefore all universities (universities that merged with other universities) and comprehensive universities (universities that merged with technikons) were included in this study, but universities of technology were excluded. A total number of 17 universities were therefore included in this study.

- The identification of the information needed
  The information needed was identified from the international best practices discussed in chapter 2 and from the ideas of a focus group comprising the program leaders of the School for Economics, Risk Management and International Trade at the Potchefstroom Campus of the North-West University.

  This information included the courses offered by each economics department, the year level on which each course is taught, the elective/core nature of each course, the textbooks that are used for each course, student numbers and the number of lecturers that teach each course. The focus group suggested that the number of semesters and lectures per week devoted to each course

offered by the different economics departments should also be included in the questionnaire.

This information could be used to determine the structure, content and student-lecturer ratios of the economics curricula offered by the different economics departments included in this study. Therefore these economics curricula could be compared to the international best practices identified in chapter 2.

- Open source searches

  Open source (Internet and faculty yearbooks) searches were undertaken to collect the information needed. The main reason for this was to minimise the amount of information asked from each economics department and therefore minimise the amount of time the heads of departments had to spend in assisting us with this study.

- Initial GAP-analysis

  After searching and sifting through all the information available from the open sources discussed in 3.4, a GAP-analysis was performed to identify the information that should be asked from each individual economics department.

- Designing the questionnaire

  The information gathered from open sources and the GAP-analysis referred to in 3.3.3 enabled the researcher to construct an individual questionnaire for each economics department included in the study (See Appendix A). Each questionnaire had the same basic format (see 3.6), but included the unique information of each department that was gathered from open sources. This enabled each economics department to verify the information obtained from open sources and to fill in only the gaps.

- Creating awareness of the study.

  To create awareness of this study, a work-in-progress paper of this study was presented at the bi-annual Economic Society of South Africa (ESSA) conference on 9 September 2005. During the course of the conference, most of the heads of economics departments were approached to personally inform them about the study, encourage them to participate and to get their correct contact details.

- Distributing the questionnaires, response and the final GAP-analysis and follow-up.

  The questionnaires were sent to heads of departments' physical and e-mail addresses. After numerous phone calls and e-mails, all the economics departments included in this study (17 in total) responded to the questionnaire. Although a 100% response rate was reached, some of the departments did not provide all the information that was asked. Attempts were made to gather all the necessary information, and by the time the results of this study were written up most of the information had been acquired. Unfortunately, not all the information for each course offered by each department could be gathered.

- Writing up the results.

  Having received the responses of all the economics departments included in this study, the information indicated in each questionnaire could subsequently be used to derive results.

Chapter 4 set out to compare the economics curricula offered at the South African universities included in this study to the international best practices identified and discussed in chapter 2. This comparison had to be made in terms of the different aspects of the international best practices including the goals of an economics curriculum, the structure of an economics curriculum, the content

of the courses/modules included in an economics curriculum and the logistics behind the economics curriculum. Each of these aspects was discussed in the different sections of this chapter. The findings that were made in this chapter will be discussed in section 5.3. Therefore, only a brief summary of each section of chapter 4 will now be given:

- In section 4.2, the degree to which heads of departments agree with the goals of an economics curriculum, as identified in chapter 2 (see 2.3.1), were investigated. Heads of departments were asked in the questionnaire to assign a score from 1 to 5 to each goal identified in chapter 2 as an indication of the degree in which they agree with each goal.
- In section 4.3, the courses that are offered by the economics departments included in this study were placed in the Siegfried blueprint tree structure for an economics curriculum (see 4.3.1 and Appendix B). This was done to determine how the South African economics departments included in this study compare to the international best practices identified in chapter 2 (see 2.3.3) and to identify gaps.

  Diagram 4.2 summarised the overall situation with regard to the structure of the economics curricula offered in South Africa. The numbers of economics departments that offer each course in the Siegfried blueprint tree structure were indicated on the diagram.
- In section 4.4, the textbooks that are used for the different economics courses/modules offered at the economics departments included in this study were listed (see table 4.2). Table 4.3 provides a summary of the textbooks that are used by four or more departments.
- In section 4.5, the situation at South African universities regarding the logistics behind the economics curriculum was investigated. With large classes, it is almost impossible for lectures to facilitate active learning and the development of writing and oral skills (see 2.3.6). Therefore this section set out to investigate student numbers and, in particular, student-lecturer ratios in the South African context. Table 4.4 includes the total number of students

enrolled for each subject offered by the economics departments included in this study. It also includes student-lecturer ratios for each course.

With the above summary given, final conclusions can now be drawn.

5.3 Conclusions

The main objective of this study was to contribute to the enhancement of the academic quality of economics curricula offered in South Africa by identifying international best practices for an economics curriculum, providing information regarding the economics curricula offered at the South African economics departments included in this study and comparing the South African situation to the identified international best practices.

In a nutshell, the international best practices for an economics curriculum involve the following:

- Delivering graduate economics students who are able to think like economists (see 2.3.1)
- Structuring the economics curriculum (like a tree structure) to include introductory economics courses (roots); intermediate microeconomics, intermediate macroeconomics and quantitative economics courses (trunk); as well as three to six elective courses in the fields of public sector economics, international economics and contextual economics (branches)
- Incorporating a lecture-and-laboratory format in at least intermediate microeconomics, intermediate macroeconomics and quantitative economics courses to give students the opportunity to apply the theory and learn more by doing computer assignments and working with real world data
- Using textbooks that are updated regularly, include a sufficient amount of real-world data and do not include more and more topics with every edition

- Teaching to classes of no more than 25 students. This will provide more active-learning opportunities (writing, oral presentations and research projects) for students to enhance their understanding of economics

Information regarding the economics curricula offered by the economics departments included in this study is provided in chapter 4 and appendix B.

When the economics curricula offered by the economics departments included in this study were compared to the identified international best practices, the following observations were made:

- On average, heads of economics departments at the South African universities included in this study agree with the goals for an economics curriculum set out in the identified international best practices (see 4.2)
- The South African universities included in this study mostly comply with the international best practices for the structure of an economics curriculum in terms of the roots and trunk of the Siegfried blueprint tree structure (see diagram 2.2). When considering the three categories of branches in the Siegfried blueprint tree structure (see 2.3.3.3), South African economics departments mostly offer (at least) some courses in the Public Sector Economics and International categories respectively, while the Contextual courses are mostly not offered (see diagram 4.2)
- The textbooks that are used for the different economics courses are listed in table 4.2 and 4.3. Each economics department is referred to the international best practices identified in this regard to assess for themselves whether or not their course materials are up to date, include adequate real-world applications, and do not cover too many topics while their application is neglected. Economics departments are also referred to the recommendations made in this regard in the international best practices (see 2.3.5)
- The student-lecturer ratios in the intermediate microeconomics and macroeconomics courses offered by the economics departments included in

this study range from 270 to 315 students per lecturer. This is remote from the 15 to 25 students per class specified in the international best practices (see 2.3.6). When compared to the results of Luiz (2004:193-194) at the six universities used in this comparison, student numbers have increased from 2002 to 2005 by an average of 7,56% (see table 4.5). The student-lecturer ratios at these universities have also increased by a total average of 41,65% from 2002 to 2005. This is a point of concern for all South African economics departments and heads of departments will need to do everything in their power to decrease these ratios.

Recommendations can now be made with regard to the different aspects of the international best practices identified in this study and the comparison between these international best practices and the economics curricula offered by economics departments at the South African universities included in this study.

5.4 Recommendations

5.4.1 Recommendations to South African economics departments

In terms of the goals of an economics curriculum, South African economics departments are advised to use the goals included in the international best practices identified in this study (see 2.3.1 and 2.3.2) to evaluate and reformulate their goals. As stated by Lategan (1997:4), academic quality involves the effective meeting of goals or objectives (see 1.1). Therefore evaluating and reformulating goals to an international standard and then effectively achieving these goals will assure academic quality at a particular institution.

When the structure of an economics curriculum is considered, South African economics departments are advised to frequently evaluate, update and redraw their tree structure in the same format as the Siegfried blueprint tree structure (see diagram 2.1 and Appendix B). It is at each department's decision makers' discretion how the economics curriculum at that institution is structured. The

Siegfried blueprint tree structure therefore serves as a guideline for the structure of an economics curriculum that can be used by each economics department. Economics departments at the South African universities included in this study mostly neglect the contextual branch of the Siegfried blueprint tree structure (see 4.3) and might consider including courses such as Taxation, Comparative Economics Systems, History of Economic Thought and Economic History in their economics curricula.

It is important that each economics department realises the importance of the application of economic theory and concepts at every level in an economics curriculum. The emphasis of economics courses should not be on formally teaching theoretical material, covering a vast number of topics with students memorising definitions, formal proofs and theoretical concepts. It should rather be on students discovering the theory for themselves, working with real world data, problems and situations.

To ensure that students learn economic theory and empirical analysis through personal experience, courses could be offered in a lecture-and-laboratory format. This involves lecturers covering the theory and concepts that need to be mastered during the usual instructional sessions, and then make use of laboratory sessions to reinforce the students' understanding of these concepts by discovering, expanding and applying the theory themselves.

When considering economics textbooks, economics departments are advised to use textbooks together with "real" books (for more detail, see 2.3.5) and computer assignments to ensure that problems with textbooks, such as out-datedness and lack of use of real world data could be overcome. Implementing the lecture-and-laboratory format in courses could also help overcome the general problems with textbooks.

With regard to class size, the international best practices identified in this study (see 2.3.6) suggest that the achievement of the goals of an economics curriculum requires smaller classes (no more than 25 students per class), more instructional resources, evaluation methods that give students opportunities to develop their writing and oral skills, and opportunities for students to learn actively (see 2.3.6). As stated in section 5.3, South African economics departments are, in general, far remote from this benchmark. This puts a large constraint on the achievement of the defined goals of an economics curriculum and heads of departments must do everything in their power to try to decrease these ratios. A few recommendations in this regard include appointing more faculty members and limiting the access to the economics curriculum (see 2.3.6). Financial constraints would most probably prohibit most departments from employing additional faculty members and it might be in conflict with the philosophy of many institutions to limit access to the economics curriculum. Another suggestion is to offer challenging intermediate microeconomics, intermediate macroeconomics and quantitative economics courses whose "reputation" ensures that student numbers do not exceed the capacity of each economics department (for more detail, see 2.3.6). The implementation of a lecture-and-laboratory format for courses in an economics curriculum could also provide a solution to this problem. Giving lecture sessions to larger groups and then dividing the group into smaller groups for laboratory sessions could overcome the problem of not having adequate financial resources to ensure smaller classes. Student assistants who are familiar with the work could be appointed (at a much lower cost than appointing faculty members) to help lecturers in the laboratory sessions.

This section included general recommendations for economics departments in South Africa. Reference could also be made here to the recommendations for each part of the Siegfried blueprint tree structure (see 2.3.3), which was also given in chapter 2.

5.4.2 Recommendations for future research

Most economics degrees in the United States of America are four-year degrees. Therefore future research could be done to include the Honours (4th year level) courses offered by South African economics departments in comparison to the international best practices identified in this study.

With reference to diagram 2.1, future studies could include a more in-depth assessment of the class sizes, teaching, assessment methods, faculty well-being and research outputs in the South African context.

Future studies may also include a follow-up study to assess whether economics departments in South Africa are more compliant with the international best practices identified in this study and, in particular, whether student-lecturer ratios are improving compared to the results of this study.

APPENDIX A

THE BASIC FORMAT OF THE QUESTIONNAIRE

Each economics department included in this study received a 'custom made' questionnaire with all the information that could be gathered from open sources already filled in (see 3.4. and 3.6). The basic format of the questionnaire is as follows:

School of Economics, Risk Management and International Trade
Tel: (018) 299-1445
Fax: (018) 299-1398
E-mail: eknwv@puk.ac.za
22 November 2005

THE STATUS OF UNDERGRADUATE COURSES IN ECONOMICS AT SA UNIVERSITIES

The abovementioned is the topic of a research project in the School of Economics, Risk Management and International Trade (SERI) of the Potchefstroom Campus of the North-West University (NWU). The NWU is a recently merged university, previously the PU for CHE (Potchefstroom and Vaal Triangle campuses) and the University of North-West in Mafikeng.

In order to find a basis/benchmark for the eventual alignment of the content of the courses presented by the Department/School of Economics on the three campuses, we launched this research project.

The preliminary results of this research have already been presented at the 2005 ESSA conference on 9 September by Ms Ermie Jacobs (now Steenkamp). The

data so far was retrieved from open sources (web and faculty yearbooks). However for the purposes of this research the required data was not available, or incomplete.

Apart from our use, we plan to publish an article on the results, as well as send you a summary report of the findings. We therefore urge you to participate in this research project, in order for your school/department to be reflected in the article and report.

Therefore we request you to check the accuracy of the available information, as well as filling in the missing data, as indicated in the attached questionnaire.

If you have any enquiries regarding the questionnaire, please feel free to contact me on: 082 5777 545 (Cell)
eknwv@puk.ac.za (e-mail).

Please send the questionnaire back before _____.

We thank you and appreciate the time you spent in assisting us in this research. We hope that the results will also be to your benefit!

Yours sincerely

Prof Wilma Viviers
Director: SERI

Ms Ermie Steenkamp

POTCHEFSTROOM CAMPUS
Private Bag X6001, Potchefstroom, South Africa, 2520
Tel: (018) 299-1111 • Fax: (018) 299-2799
Internet: http://www.nwu.ac.za

PLEASE NOTE THAT 2005 INFORMATION IS REQUIRED

The University of _____

Please provide the following information of the courses offered by your department

Name of the course	Textbook	Year level	Number of semesters	Number of students	Number of lecturers	Number of lectures per week	Compulsory / Elective course (C / E)

Do you specialise in any particular sub-discipline of Economics? If yes, please specify.

_____

_____

_____

How do you agree with the following statements?

1 Totally disagree
2 Slightly disagree
3 Slightly agree
4 Agree
5 Totally agree

Graduate students in Economics should be able to:	**Score**
1. have a self-sustaining capacity to think and learn.	
2. know how to pose questions, collect information, identify and use an appropriate framework to analyse information, and come to a conclusion.	
3. make informed decisions about their lives and communities long after their tertiary learning experience.	
4. use chains of deductive reasoning, in conjunction with simplified models, to help understand economic events.	
5. speak publicly in front of large audiences.	
6. distinguish between positive and normative analysis.	
7. identify tradeoffs, given certain constraints.	
8. identify and abstract from other real-life situations, the behavioural implications of some change in the economy.	
9. explore the consequences of aggregation.	
10. describe the redistributive implications of changes in economic institutions and policies.	
11. collect data to evaluate and refine his/her understanding of the	

economy;	
12. test alternative hypotheses about how consumers and producers make economic choices and how the economic system works.	

PLEASE SEND THIS QUESTIONNAIRE BACK TO THE FOLLOWING ADDRESS OR E-MAIL ADDRESS BEFORE _____:

Prof. Wilma Viviers
School for Economics, Risk Management and International Trade (SERI).
North-West University
Potchefstroom Campus
Private Bag X6001
Potchefstroom
2520
OR
eknwv@puk.ac.za

IF YOU WOULD LIKE TO RECEIVE A SUMMARY REPORT, PLEASE GIVE YOUR DETAILS:

_____

_____

_____

_____

THANK YOU FOR YOUR TIME!

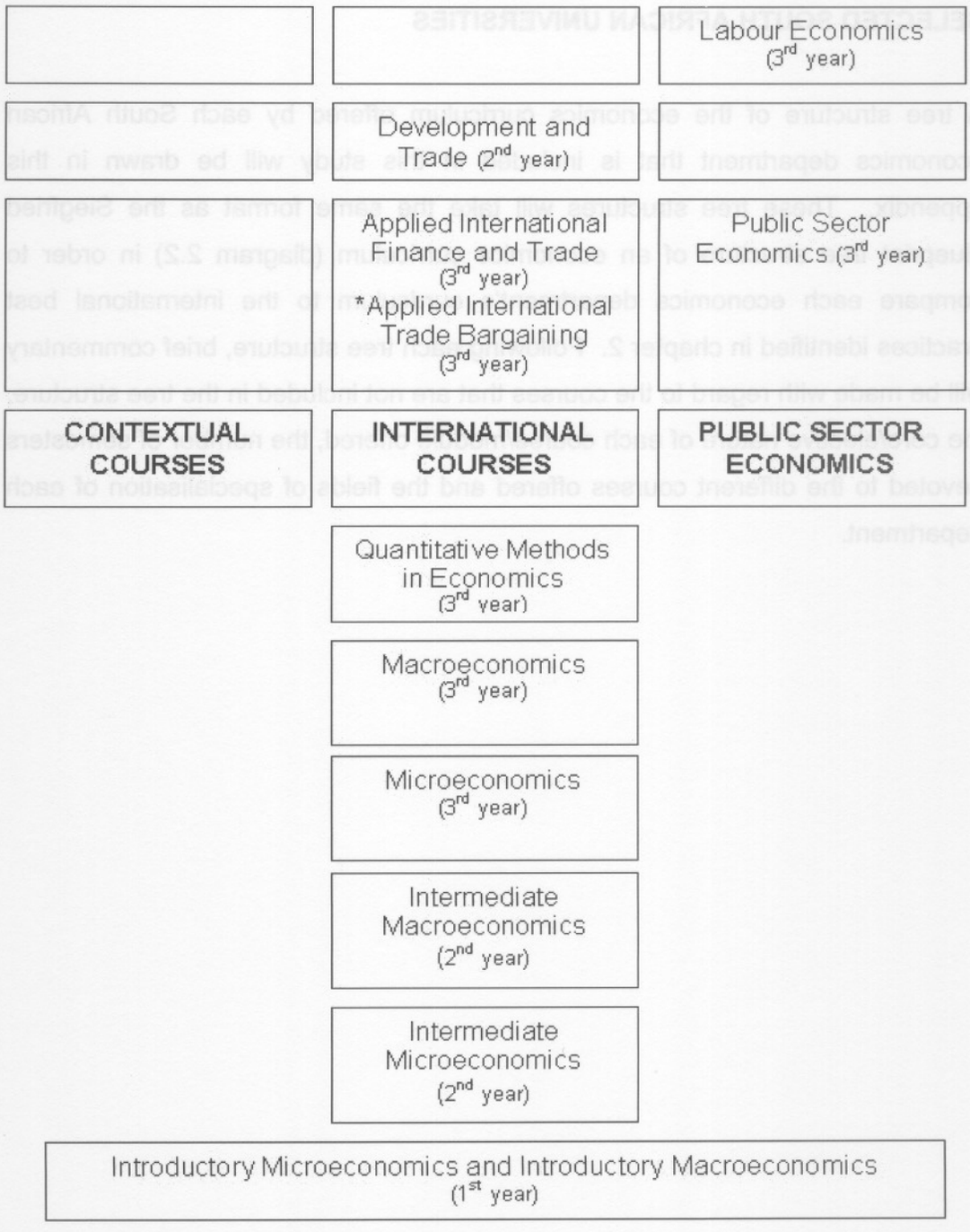
ALL OF THE BEST FOR 2006.

APPENDIX B:

TREE STRUCTURES OF THE ECONOMICS CURRICULUMS OFFERED BY SELECTED SOUTH AFRICAN UNIVERSITIES

A tree structure of the economics curriculum offered by each South African economics department that is included in this study will be drawn in this appendix. These tree structures will take the same format as the Siegfried blueprint tree structure of an economics curriculum (diagram 2.2) in order to compare each economics department's curriculum to the international best practices identified in chapter 2. Following each tree structure, brief commentary will be made with regard to the courses that are not included in the tree structure, the core/elective nature of each course/module offered, the number of semesters devoted to the different courses offered and the fields of specialisation of each department.

Diagram B.1: The tree structure of the economics curriculum offered by the School of Economics at the University of Cape Town



* Applied International Trade Bargaining is a web-based course. Lectures in this course run for a few weeks only.

Comments:

- The School of Economics at the University of Cape Town offers the following courses that are not included in the tree structure because the Siegfried blueprint tree structure does not include these courses:
  - Natural Resource Economics (third year, elective course); and
  - Cooperation and Competition (second year, compulsory course).
- The core/elective nature of each course:

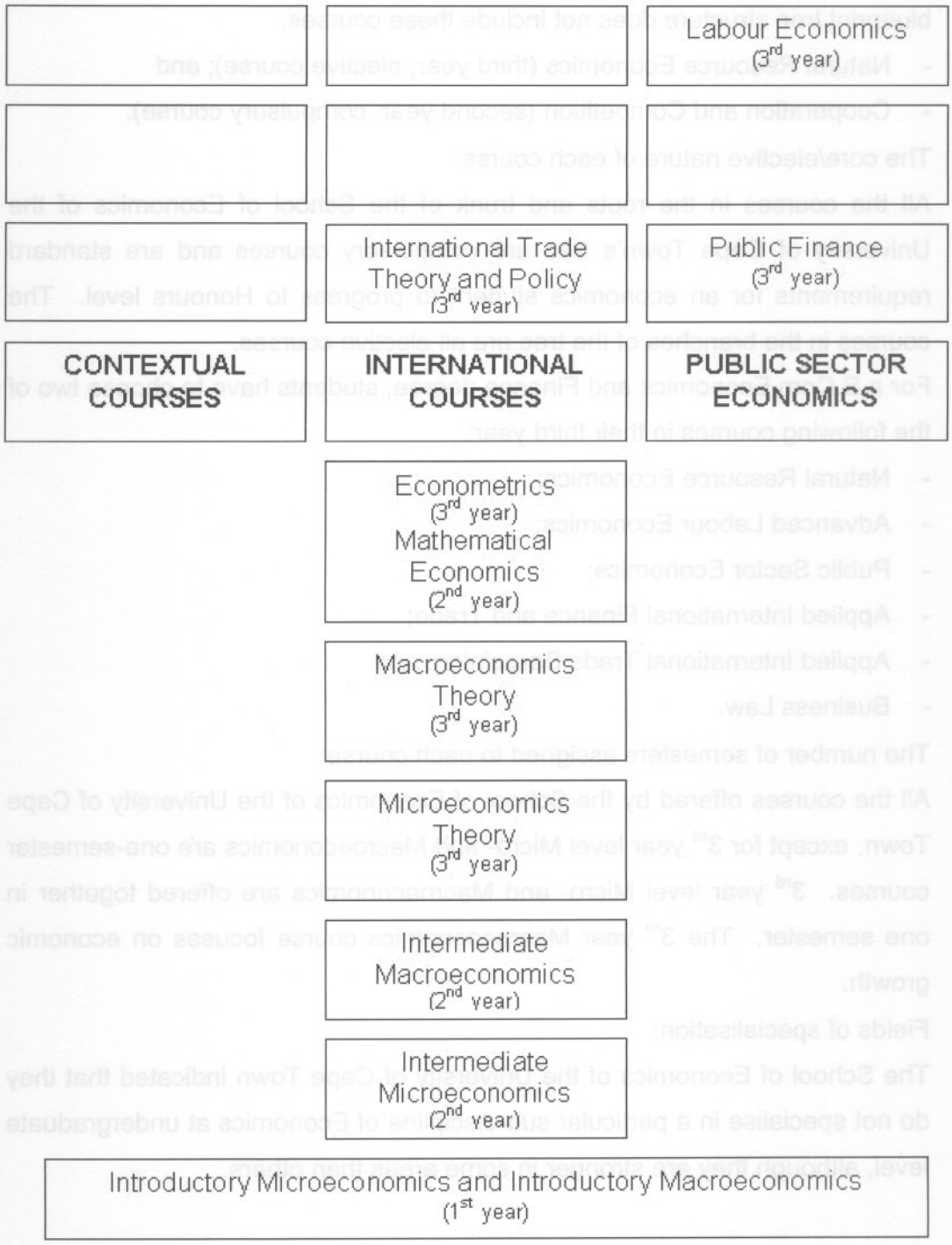
  All the courses in the roots and trunk of the School of Economics of the University of Cape Town's tree are compulsory courses and are standard requirements for an economics student to progress to Honours level. The courses in the branches of the tree are all elective courses.

  For a B.Com Economics and Finance degree, students have to choose two of the following courses in their third year:
  - Natural Resource Economics;
  - Advanced Labour Economics;
  - Public Sector Economics;
  - Applied International Finance and Trade;
  - Applied International Trade Bargaining; and
  - Business Law.
- The number of semesters assigned to each course:

  All the courses offered by the School of Economics of the University of Cape Town, except for 3rd year level Micro- and Macroeconomics are one-semester courses. 3rd year level Micro- and Macroeconomics are offered together in one semester. The 3rd year Macroeconomics course focuses on economic growth.
- Fields of specialisation:

  The School of Economics of the University of Cape Town indicated that they do not specialise in a particular sub-discipline of Economics at undergraduate level, although they are stronger in some areas than others.

Diagram B.2: The tree structure of the economics curriculum offered by the Economics Department of the University of Fort Hare



Comments:

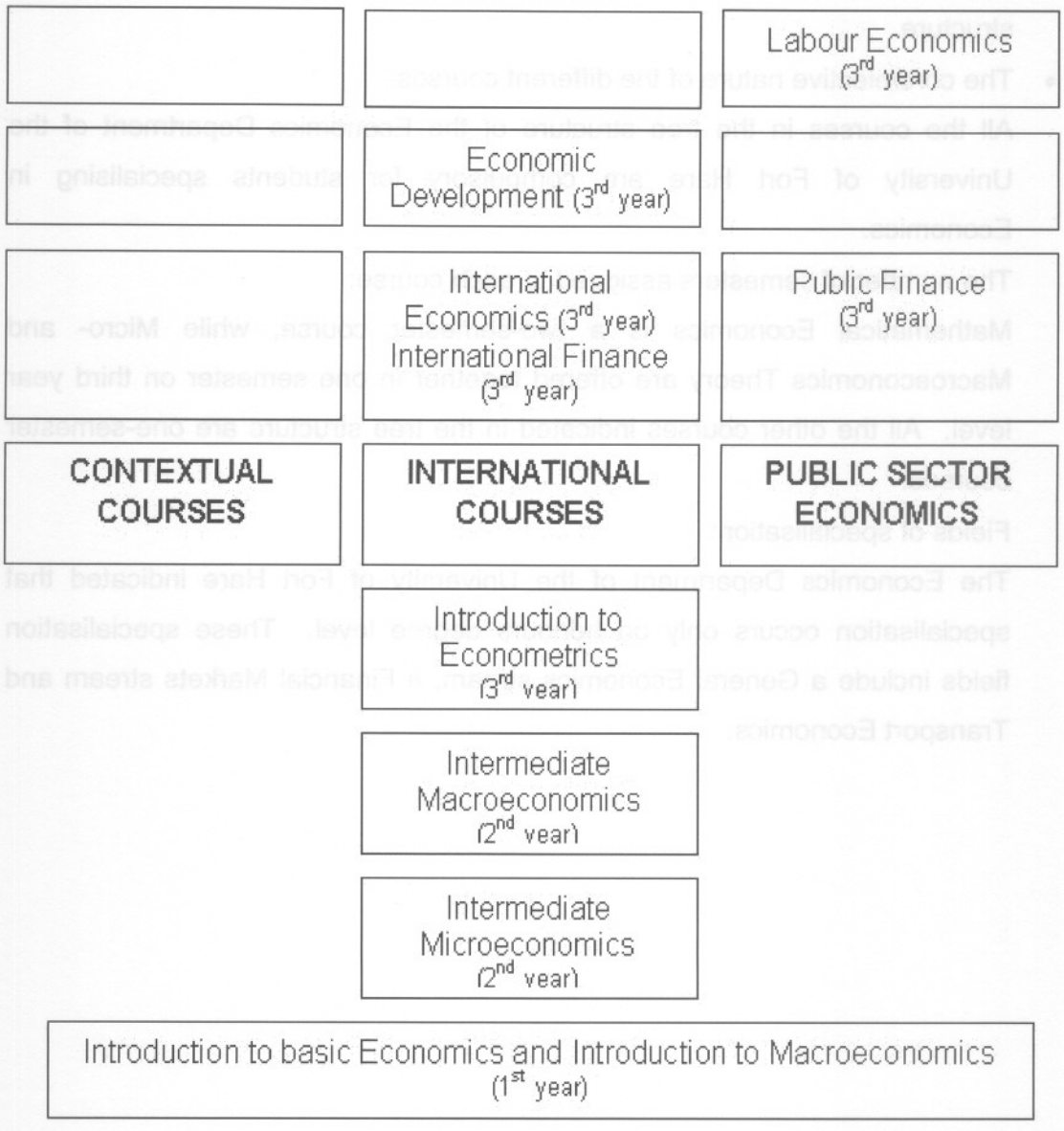
- Money, Banking and International Finance (third year course) is the only course offered by the University of Fort Hare that is not included in the tree structure.
- The core/elective nature of the different courses:

  All the courses in the tree structure of the Economics Department of the University of Fort Hare are compulsory for students specialising in Economics.
- The number of semesters assigned to each course:

  Mathematical Economics is a two-semester course, while Micro- and Macroeconomics Theory are offered together in one semester on third year level. All the other courses indicated in the tree structure are one-semester courses.
- Fields of specialisation:

  The Economics Department of the University of Fort Hare indicated that specialisation occurs only on honours degree level. These specialisation fields include a General Economics stream, a Financial Markets stream and Transport Economics.

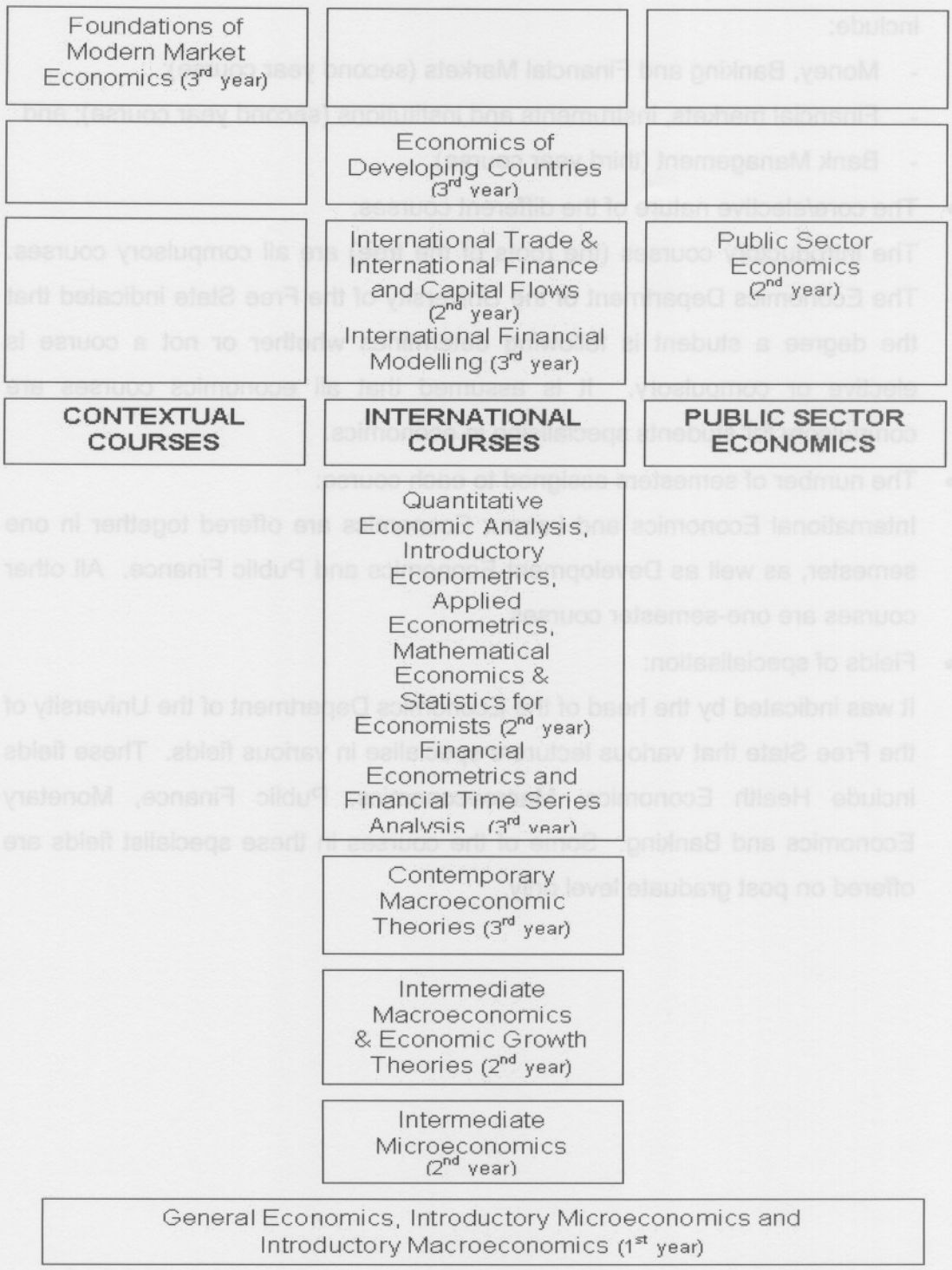
Diagram B.3: The tree structure of the economics curriculum offered by the Economics Department of the University of the Free State



Comments:

- The courses that are offered by the Economics Department of the University of the Free State, but are not included in the Siegfried blueprint tree structure include:
  - Money, Banking and Financial Markets (second year course);
  - Financial markets, instruments and institutions (second year course); and
  - Bank Management (third year course).
- The core/elective nature of the different courses:
  The introductory courses (the roots of the tree) are all compulsory courses. The Economics Department of the University of the Free State indicated that the degree a student is following determines whether or not a course is elective or compulsory. It is assumed that all economics courses are compulsory for students specialising in economics.
- The number of semesters assigned to each course:
  International Economics and Labour Economics are offered together in one semester, as well as Development Economics and Public Finance. All other courses are one-semester courses.
- Fields of specialisation:
  It was indicated by the head of the Economics Department of the University of the Free State that various lecturers specialise in various fields. These fields include Health Economics, Macroeconomics, Public Finance, Monetary Economics and Banking. Some of the courses in these specialist fields are offered on post graduate level only.

Diagram B.4: The tree structure of the economics curriculum offered by the Economics Department of the University of Johannesburg



Comments:

- The courses that are offered by the Economics Department of the University of Johannesburg, but are not included in the Siegfried blueprint tree structure include:
  - South African National Accounts and Economic Indicators; and
  - Monetary Policy Modelling.
- The core/elective nature of the different courses:

  All the courses offered by the Economics Department of the University of Johannesburg are compulsory for the degree B.Com Economics & Econometrics.
- The number of semesters assigned to the different courses:

  The following courses are offered together in one semester:

  General Economics and Introductory Microeconomics (first year level);

  Quantitative Economic Analysis and South African National Accounts & Economic Indicators (second year level);

  Introductory Econometrics and Applied Econometrics (second year level);

  Mathematical Economics and Statistics for Economists (second year level);

  Public Sector Economics and Economic Growth Theories (second year level);

  International Trade and International Finance and Capital Flows (second year level);

  Monetary Policy Modelling and Financial Econometrics (third year level);

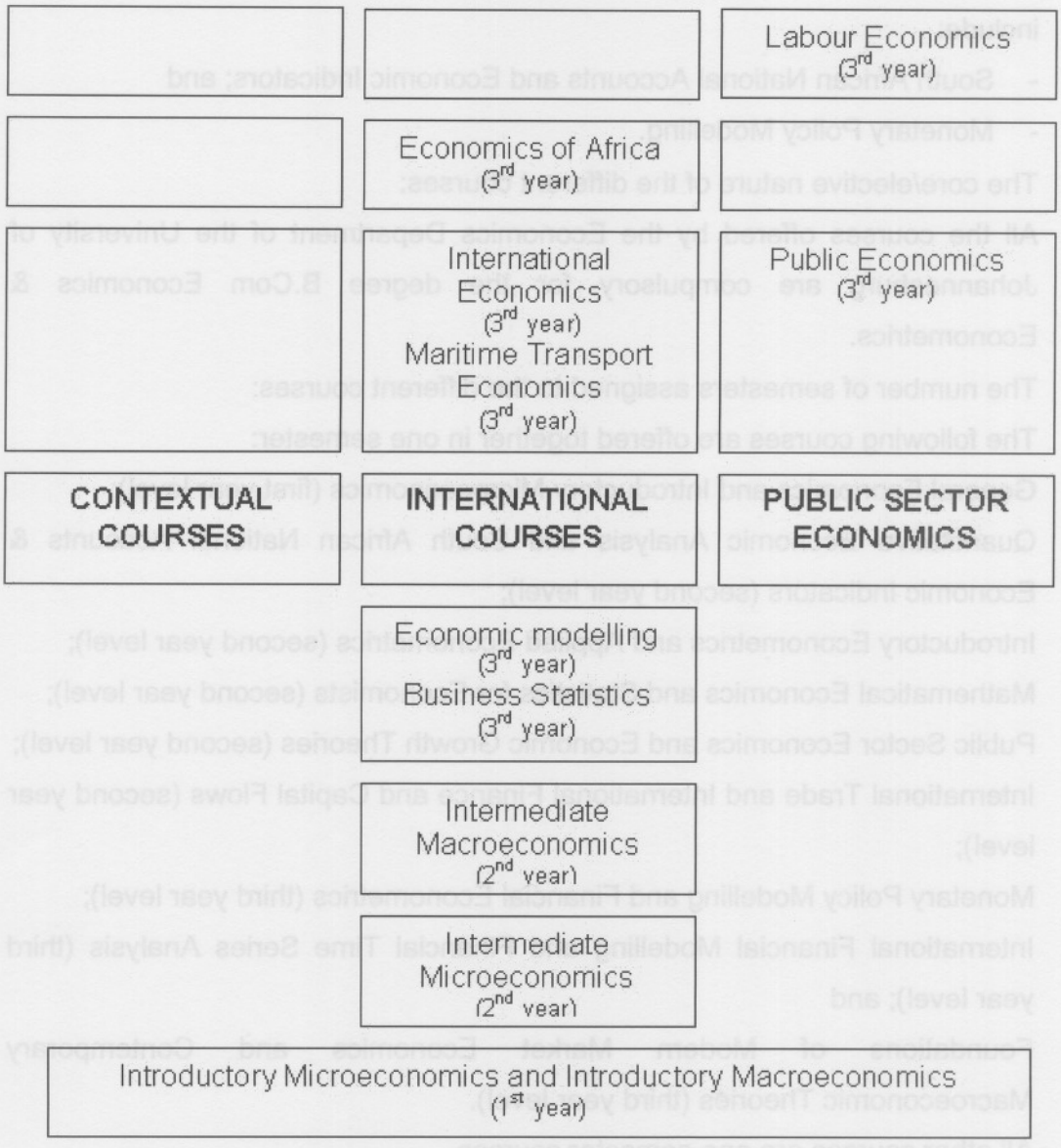
  International Financial Modelling and Financial Time Series Analysis (third year level); and

  Foundations of Modern Market Economics and Contemporary Macroeconomic Theories (third year level).

  All other courses are one-semester courses.
- Fields of specialisation:

  The Department of Economics of the University of Johannesburg indicated that they specialise in International Trade, Philosophy of Economics and Economics of Education.

Diagram B.5: The tree structure of the Economics curriculum offered by the School of Economics and Finance of the University of KwaZulu Natal.



Comments:

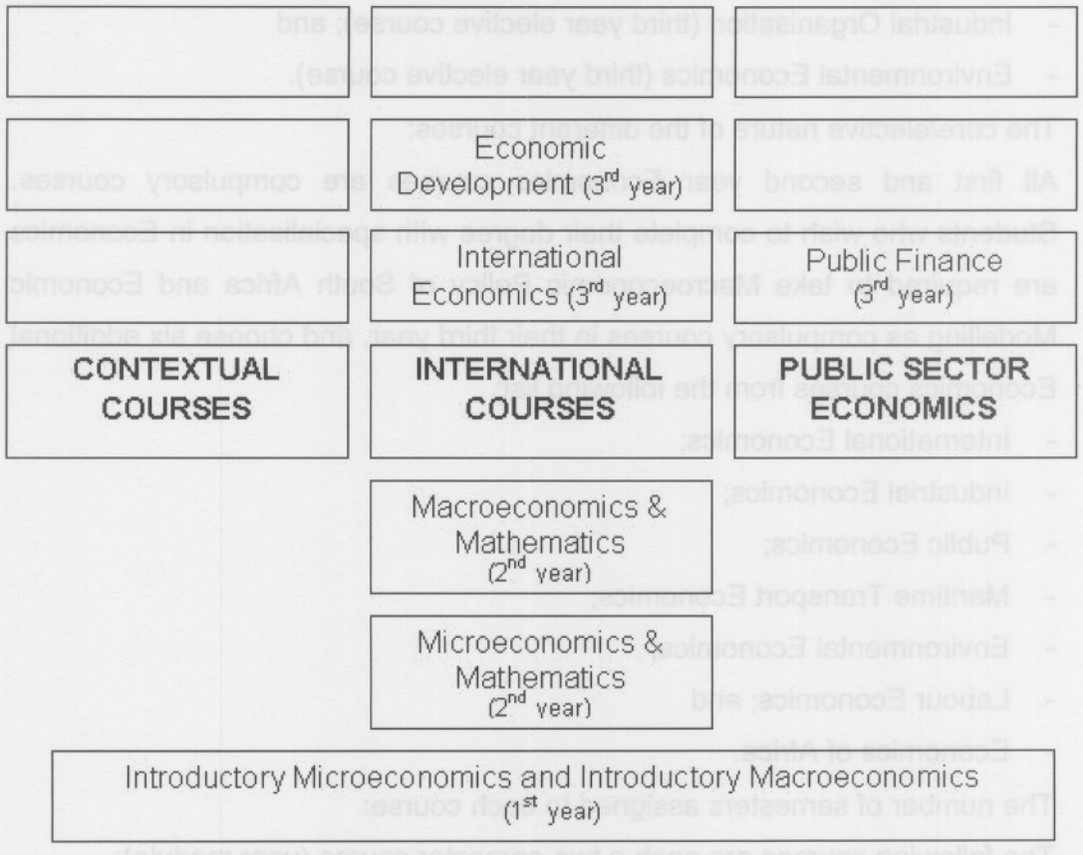
- The following courses are offered by the School of Economics and Finance of the University of KwaZulu Natal, but are not included in the Siegfried blueprint tree structure:
  - Macroeconomic Policy in South Africa (third year, elective course);
  - Finance (second year elective course);
  - Investment Finance (third year, elective course);
  - Corporate Finance (third year elective course);
  - Industrial Organisation (third year elective course); and
  - Environmental Economics (third year elective course).
- The core/elective nature of the different courses:
  All first and second year Economics courses are compulsory courses. Students who wish to complete their degree with specialisation in Economics are required to take Macroeconomic Policy of South Africa and Economic Modelling as compulsory courses in their third year, and choose six additional Economics courses from the following list:
  - International Economics;
  - Industrial Economics;
  - Public Economics;
  - Maritime Transport Economics;
  - Environmental Economics;
  - Labour Economics; and
  - Economics of Africa.
- The number of semesters assigned to each course:
  The following courses are each a two-semester course (year module):
  Introductory Macroeconomics;
  Intermediate Macroeconomics; and
  Finance (second year).

All the other courses offered by the School of Economics and Finance of the University of KwaZulu Natal are one-semester courses.

- Fields of specialisation:

  The School of Economics and Finance indicated that they specialise in Labour Economics, International Trade & Transport and Environmental Economics.

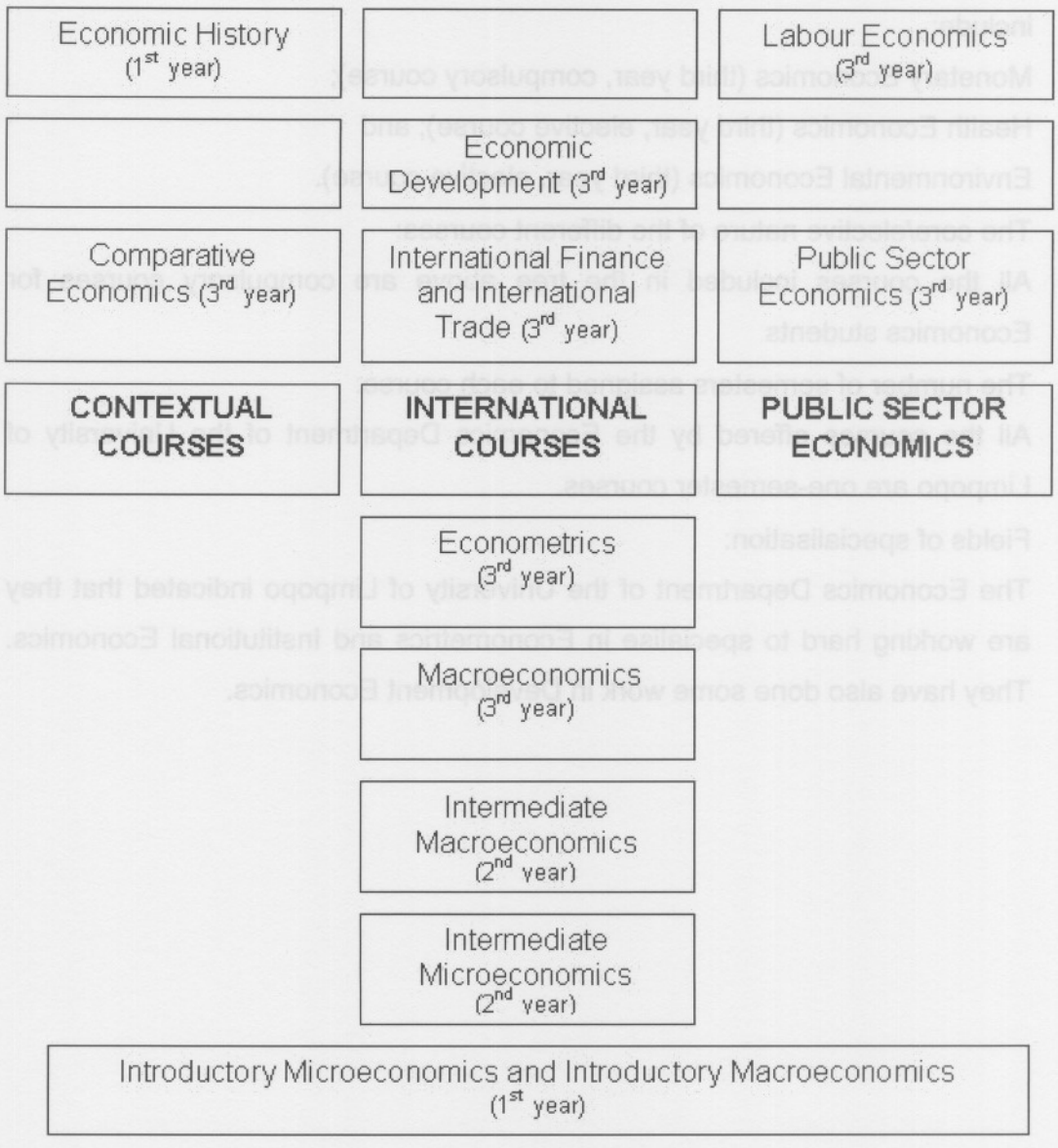
Diagram B.6: The tree structure of the economics curriculum offered by the Economics Department of the University of Limpopo.



Comments:

- The courses that are offered by the Economics Department of the University of Limpopo, but are not included in the Siegfried blueprint tree structure include:
  Monetary Economics (third year, compulsory course);
  Health Economics (third year, elective course); and
  Environmental Economics (third year, elective course).
- The core/elective nature of the different courses:
  All the courses included in the tree above are compulsory courses for Economics students
- The number of semesters assigned to each course:
  All the courses offered by the Economics Department of the University of Limpopo are one-semester courses.
- Fields of specialisation:
  The Economics Department of the University of Limpopo indicated that they are working hard to specialise in Econometrics and Institutional Economics. They have also done some work in Development Economics.

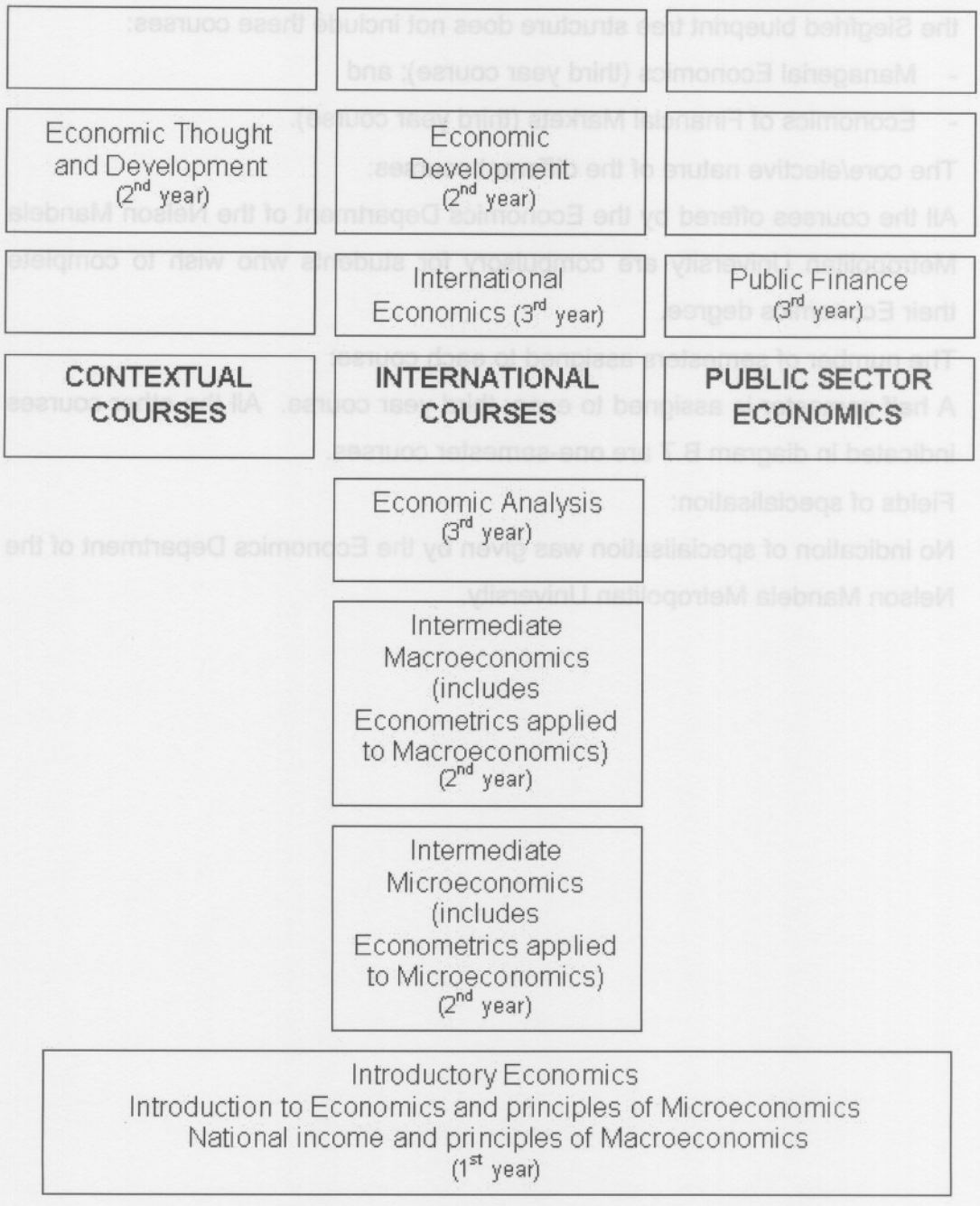
Diagram B.7: The tree structure of the economics curriculum offered by the Economics Department of the Nelson Mandela Metropolitan University.



Comments:

- The Department of Economics of the Nelson Mandela Metropolitan University offers the following courses that are not included in the tree structure because the Siegfried blueprint tree structure does not include these courses:
  - Managerial Economics (third year course); and
  - Economics of Financial Markets (third year course).
- The core/elective nature of the different courses:
  All the courses offered by the Economics Department of the Nelson Mandela Metropolitan University are compulsory for students who wish to complete their Economics degree.
- The number of semesters assigned to each course:
  A half semester is assigned to every third year course. All the other courses indicated in diagram B.7 are one-semester courses.
- Fields of specialisation:
  No indication of specialisation was given by the Economics Department of the Nelson Mandela Metropolitan University.

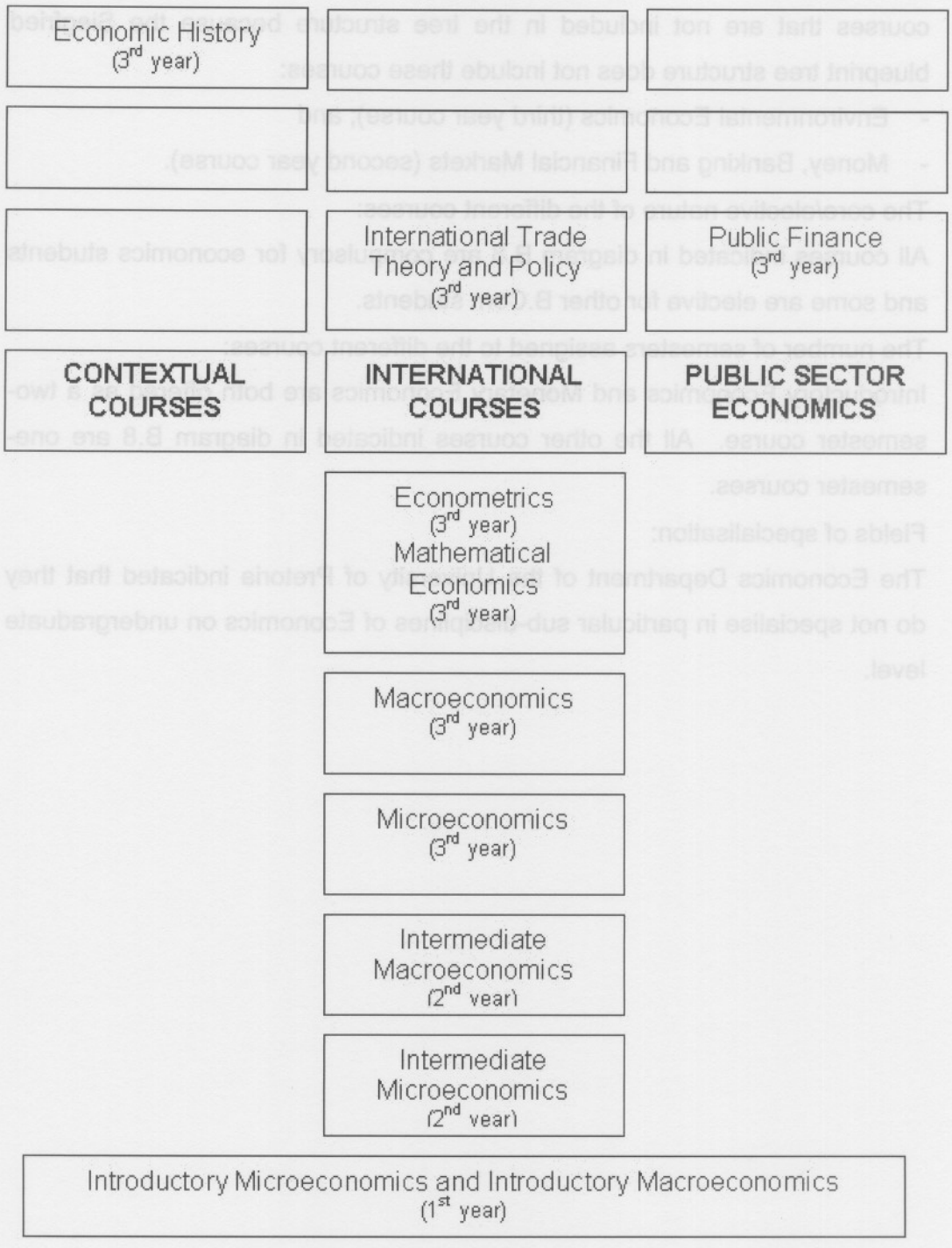
Diagram B.8: The tree structure of the economics curriculum offered by the Economics Department of the University of Pretoria.



Comments:

- The Economics Department at the University of Pretoria offers the following courses that are not included in the tree structure because the Siegfried blueprint tree structure does not include these courses:
  - Environmental Economics (third year course); and
  - Money, Banking and Financial Markets (second year course).
- The core/elective nature of the different courses:
  All courses indicated in diagram B.8 are compulsory for economics students and some are elective for other B.Com students.
- The number of semesters assigned to the different courses:
  Introductory Economics and Monetary Economics are both offered as a two-semester course. All the other courses indicated in diagram B.8 are one-semester courses.
- Fields of specialisation:
  The Economics Department of the University of Pretoria indicated that they do not specialise in particular sub-disciplines of Economics on undergraduate level.

Diagram B.9: The tree structure of the Economics curriculum offered by the Economics Department of Rhodes University.



Comments:

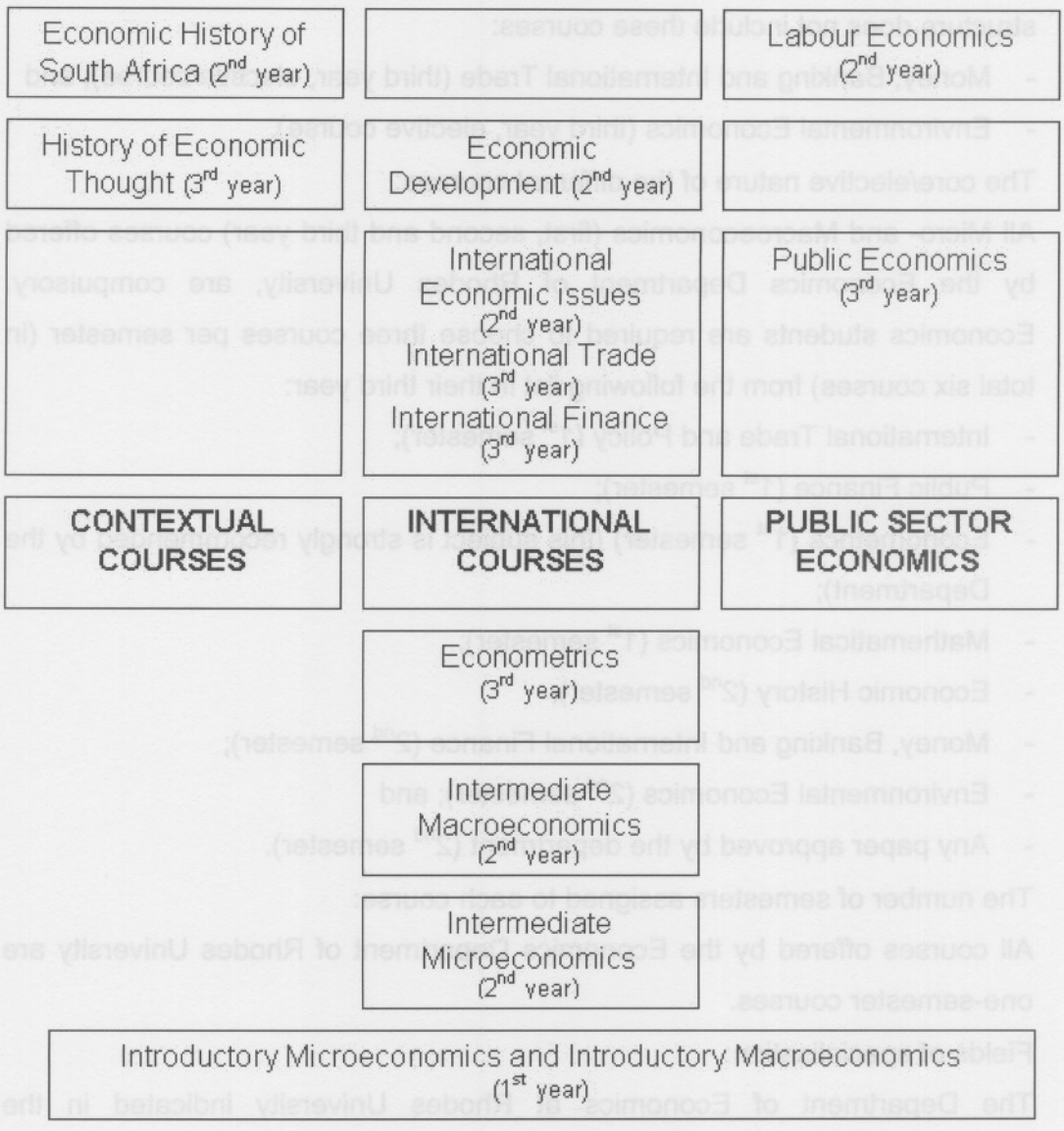
- The Economics Department of Rhodes University offers the following courses that are not included in the tree structure because the Siegfried blueprint tree structure does not include these courses:
  - Money, Banking and International Trade (third year, elective course); and
  - Environmental Economics (third year, elective course).
- The core/elective nature of the different courses:

  All Micro- and Macroeconomics (first, second and third year) courses offered by the Economics Department of Rhodes University, are compulsory. Economics students are required to choose three courses per semester (in total six courses) from the following list in their third year:
  - International Trade and Policy (1st semester);
  - Public Finance (1st semester);
  - Econometrics (1st semester) (this subject is strongly recommended by the Department);
  - Mathematical Economics (1st semester);
  - Economic History (2nd semester);
  - Money, Banking and International Finance (2nd semester);
  - Environmental Economics (2nd semester); and
  - Any paper approved by the department (2nd semester).
- The number of semesters assigned to each course:

  All courses offered by the Economics Department of Rhodes University are one-semester courses.
- Fields of specialisation:

  The Department of Economics at Rhodes University indicated in the questionnaire that they specialise in Financial Markets at postgraduate level.

Diagram B.10: The tree structure of the economics curriculum offered by the Economics Department of the University of South Africa.



Comments:

The University of South Africa (UNISA) is the only university in South African that focuses exclusively on distance learning.

- The courses that are offered by the Economics Department of UNISA, but are not included in the Siegfried blueprint tree structure include:

- Economic Policy in South Africa (third year course);
- The South African financial system (second year course);
- Monetary Economics (third year course);
- Environmental Economics (second year course);
- Economics of Tourism (second year course); and
- South African Economic Indicators (second year course).

- The core/elective nature of the different courses:

  All Micro- and Macroeconomics (first and second year) courses offered by the Economics Department of UNISA are compulsory for students who wish to obtain a B.Com degree with specialisation in Economics. South African Economic Indicators is also a third year compulsory course.

  Students have to choose two of the following Economics courses in their second year:
  - Labour Economics;
  - Environmental Economics;
  - International Economics;
  - Economics of Tourism;
  - Development Economics; and
  - South African Financial Systems.

  In their third year, students are required to choose five Economics courses from the following list:
  - Monetary Economics;
  - Economic Policy in South Africa;
  - International Finance;
  - History of Economic Thought;
  - International Trade; and
  - Econometrics.

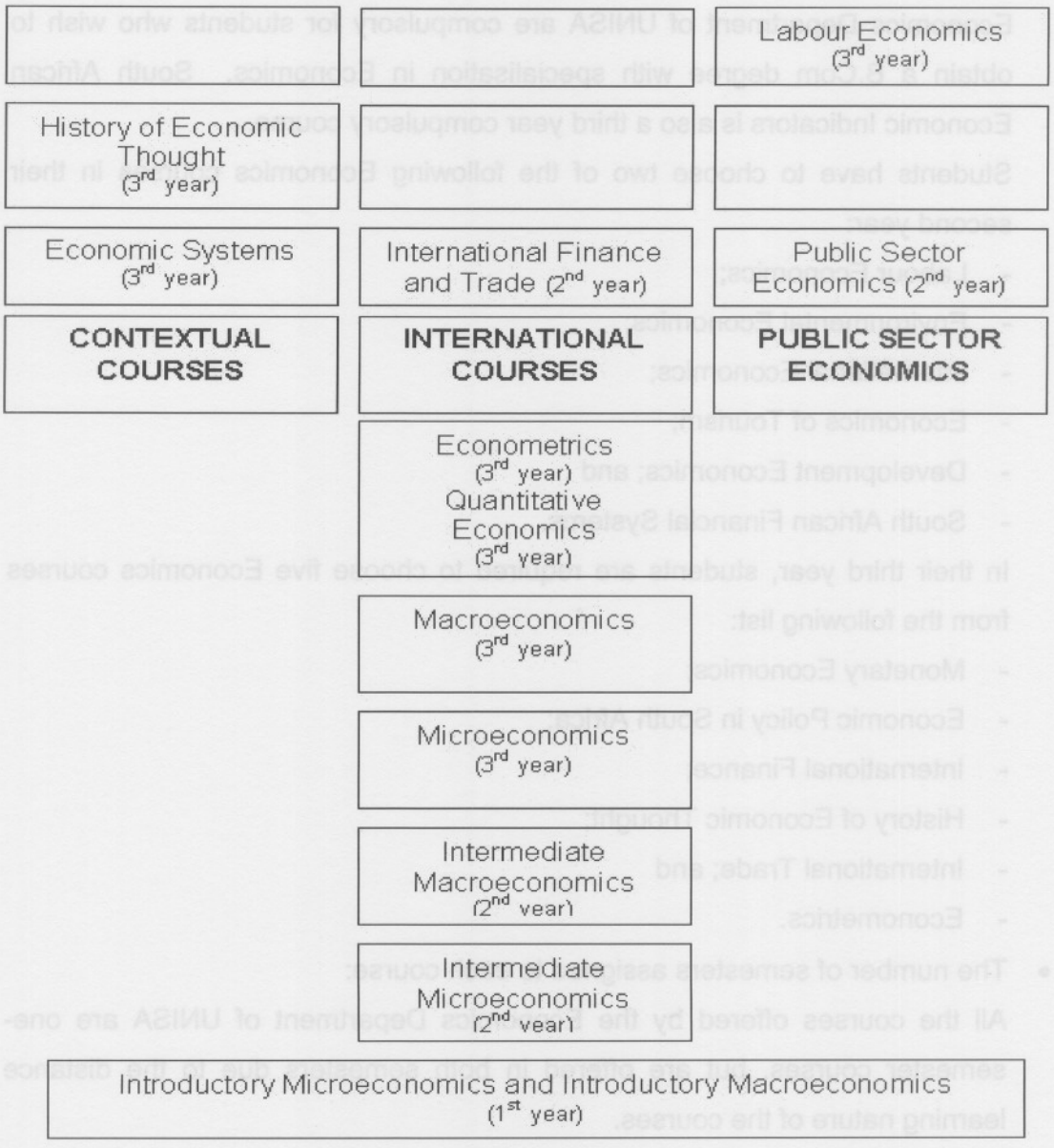
- The number of semesters assigned to each course:

  All the courses offered by the Economics Department of UNISA are one-semester courses, but are offered in both semesters due to the distance learning nature of the courses.

- Fields of specialisation:

  The Department of Economics at the University of South Africa indicated that they specialise in Public Economics, Development Economics and Macroeconomics.

Diagram B.11: The tree structure of the economics curriculum offered by the Economics Department of the University of Stellenbosch.



Comments:

- The courses that are offered by the Economics Department of the University of Stellenbosch, but are not included in the Siegfried blueprint tree structure include:
  - Economic Policy (third year course); and
  - Management Economics (third year course).
- The core/elective nature of the different courses:

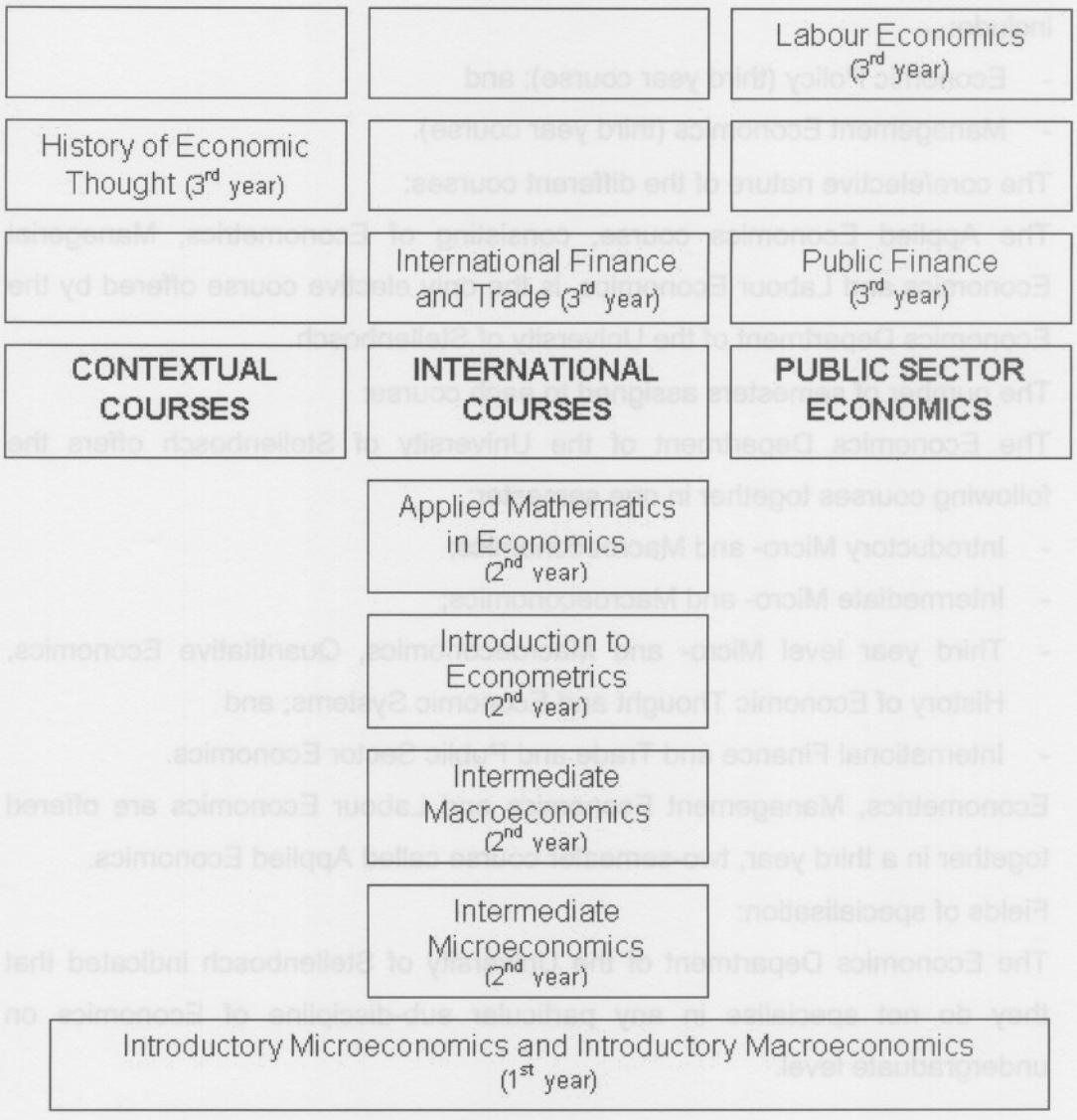
  The Applied Economics course, consisting of Econometrics, Managerial Economics and Labour Economics, is the only elective course offered by the Economics Department of the University of Stellenbosch.
- The number of semesters assigned to each course:

  The Economics Department of the University of Stellenbosch offers the following courses together in one semester:
  - Introductory Micro- and Macroeconomics;
  - Intermediate Micro- and Macroeconomics;
  - Third year level Micro- and Macroeconomics, Quantitative Economics, History of Economic Thought and Economic Systems; and
  - International Finance and Trade and Public Sector Economics.

  Econometrics, Management Economics and Labour Economics are offered together in a third year, two-semester course called Applied Economics.
- Fields of specialisation:

  The Economics Department of the University of Stellenbosch indicated that they do not specialise in any particular sub-discipline of Economics on undergraduate level.

Diagram B.12: The tree structure of the economics curriculum offered by the Economics Department of the University of Venda for Science and Technology.

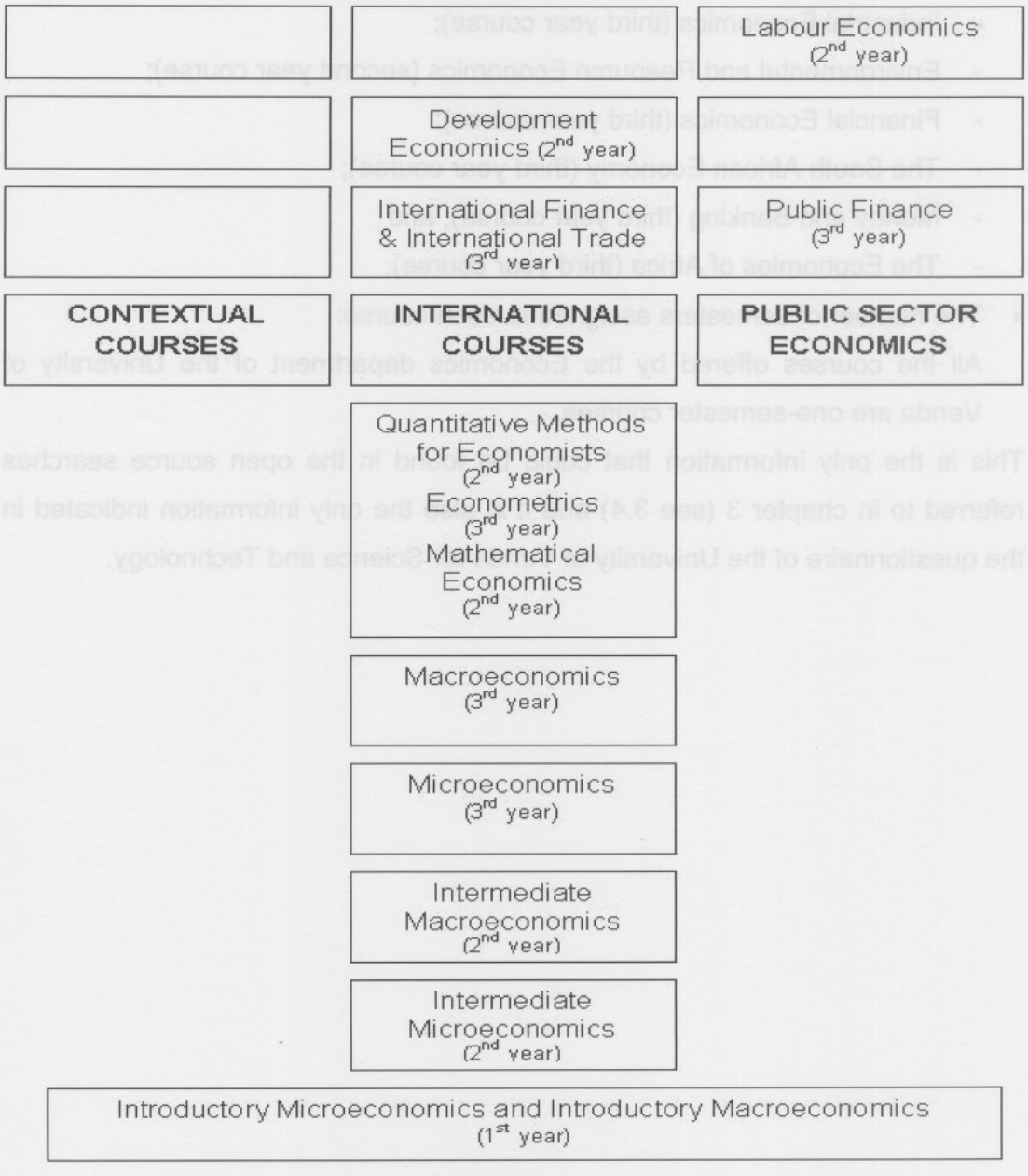


Comments:

- The Economics Department of the University of Venda for Science and Technology offers the following courses that are not included in the Siegfried blueprint tree structure:
  - Industrial Economics (third year course);
  - Environmental and Resource Economics (second year course);
  - Financial Economics (third year course);
  - The South African Economy (third year course);
  - Money and Banking (third year course); and
  - The Economies of Africa (third year course).
- The number of semesters assigned to each course:
  All the courses offered by the Economics department of the University of Venda are one-semester courses.

This is the only information that could be found in the open source searches referred to in chapter 3 (see 3.4) and it is also the only information indicated in the questionnaire of the University of Venda for Science and Technology.

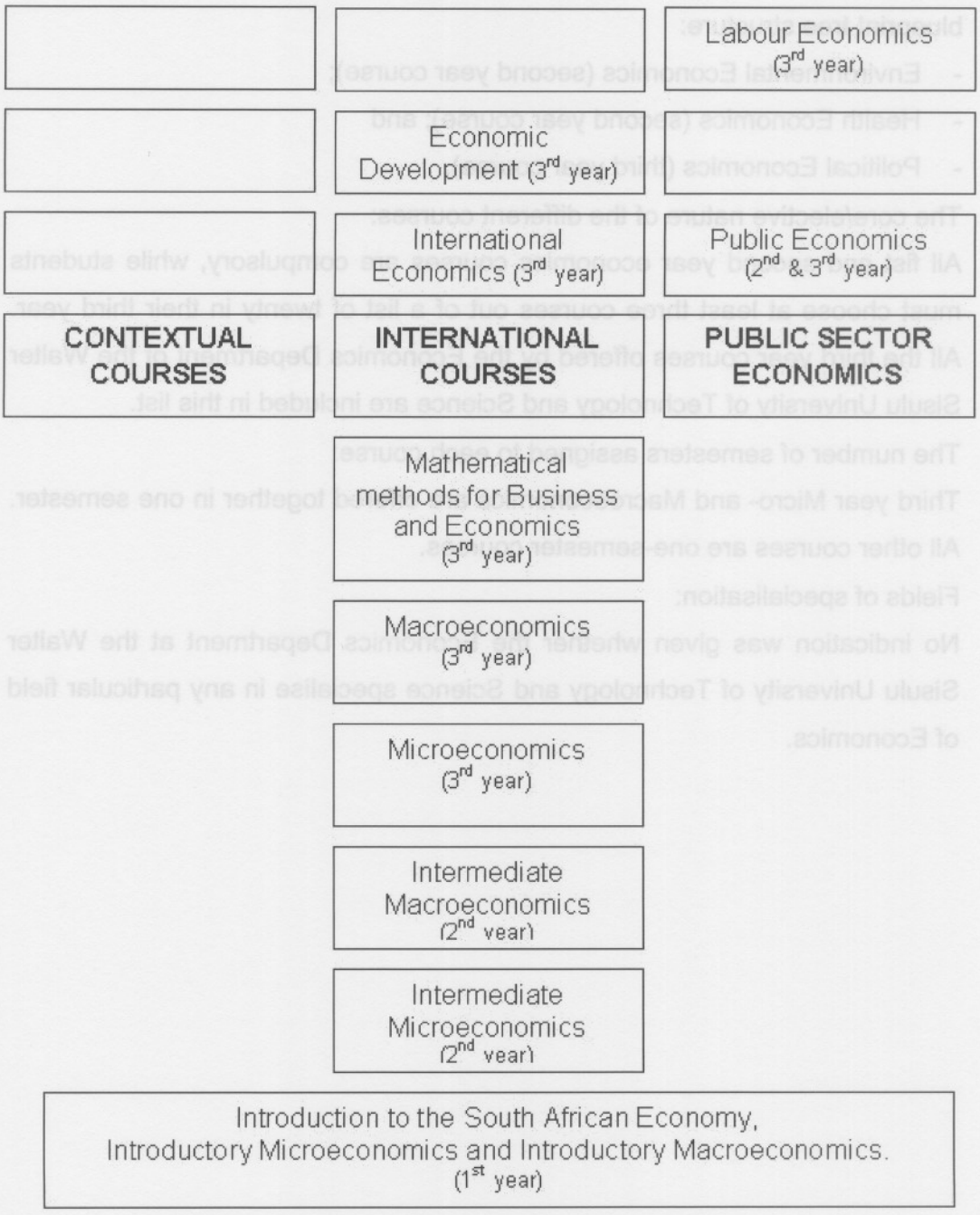
Diagram B.13: The tree structure of the economics curriculum offered by the Economics Department of the Walter Sisulu University of Technology and Science.



Comments:

- The Economics Department of the Walter Sisulu University of Technology and Science offers the following courses that are not included in the Siegfried blueprint tree structure:
  - Environmental Economics (second year course);
  - Health Economics (second year course); and
  - Political Economics (third year course).
- The core/elective nature of the different courses:
  All fist and second year economics courses are compulsory, while students must choose at least three courses out of a list of twenty in their third year. All the third year courses offered by the Economics Department of the Walter Sisulu University of Technology and Science are included in this list.
- The number of semesters assigned to each course:
  Third year Micro- and Macroeconomics are offered together in one semester. All other courses are one-semester courses.
- Fields of specialisation:
  No indication was given whether the Economics Department at the Walter Sisulu University of Technology and Science specialise in any particular field of Economics.

Diagram B.14: The tree structure of the economics curriculum offered by the Economics Department of the University of the Western Cape.



Comments:

- The only course that is offered by the Economics Department of the University of the Western Cape, but not included in the Siegfried blueprint tree structure is Financial Economics, a third year, elective course.
- The core/elective nature of the different courses:

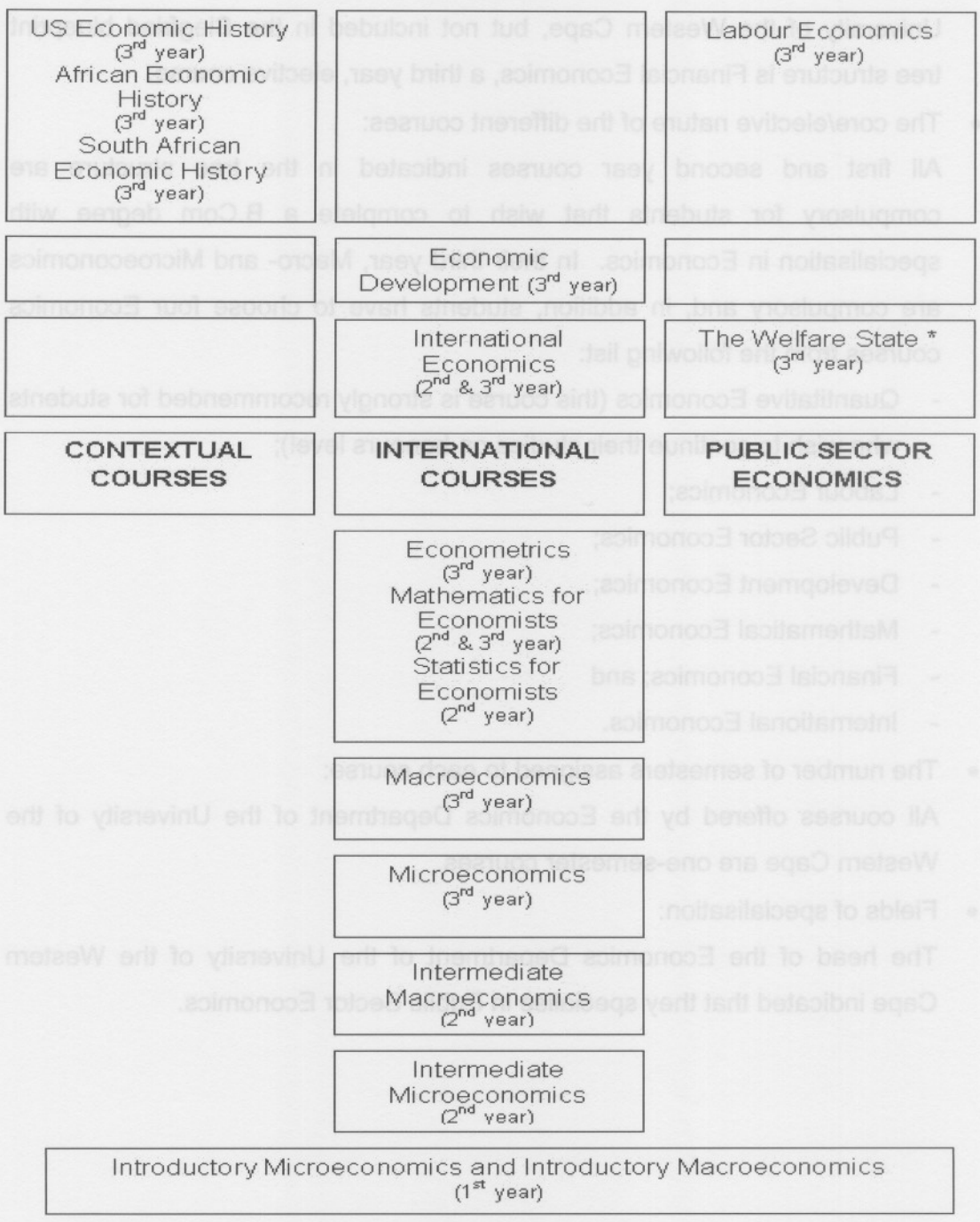
  All first and second year courses indicated in the tree structure are compulsory for students that wish to complete a B.Com degree with specialisation in Economics. In their third year, Macro- and Microeconomics are compulsory and, in addition, students have to choose four Economics courses from the following list:

  - Quantitative Economics (this course is strongly recommended for students who wish to continue their studies on honours level);
  - Labour Economics;
  - Public Sector Economics;
  - Development Economics;
  - Mathematical Economics;
  - Financial Economics; and
  - International Economics.
- The number of semesters assigned to each course:

  All courses offered by the Economics Department of the University of the Western Cape are one-semester courses.
- Fields of specialisation:

  The head of the Economics Department of the University of the Western Cape indicated that they specialise in Public Sector Economics.

Diagram B.15: The tree structure of the economics curriculum offered by the Economics Department of the University of the Witwatersrand.



* The Welfare State course includes Microeconomics, Macroeconomics, International Economics and Economic Development.

Comments:

- The Economics Department of the University of the Witwatersrand offers a third year, elective course called Policy Analysis and the South African Economy that are not included in the tree structure because the Siegfried blueprint tree structure does not include it.
- The core/elective nature of the different courses:

  All first and second year courses that are offered by the Economics Department of the University of the Witwatersrand are compulsory. In their third year, students are required to register for ECON 304, ECON 305 or ECON 307. Third year Micro- and Macroeconomics are compulsory for all the above. Students that registered for ECON 304 can choose four courses from the following list in addition to Micro- and Macroeconomics:

  - Development Economics;
  - History of Economic Thought;
  - International Economics;
  - South African Economic History;
  - Mathematical Economics;
  - Econometrics;
  - African Economic History;
  - Labour Economics;
  - US Economic History;
  - The Welfare State; and
  - Policy Analysis and the South African Economy.

  Students who register for ECON 305 are required to enrol for Macroeconomics, Microeconomics, Mathematical Economics and Econometrics as compulsory courses. In addition, they should choose two courses from the above list.

  ECON 307 has the same requirements as ECON 305, except that students are required to choose a total of three elective courses from the above list.

- The number of semesters assigned to each course:

  The following courses are offered together in one semester:

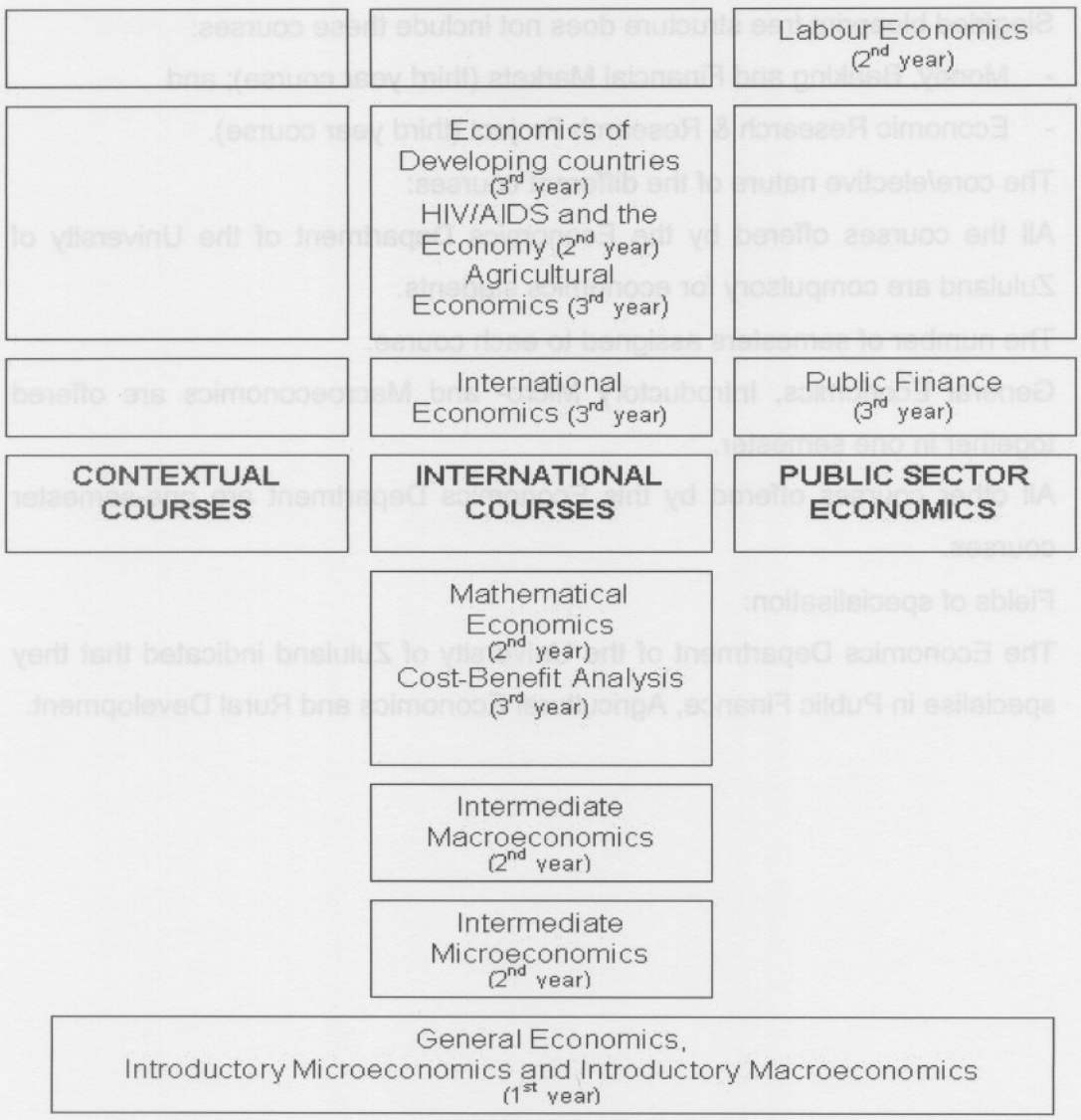
  - Intermediate Micro- and Macroeconomics;
  - Mathematics and Statistics for economists and International Trade; and
  - Mathematical Economics and Economics Statistics.

  All other courses offered by the Economics department of the University of the Witwatersrand are one-semester courses.

- Fields of specialisation:

  No indication of specialisation was made by the Economics Department of the University of the Witwatersrand.

Diagram B.16: The tree structure of the economics curriculum offered by the Economics Department of the University of Zululand.



Comments:

- The Economics Department of the University of Zululand offers the following courses that are not included in the tree structure (diagram B.16) because the Siegfried blueprint tree structure does not include these courses:
  - Money, Banking and Financial Markets (third year course); and
  - Economic Research & Research Project (third year course).
- The core/elective nature of the different courses:
  All the courses offered by the Economics Department of the University of Zululand are compulsory for economics students.
- The number of semesters assigned to each course:
  General Economics, Introductory Micro- and Macroeconomics are offered together in one semester.
  All other courses offered by this Economics Department are one-semester courses.
- Fields of specialisation:
  The Economics Department of the University of Zululand indicated that they specialise in Public Finance, Agricultural Economics and Rural Development.

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