

Higher education in GERMANY

Country report

Marc Kaulisch
Jeroen Huisman

October 2007

Center for Higher Education Policy Studies (CHEPS)
Universiteit Twente
Postbus 217
7500 AE ENSCHEDE
The Netherlands

T +31 53 489 3263
F +31 53 434 0392
E seer@cheps.utwente.nl
W www.utwente.nl/cheps

TABLE OF CONTENTS

ABBREVIATIONS	5
1 INTRODUCTION	7
1.1 <i>Lower secondary education</i>	7
1.2 <i>Upper secondary education</i>	9
1.2.1 GENERAL EDUCATION: <i>GYMNASIALE OBERSTUFE</i>	10
1.2.2 FULL-TIME VOCATIONAL SCHOOLS	10
1.2.3 VOCATIONAL TRAINING IN PART-TIME: THE DUAL SYSTEM	11
1.3 <i>Further education</i>	11
2 HIGHER EDUCATION INFRASTRUCTURE	13
2.1 <i>Fachhochschulen</i>	13
2.1.1 STRUCTURE	13
2.1.2 ACCESS	16
2.1.3 PARTICIPATION	17
2.1.4 OUTFLOW	18
2.1.5 EDUCATION - LABOUR MARKET	19
2.1.6 PERSONNEL	20
2.2 <i>University</i>	21
2.2.1 STRUCTURE	21
2.2.2 ACCESS	24
2.2.3 PARTICIPATION	26
2.2.4 OUTFLOW	27
2.2.5 EDUCATION - LABOUR MARKET	28
2.2.6 PERSONNEL	29
2.3 <i>Distance education</i>	31
2.4 <i>Post -graduate education</i>	32
2.4.1 STRUCTURE AND ACCESS	32
2.5 <i>Policy developments</i>	33
3 RESEARCH INFRASTRUCTURE	34
3.1 <i>Performers</i>	34
3.1.1 HIGHER EDUCATION INSTITUTIONS	34
3.1.2 PRIVATE NON-PROFIT AND GOVERNMENTAL INSTITUTIONS	35
3.1.3 INDUSTRY	36
3.2 <i>Providers</i>	36

3.3	<i>Policy developments</i>	37
4	FINANCIAL ASPECTS	39
4.1	<i>Institutional finance</i>	40
4.1.1	BASIC SUBSIDIES	40
4.1.2	RESEARCH GRANTS	41
4.1.3	CONTRACT RESEARCH AND CONTRACT TEACHING	42
4.2	<i>Student support and tuition fees</i>	42
4.2.1	STUDENT SUPPORT	42
4.2.2	TUITION FEES	44
5	GOVERNANCE STRUCTURES	45
5.1	<i>Federal and regional governance</i>	46
5.2	<i>Intermediary organisations</i>	47
5.3	<i>Institutional governance</i>	48
6	QUALITY ASSURANCE	50
6.1	<i>Internal and external evaluation</i>	50
6.2	<i>Accreditation of study courses</i>	51
7	REFERENCES	53

ABBREVIATIONS

BMBF	(<i>Bundesministerium für Bildung und Forschung</i>) - Federal Ministry of Education and Research
DAAD	(<i>Deutscher Akademischer Austauschdienst</i>) - German Academic Exchange Service
DFG	(<i>Deutsche Forschungsgemeinschaft</i>) - German Research Foundation
ECTS	European Credit Transfer System
HRG	(<i>Hochschulrahmengesetz</i>) – Framework Act for Higher Education
HRK	(<i>Hochschulrektorenkonferenz</i>) - German Rectors' Conference
KMK	(<i>Kultusministerkonferenz</i>) - Standing Conference of the Ministers of Education and Cultural Affairs of the Länder
Wissenschaftsrat	German Science Council

1 INTRODUCTION¹

The Federal Republic of Germany is made up of 16 *Länder*, as a result of German unification through a Treaty between the Federal Republic of Germany and the German Democratic Republic on 3 October 1990. Each *Land* has its own constitution and government. The federal Constitution (*Grundgesetz*) stipulates that the *Länder* have the right to legislate insofar as the Constitution does not confer legislative power on the *Länder*. Educational legislation and administration of the educational system are primarily the responsibility of the *Länder*. After the Constitutional reform in 2006 the federal level has only minimal influence on educational policies in Germany.

The German education system is divided into pre-school education, primary education, secondary education, tertiary education and continuing education. Once children reach the age of six, they are obliged to attend primary school (*Grundschule*). All pupils in Germany enter the *Grundschule* which covers grades 1 to 4, except in Berlin and Brandenburg where the *Grundschule* covers 6 grades. Secondary education breaks down into lower secondary level (*Sekundarstufe I*), which comprises education from grades 5 to 10 (or 7 to 10) of school for pupils in the age group 10-16 years old, and upper secondary level (*Sekundarstufe II*), which comprises all the courses of education that build on the foundations laid in the lower secondary level for pupils between 16 and 19 years old. Both age groups are required to attend school: the former full-time, the latter also full-time or part-time for three years

A basic characteristic of the German educational system is that lower secondary education takes place in different types of schools (main types are *Hauptschule*, *Realschule*, *Gesamtschule* and *Gymnasium*). This system is called *gegliedertes Schulsystem* (differentiated system). These types of schools represent different levels of education. A pivotal feature of the German education system is that the decision and selection into one of the types of secondary education is done after four grades or when the pupils are about 10 years of age. The results of the OECD- study 'Programme for International Student Assessment' (PISA) have shown that this early distinction creates huge differences in educational achievements and chances between pupils of the different types of schools (Prenzel, Baumert et al. 2004, tab 3.7).

1.1 Lower secondary education

General lower secondary schools build on the primary education provided at *Grundschulen*. The function of all the courses of education at lower secondary level is to prepare pupils for

¹ This chapter is primarily based on Eurydice. (2003). "Germany 2002/2003." Structures of Education, Vocational Training and Adult Education Systems in Europe Retrieved 22.05., 2007, from http://www.eurydice.org/ressources/eurydice/pdf/041DN/041_DE_EN.pdf, Kultusministerkonferenz. (2006). "The Education System in the Federal Republic of Germany 2004. A description of the responsibilities, structures and developments in education policy for the exchange of information in Europe." Retrieved 22.05., 2007, from http://www.kmk.org/dossier/dossier_en_ebook.pdf, Eurydice. (2007). "Germany. April 2007." National summary sheets on education systems in Europe and ongoing reforms Retrieved 22.05., 2007, from http://www.eurydice.org/ressources/eurydice/pdf/047DN/047_DE_EN.pdf.

courses of education at upper secondary level. The completion of upper secondary education is required to qualify for tertiary education: either higher vocational, university or continuing education. Accordingly, lower secondary education is predominantly of a general nature. But differences appear to be present as *Gymnasien*, for instance, focus on liberal education, whereas *Realschulen* focus on a combination of liberal and practical education. The transfer from primary school to one of different types of lower secondary school where pupils remain at least until the completion of their full-time compulsory education is dealt with differently, depending on *Land* legislation. The advice of the school which the pupil is leaving is taken as a basis for the decision or as guidance in the decision regarding the pupil's future school career. This is accompanied by detailed consultations with parents. The final decision is made by the parents, but for certain school types is also dependent on pupils demonstrating a certain level of ability and/or on the capacity available in the desired school and/or on a decision by the school supervisory authority.

The *Hauptschule* provides its pupils with a basic general education. It generally comprises the fifth to the ninth grade. The subjects are in principle similar to those in other types of schools, but the pace of instruction is generally slower and the contents is more basic.

Realschulen provide a more extensive general education. The standard *Realschule* covers the 5th to 10th year. In many *Länder* the *Realschule* is divided in a *Unterstufe* and *Oberstufe* (of each 3 years). In Bayern, Berlin, Brandenburg, and Hamburg, the standard *Realschule* is usually limited to 4 years, i.e. it only begins in the 6th year. In addition there is a 3- or 4-year *Realschule* course for pupils who, after the 6th or 7th year at a *Hauptschule*, wish to transfer to *Realschule*. In three *Länder* (Saxony, Saxony-Anhalt and Thuringia) the *Realschule* as such is not offered in the lower secondary school system, but the *Realschule* leaving certificate can be chosen alongside the *Hauptschule* leaving certificate at *Mittelschulen* (in Saxony), *Sekundarschulen* (in Saxony-Anhalt) and *Regelschulen* (in Thuringia).

Gymnasien provide an intensified general or liberal education. The *Gymnasium* normally covers the 5th to the 13th grades, (or – where *Grundschule* lasts for 6 years and where there is an orientation stage independent of the school type – the 7th to 13th year) with a continuous course of education in lower and upper secondary levels. Apart from standard *Gymnasien*, there are special types of *Gymnasium* into which *Hauptschule* pupils can transfer following the 7th grade as well as special courses for particularly able *Realschule* and vocational school leavers. At the end of the 10th year of *Gymnasium*, pupils who have achieved at least pass marks in all subjects are promoted to the upper level of *Gymnasium* (*gymnasiale Oberstufe*).

The fourth category of schools – *Gesamtschulen* – offer more than one type of course of education. At these schools several courses of education in specific subjects and for specific grades is provided either in classes geared towards a particular final qualification or in set classes divided up into at least two levels of ability. In addition to and departure of the four types of secondary education, some *Länder* have introduced new types of schools. These new school types combine the educational paths of the *Hauptschule* and the *Realschule*. Depending on the *Land* they are called either the *Mittelschule*, the *Sekundarschule*, the *Regelschule*, the *Integrierte Haupt- und Realschule*, the *Verbundene Haupt- und Realschule*,

Erweiterte Realschule or the *Regionale Schule*. In some case these hybrid types of schools are an answer on a lower population of pupils due to demographic developments.

The proportion of pupils that continue directly from the *Grundschule* into the *Gymnasium* increased over the past decades and reached in 2005 44 %. The proportion of pupils that started their secondary education in *Hauptschules* reached 22 %, in *Realschule* 27% and in *Gesamtschule* 7%.

On completion of the courses of education in lower secondary level, the pupils receive a certificate, provided that they have successfully completed grade 9 or 10 - depending on the type of school - or, in some *Länder*, passed a final examination. As a rule, pupils at the *Gymnasium* are not issued certificates, but a qualification to attend the *Gymnasiale Oberstufe*, the upper level of the *Gymnasium*. Pupils who have not achieved the objectives of the course of education they were pursuing receive a school-leaving report instead. The forms for the certificates are prescribed by the Ministry of Education and Cultural Affairs of the *Länder*.

At the end of grade 9, it is possible in any *Land* to obtain a first general education qualification, which is called the *Hauptschulabschluß* (*Hauptschule* certificate). The certificate in general education is usually used for admission to vocational training in the so-called dual system and it is a prerequisite for several other types of vocational schools.

At the end of grade 10, it is possible in any *Land* to obtain an intermediate qualification (*Mittlerer Schulabschluß*) which is called *Realschulabschluß* (*Realschule* certificate). This certificate is issued by *Realschulen* if adequate marks are received in every subject. The *Mittlerer Schulabschluß* can be obtained after grade 10 at other types of lower secondary schools as well if certain standards of achievement are met, and also at the *Berufsschule* with the requisite achievement level and average mark. The *Realschulabschluß* qualifies a pupil for admission to upper secondary education courses, e.g. at special *Berufsfachschulen* and at the *Fachoberschule*. It is also used for entering a course of vocational training within the dual system.

The entitlement to proceed to the upper level of the *Gymnasium* (*Gymnasiale Oberstufe*) is obtained, if certain standards of achievement are met, at the end of the 10th grade at the *Gymnasium* or *Gesamtschule* (in two *Länder* at the end of the 9th grade at the *Gymnasium*). However, an entrance qualification required for transfer to the *Gymnasiale Oberstufe* may be obtained by way of a *Mittlerer Schulabschluß* or via qualifications from a vocational school, if a certain level of performance is achieved.

1.2 Upper secondary education

Once pupils have completed compulsory schooling – generally when they reach the age of 15 – they move into upper secondary education, available for 16 to 19-year-olds. The type of school entered depends on the qualifications and entitlements obtained at the end of lower secondary education. The range of courses on offer includes full-time general education, vocational education and training, as well as vocational training within the dual system (*duales System*, see section 1.2.3). Grades 5 and 6 at all secondary schools can be organised as a phase of orientation (*Orientierungsstufe* or *Förderstufe*) with the choice of school career being left open until the end of grade 6. In some *Länder* the orientation stage may be a separate organisational unit independent of the standard school types. In this case the secondary schools subsequently attended will begin with the 7th grade.

1.2.1 General education: *Gymnasiale oberstufe*

The *Gymnasiale Oberstufe* (upper level of the *Gymnasium*) covers grades 11 to 13 (in some *Länder*, grades 10 to 12 or 11 to 12) and is usually divided up into a one-year introductory phase and a two-year qualification phase. The *Gymnasiale Oberstufe* concludes with the *Abitur* examination. Subsequent to passing the *Abitur* examination taken after 13 years of school, pupils are issued the certificate *Allgemeine Hochschulreife* (general higher education entrance qualification). This qualification can also be awarded after 12 years of school, provided that attendance of a total of at least 265 weekly periods can be proved for lower secondary level and the *Gymnasiale Oberstufe*. In addition to the results obtained in the *Abitur* examination, performance in the qualification phase is detailed on the pupil's certificate.

1.2.2 Full-time vocational schools

Full-time vocational schools include the *Berufsfachschule*, the *Fachoberschule*, the *Berufliches Gymnasium* or *Fachgymnasium*, the *Fachschule* and other types of schools that exist only in certain *Länder* or are of marginal importance due to their small numbers. *Berufsfachschulen* are full-time schools which prepare their pupils for an occupation as well as extend their general education. In cases where such schools do not provide a full career qualification, the period of *Berufsfachschule* attendance may – under certain conditions – be recognised as equivalent to the first year of dual system vocational training. The programme at *Berufsfachschulen* normally concludes with a final examination. A *Mittlerer Schulabschluss* which is equivalent to a *Realschule* certificate, can be obtained at *Berufsfachschulen* where the programme takes two years or more to complete and where a *Hauptschulabschluss* is required for admission. The two-year *Berufsfachschulen* that require a *Realschule* certificate for admission lead up to qualification in various subjects as a ‘state-certified technical assistant’ (e.g. specialising in biochemistry, garment making, information technology, mechanical engineering) or as a ‘state-certified business assistant’ specialising in data processing, foreign languages or secretarial skills.

The *Fachoberschule* equips the pupils with general and specialised theoretical and practical knowledge and skills and leads up to *Fachhochschulreife* (an entrance qualification for the *Fachhochschule*). There are *Fachoberschulen* for technology, business and administration, nutrition and domestic science, agriculture, social work, design, seafaring etc.

Berufliches Gymnasium/Fachgymnasium is upper level of the gymnasium with a technical bias. Starting on the basis of a *Realschulabschluss* satisfying the requirements for admittance to the *Gymnasiale Oberstufe* or an equivalent qualification, the *Berufliches Gymnasium/Fachgymnasium* leads, as a rule, to a general entrance qualification for higher education (*Allgemeine Hochschulreife*).

Fachschule provides continuing education and aims to enable skilled workers with job experience to take on responsibilities in middle management. As a rule, *Fachschulen* only take pupils who have completed vocational training in a recognised occupation requiring formal training (*anerkannter Ausbildungsberuf*) and have the relevant practical experience. *Fachschulen* offer one- to three-year courses. Satisfactory completion of the *Fachschule* (technical school providing advanced vocational training) confers on a pupil the occupational title of state-certified engineer/business manager/designer, depending on his/her specialisation, as well as other titles for the social work sector.

1.2.3 Vocational training in part-time: the dual system

In 2005, 45% of the pupils in upper secondary education in Germany participate in vocational training in the dual system (*duales System*) for two or up to three and a half years, depending on the occupation chosen. It is described as a "dual system" because training is carried out in two places of learning: at the workplace (on the job training) and in a vocational school (*Berufsschule*). The aim of training in the dual system is to provide a broadly based basic vocational training and impart the skills and knowledge necessary to practice a skilled occupation within a structured course of training. Those successfully completing the training are entitled to do skilled work in one of about 370 recognised occupations requiring formal training (*anerkannte Ausbildungsberufe*).

Compulsory full-time schooling must be completed before commencing vocational training in the dual system. There are no other prerequisites for admission to the dual system. The training is based on a training contract under civil law between a training company and the trainee. The trainees spend three or four days a week at the company and up to two days at the *Berufsschule*. The training companies assume the costs of the on-the-job training and pay the trainee a training allowance in accordance with the collective bargaining agreement in the sector concerned. The skills and knowledge to be acquired in the course of training at the workplace are set out in the *Ausbildungsordnung* (training regulations) and broken down in terms of content and time in a framework training plan, the particulars of which are specified by the training company in an individual training plan. *Berufsschule* classes cover the material for each recognised occupation requiring formal training as set out in a *Rahmenlehrplan* (framework curriculum).

In the end of the study program trainees take final examinations administered by the 'authorities responsible for vocational training'. These finals have a practical and a written part. The boards of examiners are made up of representatives of industry and labour and teachers at *Berufsschulen*. Successful candidates are awarded a certificate showing proficiency as a skilled worker, commercial assistant or journeyman (*Facharbeiterbrief*, *Kaufmannsgehilfenbrief*, *Gesellenbrief*). Concomitantly, the *Berufsschule* issues a certificate, which may incorporate a *Hauptschulabschluß* or *Realschulabschluß*, depending on the candidate's achievements.

1.3 Further education

Continuing education has become a field of education in its own right. As a continuation or resumption of organised learning on completion of initial training of differing duration, continuing education builds on existing knowledge and skills as well as experience. Continuing education encompasses the general, vocational and socio-political domains in equal measure. While each of these has specific functions, their interactions are on the increase.

In response to the vast range of demands made on continuing education, a structure has been developed which focuses on the principles of a social market economy. Continuing education is provided by municipal institutions, in particular *Volkshochschulen*, as well as by private institutions, church institutions, the trade unions, the various chambers of industry and commerce, political parties and associations, companies and public authorities, family education centres, academies, *Fachschulen*, institutions of higher education and distance learning institutions. Radio and television companies also provide continuing education

programmes. In total, some 2500 officially recognised institutions provide Weiterbildung. Most of these are *Volkshochschulen* (2384 in 2007)

2 HIGHER EDUCATION INFRASTRUCTURE

The tertiary sector encompasses institutions of higher education and other establishments that offer courses qualifying for entry into a profession to students who have completed the upper secondary level and obtained a higher education entrance qualification.

In 2007 there are a total of 383 higher education institutions spread throughout the Federal Republic of Germany. There are different ways to categorise the institutions, but usually the following types are discerned:

Table 2-1: Number of higher education institutions by type, 2007

Type of institution	number
Fachhochschulen	176
Universitäten, Technische Universitäten, Universitäten-Gesamthochschulen	103
Verwaltungsfachhochschulen	30
Pädagogische Hochschulen	6
Theologische Hochschulen	15
Kunsthochschulen and Musikhochschulen	53

In addition to the types mentioned here, there are special higher education institutions which only admit certain groups (e.g. the higher education institutions of the Federal Armed Forces). Also, *Berufsakademien* (organised in eight *Länder*) are officially part of the tertiary sector, but will not be discussed in detail. The large majority of institutions belong to the public sector, but there are also 'private' institutions. Private should not be taken literally, for these institutions are subject to the same legal provisions as the state institutions. In this respect, the term 'state recognised' (62 institutions) is more appropriate.

In addition to the 383 higher education institutions mentioned above, there are 'real' private institutions (about 70). These schools are mostly small, single-discipline institutions and enrol in total about 20,000 students.

2.1 *Fachhochschulen*²

2.1.1 Structure

Fachhochschulen were introduced for the first time in 1970 as a new type of institution in the system of higher education in the Federal Republic of Germany. Studies at *Fachhochschulen* are strongly oriented to the requirements and needs of professional occupations. The *Fachhochschulen* cover usually only a limited number of fields of study. In addition to instruction, the tasks of the *Fachhochschulen* include applied research and development. Since 1992, the "Applied Research and Development at *Fachhochschulen*" programme of the Federal Ministry of Education and Research (BMBF – *Bundesministerium für Bildung und*

² This section is based on Wissenschaftsrat. (2002). "Empfehlungen zur Entwicklung der Fachhochschulen, Januar 2002, Drs. 5102/02." Retrieved 22.05., 2007, from <http://www.wissenschaftsrat.de/texte/5102-02.pdf>. Bundesministerium für Bildung und Forschung. (2004). "Die Fachhochschulen in Deutschland." Retrieved 29.05., 2007, from http://www.bmbf.de/pub/die_fachhochschulen_in_deutschland.pdf.

Forschung)) plays an important role to improve the capability of third-party funding for applied research and development projects. A third task for *Fachhochschulen* concerns a regional role in technology and knowledge transfer.

The institutions vary considerably in terms of size, number of students and number of courses of studies, and the individual *Fachhochschulen* have a specific regional character or particular area of specialisation.

A special role is played by the 30 *Fachhochschulen* for public administration (*Verwaltungsfachhochschulen*), which train civil servants for careers in the so-called higher level of the civil service. They are maintained by various federal and *Land* ministries. Access is only for those who are civil servant employees.

The following subject areas exist, which incorporate some 50 courses of study at *Fachhochschulen*:

- Engineering sciences
- Economics and economic law
- Social work
- Administration and administration of justice
- Information technology and computer science
- Design
- Mathematics
- Information and communication studies
- Nursing and management in the public health system

In addition to the courses offered for a first degree and consecutive master courses, there are further study, supplementary and follow-up courses (*postgraduale Studiengänge*) that either build on the first degree, providing further professional skills, increased specialisation and reinforcement, or are taken in parallel with a different course of studies. In contrast to continuing education, these formal postgraduate courses are usually taken immediately after or even during the first course of studies and lead to the award of a higher education degree. *Fachhochschulen* may also offer international degree programmes in which some part of the studies are to be spent at a foreign institution or company. The *Hochschulkompass* (2007) lists 187 international study courses leading to a first degree and 141 master courses. Some of these programmes were supported by the demonstration programme “International-oriented degree programmes” of the BMBF, implemented by the German Rector’s Conference (HRK – *Hochschulrektorenkonferenz*) and the German Academic Exchange Service (DAAD – *Deutscher Akademischer Austauschdienst*).

Programme contents

Since 2002 the former system of a joint coordination of study and examination regulations has been replaced by an accreditation system. In the former system, framework regulations on examinations for the *Diplom* degree and general provisions concerning regulations on examinations for the *Magister* degree. These framework regulations contain fundamental regulations for examinations in courses of study leading to *Diplom* and *Magister* degree. These framework regulations were set jointly by the Standing Conference of the Ministers of Education and Cultural Affairs (KMK – *Kultusministerkonferenz*) and HRK. The main

contents of the framework regulations have been a quantitative reference data for courses of study, in particular the *Regelstudienzeit* (standard period of study), the amount of hours of teaching on compulsory and optional subjects, the number of certificates (*Leistungsnachweise*) required for admission to examinations, examination details and the length of time allowed to complete the final thesis.

In the accreditation process study courses are examined if they fulfil minimum standards in terms of structure, subject and content, as well as in terms of its professional relevance. The accreditation process is a formalised and objectively verifiable process. The accreditation is executed by decentralised accreditation agencies that are themselves accredited by an independent Accreditation Council (*Akkreditierungsrat*) that acts on behalf of all *Länder*. The Accreditation Council that operates as a public law foundation sets rules for the accreditation agencies and monitors the accreditation of study courses.

Structural guidelines serve as a framework for the planning and conception of study courses and form the basis for the accreditation. These guidelines are valid for all *Länder* adopted by the KMK (*Ländergemeinsame Strukturvorgaben*, Common Structural Requirements of the *Länder*). The structural guidelines contain, amongst others, the structure and length of study. Bachelor's study courses are designed as study courses which lead to a first degree qualifying for entry into a profession. These courses must provide the academic foundation, methodological skills and qualifications related to the professional field. Regarding the Master courses, the structural guidelines distinguish between more research-oriented Master's study courses and more practice-oriented ones. Bachelor's and Master's study courses are provided with a credit point system which is based upon the European Credit Transfer System (ECTS).

The KMK decided in 2005 on a framework of qualification of German higher education degrees (*Qualifikationsrahmen für Deutsche Hochschulabschlüsse*). This framework is seen as a step in making higher education degrees transparent to a certain extent. The qualification framework contains a general description of the qualification profile of a graduate, a list of targeted learning outcomes, a description of graduates' competencies and skills and a description of the formal aspects of the training level. The framework includes a list of qualification requirements for Bachelor-, Master- and Doctoral-degrees.

Programme structure

In the summer semester 2007, three out of four study courses at *Fachhochschulen* lead either to a Bachelor or Master degree (Hochschulrektorenkonferenz 2007). In absolute terms, these are 1461 Bachelor and 810 Master courses compared to 805 other courses. Nonetheless the majority of students are enrolled in Diplom courses. The proportions are however changing and in the winter semester 2006/2007 the majority of first year students chose a Bachelor course (68% versus 28% Diplom course Hochschul Informations System 2007).

Each *Diplom* course is divided up into a basic studies section (*Grundstudium*, up to four semesters), which ends with an intermediate *Diplom* examination (*Diplomvorprüfung*), and an advanced studies section (*Hauptstudium*), which ends with a *Diplom* examination - (*Diplomprüfung*, total duration of studies usually eight semesters).

Bachelor courses at *Fachhochschulen* are in most cases designed either for six or seven semesters. Most courses take six semesters but about 40% of the Bachelor courses take seven semesters. This length of Bachelor courses is often chosen because it allows *Fachhochschulen* to integrate a *Praxissemester* without losing time for basic education.

Consequently, a large proportion (37%) of Master courses in *Fachhochschulen* take three semesters instead of four semesters as the regular Master courses do.

The semesters run from March to August and from September to February. A semester generally lasts 19 weeks, of which most study hours are spent on lectures.

Course design

The design of the courses of study and the organisation of teaching and studying at *Fachhochschulen* are specially geared to practical application and professional needs. The semesters spent outside the institutions to gain practical experience (*Praxissemester*) are a vital feature.

Dual system

In recent years, *Fachhochschulen* have adopted a similar approach as the *Berufsakademien* and, particularly in the fields of engineering and business management, have also introduced courses that combine academic studies with on-the-job training or employment, along the lines of a dual system (*duales System*). These courses are called "courses of study combined with practice" (*Studiengänge im Praxisverbund*) or "co-operative courses of study" (*kooperative Studiengänge*). The students have training or employment contracts. The periods of study and work experience are distributed according to various models (sandwich or consecutive model) and subject to the *Studienordnung* (study regulations). A *Diplomgrad*, to which the word *Fachhochschule* is added, is awarded upon completion.

2.1.2 Access

The prerequisite for admission to a *Fachhochschule* is either the *Allgemeine Hochschulreife* (general higher education entrance qualification) or *Fachgebundene Hochschulreife* (higher education entrance qualification restricted to a specified field of study) on the one hand or the *Fachhochschulreife* on the other, which as a rule is acquired after 12 ascending grades at a *Fachoberschule*. Usually, those having a *Hochschulreife* must also complete practical training or a practical internship. However, qualification for *Fachhochschule* can also be obtained by taking additional classes at vocational schools, e.g. *Berufsfachschulen* and *Fachschulen*. In addition, previous related practical experience is required for admission to certain courses of study. In certain subjects (e.g. design) proof of artistic ability is required in addition to a higher education entrance qualification. Nowadays more than half of those entering *Fachhochschulen* have a general higher education entrance qualification, which also entitles them to study at university.

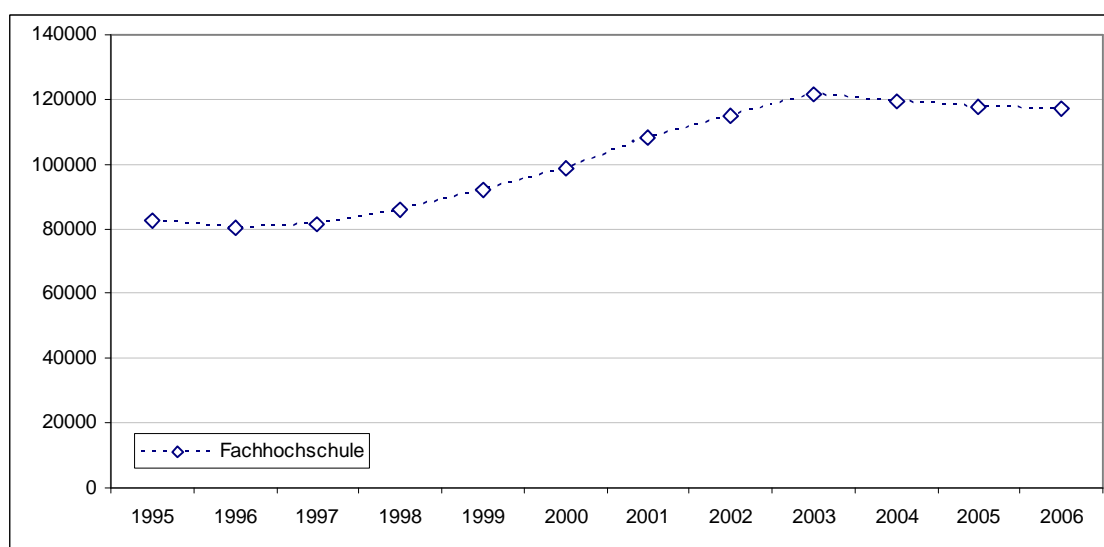
In almost every *Land* there are other ways to obtain admission for vocationally qualified applicants who lack a higher education entrance qualification. These applicants must prove they have the requisite knowledge and skills for higher education by undergoing an admission procedure (e.g. by provisionally enrolling for a probationary period of study) or by taking an entrance examination at the *Fachhochschule* (e.g. assessment or aptitude test, interview). Based on their previous vocational qualifications, they are usually granted a limited right to embark on higher education only in a specified course of studies.

For international applications, the same regulations are in force. International students are accepted at the *Fachhochschulen* if they have an equivalent foreign degree and can prove evidence of sufficient knowledge of the German language.

Almost all *Fachhochschulen* restrict the number of students admitted to certain subjects due to capacity constraints. The places in these subjects are awarded by the *Fachhochschule*, usually on the basis of average marks and waiting periods.

2.1.3 Participation

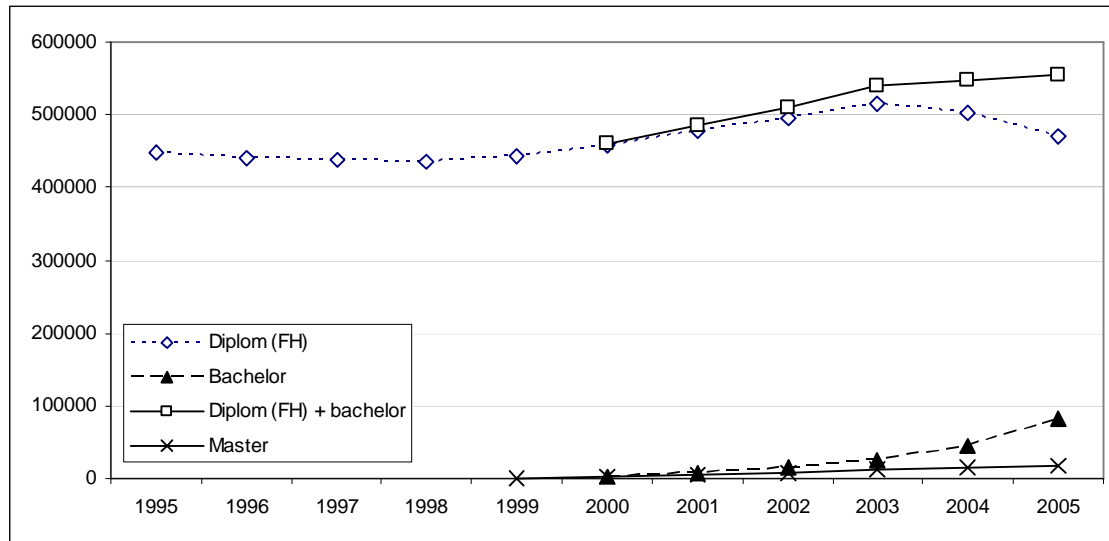
Figure 2-1: New entrants in Fachhochschulen



Source: CHEPS, IHM 2007

The number of new entrants in *Fachhochschulen* has grown since 1996 (after a temporary setback). In 2003, the growth-trend ended and a period of stagnation started.

Figure 2-2: Enrolment in Fachhochschulen



Source: CHEPS IHEM 2007

The number of students enrolled in *Fachhochschulen* has grown since the late 1990s. Enrolment in bachelor programmes has started to replace enrolment in the traditional *Diplom* programme, but the pace of this fading in/ fading out process is relatively slow.

2.1.4 Outflow

A standard period of study (*Regelstudienzeit*) is fixed in the examination regulations (*Prüfungsordnung*) for each course of studies. The regulations state the time within which a course of studies with the intended examination can be completed. Eight semesters, including one or two semesters of work experience (*Praxissemester*), are required for most courses of studies at *Fachhochschulen*. In 2005, it took on average 4.7 years to obtain a *Diplom (FH)*, 3.3 years to get a bachelor degree and 2.1 years for a master degree (Statistisches Bundesamt 2007, tab 2.4.4).

Fachhochschulen award the *Diplomgrad*, the Bachelor's degree and the Master's degree upon completion of a course of studies. The *Diplomgrad* indicates the field of study and that it was awarded by a *Fachhochschule*. As an example graduates of a Diplom course in engineering obtain a title '*Diplomingenieur (Fachhochschule)*' or abbreviated *Dipl.-ing. (FH)*. On the basis of agreements with a foreign institution of higher education, some *Fachhochschulen* confer a foreign degree (double degree and joint degree) in addition to the German Diplom.

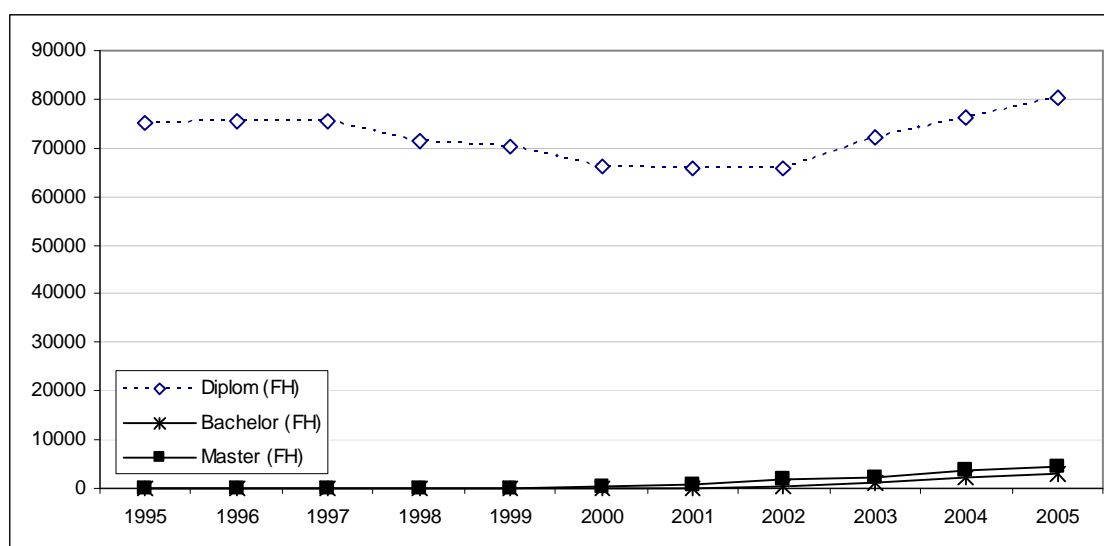
The following designations are used for Bachelor's and consecutive Master's degrees:

- Bachelor of Arts (B.A.)
- Bachelor of Science (B.Sc.)
- Bachelor of Engineering (B.Eng.)
- Bachelor of Laws (LL.B.)
- Master of Arts (M.A.)
- Master of Science (M.Sc.)
- Master of Engineering (M.Eng.)
- Master of Laws (LL.M.)

The *Fachhochschulen* add a diploma supplement to the leaving certificate of the Diplom and Magister study courses, as well as to the Bachelor/Master study courses, that describes, usually in English, the study course, the progress of the studies and the performance of the graduate.

It is not possible to obtain a doctoral degree from a *Fachhochschule*, given that only universities and equivalent institutions of higher education are entitled to award doctorates. But *Fachhochschule* graduates have opportunities to go on to complete doctoral studies at a university.

Figure 2-3: Graduates from Fachhochschulen



Source: CHEPS IHEM 2007

The graph above reflects the decrease in enrolment in the early 1990s and the increase in the late 1990s. Based on the data on new entrants and enrolment, it may be expected that the number of graduates will continue to grow till the late 2000s.

2.1.5 Education - Labour market

The declared aim of a *Fachhochschule* education is that it should be closely related to professional practice. This purpose is served chiefly by incorporating one or two semesters of work experience (*Praxissemester*) into the course of studies. In many cases the topics of theses (*Diplomarbeiten*, taking about three months of study) derive from problems that have arisen in practice. In some cases, they are prepared in collaboration with industry and trade. In this way, students can gain an insight into the working world and establish contact with prospective employers before graduating.

Fachhochschulen often train for specific labour market segments. The demand for employees with a degree from *Fachhochschulen* has continued to remain strong in these segments. Many companies make no distinctions between degrees from a *Fachhochschule* or a university when hiring (Wissenschaftsrat 2002). The lowest level of unemployment for all educational

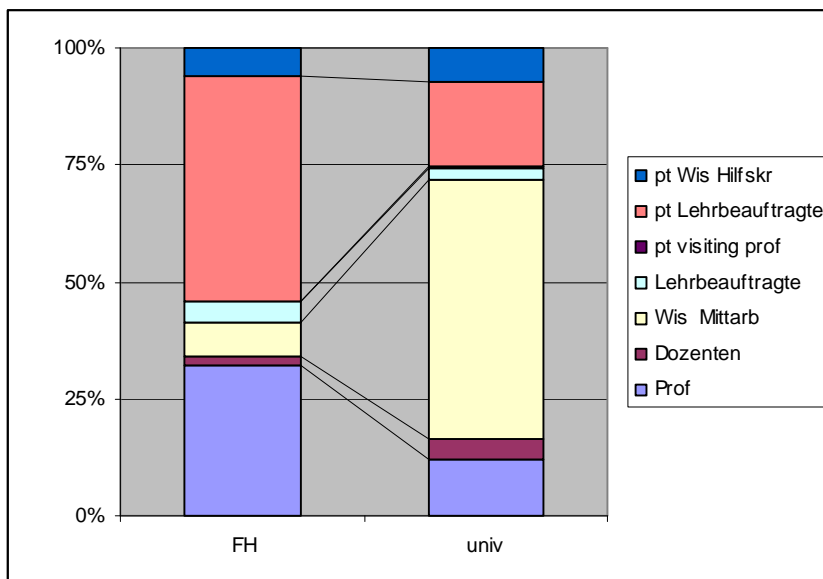
groups is found among graduates of *Fachhochschulen*. Additionally, the transition period of *Fachhochschul* graduates is shorter than the one of university graduates (Briedis and Minks 2004).

Student counselling offices at *Fachhochschulen* and the career guidance services of the employment offices furnish information and guidance to help graduates move from higher education into the professional world. Their prospects on the employment market may be improved by specialising in appropriate fields of study.

2.1.6 Personnel

Official statistics distinguish between staff employed as full time, regular staff (*hauptberuflich*) and staff employed as part time (*nebenberuflich*). In the first category there are four main types of staff: professors (comprising in total seven ranks), *Lehrkräfte für besondere Aufgaben* (teaching staff), *Wissenschaftliche Mitarbeiter* (scientific collaborators) and *Dozenten und Assistenten* (teachers and assistants). In addition to the regular staff there are three types of part time staff: visiting and retired professors, *Lehrbeauftragte* (teaching staff), and *Wissenschaftliche Hilfskräfte* (academic support staff).

Figure 2-4: Academic staff by type of position and type of higher education institution, 2006



Source: (Statistisches Bundesamt 2006)

Recruitment requirements

Professors at *Fachhochschulen* must as a rule demonstrate particular achievements in the application or development of academic or scientific knowledge and methods from professional experience of at least five years, of which at least three years must have been spent outside the higher education sector. Other requirements are a degree from an institution of higher education, teaching ability and particular aptitude for academic work which is

usually demonstrated with the doctoral degree (or a particular aptitude for work in the creative arts).

Duties and status of teaching staff

Professors perform the duties relating to science, the arts, research and teaching which are incumbent upon their higher education institution independently in their respective subject areas. Their duties also include participating in study reform activities, academic counselling and the administration of the higher education institution as well as holding examinations. Professors are usually appointed by the Ministry responsible for science in the particular *Land* as civil servants with limited or unlimited tenure, though they can also be taken on as salaried employees.

The extent of teaching commitments of full-time academic staff is expressed in units (*Lehrveranstaltungs-stunden*). Each unit stands for at least 45 minutes per week for the period when lectures are held during the semester. Under a resolution adopted by the KMK on 31 January 1992, teaching commitments are specified for different staff categories. Professors at *Fachhochschulen* are generally expected to teach 18 units a week. If certain functions and responsibilities are taken on, teaching commitments can be reduced, for example, if managerial functions are performed within the higher education institution or research and development work is undertaken at a *Fachhochschule*.

2.2 University³

2.2.1 Structure

University status are granted to the traditional universities and technical universities (*Technische Hochschulen* or *Technische Universitäten*) that specialise in natural and engineering sciences. Comprehensive universities (*Gesamthochschulen*) that were established in the 1970s may be considered a special type of university. But their importance is limited and in fact most comprehensive universities emphasise that they are 'normal' universities. The idea of comprehensive universities is to provide academic courses of study, but also courses as provided by *Fachhochschulen*. Also equivalent to universities are establishments that only offer a limited range of courses of study, such as *Theologische Hochschulen* and *Pädagogische Hochschulen*. What all these institutions have in common is the traditional right to award the doctorate (*Doktorgrad*) and a post-doctoral lecturing qualification (*Habilitation*). These rights are termed *Promotionsrecht* and *Habilitationsrecht*, respectively. According to the Framework Act for Higher Education (*HRG – Hochschulrahmengesetz*), teaching and study at the universities are to prepare students for a profession in a certain sphere of activity, imparting to them the particular knowledge, skills and methods required in a way appropriate to each course so as to enable them to perform scientific or artistic work and to act responsibly in a free, democratic and social state governed by the rule of law.

Branches of study at universities

³ Although often treated separately, we include information on the colleges of art and music sector in this section.

Universities usually offer a range of subjects. The exact subjects vary from institution to institution, together they offer a total of about 330 subjects with over 6,800 different degree courses. The most common branches of study are:

- Languages and the humanities, sport
- Law, economics and social sciences
- Mathematics, natural sciences
- Medicine
- Agronomy, forestry, nutritional science
- Engineering sciences

Branches of study at colleges of art and music

Colleges of art offer courses of studies in the visual, design and performing arts, colleges of music in various music subjects; both, in some cases, also teach the appertaining theoretical disciplines (fine arts and art history, musicology, history and teaching of music, as well as, more recently, the area of the new media). Some colleges teach the entire gamut of artistic subjects, others only certain branches of study.

The courses of studies vary widely from college to college. In general, they may be divided up along the following lines:

- music with such studies as training for solo or orchestra musicians, training in singing, conducting, composition or church music, music teaching at general education schools and technical musical professions (e.g. sound engineering);
- visual arts with such studies as art, design, photography;
- performing arts with such studies as drama, opera, musical, dancing, directing and film-making;
- applied art with courses of studies in architecture, design or the media;
- art education and art therapy as well as courses in art teaching for school teachers;
- the media with such courses as media studies, media art, animation and media management.

Examinations and degrees at universities

Universities offer study courses that lead to different degrees. The study courses that existed before the introduction of the Bachelor and Master structure in 1998 are: *Diplom*, *Magister* and *Staatsexamen*. As the implementation towards Bachelor and Master courses is not completed these traditional degrees are still offered. At universities in the winter semester 2006/2007, 37 % of first year students started a Bachelor course (including teacher training courses), 27% a *Diplom* course, 21 % a course leading to a state examination (*Staatsexamen*) in teacher training, 12% for courses leading to state examination (others than teacher trainings) and 6% a *Magister* course (Hochschul Informations System 2007).

A standard period of study (*Regelstudienzeit*) is fixed in the examination regulations (*Prüfungsordnungen*) for each study programme. The regulations state the time in which a course of studies (and the intended examination) can be completed. Most traditional studies take four and a half year, some others take longer (e.g. medicine takes six years and three months). On average, however, many students take one or two years longer to finish. Almost all Bachelor courses at universities have a *Regelstudienzeit* of six semesters

(Hochschulrektorenkonferenz 2007). Consequently, the *Regelstudienzeit* is four semesters for most Master courses.

With regard to academic degrees, a distinction is drawn between academic, state and ecclesiastical examinations. As a rule, professional qualifications are conferred on the basis of these examinations. Institutions of higher education are authorised by law to administer academic examinations (*Hochschulprüfungen*). A first academic degree is conferred on the basis of the following two kinds of academic examinations:

- *Diplomprüfung* (leading to the award of the *Diplomgrad*, bestowing such titles as, for example, *Diplom -Psychologe*)
- *Magisterprüfung* (leading to the award of the *Magistergrad*, bestowing the title of, for example, *Magister Artium - MA*).

Whereas courses of studies that culminate in a *Diplom* are confined to a single subject, those that lead to a *Magister* degree admit a combination of several subjects (usually one major subject and two minor subjects, or two equally weighted major subjects).

The designations used for Bachelor's and consecutive Master's degrees are the same as for those of the *Fachhochschulen*:

- Bachelor of Arts (B.A.)
- Bachelor of Science (B.Sc.)
- Bachelor of Engineering (B.Eng.)
- Bachelor of Laws (LL.B.)
- Master of Arts (M.A.)
- Master of Science (M.Sc.)
- Master of Engineering (M.Eng.)
- Master of Laws (LL.M.)

A state examination or *Staatsprüfung* has to be taken in some courses of studies that prepare students for professions of particular importance to the public interest. This is the case in medicine, dentistry, veterinary medicine, pharmaceuticals, food chemistry, law and education. The standards of performance on state examinations correspond to those of academic examinations. Hence, the difference between state and academic examinations is essentially of a formal nature. In the case of state examinations, representatives of the state examination bodies act as examiners along with university professors. Ecclesiastical examinations are held within the subject of theology and correspond to a certain extent to the state examinations. After the first state examination, prospective lawyers and teachers, in particular, undergo a second phase of training called preparatory service (*Vorbereitungsdienst*), which is concluded by another state examination. Only this second state examination entitles them to practise the profession concerned.

Examinations and degrees at colleges of art and music

The artistic qualification awarded on completion of a first degree course of study is generally the *Diplom*. Apart from artistic training, art colleges also provide courses of teacher training, which entitle students to teach art or music at schools after passing their state examination (*Staatsprüfung*) and undergoing preparatory service (*Vorbereitungsdienst*). Further study, supplementary and follow-up courses (*postgraduale Studiengänge*) culminate in the awarding of the title of *Meisterschüler* (member of a master class), the *künstlerische Reifeprüfung* (final arts examination), the *Konzertexamen* (concert examination) or a further *Diplom*.

degree. Finally, on obtaining their first qualification at higher education level for entry into a profession, students can also go on to do a doctorate.

The colleges of art and music (as well as the *Theologische Hochschulen* and *Pädagogische Hochschulen*) have decided not to introduce Bachelor and Master programmes. The music and art colleges consider a degree below the Master level does not make sense in their subject area. The *Theologische Hochschulen* are largely dependent on the expectations of those employing their graduates (e.g. churches, schools).

Course contents at universities

The regulations and procedures for universities are similar to those for *Fachhochschulen* (see section 2.1.1.).

The academic year in the university sector

The academic year is divided into semesters, the summer semester runs from April to September, the winter semester from October to March. A period of five months at universities allows students time for private study, as well as time to prepare for classes, complete essays or take part in practical work experience and sit examinations.

Weekly hours of attendance per semester at universities

The required number of hours of classes during the semester is laid down in the higher education institutions' study regulations (*Studienordnungen*) in the form of hours of weekly attendance during a whole semester (*Semesterwochenstunden*) for the individual subjects. A traditional university course with a *Regelstudienzeit* or standard study period of nine semesters will entail a workload of 160 hours of weekly attendance (20 hours of weekly attendance x eight semesters of instruction). This figure may be exceeded in courses involving a larger amount of practical training or laboratory work. These periods, known as "attendance periods" are, however, only one aspect of the time required to complete a course of study. In addition, the student has to spend a considerable amount of time on private study, either preparing for the individual classes or addressing additional topic areas which are not offered in courses.

For Bachelor and Master courses, the measures of students' workload changed towards a credit system that is based on the ECTS. One credit is equivalent to a total of 30 hours of classroom and private study. Study courses are designed as such that students should achieve 30 credit points per semester.

2.2.2 Access

Entrance qualification and admission to the university sector

Admission to any course of study at universities and equivalent higher education institutions requires the *Allgemeine Hochschulreife* or the *Fachgebundene Hochschulreife*. The former entitles school-leavers to study at any institution of higher education in any subject or field, while the latter permits entry only into specified courses of studies.

Applicants from EU countries who do not have German higher education entrance qualifications have to submit a secondary school certificate that qualifies them to attend higher education in their country or proof of acceptance at a university in their country. In addition, foreign applicants for study places must prove that they have a sufficient command

of the German language. This can be done by taking the German Language Proficiency Examination for Admission to Higher Education for Foreign Applicants (*Deutsche Sprachprüfung für den Hochschulzugang ausländischer Studienbewerber - DSH*) or an equivalent examination.

Selection

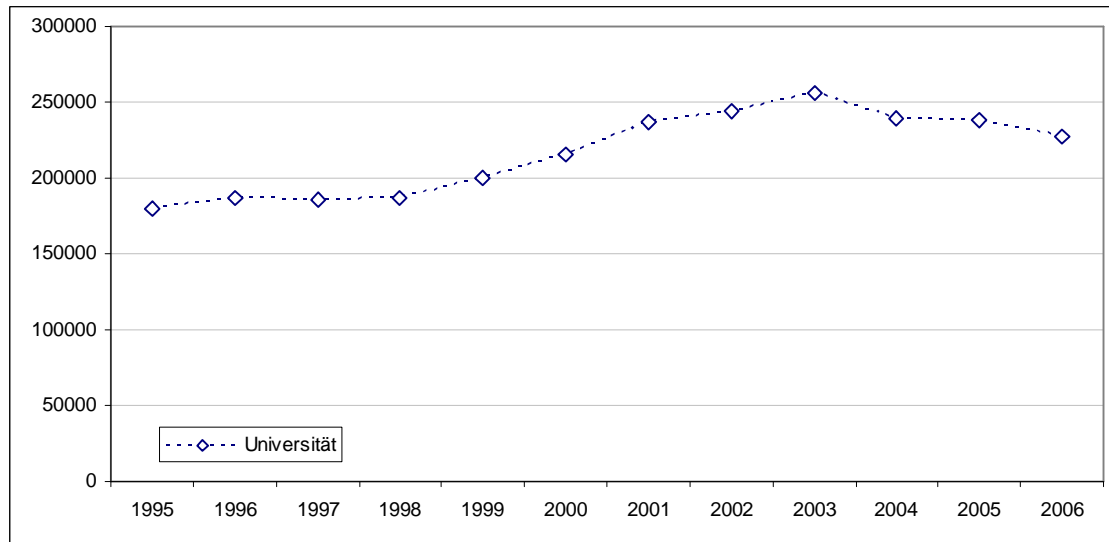
For the majority of courses of study there are no nation-wide restrictions on the number of applicants who can be admitted. This ensures that everyone can exercise his or her right of free choice of occupation, job and place of training as guaranteed in Article 12 of the Constitution. All applicants who meet the above-mentioned entrance requirements are registered at the higher education institution for the course of studies of their choice without having to go through any special admission procedures.

This standard rule has changed in the last years. If the number of applicants exceeds the places available in certain subjects, places are allocated on the basis of selection procedures that are operated either at national/regional level or at the relevant higher education institution. From the 2005/06 winter semester, the criteria for the selection of applicants are the applicants average mark in the *Allgemeine Hochschulreife* (school-leaving examination constituting higher education entrance qualification, 20 per cent), the waiting period between sitting the *Allgemeine Hochschulreife* and applying (20 per cent), and the result of a selection procedure of the institution of higher education itself (60 per cent). Higher education institutions are autonomous to decide which type of selection process they apply within these general regulations. This development is reflected in the number of course that have a restricted access 54% of all undergraduate courses in the summer semester 2007 have either a local or a nation-wide *Zulassungsbeschränkung* (Hochschulrektorenkonferenz 2007).

In some courses (e.g. medicine, pharmacy, biology, dentistry and psychology), there are national quotas due to the large numbers of applicants and the insufficient number of places available. The type and number of courses which are subject to the nation-wide selection procedure may vary from semester to semester. Places on these courses have been awarded by the Central Office for the Allocation of Study Places (*Zentralstelle für die Vergabe von Studienplätzen, ZVS*) on the basis of a general selection procedure. It is quite possible that all the applicants for a course which is, in principal, restricted will be accepted because there are fewer applicants than places available. The criteria for the selection of applicants in subjects with national quotas are the applicant's average mark in the *Allgemeine Hochschulreife* (higher education entrance qualification). In addition, the period a student has had to wait (between sitting for the *Abitur* and applying) is also taken into account.

2.2.3 Participation

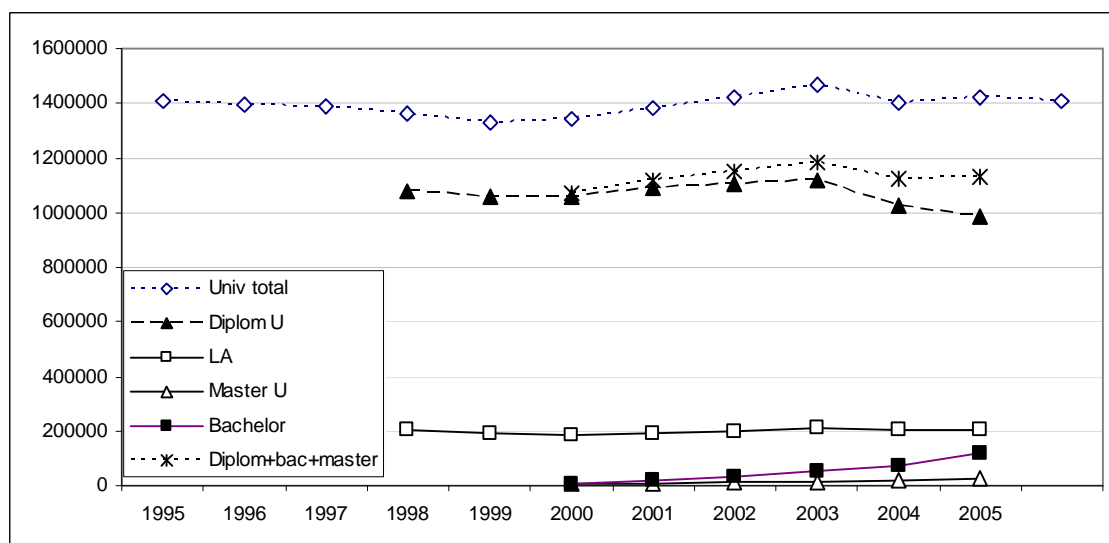
Figure 2-5: New entrants in universities



Source: CHEPS IHEM 2007

The inflow of new students in universities has grown till 2003, after which year the trend was reversed to a decline.

Figure 2-6: Enrolment in universities



Source: CHEPS IHEM 2007

Enrolment in universities has remained relatively stable (around 1.4 mln). Since 2000, enrolment in bachelor and master programmes is registered. It shows that enrolment in bachelor programmes is gradually replacing enrolment in the traditional Diplom programme, although the pace of this process is relatively slow.

2.2.4 Outflow

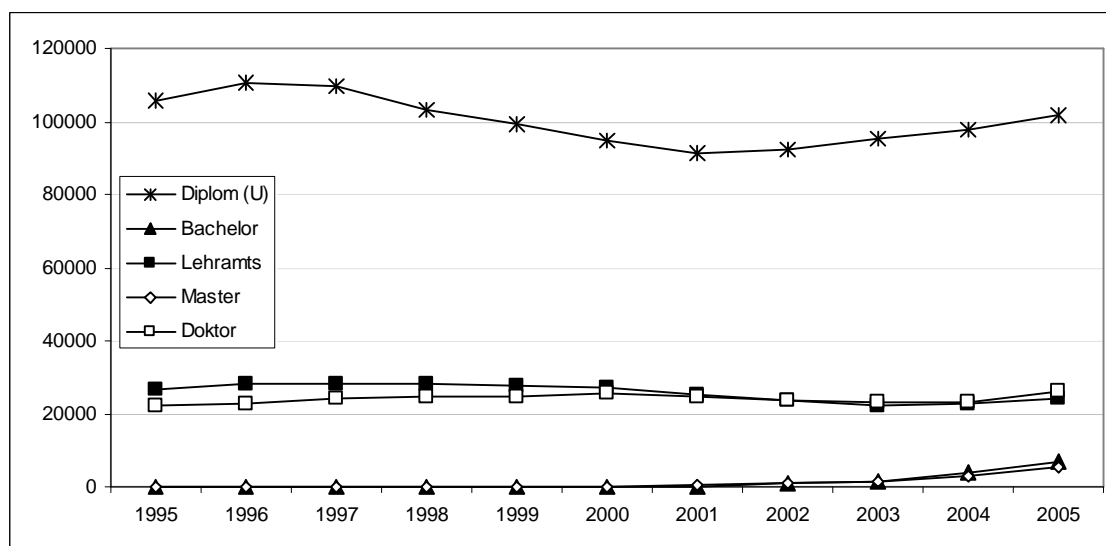
Promotion and premature termination of studies at universities and colleges of art and music

University students are not classified in terms of year groups, but only according to the classes they are required to attend for the basic or advanced studies sections. If a student fails in a course, he must repeat that course only, without falling a semester behind his fellow students. In practice, however, failing classes usually prolongs a student's stay at university. Study and examination regulations lay down the requirements for entry to a certain stage of studies. Ordinarily, intermediate and final examinations may be retaken once. In order to shorten study times in practice, this provision has been partly amended, so that failed attempts at the final examination within the standard period of study (*Regelstudienzeit*) are disregarded ("free attempts" - *Freiversuch*).

It is generally possible to change one's course of studies, though in later semesters only under special circumstances. The proviso is that the student in question obtains a study place for the subject of his choice, via the centralised selection procedure if it is a course of studies with nation-wide restrictions on admission. Years already spent in higher education and the courses and examinations that have been passed will be credited towards a different course of studies, provided they are deemed equivalent.

In some cases students are prompted by lack of success in their academic endeavours or by other factors to change their course of studies, or they drop out entirely. The drop-out rate is not recorded within the framework of the official higher education statistics in Germany and is, therefore, only ascertainable by means of an indirect empirical investigation and analysis. A study of the university graduates that graduated in 2002 reports that one out of four *Studienanfänger* (first year students) drop out of universities or *Fachhochschulen*. In general, *Fachhochschulen* have a lower drop-out rate than universities (22% versus 26%). But the disciplinary differences are considerable. Another 13% of first year students at universities and 4% at *Fachhochschulen* switch to another subject during their studies (Heublein, Schmelzer et al. 2005). If they need counselling in such critical situations, they can turn to student counselling offices in the departments concerned, the general student counselling service or the psycho-social counselling services of the student welfare service.

In 2005, it took on average 5.9 years to complete a Diplom (U) programme. A bachelor programme took on average 3.5 years and a masters programme on average 2.1 years (Statistisches Bundesamt 2007)

Figure 2-7: University graduates

Source: CHEPS IHEM 2007

The late 1990s have been a period of falling numbers of graduates in the Diplom programmes and the teacher training programmes. In the Doktor programmes, the decrease was delayed and did not last that long. Since 2001 the trend is up again, although the data on new entrants into university programmes suggest that that trend will be reversed by the end of the decennium.

2.2.5 Education - Labour market

The universities' student counselling offices and the employment offices' career guidance services furnish information and guidance to help graduates move from higher education into the professional world. Their prospects on the employment market may be improved by specialising in appropriate fields of study and enrolling in appropriate further study, supplementary and follow-up courses (*postgraduale Studiengänge*). Work placements afford an opportunity to gain an insight into the working world and establish contact with prospective employers. Proof of work experience (for four to six months, in some cases up to a year) acquired before or while studying is demanded in a number of fields, especially in natural and engineering sciences. To improve the employment prospects of arts and social science graduates, some higher education institutions have set up programmes in collaboration with employment offices to place them in industry and equip them with key skills (e.g. a grounding in computing, elementary business skills). Many institutions of higher education offer measures designed to prepare for self-employment and to encourage students to set up their own businesses.

Many of those who complete artistic studies have difficulty finding suitable employment or earning an adequate livelihood from their own artistic endeavours. To improve their prospects, subjects have therefore been added to the curricula that qualify them for practical work (teaching, management in the cultural sector). The transition to working life can be eased by a suitable choice of courses and extra qualifications.

2.2.6 Personnel

Teaching staff at universities

Reforms on the regulations for teaching staff have taken place in the last years. Federal government initiated reforms on the staff structure, staff remuneration and employment conditions that were highly debated and strongly opposed from several actors. With these reforms the Federal Government wanted to tackle current and eminent problems. Particular problems were: the long duration of the qualification for scientists, the lack of autonomy for post-doctoral researchers, the age of starting professors, and the lack of (quality and efficiency) incentives in the academic salary structure (see also Enders 2001). In 2002, the HRG was adjusted, after a long period of deliberation, for the subject was highly controversial. The most crucial changes relate to the introduction of the *Juniorprofessor*, the abolition of the *Habilitation*, introduction of the doctoral status (*Doktorandenstatus*) and changes in the salary structure and incentives.

The new structure was opposed by several *Länder* who argued that the depth of the regulations in the framework law is too deep. In 2004, the Federal Constitutional Court (*Bundesverfassungsgericht*) ruled that the changes in the HRG were not in line with the constitution and that the regulations on juniorprofessor violate the autonomy of the *Länder*. The federal government proposes to abolish the HRG due to the constitutional reform in 2006 (Bundesministerium für Bildung und Forschung 2007). Thus in the future, the *Länder* will be solely responsible for the staff structure in higher education.

In general, academic staff can be divided up into the following groups :

- professors;
- junior professor;
- scientific staff (*wissenschaftliche Mitarbeiter*);
- doctoral staff (*Doktoranden/Doktorandinnen*)

Recruitment requirements

The recruitment requirements for professors are as follows:

- a degree from an institution of higher education,
- teaching ability,
- particular aptitude for academic work which is usually demonstrated by the doctoral degree (or a particular aptitude for work in the creative arts),
- (depending on the requirements of the post) additional academic achievements or
- particular achievements in the application or development of academic or scientific knowledge and methods from professional experience of at least five years, of which at least three years must have been spent outside the higher education sector.

The additional academic achievements usually were to be demonstrated by the *Habilitation*, a post-doctoral lecturing qualification. Since the abolishment of this qualification, the achievements are nowadays more neutrally defined in the HRG.

There are specific requirements for particular fields of study, e.g. in educational science and subject-related didactics in teacher training only persons with three years experience of teaching in schools should be appointed as professors.

The requirement for an appointment as juniorprofessor are:

- a degree from an institution of higher education,
- teaching ability,

- particular aptitude for academic work which is usually demonstrated by the doctoral degree (or a particular aptitude for work in the creative arts).

The recruitment requirement for scientific staff (*wissenschaftliche Mitarbeiter*) is a university degree.

Duties and status of teaching staff

Professors perform the duties relating to science, the arts, research and teaching which are incumbent upon their higher education institution independently in their respective subject areas. Their duties also include participating in study reform activities, academic counselling and the administration of the higher education institution as well as holding examinations. Professors are usually appointed by the Ministry responsible for science in the particular *Land* as civil servants with limited or unlimited tenure, though they can also be taken on as salaried employees.

Scientific staff (*wissenschaftliche Mitarbeiter*) are civil servants or salaried employees who are responsible for academic services. This includes teaching students specialised knowledge and practical skills and instructing them in the use of scientific methods. Scientific staff can also be entrusted with the independent performing of tasks in research and teaching. In cases where it is necessary to impart mainly practical skills and knowledge, such duties can be delegated to what are known as teaching staff for special tasks (*Lehrkräfte für besondere Aufgaben*).

The extent of teaching commitments of full-time academic staff is expressed in units (*Lehrveranstaltungs-stunden*). Each unit stands for at least 45 minutes per week for the period when lectures are held during the semester. Under a resolution adopted by the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* on 31 January 1992, teaching commitments are specified for different staff categories. The regulations imply that professors and scientific staff at *Fachhochschulen* are generally expected to teach more than those at universities.

Flexibility, salary differentiation, working conditions

If certain functions and responsibilities are taken on, teaching commitments can be reduced, for example, if managerial functions are performed within the higher education institution or research and development work is undertaken at a *Fachhochschule*. The recent changes in the HRG imply a new salary system for staff at the higher education institutions (*Professorenbesoldungsreformgesetz*). The two crucial elements of the new system are: emancipation of salaries at universities and *Fachhochschulen* and performance-related pay (based on policies, to be developed and implemented by the respective higher education institutions).

In 2005 the reforms on staff structure and salaries (5th amendment of *HRG*, *Professorenbesoldungsreformgesetz*) were implemented. All new appointed professors start with the new professorial categories (W2 and W3). These new *Besoldungsgruppen* (salary classes) imply a lower basic salary with the opportunity to receive performance bonuses. The *Länder* have implemented the new federal law differently. In some *Länder* new appointed professors are not allowed to receive performance bonuses in the first years whereas in others they can receive these bonuses immediately. A disappointment for new non-professorial researchers is that universities start to pay personnel on former C1-position a lower salary scale than before, which means a salary decrease on those positions of 500 EUR per month.

In 2006 the federal government, the *Länder* and the municipalities have negotiated a new labour agreement with the labour unions for the public service. The former *Bundesangestelltentarif* (BAT) is replaced by a new labour agreement called *Tarifvertrag Öffentlicher Dienst* (TVöD). This labour agreement varies between federal government, *Länder* and municipalities. After a series of strikes most *Länder*, with the exception of Hesse and Berlin, together with the labour unions agreed on a specific labour agreement for the *Länder*, called *Tarifvertrag Länder* (TV-L) (Gewerkschaft für Erziehung und Wissenschaft 2006). As a step towards a *Wissenschaftlertarifvertrag*, a specific labour agreement for all academics, in the TV-L academics are treated in some respects differently from other public employees mainly in these respects:

- academics with temporary contracts are entitled to get sufficient time for research in order to pursue a doctoral thesis or other additional research output,
- the corridor of working hours per week is up to 48 hours and overtime should be equalised within a year,
- performance based salaries (if 3rd party funds are gathered) and
- recognition of earlier work experience in academe for salary classification to prevent inhibited academic mobility.

The federal government changed the *Wissenschaftszeitvertragsgesetz* (Act on temporary employment in higher education) to allow temporary contracts for academics. The current amendment which became effective on the 18th of April 2007 allows higher education institutions to hire academics on temporary contracts for longer than 12 or 15 years if these academics' work is funded by third-party projects (Bundesministerium für Bildung und Forschung 2007).

2.3 Distance education

In the previous section a distinction was made between universities and *Fachhochschulen*. It is noteworthy to mention that there are, in addition to the institutions that require the presence of the student, also institutions specialising in distance studies. The *Fernuniversität-Gesamthochschule* (comprehensive university for distance studies) in Hagen (established in 1974), for instance, provides university courses of study leading up to *Diplom*, *Magister* and Bachelor's degrees and special graduate studies. In various German cities and cities in Austria, Switzerland as well as central and eastern European countries, the *Fernuniversität* has higher education centres that are used for local student counselling and receive students for those periods they are actually required to attend classes.

Private institutions such as *Fernfachhochschulen* or *Fachhochschulen* for distance studies offer distance learning courses of study all over Germany. The variety of study courses is often limited to the fields of business management and continuing qualification courses for engineers and computer specialists.

In addition to these institutions of distance learning, the *Präsenzhochschulen* (regular universities and *Fachhochschulen*) involve themselves more often in distance learning. The development and employment of multimedia learning systems and appropriate network structures on the part of higher education institutions enhance the opportunities for further development of distance learning structures and for combining distance and on-site learning.

2.4 Post -graduate education

There are two types of postgraduate education. One concerns acquiring additional/new knowledge and/or skills by means of specific courses and programmes (*Zusatz-, Ergänzungs-, Aufbaustudien*). This type has gained more prominence in recent years in the context of the “Knowledge society”. In Germany this has led to policy initiatives in this area, the *Aktionsprogramm “Lebensbegleitendes Lernen für alle”* (Bundesministerium für Bildung und Forschung 2001) is an example. In fact, the federal policies boil down to creating encouraging contexts for institutions and persons to continue to offer and undertake learning activities throughout the course of life. Given the autonomy left to the institutions and persons, there is much variety from *Land* to *Land* and institution to institution, what this type of postgraduate education actually looks like (see also 1.3. on further education). At the higher education institutions, there are some 317 *Weiterbildungszentren* listed in the HRK *Hochschulkompass* (www.hochschulkompass.de, retrieved 29.05.2007). Thus basically every higher education institution has established a *Weiterbildungszentrum*.

The other type of postgraduate education relates to the continuation of academic studies towards the dissertation. The split between first degree and higher studies is not as clear-cut in Germany as in many other countries. Traditionally students continued into advanced (or postgraduate) studies without completing an initial qualification.

2.4.1 Structure and access

Following successful completion of a first course of studies at a university or equivalent institution of higher education and conditional on a certain level of academic performance, a doctorate may be embarked upon, a process termed *Promotion*. There are specific regulations for admitting graduates from *Fachhochschulen* to doctoral studies. In addition to their *Fachhochschule* degree, students are also required to complete preparatory academic studies in the subjects to be studied at doctorate level and/or a supplementary period of study at the university in question, or they have to sit an aptitude test for *Fachhochschule* graduates. A doctorate is conferred on the strength of a doctoral thesis, which must be based on independent research, and oral examinations called *Rigorosum*. Oral examinations may be replaced by a defence of the student’s PhD thesis (*Disputation*). A doctoral thesis need not be written within any prescribed length of time. The doctorate entitles a graduate to bear the title of *Doktor (Doktorgrad)*.

Postgraduate students are only required to register for a minimum amount of time, and no one knows how long they usually are working on their (postgraduate) degree. In addition, compared to many other countries, doctoral training in Germany is rather long and loosely structured. It is less seen as a separate educational phase than a combination of professional work and education. The large majority of doctoral students work as staff members at universities. In most cases some advanced seminars or colloquia are offered (average of 1 or 2 per year). These courses are open to advanced undergraduates as well as postgraduate students, but it must be stressed that there are a lot of differences in what is offered from institution to institution. Moreover, because the doctoral students are not always formally registered (they are not a specific personnel category), it is difficult to give recent and reliable quantitative details. The best known figures are the number of doctorates granted. About 25,000 doctorates were granted in 2005 (Statistisches Bundesamt 2006).

In the last twenty years the restructuring of doctoral education has widely been discussed. In Germany doctoral education was mainly criticized because it was deemed to lack structure in terms of goal oriented education and training, therefore lasting for too long and furthermore to be not sufficiently oriented to the labour market. Also the master-apprentice relationship between a single supervisor and candidate was strongly criticized. Proposals for the reform of doctoral education aimed to structure doctoral education in order to improve its quality by strengthening the research and training component and by re-defining the work-relationship between supervisor and candidate. Additionally, critics proposed to prepare doctoral candidates for academic as well as for non-academic careers.

A cornerstone for realizing reforms of doctoral education in Germany was the introduction of research training groups (*Graduiertenkolleg*) by the German Research Foundation (DFG – *Deutsche Forschungsgemeinschaft*) at the end of the 1980s. This introduction followed the reform aims mentioned above and aspired to overcome traditional cultures of doctoral education. To implement a more modernized culture of doctoral education the program established some guidelines on how research training groups should be realized: they should offer a training program, transparent supervision and opportunities for international mobility and networking. In practice these guidelines were realized in manifold ways: groups can be classified by offering more traditional or modern types of doctoral education.

In addition to the research training groups established at universities, some relevant non-university research training programmes are mentioned (Hauss 2006):

- Internationales Promotionsprogramm IPP (DFG and DAAD)
- International Max Planck Research School (IMPRS)
- Promotionskolleg der Hans Böckler-Stiftung

Research training groups established in particular *Länder*:

- North-Rhine-Westphalia (*NRW-Graduate Schools*)
- Bavaria (*Elite-Netzwerk Bayern*)
- Bremen (*Graduate School of Social Sciences*)
- Lower-Saxony (*Graduate Schools Niedersachsen*)

2.5 Policy developments

In 2006 the Federal Government and *Länder* concluded the *Hochschulpakt 2020* (Higher Education Pact 2020) in order to face new challenges in German higher education.

Projections on the future number of secondary school graduates enrolling in higher education show rapidly increasing demand of higher education. At the same time, the supply of study places is under pressure due to the ongoing transition to Bachelor and Master-programs.

These programs require higher staff capacity than the traditional programs.. One of the measures agreed in this Pact is to increase the number of study places by 90,000 by 2010.

Federal government and the *Länder* will spend about €1billion on these new study places.

Until 2010, the *Länder* will receive their share of 565 million Euro of federal funds for higher education. The number of additional students in 2009 compared with 2005 in every state will determine the allocation of funds after 2010. The funding starts in autumn 2007.

3 RESEARCH INFRASTRUCTURE⁴

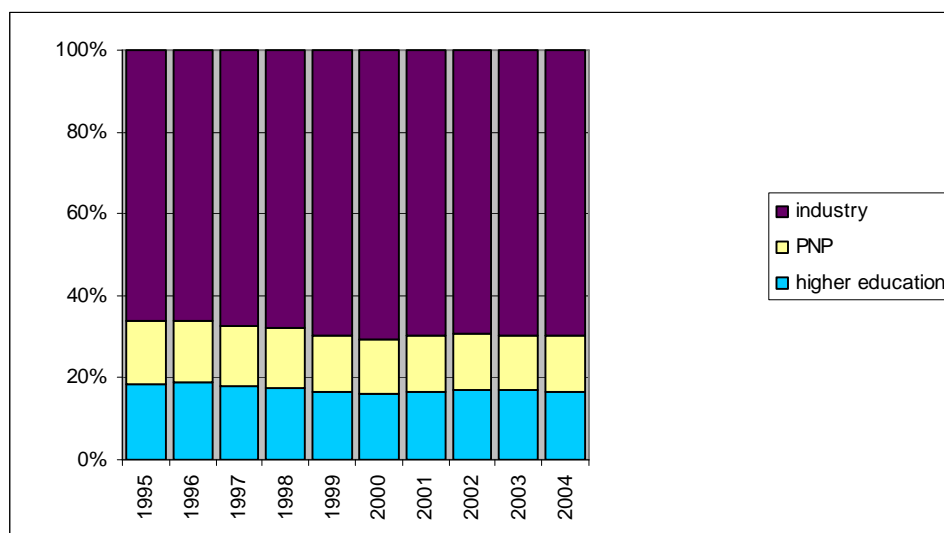
3.1 Performers

There are three main sectors which perform Research and Development (R&D) in Germany:

- a) higher education institutions;
- b) non-university research institutes; PNP
- c) industry

Industry performs the dominant part of all German R&D. Universities perform 16% and public non-university institutions 14% of all R&D.

Figure 3-1: Performers of R&D activities



Source: (Bundesministerium für Bildung und Forschung 2006)

The distribution of R&D activities between sectors has been quite stable over the last years, although the part of industry has increased slightly.

3.1.1 Higher education institutions

Nearly all of research carried out in this sector is performed by universities. *Fachhochschulen* conduct some research, but not a lot. Universities account for the largest share of the publicly financed R&D activities. A wide range of research is covered in universities, and projects are often undertaken by relatively small groups. A trend toward differentiation and specialisation can be seen. Large scale and other projects that cannot be easily handled within the

⁴ This chapter is based on Bundesministerium für Bildung und Forschung. (2006). "Research and Innovation in Germany 2006." Retrieved 29.05., 2007, from http://www.bmbf.de/pub/research_and_innovation_2006.pdf, Bundesministerium für Bildung und Forschung. (2006). "Bundesbericht Forschung 2006." Retrieved 29.05., 2007, from <http://www.bmbf.de/pub/bufo2006.pdf>.

framework of universities may be undertaken by public non-university institutions (such as MPG, HGF, etc.).

3.1.2 Private non-profit and governmental institutions

Max Plank Gesellschaft (MPG): The MPG provides funding for a number of Max Plank institutes. These 80 institutes focus mainly on basic science, particularly in promising new areas. Traditionally these institutes have been established around an individual leading scientist who, as Director, has considerable independence. MPG institutes are mostly funded jointly by the federal government and the *Länder* (governmental funding: 50% federal and 50% *Länder*). Some funding also comes from other sources, such as individual members and associated organisations, gifts from private individuals, project funds by the BMBF and other “third parties”.

Fraunhofer Gesellschaft (FhG): Similarly to the MPG, this organisation provides funding for a number of own institutes. The main focus of these 56 institutes is on technological innovation and applied forms of research. The instruments and areas of expertise of these institutes should therefore correspond to the needs of industry. Fraunhofer institutes receive basic funding from public sources, and are paid by both public and private sources for particular projects. Governmental support is provided by both the federal government and the *Länder*, 90% and 10%, respectively. FhG institutes have become important in the process of technology transfer from publicly financed research institutions to industry.

Helmholtz Zentren (HGF): These centres were created in order to support research in fields requiring interdisciplinary co-operation and large concentrations of personnel, funds and equipment. Both basic and applied research are carried out by these 15 centres. They were originally set up for research in nuclear science, but many have moved into other areas (for example the environment and information technology). The HGF centres have a central association (the *Arbeitsgemeinschaft der Helmholtz Zentren*), but the BMBF is the main “co-ordinator” of the work of the centres (and has a strong influence through its priority programmes on the process of priority setting within each centre). The centres are mainly financed through the government (the governmental funding is 90% from the federal government and 10% from the *Länder*).

Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz (formerly known as *Blaue Liste-Einrichtungen*, BLE): These institutes (there are 84 in total in 2006) are funded by the *Bund* and one *Land*, and either conduct mission-oriented research or are service institutions. Examples of this type of institution are the Information Centre for Chemistry in Berlin, and the Library of Technical Information in Hannover. These institutions must meet the following criteria: the annual budget must exceed 1 million Euro (or 0.75 million Euro if the institute is mainly a service institute), and the work must be of importance above the regional level and should be in the interest of the Federal Republic of Germany as a whole. They may be funded (mainly) through public or private sources. Some of the private institutes are closely associated with universities. There has been considerable growth of this type of institute since the 1980s, due to the restructuring of the research system in the new *Länder*. Governmental funding is provided 50% by the *Bund* and 50% by the *Länder*.

Other institutes: In addition to the institutes listed above, there are various types of institutions which perform research and are the responsibility of one of the federal or *Land* ministries. One category of these includes institutions with research responsibilities which are funded by the *Bund* (*Bundeseinrichtung mit Forschungsaufgaben*). The percentage of the budget spent on research activities varies from institute to institute, but has been estimated to average around 10%. Other institutions which may perform research include information centres and libraries.

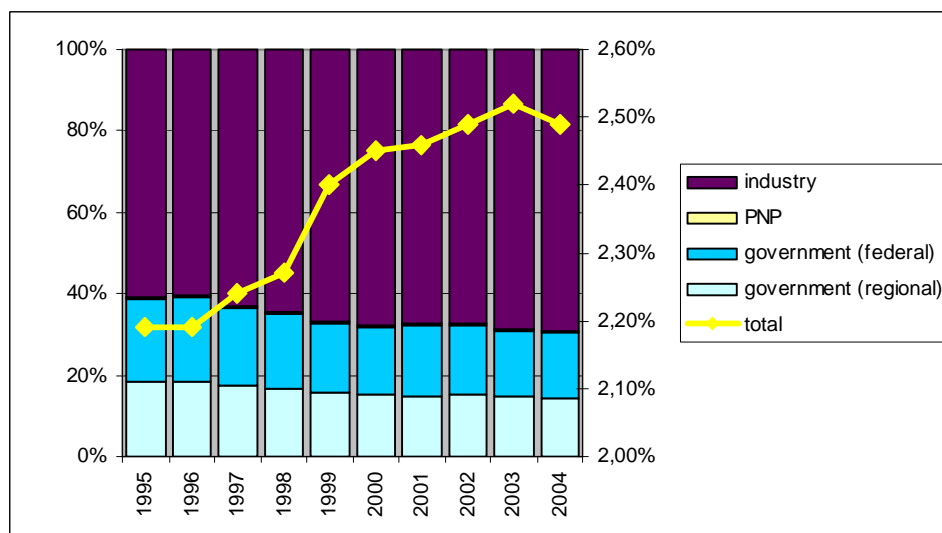
3.1.3 Industry

In 2004 business enterprises performed 70% of all R&D activities in Germany.

3.2 Providers

Total R&D expenditure in Germany reached 2.49% of GDP in 2004. As can be seen in table 4, total expenditure on R&D activities as a percentage of the GDP shows a growth up to the late 1980s followed by a slight decrease (partly due to the unification). Since the mid 1990s, there is again a growth.

Figure 3-2: Expenditure on R&D , broken down by provider and total as a percentage of GDP



Source: (Bundesministerium für Bildung und Forschung 2006)

In last 10 years the private R&D expenditure has grown faster than public sources and in 2004 the business R&D reached 70 % of all R&D expenditures. Both the federal government and *Länder* provide funding for research.. The federal government provides the larger share of public funding for research.

The great majority of the research undertaken in universities is financed through public sources. The main sources of support are the general university funds (mostly from the

relevant *Land*), and highly selective funding from the *Deutsche Forschungsgemeinschaft* (DFG).

Intermediate organisations

The research system in Germany is highly decentralised, and consists of many subsystems. One of the factors that contributes to the complexity of the system is the way in which authority over research policy and funding are split between the federal government and the *Länder*, and the involvement of various ministries. The Ministry of Education and Science is the most important, but also the Ministry of Economic Affairs and Technology (in particular through the *Arbeitsgemeinschaft Industrieller Forschungsvereinigungen*, AiF) contributes to the funding of research. The BMBF is responsible for determining the general principals governing the publicly financed areas of R&D. In addition, there are some intermediate bodies, such as the Federal-State-Commission for Educational Planning and Research Promotion (BLK) and the Science Council (*Wissenschaftsrat*), which take some responsibility for co-ordinating research policy matters across the Federal Republic.

In addition, the *Deutsche Forschungsgemeinschaft* (DFG) is an important intermediate organisation in terms of research funding. The DFG is funded jointly by the federal government and the *Länder*, and provides a nation-wide selective umbrella for university research. The role of DFG (with a 2005 budget of 1.38 billion Euro) is very much to provide funding for relatively small projects of excellence. The DFG prides itself on its independence in supporting research projects or programmes submitted to it on the basis of the quality of the science, rather than on a perceived “national priority”. The DFG consider that their dispersed system of policy making, and emphasis on “reactive” funding, enables excellent science to flourish. Through its competitive funding policy the DFG is able to act as a quality control body for German research.

In addition to general university and DFG funds, a variety of other “third party” sources (including Federal ministries, foundations and industry) also support university research. The total “third party funds” (*Drittmittel*) in the higher education sector in 2005 (excluding medical facilities) amounted to 2.65 billion Euro.

3.3 Policy developments

A highly debated issue on federal level is the *Exzellenzinitiative* (Initiative for Excellence) (Bundesministerium für Bildung und Forschung 2006). With this initiative the federal government and the *Länder* created a competition between universities for additional research funding. Federal government and *Länder* spend 1.9 billion EUR on this initiative over the years 2006 to 2011. 75% of the money is contributed by the federal government. The funding is awarded by the DFG. The funding is allocated in three blocks.

1. Research Schools for young scientists provide structured PhD programmes within an excellent research environment and a broad area of science. About 40 research schools will each receive 1 million Euro per year, i.e. total amount of 40 million Euro per year.
2. Internationally visible and competitive research and training institutions, so-called Excellence Clusters, are to be established at universities and will cooperate with non-university research institutions, universities of applied sciences and industry. 6.5 million

Euro will be available on average for each of these about 30 clusters, i.e. a total amount of 195 million Euro per year.

3. The promotion of "Future concepts for top-class research at universities" is to heighten the profile of up to ten selected universities. A precondition for funding is that an institution of higher education should have at least one excellence cluster, one research school and a convincing overall strategy for becoming an internationally recognized so-called "beacon of science". A total of 210 million Euro per year has been earmarked for this area. The size of each funding project is to be 21 million Euro on average.

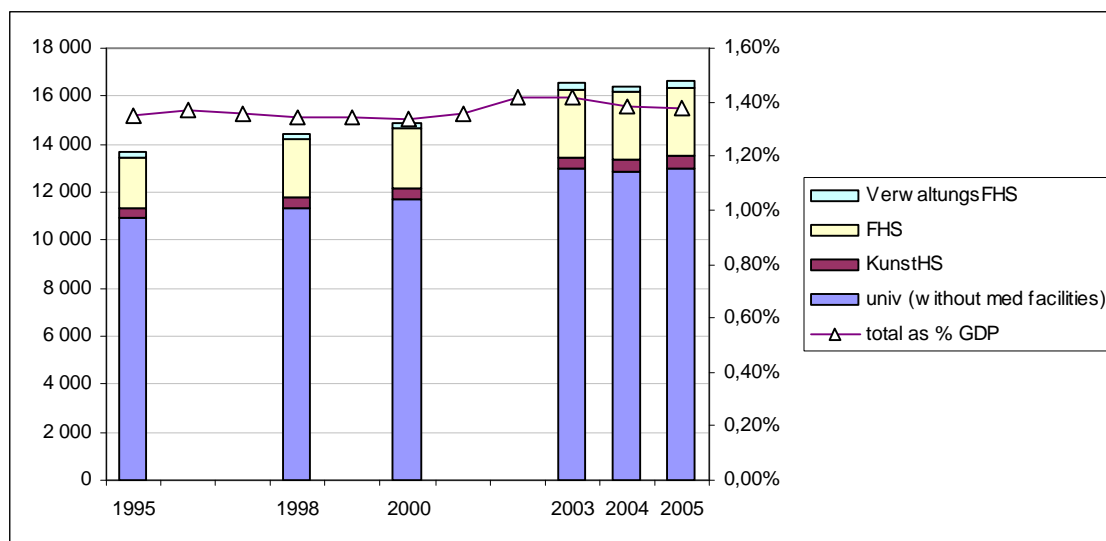
The institutions of higher education are selected by an independent jury (Joint Commission of DFG and Science Council) consisting primarily of scientists from abroad.

The funding is granted in two rounds. The results of the first round were announced in 2006 and projects are funded for about 900 million EUR. The most prestigious projects, the future concepts, are allocated to three universities: LMU Munich, TU Munich and TH Karlsruhe (list of all funded projects in the first round: Deutsche Forschungsgemeinschaft and Wissenschaftsrat 2006). The winners of the second round will be announced in October 2007. The *Hochschulpakt 2020* brought changes also into research financing. The second pillar of the Pact is a new overhead model (*Programmkostenpauschale*) by which DFG research projects include also a 20% institutional overhead. Over 2007-2010 the federal government covers 100% of the additional costs and all new DFG projects will receive additional 20% for the overhead cost. This plan makes research funding independent from the basic institutional grant. The new allocation principle is expected to distribute research funds more effectively and to make German research internationally more competitive.

4 FINANCIAL ASPECTS⁵

In the figure below data are presented for the total expenditure of all German higher education institutions. It shows that total expenditure has grown in the early years of the new Millenium and that expenditure have decreased since 2003

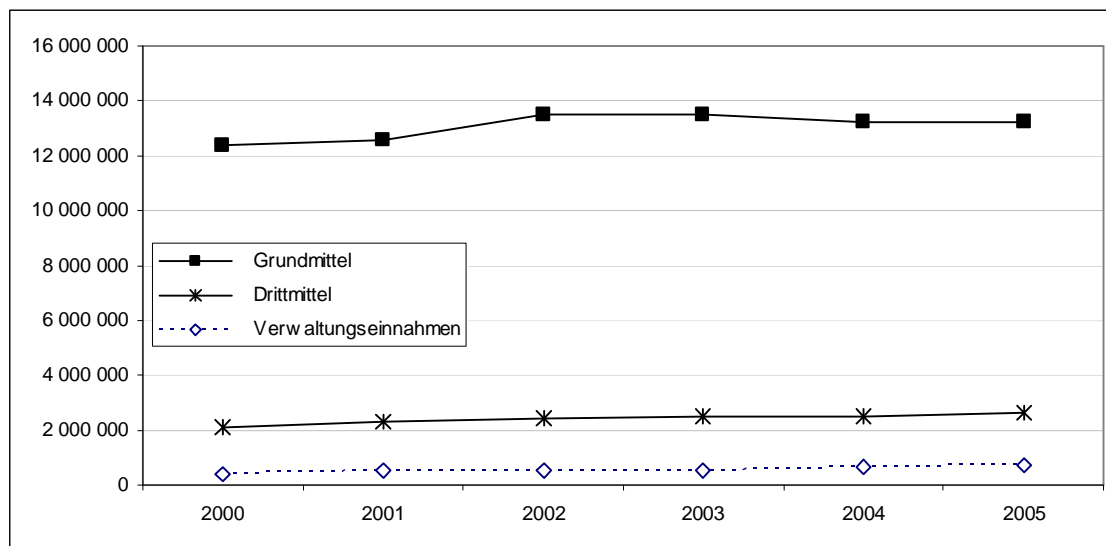
Figure 4-1: Expenditure of German higher education institutions, by type of institution, in mln Euro and as % of GDP



Source: (Statistisches Bundesamt 2007)

The sources of income of the higher education institutions are presented in the figure below. Of the funds devoted to the higher education institutions in 2005, 80% was considered to be basic subsidies (*Grundmittel*) and 16% was additional research income from research councils (*Drittmittel*). Furthermore, 4% originated from private sources like from contract research and education (*Verwaltungseinnahmen*).

⁵ This chapter is based on Kaiser, F., H. Vossensteyn, et al. (2002). Public funding of higher education. A comparative study of funding mechanisms in ten countries. Beleidsgerichte studies hoger onderwijs en wetenschappelijk onderzoek. Zoetermeer, Ministry of Education, Culture and Science..

Figure 4-2: Sources of income of German higher education institutions (x1000 Euro)

Source: (Statistisches Bundesamt 2007), tab 2.1.1

4.1 Institutional finance

4.1.1 Basic subsidies

German higher education is publicly funded, and institutions have to follow the budgeting and accounting laws of German public administration. These laws, although set by the individual states, are more or less similar across the country. The main restrictions derive from rules such as:

- the line item budgets (representing expenditure categories) are fixed prior to the fiscal year;
- the budget may not be spent "across" line items;
- institutions do not get lump sum funding for staff expenditure, rather it is – according to the *Stellenplan* - allocated on a position by position basis; thus, institutions cannot spend personnel funds for other purposes, even if this is deemed to be necessary and appropriate;
- funds (unspent balances) may not be transferred to the following fiscal year.

The annual budget, in which the state subsidies for the individual institution are presented, is included in the state law. The budget is subdivided into expenditure categories (line items) and positions (for personnel, described in the so-called *Stellenplan*). The budget is an integrated budget for education and research. Teaching and research are not funded separately. Usually the budget is already subdivided according to the institutional structure, and the positions are already assigned to the departments and institutes. The budget thus pre-determines the total expenditure process for the fiscal year.

The public (basic) funding of institutions of higher education is – apart from some exceptions – not the result of using a formula for calculating budget components. The funding is based on institutional budget requests, each approved – in a process of budget negotiations – by the authorities on the basis of institutional assessments (allowances by reimbursement). The starting point is the *Stellenplan* of the last year. Therefore, the budgeting process can be characterised as incremental and input-oriented. The amount of *Grundmittel* received by a university or *Fachhochschule* is not so much influenced by the actual number of students. In some *Länder*, recently formula funding has been introduced for increasing parts of the available budget, but until now it still relates to a small part of the budget (1-7%).

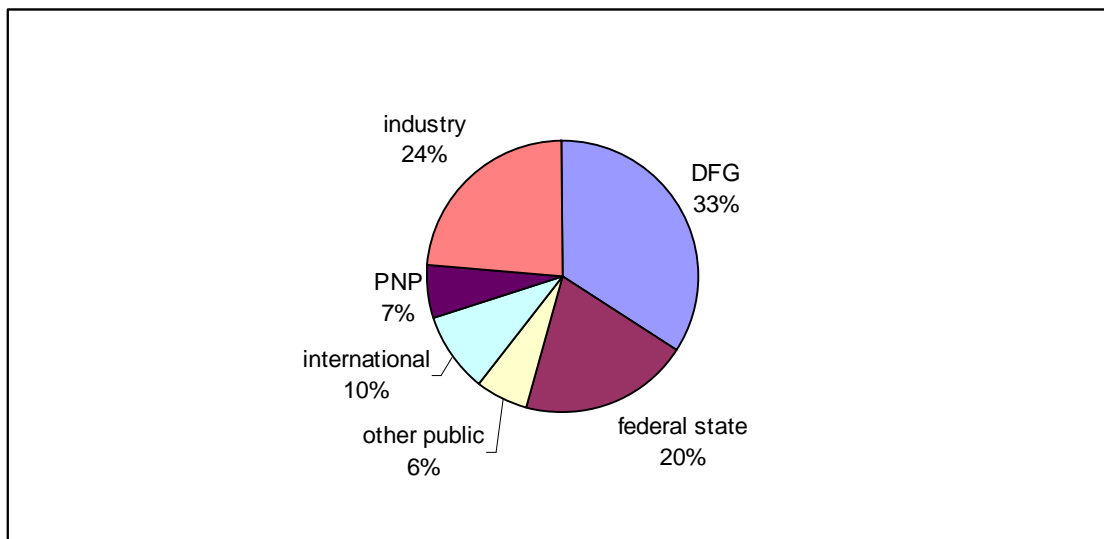
Länder- governments give institutions increasingly more flexibility with regard to the (internal) allocation of funds according to their own discretion, and with fewer limitations fixed in advance. In many *Länder*, experiments have been carried out with block grant (lump sum) funding (*Globalhaushalt*) as a replacement for the traditional and rather inflexible allocation mechanisms. Lump sum funding is in most *Länder* related to covenants (*Zielvereinbarungen*) in which higher education institutions and *Länder* governments agree upon certain institutional policies and goals (König 2006). These covenants are contract-like agreements in which funding for achievement of institutional goals are laid down.

In 2004, 11 out of 16 *Länder* were using indicator-based funding as an element of funding higher education institutions. In general, indicator-based funding is applied in such a way that institutions are protected from big budget fluctuations. The funding scheme is either applied only to a certain part of institutional budget or its potential effects are mitigated by using averaged outcomes over several years or applying “tolerance bands beyond which budget effects are not realised” (Orr, Jaeger et al. 2007).

Financial investments in new buildings, equipment for new buildings, and equipment above a certain threshold level (about 75,000 Euro) is financed jointly by the *Länder* and the federal Minister of Education and Science. The *Länder* ministers may decide to contribute the total amount to these investments. However, if they want to receive federal money, they have to process the project through the national planning procedure (*Rahmenplan*), in which the *Wissenschaftsrat* evaluates the application and a joint national body of the *Länder* and the federal government makes the decision on whether or not to allocate funds. Construction and maintenance of buildings is neither decided nor administered by the institutions themselves. Special *Länder* administration “offices” (*Staatshochbauverwaltung*) are in charge of these tasks. Only the operating of the buildings is budgeted and administered by the institutions. For example in Niedersachsen, a bill has been drafted to enable higher education institutions to become a *Stiftung* which is allowed to be owner of buildings and land.

4.1.2 Research grants

Academics compete for additional research funds (*Drittmittel*), which – as mentioned above – on average account for 16% of the universities’ budgets. The total amount of money available is limited, and those who want to benefit from these funds have to apply. Applications are usually scrutinised by peers, before the respective foundation or the DFG funds projects. This is, however, not a competition between institutions but rather between individual researchers or research groups. The most important institution involved in promoting research in higher education, particularly basic research, is the *Deutsche Forschungsgemeinschaft*, followed by industry and the federal state.

Figure 4-3: *Drittmittel* in universities (excluding medical services) by source

Source: (Statistisches Bundesamt 2007, tab 1.7.1)

Higher education institutions' main competitors for both public and private research funding are, without any doubt, the private, non-profit and governmental research institutes. The balance between university research and research at public non-university research institutes is shifting more and more in favour of the latter. Contrasting the research budget of these institutes against research money spent at universities, the *Wissenschaftsrat* came to the conclusion that, indeed, the proportions changed exactly at the time when universities had to accommodate a large increase in the number of students.

4.1.3 Contract research and contract teaching

There is no reliable information available about contract teaching. It can be stated, however, that institutions of higher education do not earn much in the field of contract teaching. Individual academics may receive supplementary funds from external sources for large-scale research projects and programmes. They have to apply for these funds, which predominantly come from public budgets (approximately 80 per cent) and which are granted for a limited period of time. External funding is predominantly provided by state-financed funding institutions (above all the *Deutsche Forschungsgemeinschaft*), federal and *Land* ministries, foundations and funding societies, industry, associations and international organisations.

4.2 Student support and tuition fees

4.2.1 Student support

Students in the tertiary sector who have no other means (mainly from their parents' income) of maintenance and financing a course of study can receive financial assistance (*BaFög*) under the terms of the Federal Training Assistance Act (*Bundesausbildungsförderungsgesetz*). The duration for which such assistance is payable (*Förderungshöchstdauer*) varies according to the nominal duration of the study programmes.

The limits are specified either in the Federal Training Assistance Act or in the form of an ordinance. After their fourth subject-related semester, students only continue to receive funding if they have achieved the study results usually attained by that time. The monthly amount depends on the student's own income and financial means as well as those of his or her parents and spouse.

The financial assistance is also provided during non-lecture periods. Since 1st July 2002, the full assistance available to students in higher education not living with their parents has been up to 585 EUR per month (made up of 466 EUR for their maintenance plus 47 EUR health insurance allowance, 8 EUR for long-term care insurance allowance and up to 64 EUR rent allowance). Half of the amount is provided over the maximum period for which assistance is payable as a non-repayable grant, while the other half takes the form of an interest-free state loan. Repayment terms for this state loan depend on social considerations and income. Once the maximum period during which assistance is payable has been exceeded, students, as a rule, only receive funding in the form of a bank loan, which is subject to interest.

In 2005, 345,000 students received BAFög grants. Thus, about 19% of all students gained BAFög and about 25% of all students that were eligible based on the characteristics of their studies. The average monthly grant was 375 EUR. Only 38.1% of all recipients got the full assistance granted (Deutscher Bundestag 2007).

In addition to financial assistance provided under the Federal Training Assistance Act, there are other sources of funding available to students. In some *Länder*, for example, the student associations at the institutions of higher education provide loans of varying amounts in cases of extreme social need. Several smaller, predominantly regional foundations, which usually have private funds at their disposal, also provide needy students with assistance.

The *Bildungskredit* is a special credit that is granted by *Bundesverwaltungsamt* (Federal Administration Office) and aims to support students to finish their studies in a faster pace. In contrast to the BAFög, the *Bildungskredit* is not aimed for students in their basic studies (*Grundstudium*) and students' income or those of their parents' or partners' income are irrelevant for eligibility of this credit. The maximum credit is 300 EUR for 24 months. In 2004, 12,000 *Bildungskredite* are granted in a volume of 66 million EUR (Studis Online 2007).

Particularly gifted students may receive a grant from relevant foundations (*Begabtenförderungswerke*). These foundations generally maintain close links with churches, political parties, trade unions or industry. One exception, however, is the *Studienstiftung des deutschen Volkes* (German National Scholarship Foundation), which does not adhere to any particular ideology and which is also Germany's largest foundation of its kind. Both the state and the *Länder* support the work of these foundations by providing substantial funding, the greater part of which is provided by the State. The German Academic Exchange Service (*Deutscher Akademischer Austauschdienst* - DAAD) offers grants for foreign students and young academics to pursue studies or further education of limited duration at a German higher education institution. In addition to DAAD, some *Länder* also have special funds for providing assistance to foreign students at the local institutions of higher education.

On completion of a first degree, students may also receive scholarships to support their further studies in line with the post-graduate assistance acts (*Graduiertenförderungsgesetze*) of the *Länder*. The foundations for gifted students (*Begabtenförderungswerke*) also provide

students who have already completed a first degree with grants to enable them to study for a doctorate.

In addition to the direct financial support available to students from low-income families, all students under the age of 27 benefit through the tax allowances to which their families are entitled and which are laid down in the German Income Tax and Child Benefit Acts. If students finish studying before their 27th birthday, the financial benefits enjoyed through their family come to an end with the end of the course of study. It is the parents and not the students themselves who are entitled to this form of support. Further indirect forms of financial assistance for students include reduced health insurance rates and the fact that time spent studying is partially acknowledged by the pension insurance authorities.

Studienkredite

Special credits for students are introduced in the last years in order to help students financing their studies. The *Kreditanstalt für Wiederaufbau* (KfW), a public bank, offers a credit for all students in Germany with special conditions regarding the maximum interest rate and repayment conditions. In summer semester 2007, about 23.000 students received/receive a credits from the KfW. Several *Länder* introduced also special credits for students in respective higher education institutions. Increasingly commercial banks started to offer special credits for students. An overview over the current credits and their conditions is available on www.studienkredite.org (in German).

4.2.2 Tuition fees

Seven *Länder* have decided to introduce tuition fees (Baden-Württemberg, Bavaria, Hamburg, Hesse, Lower Saxony, Northrhine-Westphalia, Saarland). In Lower Saxony and Northrhine-Westphalia (NRW) first year students started to pay 500 EUR per semester this autumn. In NRW the higher education institutions themselves decide if and which amount of tuition fees they charge. Baden-Württemberg, Bavaria and Hamburg introduce tuition fees in summer 2007 whereas in Saarland and Hessen students have to pay tuition fees from autumn 2007 on. All these *Länder* start with 500 EUR per semester. Other forms of tuition fees such as tuitions fees for students with a very long study time are introduced also in nearly all *Länder* (exceptions are Berlin, Brandenburg and Schleswig-Holstein) (overview see Studis Online 2007).

In addition to tuition fees, all students have to pay a minor contribution for the use of the institution's social facilities. If the institution has an organisation of student self-administration (a General Student Committee - *Allgemeiner Studentenausschuß*), students also pay an additional contribution.

5 GOVERNANCE STRUCTURES⁶

The tradition of higher education in Germany is marked by a number of basic principles including the internal autonomy of institutions of higher education (despite their being maintained by the state), freedom of teaching and research, and the unity of teaching and research. According to the principle of cultural sovereignty (*Kulturhoheit*), the reconstruction of the higher education system is a matter for the *Länder*. Their policy on higher education is co-ordinated by the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany, whereas the Federal Government initially exerted no influence whatsoever on the development.

The expansion of higher education made national planning more and more imperative; concomitantly, financial requirements began growing beyond the means of the individual *Länder*. As a result, the Federal Government became increasingly involved in matters of higher education. In 1969, the constitution (*Grundgesetz*) of the Federal Republic of Germany was amended to take this development into account. Under articles 91a and 91b of the constitution, the expansion and construction of higher education institutions including university clinics, as well as educational planning and the promotion of research activities are now among the so-called “joint tasks” of the federal government and *Länder*. The federal government was also thereby empowered to enact framework legislation concerning the general principles of higher education, a right that resulted in the *Hochschulrahmengesetz* (HRG) or Framework Act for Higher Education, in 1976. This HRG has been adapted rather drastically in 1985, 1998 and 2002. The constitutional reform that took effect in 2006 might lead to the abolishment of the HRG in 2008 and provide the *Länder* with all responsibilities to organise higher education in Germany.

Apart from rising enrolment figures and the increased involvement of the Federal Government, one widespread debate over reform had a particularly formative influence on the development of higher education in the 1960s and 1970s. Among other things, it concerned the organisation of university studies (structure of the basic and advanced sections of studies, intermediate examinations, limits on the duration of studies, practical orientation and the like), the constitutions of higher education institutions (above all, the participation of students and research assistants along with professors in self-administration), university entrance and admission to courses of studies with limited capacity. The Framework Act for Higher Education of 1976 put an end to much of the public debate about reform. For the first time, a uniform nation-wide legal framework had been created for higher education, which the *Länder* subsequently fleshed out with their own legislation (even as late as the 1960s, many had no legal provisions, only institutional statutes).

Developments since the 1990s

Since the beginning of the 1990s, the state and the *Länder* have intensified their efforts to introduce higher education reforms throughout Germany in view of inadequate financial resources and staffing levels and the need to strengthen the management of higher education

⁶ This chapter is based on Eurydice. (2003). "Germany 2002/2003." Structures of Education, Vocational Training and Adult Education Systems in Europe Retrieved 22.05., 2007, from http://www.eurydice.org/ressources/eurydice/pdf/041DN/041_DE_EN.pdf.

(see also Kehm, 1999). The aim of reforming the German system of higher education is to create scope for competition and differentiation, as well as to safeguard the international competitiveness of German institutions of higher education by means of deregulation, a performance-oriented approach and the creation of performance incentives.

In order to implement these goals, the structure of higher education study and the internal organisation of institutions of higher education have been the subject of reform. This has involved, for example, a review of *Regelstudienzeiten* (standard periods of study) and examination requirements in conjunction with improvements in teaching and a separation of study aimed at preparing students for the practice of a profession and the qualification of a new generation of academics and scientists. One priority is to expand *Fachhochschulen* and to make them even more attractive, e.g. by consolidating applied research work and technology transfer. Furthermore, institutions of higher education are to be made more efficient by according them further autonomy, allowing them to build an individual profile in a particular area and encouraging more competition.

5.1 Federal and regional governance

Ministries of Education, Cultural Affairs and Science

The Ministries of Education, Cultural Affairs and the Ministries of Science of the *Länder* (which have different titles in the various *Länder*) in their capacity as highest authorities of a Land are responsible for education, science and culture. The Ministries of Education, Cultural Affairs and Science develop policy guidelines in the fields of education, science and the arts, adopt legal provisions and administrative regulations, co-operate with the highest authorities at national and *Land* level and supervise the work of authorities under their purview and of subordinated bodies, institutions and foundations. In order to assist the ministries in their work, the *Länder* have established their own research institutes for school education, higher and continuing education.

Following the founding of the Federal Republic of Germany it soon became clear that there was a basic public need for education to be co-ordinated and harmonised throughout the country if people were to be provided with the opportunity of mobility in their professional and private lives. The main aim of the co-operation entered into by the *Länder* in 1948 with the founding of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany (KMK) was to guarantee by means of co-ordination the necessary measure of shared characteristics and comparability in the Federal Republic of Germany's education system, an aim that is still pursued to this day.

The KMK brings together the ministers and senators of the *Länder* responsible for education and training, higher education and research, and also cultural affairs. Resolutions of the KMK can only be adopted unanimously. They have the status of recommendations – with the political commitment of the competent Ministers to transform the recommendations into law, however – until they are enacted as binding legislation by the parliaments in the *Länder*. The resolutions are implemented in the individual *Länder* in the form of administrative action, ordinances or laws, with the Land parliaments playing a role in the legislative procedure. Co-

operation within the Standing Conference has led to uniform and comparable developments in many areas of the school and higher education system.

Collaboration between state and Länder

The constitution provides for special forms of co-operation between the state and the *Länder*. Under art. 91b, the state and the *Länder* can co-operate, on the basis of agreements, in educational planning and in the promotion of institutions and projects of scientific research which are of supra-regional importance. The body responsible for joint educational planning and research promotion, in which the Federal Government and the governments of all the *Länder* are represented, is the *Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung* (BLK), established under an agreement in 1970 as a permanent forum for the discussion of all questions of education and research promotion which are of common interest to state and *Länder* and for the presentation of recommendations to the heads of the federal and *Länder* governments.

With the constitutional reform in 2006, the *Länder* are widely responsible for educational policies. Admission to higher education and degrees are two fields that remain at federal level but *Länder* can deviate from federal regulations. Former common tasks as construction of higher education (*Hochschulbau*) and educational planning (*Bildungsplanung*) are now solely tasks of the *Länder*. The federal government has the opportunity to cooperate with the *Länder* in providing financial means for specific programs such as construction of higher education but only if all *Länder* agree. Furthermore federal government and the *Länder* can cooperate in the *Bildungsberichterstattung* to compare Germany's performance in higher education internationally.

5.2 Intermediary organisations

Under an administrative agreement between the state and the *Länder*, the Science Council (*Wissenschaftsrat*) was established in 1957. Its tasks include the drawing up of recommendations on the content and structural development of higher education, science and research. The Science Council is made up of scientists, recognised public figures and representatives from the federal and *Länder* governments.

Under the Higher Education Institutions Construction Act (*Hochschulbauförderungsgesetz*) of 1969 the Planning Committee for the Construction of Higher Education Institutions was set up to regulate co-operation between the state and the *Länder* in the joint task of the “Expansion and construction of institutions of higher education, including university clinics” as stipulated in Article 91a of the constitution. The committee is responsible for the medium-term planning of construction measures in the higher education sector. The Federal Minister for Education and Science, the Federal Minister of Finance and one minister or senator per *Land* sit on the committee. As described above, with the constitutional amendments the *Hochschulbau* is solely the task of the *Länder*.

5.3 Institutional governance

The principles of public (state) maintenance of higher education, the (constitutional) freedom of teaching and research as well as the unity of teaching and research are particularly relevant when discussing the institutional governance structures. Schimank et al. (1999) nicely summarise the steering and governance development in Germany from a combination of political guidance of universities by state authorities and the self-regulation of oligarchic academic communities towards competition between and with universities for strategic resources and for customers of their services and hierarchical self-guidance of universities by their leaders.

The combination of political guidance and academic self-regulation, has particular consequences for decision-making. The universities, for instance, are considered as parts of the public administration. The *Länder* decides on issues like the organisational allocation of posts, the appointment of professors, the establishment or elimination of departments, and the internal decision-making procedures. On the other hand, academics (particularly professors, who have life-time appointments) decide on most academic matters. Professor can be considered as "... small businessmen with a number of subordinates ... who cannot go bankrupt" (Schimank, Kehm et al. 1999: 185).

The amendments of the HRG from 1998 on increased the flexibility of the institutional governance that can be introduced by the *Länder*. In the last years, reforms of higher education took place in a couple of *Länder* that increased the autonomy of the higher education institutions. In 2004, Hesse started a pilot project and gave the Technical University Darmstadt full institutional autonomy. Lower Saxony experiments with institutions that became public foundations. Recently the most radical change in higher education law is passed in Northrhine-Westphalia. The new *Hochschulfreiheitsgesetz* (Higher Education Liberation Act) took effect from 1st January 2007 (Ministerium für Innovation Wissenschaft Forschung und Technologie in NRW 2006; Ministerium für Innovation Wissenschaft Forschung und Technologie in NRW 2006). The higher education institutions in NRW receive far-reaching competences in decisions about their finances, personnel and organisation. In terms of funding, higher education institutions receive benefits from the *Land*, are incited to find new funding sources and are entitled to decide to finance investments by loans. The *Land* guarantees that labour agreements and conditions are not subject to change due to this process. In the new structure rectors or presidents appoint professors on the proposal of schools or departments but can deviate from faculties' first choice.

Decentral level

The chair-based organisation is an essential characteristic of the university. The basic organisational unit at higher education institutions is the department (*Fachbereich*), in some *Länder* also known as faculty (*Fakultät*). Although the 1998 HRG disposed of the department as an organisational unit, in many *Land* regulations and universities the situation in practice remained unchanged. The *Fachbereich* is responsible for ensuring that its members and scientific establishments are able to carry out the functions entrusted to them. The

Fachbereich council is responsible for all research and teaching issues. It is chaired by the *Dekan*, who must be a professor from among the council members.

Central level

Higher education institutions are governed either by a rector (*Rektor* or *Rektorat*) or else by a president (or presidential body). The rector is elected from among the group of professors belonging to the institution. His/her term of office, during which time he/she carries out the relevant duties on a full time basis, is at least two years. As regards the office of president, anyone who has completed higher education and has the necessary career experience, notably in academic affairs or administration, may be nominated. The president's term of office, which is exercised in a full time capacity, is at least four years. Apart from a rector or president, higher education institutions have a chancellor who is the senior administrative officer and is responsible for the budget. Although rectors, presidents and deans have formal legal powers, their powers are fragmented by the power of the professors in the chair-based system. In addition, the leaders are often in charge only for a short period of time, they hardly have the time to become – if they want to – experienced professional managers.

A second composite central body for the whole institution, the *Senate*, is responsible for taking decisions of general importance (e.g. the distribution of personnel and material resources among the various departments). The composition of the bodies and the voting rights of the groups depend on the qualifications, functions and responsibilities of the parties involved and on who the decisions affect. It is the professors who have the majority of seats and votes in all bodies with the power of decision-making concerning research and teaching matters and concerning the appointment of professors.

Higher education institutions adopt their own statutes, or basic constitutions (*Grundordnungen*) which are subject to the approval of the Ministry of Education and Science or the Ministry of the *Land* in which they are situated. A composite central body representative of the entire institution and including members of staff and students (called *Konzil* - council, *Konvent* - convention or *Versammlung* - assembly) is formed to pass the basic constitution and to elect the principal or governing board of the institution. For the purpose of their representation in governance bodies, the following each form a group of their own: the professors, other academic staff, the students, and other staff members (support staff).

6 QUALITY ASSURANCE⁷

Quality assurance consists of various schemes in order to assure the quality of higher education. This section focuses on the internal and external evaluation and the accreditation of study courses. Thereby, this section concentrates on the mechanisms that are relevant for public higher education institutions.

6.1 Internal and external evaluation

Germany does not have a national quality assessment system for the evaluation of teaching in higher education. First initiative towards evaluation started in the mid-1990s and were fostered by recommendations from the HRK and the *Wissenschaftsrat*. The goals of evaluations as formulated by HRK and *Wissenschaftsrat* were to increase transparency, strengthen institutional responsibility, support higher education institutions in the introduction of systematic quality-promoting measures and promote the profile, image and competitiveness of German higher education institutions. All *Länder* adopted their Higher Education Acts and made evaluation a task of higher education institutions.

The evaluation procedures mainly incorporate three elements: self-evaluation, external peer review and a follow up. These procedures are repeated in a cycle of five to eight years. The self-evaluation includes and focuses on primarily the following contents:

- structure and organisation of the respective department,
- teaching and learning objectives,
- programmes of study,
- academic staff and resources,
- students and course of study,
- teaching and learning,
- opinions of staff and students on teaching and learning,
- situation in the job market and graduate employment.

Evaluation of teaching in Germany is not coordinated by a national agency. Several regional and cross-regional initiatives bundle their activities and networks of higher education institutions are created. A list of agencies and initiatives is found on www.evanet.his.de.

The regional agencies are responsible for the preparation and administration of the entire evaluation procedure. The agencies keep track of the time schedules and check completeness of data provided by the departments under review, organise site visits and publish final reports. On the site visits the peers interview different status groups in the institution. The main contents of the report written by the peers with support from the agency are critical review of the internal evaluation, a definition of problems and an outline of possible solutions.

⁷ This chapter is based on Schade, A. (2004). Shift of Paradigm in Quality Assurance in Germany: More Autonomy but Multiple Quality Assessment? *Accreditation and Evaluation in the European Higher Education Area*. S. Schwarz and D. F. Westerheijden. Dordrecht, Kluwer Academic Publishers. 5: 175-196, Akkreditierungsrat. (2007). "How the System Works." Retrieved 29.05., 2007, from <http://www.akkreditierungsrat.de/index.php?id=23&L=1..>

A result of the final report is often that departments and the head of the institutions agree upon measures to be taken to improve teaching and learning, optimise the outcome or make sure that certain standards are met within a fixed period.

6.2 Accreditation of study courses

The basic scheme to the accreditation of study courses at public higher education institutions are described in section 2.1.1 programme contents.

The accreditation system introduced in Germany is based on resolutions passed by the KMK and the HRK. The system bases on a nation-wide *Akkreditierungsrat* and accreditation agencies that organise and execute programme accreditation. The *Akkreditierungsrat* sets the criteria to accredit accreditation agencies and degree programmes and co-ordinates how these agencies assess the content and quality of degree programmes. The resolutions adopted by the *Akkreditierungsrat*, as well as complementary guidelines, aim to ensure the reliability, comparability and transparency of the procedures.

As the German Accreditation System is organised in a decentralised manner, one of its characteristics is that the accreditation of study programmes is carried out by Accreditation Agencies, who in turn are accredited by the Accreditation Council of the Foundation for the Accreditation of Study Programmes in Germany. The Accreditation Council – as the central decision-making body of the foundation – defines the basic requirements of the process and takes care that any accreditation is carried out on the basis of reliable, transparent and internationally recognised criteria. The legal basis of the accreditation system is set out in the Law for the establishment of the “Foundation for the Accreditation of Study Programmes in Germany” as well as in the contracts concluded between the Foundation and the agencies, where the rights and obligations of the partner institutions involved in the accreditation system are defined. As part of their contract agreements, the agencies commit themselves to the deployment of the criteria and further decisions of the Accreditation Council as well as to taking the common constitutional requirements of the KMK, in their currently valid version, into consideration.

Accreditation of Study Programmes

The actual objects of the Accreditation process are study programmes for Bachelor and Master Degrees from state, or state recognised, Higher Education establishments in Germany. If a study programme has successfully undergone an accreditation process, then it is awarded accreditation for a limited period, with or without conditions, and carries the Quality Seal of the Foundation for the duration of this period. Where any study programmes are combined in a logical and justified way, the accreditation can also be carried as a combined package. In such cases the accreditation decision is always made on the basis of the individual study programme.

The accreditation process is made up of several stages and is based on the peer review principle. When a higher education establishment submits an application for the accreditation of a study programme to an agency that they have chosen, the relevant agency deploys an evaluation group whose composition must be a reflection not just of the specialist content focus of the study programme but also of its specific profile. In each case the evaluation

group is made up of representatives of higher education establishments, i.e. teachers and students, and of representatives of the profession. The evaluation of the study programme is carried out in accordance with the given Criteria for the Accreditation of Study Programmes by the Accreditation Council and, as a rule, includes an on-site inspection of the establishment by the evaluators. On the basis of the assessment report drawn up by the evaluation group, and in accordance with the decision regulations provided by the Accreditation Council, the responsible Accreditation Commission from the agency decides either to grant an accreditation for the relevant study programme, to grant an accreditation with conditions, to abandon the process or to reject the accreditation. The accreditation of study programmes for Bachelor and Master Degrees is prescribed as a directive in the common constitutional requirements of the KMK and must, as a precondition for the granting of state approval, be embedded in the various individual laws concerning Higher Education in each Federal German State.

The Accreditation of Agencies

The accreditation of agencies is carried out in accordance with the Criteria for the Accreditation of Accreditation Agencies drawn up by the Accreditation Council. Here, too, the assessment is carried out in each case by an evaluation group, deployed by the Accreditation Council, consisting of two international experts, two representatives of the Higher Education Establishment, one student member and one representative of the relevant profession as set out in the General rules for Carrying out Processes for the Accreditation and Reaccreditation of Accreditation Agencies. Two of the named experts are each members of the Accreditation Council. On the basis of the assessment report drawn up by the evaluation group, the Accreditation Council decides either to grant an accreditation of the relevant agency, to grant an accreditation with conditions, to abandon the process or to reject the accreditation. The accreditation of study programmes on the basis of reliable, comparable and internationally recognised criteria and standards is assured by means of regular accreditation and/or reaccreditation of the agencies and the statutory supervision of accreditation carried out by agencies as drawn up by the Accreditation Council.

7 REFERENCES

- Akkreditierungsrat. (2007). "How the System Works." Retrieved 29.05., 2007, from <http://www.akkreditierungsrat.de/index.php?id=23&L=1>.
- Briedis, K. and K.-H. Minks (2004). Zwischen Hochschule und Arbeitsmarkt. Eine Befragung der Hochschulabsolventinnen und Hochschulabsolventen des Prüfungsjahres 2001. Hannover, Hochschul- Informations-System.
- Bundesministerium für Bildung und Forschung. (2001). "Aktionsprogramm "Lebensbegleitendes Lernen für alle"." Retrieved 29.05., 2007, from http://www.bmbf.de/pub/aktionsprogramm_lebensbegleitendes_lernen_fuer_alle.pdf.
- Bundesministerium für Bildung und Forschung. (2004). "Die Fachhochschulen in Deutschland." Retrieved 29.05., 2007, from http://www.bmbf.de/pub/die_fachhochschulen_in_deutschland.pdf.
- Bundesministerium für Bildung und Forschung. (2006). "Bundesbericht Forschung 2006." Retrieved 29.05., 2007, from <http://www.bmbf.de/pub/bufo2006.pdf>.
- Bundesministerium für Bildung und Forschung. (2006). "Exzellenzinitiative." Retrieved 22. November, 2006, from <http://www.bmbf.de/de/1321.php>.
- Bundesministerium für Bildung und Forschung. (2006). "Research and Innovation in Germany 2006." Retrieved 29.05., 2007, from http://www.bmbf.de/pub/research_and_innovation_2006.pdf.
- Bundesministerium für Bildung und Forschung. (2007). "Aufhebung des Hochschulrahmengesetzes." Retrieved 24.05., 2007, from <http://www.bmbf.de/de/8680.php>.
- Bundesministerium für Bildung und Forschung. (2007). "Neues Befristungsrecht für Arbeitsverträge in der Wissenschaft." Retrieved 24.05., 2007, from <http://www.bmbf.de/de/6776.php>.
- Deutsche Forschungsgemeinschaft and Wissenschaftsrat (2006). "Exzellenzinitiative des Bundes und der Länder. Ergebnis der Sitzung des Bewilligungsausschusses am 13. Oktober 2006."
- Deutscher Bundestag (2007). Siebzehnter Bericht nach § 35 des Bundesausbildungsförderungsgesetzes zur Überprüfung der Bedarfssätze, Freibeträge sowie Vomhundertsätze und Höchstbeträge nach § 21 Abs. 2. Drucksache Berlin, Bundesministeriums für Bildung und Forschung.
- Enders, J. (2001). "A chair system in transition: Appointments, promotions, and gate-keeping in German higher education." Higher Education 41(1): 3-25.
- Eurydice. (2003). "Germany 2002/2003." Structures of Education, Vocational Training and Adult Education Systems in Europe Retrieved 22.05., 2007, from http://www.eurydice.org/ressources/eurydice/pdf/041DN/041_DE_EN.pdf.
- Eurydice. (2007). "Germany. April 2007." National summary sheets on education systems in Europe and ongoing reforms Retrieved 22.05., 2007, from http://www.eurydice.org/ressources/eurydice/pdf/047DN/047_DE_EN.pdf.
- Gewerkschaft für Erziehung und Wissenschaft. (2006). "TV-L tritt in Kraft." Retrieved 22. November, 2006, from http://www.gew.de/TV-L_tritt_in_Kraft.html.
- Hauss, K. (2006). "Zur Entwicklung des wissenschaftlichen Nachwuchses an deutschen Universitäten." Retrieved 24.05., 2007, from <http://www.forschungsinfo.de/iq/agora/Promotion/promotion.asp>.
- Heublein, U., R. Schmelzer, et al. (2005). "Studienabbruchstudie 2005. Die Studienabbrecherquoten in den Fächergruppen und Studienbereichen der Universitäten und Fachhochschulen." HIS Kurz- Informationen A(1/2005).
- Hochschul Informations System. (2007). "Bachelor! Was sonst? Abschlussarten deutscher Studienanfänger im WS 2006/07." HISBUS-Kurzinformation Nr. 17 Retrieved 23.05., 2007, from <http://www.his.de/pdf/24/hisbus17.pdf>.
- Hochschulkompass. (2007). "Der Hochschulkompass der HRK." Retrieved 23.05., 2007, from www.hochschulkompass.de.
- Hochschulrektorenkonferenz. (2007). "Statistische Daten zur Einführung von Bachelor- und Masterstudiengängen. Sommersemester 2007"
- " Statistiken zur Hochschulpolitik 1/2007. Retrieved 23.05., 2007, from http://www.hrk.de/de/download/dateien/HRK_StatistikBA_MA_SoSe2007_final.pdf.
- Kaiser, F., H. Vossensteyn, et al. (2002). Public funding of higher education. A comparative study of funding mechanisms in ten countries. Beleidsgerichte studies hoger onderwijs en wetenschappelijk onderzoek. Zoetermeer, Ministry of Education, Culture and Science.

- König, K. (2006). "Verhandelte Hochschulsteuerung. 10 Jahre Zielvereinbarungen zwischen den Bundesländern und ihren Hochschulen." *Die Hochschule* **15**(2/2006): 34-54.
- Kultusministerkonferenz. (2006). "The Education System in the Federal Republic of Germany 2004. A description of the responsibilities, structures and developments in education policy for the exchange of information in Europe." Retrieved 22.05., 2007, from http://www.kmk.org/dossier/dossier_en_ebook.pdf.
- Ministerium für Innovation Wissenschaft Forschung und Technologie in NRW. (2006). "Hochschulfreiheitsgesetz." Retrieved 22. November, 2006, from http://www.innovation.nrw.de/Hochschulen_in_NRW/Recht/HFG.pdf.
- Ministerium für Innovation Wissenschaft Forschung und Technologie in NRW. (2006). "Universitäten und Fachhochschulen ab 2007 autonom - Minister Pinkwart: "Meilenstein bei der Aufholjagd". Landtag Nordrhein-Westfalen beschließt Hochschulfreiheitsgesetz." Retrieved 22. November, 2006, from http://www.innovation.nrw.de/Presse/Pressemitteilungen/2006/pm_2006_10_25.html.
- Orr, D., M. Jaeger, et al. (2007). "Performance-based funding as an instrument of competition in German higher education." *Journal of Higher Education Policy and Management* **29**(1): 3 - 23.
- Prenzel, M., J. Baumert, et al. (2004). "PISA 2003. Ergebnisse des zweiten internationalen Vergleichs. Zusammenfassung." Retrieved 22.05., 2007, from http://pisa.ipn.uni-kiel.de/Ergebnisse_PISA_2003.pdf.
- Schade, A. (2004). Shift of Paradigm in Quality Assurance in Germany: More Autonomy but Multiple Quality Assessment? *Accreditation and Evaluation in the European Higher Education Area*. S. Schwarz and D. F. Westerheijden. Dordrecht, Kluwer Academic Publishers. **5**: 175-196.
- Schimank, U., B. Kehm, et al. (1999). Institutional Mechanisms of Problem Processing of the German University system. Status Quo and New Developments. *Towards a New Model of Governance for Universities? A Comparative View*. D. Braun and F.-X. Merrien. London. **53**: 179-194.
- Statistisches Bundesamt (2006). *Bildung und Kultur. Personal an Hochschulen 2005*, Fachserie 11 Reihe 4.4. . Wiesbaden, Statistisches Bundesamt.
- Statistisches Bundesamt (2006). *Bildung und Kultur. Prüfungen an Hochschulen 2005*, Fachserie 11 Reihe 4.2. . Wiesbaden, Statistisches Bundesamt.
- Statistisches Bundesamt (2007). *Bildung und Kultur. Finanzen der Hochschulen 2005*, Fachserie 11 Reihe 4.5. . Wiesbaden, Statistisches Bundesamt.
- Statistisches Bundesamt (2007). *Bildung und Kultur. Monetäre hochschulstatistische Kennzahlen 2005*, Fachserie 11 Reihe 4.2.3. . Wiesbaden, Statistisches Bundesamt.
- Studis Online. (2007). "Bildungskredit der KfW Förderbank." Retrieved 25.05., 2007, from <http://www.bafoeg-rechner.de/FAQ/bildungskredit.php>.
- Studis Online. (2007). "Studiengebühren (Studienbeiträge), Studienkonten u.ä in Deutschland." Retrieved 23.05., 2007, from <http://www.studis-online.de/StudInfo/Gebuehren/>.
- Wissenschaftsrat. (2002). "Empfehlungen zur Entwicklung der Fachhochschulen, Januar 2002, Drs. 5102/02." Retrieved 22.05., 2007, from <http://www.wissenschaftsrat.de/texte/5102-02.pdf>.