

KNOWING
- Knowledge, Institutions and Gender:
An East-West Comparative Study

Austrian State of the Art Report
Workpackage 1

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**SIXTH FRAMEWORK
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:

an east-west comparative study

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Preface

This report is a revised version of the Austrian part of the first periodic report of the research project “Knowledge, Institutions and Gender: An East-West Comparative Study (KNOWING)”¹, sponsored within the 6th Research Framework Program “Science and Society”. It has officially been submitted to the European Commission in September 2006. With publishing this text we want to present some interim findings of our project as a basic ground for discussion and as a document on the progress of our project. Not least, it is meant to provide some background information on the project to all who have been collaborating with us for interviews and participant observation or will potentially do so in the future.

Table of Acronyms

B-GBG:	Federal Equal Treatment Act (Bundesgleichbehandlungsgesetz)
BMBWK:	Federal Ministry for Education, Science and Culture (Bundesministerium für Bildung, Wissenschaft und Kultur)
BMF:	Federal Ministry for Finances (Bundesministerium für Finanzen)
BMVIT:	Federal Ministry for Transport, Innovation and Technology (Bundesministerium für Verkehr, Innovation und Technologie)
BMWA:	Federal Ministry of Economics and Labour
FFG:	Austrian Research Promotion Agency (Österreichische Forschungsförderungsgesellschaft)
FTE:	Full-time-employment Equivalents (Vollzeitäquivalente)
FWF:	Austrian Science Fund (Fonds zur Förderung Wissenschaftlicher Forschung)
GÖD:	Union of Public Services (Gewerkschaft Öffentlicher Dienst)
GPA:	Union of Salaried Private Sector Employees (Gewerkschaft der Privatangestellten)
HE:	Higher Education
MB:	Molecular Biology
MFPL:	Max F. Perutz Laboratories
R&D:	Research and Development
S:	Sociology
UEBA:	University of Economics and Business Administration (Wirtschaftsuniversität Wien)
UniAbgG 03:	University Payment Law 2003 (Universitäts-Abgeltungsgesetz 2003)
UOG 93:	University Organisation Act 1993 (Universitätsorganisationsgesetz 1993)
UG 02:	University Act 2002 (Universitätsgesetz 2002)
UoV:	University of Vienna (Universität Wien)
VBG 05:	Law on Contracts on Private Law 21.04.2005 (Vertragsbedienstetengesetz 2005)

¹ See <http://www.knowing.soc.cas.cz/> for the KNOWING-Project resp. <http://www.univie.ac.at/virusss/projects/4/788> for detailed information on the Austrian part of the project.

1. Introduction

The aim of this research project is to investigate the role of gender and generation in the production of knowledge contexts and cultures in two different fields of research. Sociology and molecular biology serve as models to observe in how far social categories affect epistemic (scientific) cultures.

Over the past decades the question of gender in science has been dealt with from many different disciplinary backgrounds and from a large variety of perspectives. From diagnosing a lack of female scholars in higher positions of academia over investigating the institutional structures of science – and what they meant in terms of boundaries and barriers – to studying the fact that women were absent from the grand narratives and myths of science and looking into the ways in which gender has strongly shaped central methods and questions of research. Thereby a broad spectrum of possibilities to address the gender question in science is open.

To better understand what the notion “epistemic cultures” means in today’s science system we want to give a first working definition for this rather multifaceted term: We would state that an epistemic culture is a kind of assemblage of specific structures, norms and values, practices as well as basic concepts present in a social community of scientists. Epistemic cultures are thus shaped by certain affinities, by partly common historical developments, by structural frames and by the more practical set of rules that seem necessary to be sufficiently tied together. In that sense they frame *what* people might know, *how* they might know, but also how this knowledge is distributed and given access to (Fleck 1994).

Gender is a central dimension within these epistemic communities. We aim at understanding how gender participates in forming these epistemic cultures in all their different facets and how gender is formed by them.

The purpose of the first national report is to give first insights into the Austrian system of research and higher education and an overview on the research fields of interest in the local context. Furthermore we present some results of a small selection of interviews carried out with researchers in these two fields. In all chapters we focus especially on the gender dimension and the situation of early stage researchers.

In recent years the academic system in Austria has undergone major structural reforms similar to developments identifiable for many other EU-member states (university autonomy, reform of funding systems, Bologna process, etc.; Magna Charta Observatory 2005). We shortly explore the national research and education landscape as well as the national characteristics of these more general changes in chapter 2. Chapter 3 is dedicated to aspects concerning equal opportunities. In particular we focus on two laws resp. law amendments that had the biggest effects on shaping the infrastructure and contexts of equal opportunities activities in the academic research system: the University Act 2002 (UG02) and the Civil Servants Law-Amendment 2001. Due to restricted space within this report we are not always pointing at the historical development of the current situation, but we think it is central to keep it in mind. In chapter 4 we give some facts and figures on the structure of university personnel in the institutions that are going to be researched, especially with regard to gender and academic position. They are meant to provide background information for the analysis of the Life Course Questionnaire (LCQ)-interviews in chapter 5.

The first analysis of empirical data in chapter 5 forms the core of this work package and thus we dedicate more space to it. We will start by describing the remarkably different field-entry experiences we made in both disciplines. We understand them as first indicators for different research cultures and structures. We then provide a descriptive interpretation of selected researchers (sex, age, positions, national and class backgrounds) and point out first observed differences in career patterns between biologists and sociologists as well as between male and female researchers (second chance education, previous academic positions, studies abroad, salaries). A description of different institutional settings and types of contracts and their influence on perceptions and individual satisfaction with working place, employment situation and support by (senior) colleagues is followed by first observations and assumptions on epistemic communities.

In the final chapter we are going to summarise our findings and pose questions we find important for the future research of this project.

2. National Research Landscape

Before entering the details of the Austrian research and higher education landscape it is important to underline that it has been and is undergoing important changes over the past 10 years. From a relatively poorly funded system, with an educational structure that was rather uniform, mainly financed and controlled by the state, it has gradually started to be object of reforms from the 1990s onwards. On the side of the higher education institutions this change institutionally meant the introduction of the “Fachhochschul”-sector in 1994, which offers more profession-oriented education, and the accreditation of private universities regulated from 1999 onwards. Accompanied by a strong rhetoric of lagging behind internationally (which could be explained by the difficult situation in academia after WW II), of a need to become more competitive both in research as well as on the educational level and to become a more active player on the European scene, a number of quite fundamental reforms in the existing university structures were undertaken. They were strongly modelled after other European countries and partly after the US, that were perceived as holding a better position in the international landscape of research and higher education.

Besides these institutional changes, the employment situation for academics also underwent change and finally funding structures were reformed, too. Today more money than ever flows into research and development (R&D) budgets and a whole new repertoire of imaginations was developed about what science and technology should and could do for the socio-economic development of the country.

Having said this, it is obvious that in order to understand current developments in the two scientific disciplines we are studying, one needs both a very good understanding of the old structures as they persist to exist in many informal and formal ways as well as a feeling for the new ones, which are currently put in place.

2.1. National Science Policy & Science Structure²

Browsing the most recent Austrian science and technology policy documents one will find numerous statements that the Austrian research landscape cannot be compared to the one 10 years ago. Indeed, only from the 1990s onwards it was regarded as essential to produce something that could be labelled national science and technology policy. Before that science and technology was somehow “done”, investing – compared to other industrialised nations – relatively small amounts of money and having no overall imagination where developments should go in the Austrian context.

The increasing attention to research and technology policy was accompanied by efforts to reorganise the research funding systems. This did not only mean more money, but also new methods were introduced to foster in particular public-private partnerships, research networks, etc. It is important for our purpose to see that many of these measures were modelled on the needs perceived in the sector of the “hard sciences”, and here in particular

² This information is already a bit outdated as since January 2007 a new government is in power, which consists of the social-democratic and the conservative party. Two ministries are now responsible for the sector of science, research and education: Ministry of Science and Research, Ministry for Education, Art and Culture. It is still unclear, how research policies will change during the next election period.

in those segments that were judged as promising from an economic point of view (life sciences, parts of the material sciences etc.). There was far less focus on the needs of the social sciences or the humanities.

Austria's financial investments in R&D – when following the statistical data – have in its history never reached its current level. The R&D expenditure has developed dynamically over the past years and for 2006 *Statistik Austria* gives an estimation of € 6,24 billions, being an equivalent of 2,43% GDP. This means an important increase over the last years. All these changes can be seen as an indicator that Austrian science and technology policy makers seem to fully embrace the Lisbon aim, namely of reaching the 3% research expenditure by 2010. Details on the funding situation will be discussed below.

On the strategic side, in 2000 the Austrian Council for Research and Technology Development was founded with the task to advise the federal government, the ministers and the federal states in all matters related to research, technology and innovation, to define long term strategies, which should also be monitored by them and to give recommendations concerning Austria's position on the international scene. It is important to note that in the first phase only people from industry, technology and the natural sciences were members of this council. Only gradually the social sciences and the humanities entered the considerations and got some space in research policy (Council for Research and Technology Development 2006). In having an advisory function for various actors within science and research policy in Austria the Council can be seen as an attempt to centralise strategic decision-making in this field. The opening-up of this function to representatives of industry was an important step towards the neo-liberal concept of emphasising the important role of universities for industry both on the research front but also with regard to higher education.³

While one could trace an effort to develop one clear set of policies, in reality Austria still has a rather divers and complex research structure, which parallels with the complexity of the corresponding policies. Indeed as can be seen from the chart represented in Figure 2.1, one can get a first quick – and as the title already says – simplified impression of how divided responsibilities for research and innovation are in Austria. In January 2007 a new government has been built and the described structures are going to change a bit. But as the old government shaped the research landscape in the last 7 years and the new one is only evolving, we will shortly elaborate the old system here: On the federal level there are ministries involved in shaping research policies. Universities, "Fachhochschulen" or the Austrian Academy of Sciences – to mention the three biggest units – are under the responsibility of the Ministry for Education, Science and Culture. This means in terms of money that 2/3 of the states' budget are spent here. This Ministry is also responsible for issues of international mobility and for participation in the European Framework programmes. The Ministry for Transport, Innovation and Technology (BMVIT) is the central player with regard to application-oriented research. It holds 50% of the Austrian Research Promotion Agency (FFG), being the central funding agency for applied research (former FFF, *Forschungsförderungsfonds der gewerblichen Wirtschaft*). Furthermore, it is this ministry, which is also responsible for the Austrian Science Fund (FWF), which is THE central player

³ A further indicator for this shift is the introduction of governing boards at universities with the University Act 2002 (see below).

in funding basic research throughout the whole disciplinary spectrum. This is important to see, as most of the money for research in the social sciences and the humanities comes from this latter funding agency. The scientific community in these fields thus observed with quite some worry that “their funding” could also need to comply with the logics of the innovation paradigm of the “Lisbon type”. The Ministry of Economics and Labour (BMWA) holds the other 50% of the above-mentioned FFG and is responsible for additional funding like the “Competence Centres programme” as well as for the “Christian Doppler Laboratories”.

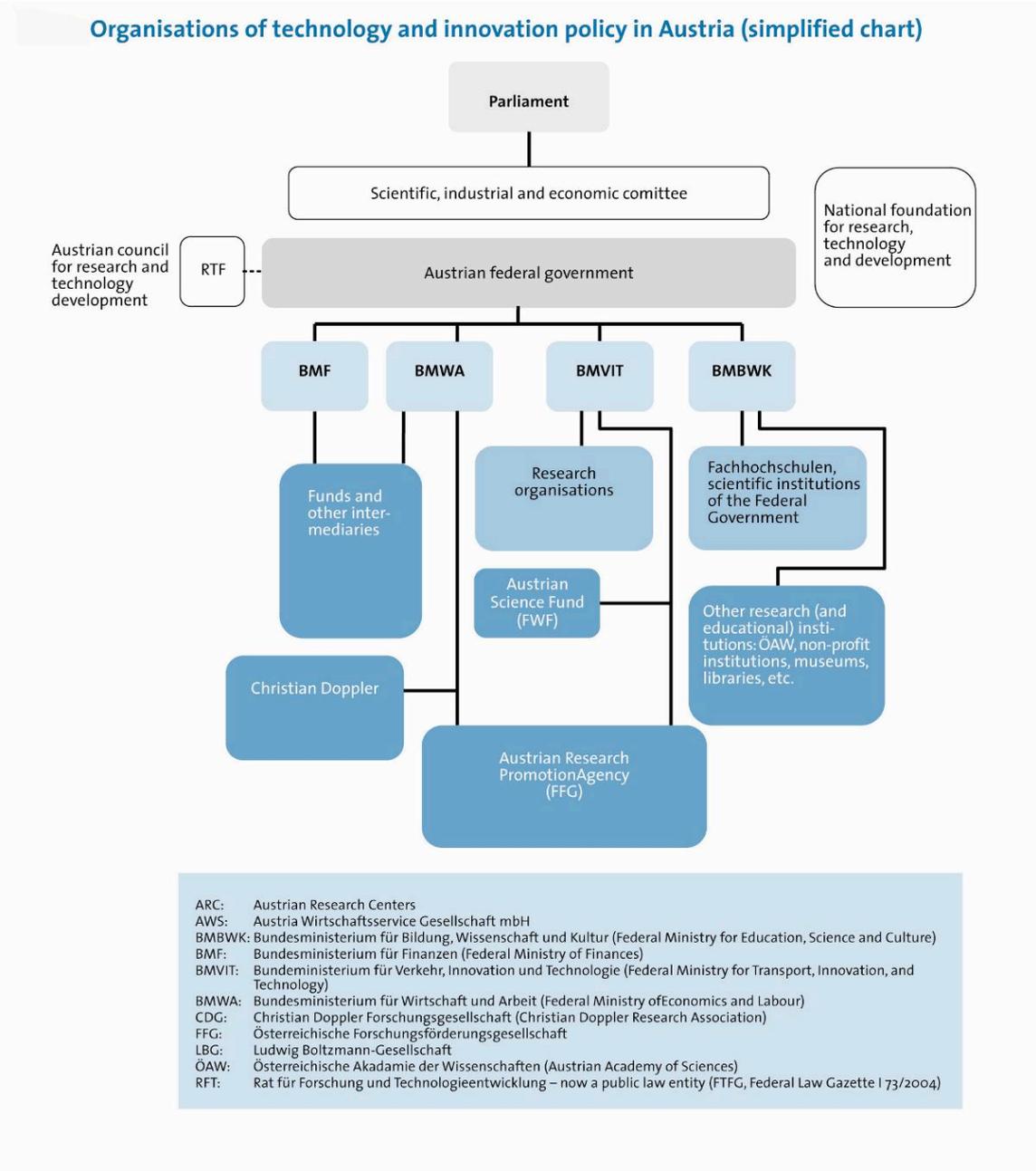


Figure 2.1: Structure of the science and innovation policy⁴

⁴ This and the following figures are taken from Federal Ministry of Education, Science and Culture 2005e.

2.2. National Higher Education and Research

The Austrian sector of higher education institutions consists of mainly three components: 25 universities, 9 of them are in Vienna, 18 “Fachhochschulen” and 11 private universities. Universities are meant to be institutions of both higher education as well as research – the latter being in the focus of recent policy measures within universities. The aim is to develop strong research profiles. Universities, with the exception of medical universities, art universities and those offering musical education have no official entrance exams. The high-school diploma (“Matura”) or an equivalent in-service training serves as university-entrance diploma. “Fachhochschulen” were initially meant to offer practice-oriented education only, but some of them gradually started to be active on the research side. They have the permission to select their students according to their own criteria. Private universities are still a very young phenomenon in the Austrian system of education and do not play a central role so far. The number of students was 210.125 (55,8% of which are female⁵) for whole Austria by 2005, a figure that is steadily growing.

The higher education sector is currently undergoing a fundamental process of reorganisation and reform. Socio-economic changes, increasing demands for more accountability, ever rising numbers of students, inefficiency in the cooperation between the state and universities, etc. are some of the many reasons that lead to a growing demand for fundamental changes in this sector.

The last major university reform before the 1990s had taken place in the mid-1970s (following the wave of international HE reforms after 1968) and had brought a democratisation of the universities’ internal decision making structures (all major decisions had to be taken collectively involving full professors, other academic staff and students’ representatives) as well as open access for everybody holding a “Matura” (A-level) to university. There were no tuition fees and no other access criteria formulated. The introduction of this model had – as was the case in many other countries – an enormous impact on the way universities functioned and the roles they had to play. Indeed it became very quickly visible that with the given personnel, infrastructure, and budgets it became increasingly difficult to run a university which gradually developed into what was later labelled “mass university”. In particular research seemed to suffer and the staff complained that with the teaching work loads it had become impossible to be competitive on the research sides. These major problems were largely denied on the side of policy makers and universities did not really confront policy makers with the problems they started to meet. Instead solutions were tried to be found on the spot without considering things on a more systemic level. Furthermore the policies on personnel put in place in the 1970s gradually led to the fact that most of universities’ personnel had stable, life-long positions, without having to be accountable for the quality of their research or teaching. As the number of staff – after an initial phase of strong growth – did not increase significantly, there were very restricted job-possibilities for the younger generations and the average age of university staff started to grow considerably.

With regard to the gender distribution of students this opening up process led to a gradual growth of the number of female students, having reached today more than 50% of the overall student number. Hope was expressed that after one generation this would also mean more women in leading university positions.

⁵ http://www.bmbwk.gv.at/universitaeten/stats/personen_2005.xml

Problems on many levels arose from the 1980s onwards and it became clear that changes were needed – although the visions of such changes and how they should be implemented differed widely. These problems touched different disciplines in fundamentally different ways. While the student numbers rose enormously in the social sciences and in parts of the humanities, the staff numbers went up only slowly and could not really meet the expectations imposed on them. In some fields there were 400 students per professor, which meant that no more qualitative sort of supervision could be assured. In the natural sciences student numbers did also grow, however not in the same proportions and the relative staff numbers rose more quickly than in the social sciences and humanities. As a cost efficient “solution”, instead of employing people on a permanent basis, many of the courses were outsourced to “external lecturers”, who were either free-lance researchers or employed outside university. This means that a cheap and flexible work-force structure was created, which actually mainly helped to hide the structural problems of the institution.

The first major step towards university reform was set in 1993 with a new University Organisation Act (UOG 93), with the aim of giving universities slightly more autonomy (parts of the decision-making power were moved from the ministry to the universities) and to abandon the democratic decision making structures within universities in order to make them more reactive to the demands put upon them. The underlying idea was that universities should introduce more business type management and should become more service oriented.

These reforms caused quite some protest from the side of the universities, as they perceived major problems. New power structures within universities were not seen as corresponding with work realities and qualifications of people. Mainly full professors would have the decision making power while many highly qualified members of the research staff would simply have to follow the given instructions. Even full professors are tied into rather strong hierarchies, because many decisions are taken on the level of deans and rectors. Furthermore students were seen as excluded from many of the decision-making procedures.

However this was only a first step, as from 2000 onwards a number of other reforms would continue to reshape the higher education landscape. Three seem important for our purpose here. The first was a reform of the employment law for university employees (Public Services Law-Amendment 2001) that basically meant the end of a tenure track system and university employees would not be civil servants anymore.

These recent changes and a still outstanding “collective contract” (probably in force until autumn 2007) have led to a situation with a very inhomogeneous employment structure at Austrian universities. Permanent civil servant posts coexist with contracts under private law following several different legislative regulations: the Public Services Law for permanent staff stemming from the old system to transitional regulations for new staff that will probably become displaced by the collective contract soon. Moreover university specific regulations (“company agreements”) and different interpretations of employment laws are implemented.

The employment structure in this transitional period can be sketched as a system based on four personnel types (usually called “Columns”):

Column 1: Pre-doc Position (up to 4 years) (UniAbgG 03)⁶

Column 2: University Assistant (post-doc; up to 6 years) (VBG 05)

⁶ Alongside contract research and individual applications for PhD-scholarships, holding such a position is one possibility to finance the writing of one’s PhD thesis.

Column 3: Contract Professor (fixed-term; max. 7 years, contract can be prolonged) (VBG05)

Column 4: University Professor (permanent) (VBG 05)

Central to the new concept is a new kind of position for early stage researchers, giving them a contract (up to 4 years) to write their PhD thesis and collaborate in research and teaching with an institute (Column 1). However after this period they would not routinely get the possibility for a further contract, as this was the case before. On the post-doc level contracts up to 6 years are foreseen (Column 2).⁷ Fixed-term contracts for professors then constitute Column 3. And finally, professors can get permanent contracts as employees, however without special job security, as it has been the case in the system of public services (Column 4). Additionally a further position has been established: the staff scientist (post-doc) on a permanent employment basis. Only under very specific circumstances institutes are allowed to apply for such a position e.g. for people who hold strategically important positions for running an institute. Until now universities are dealing with this position very differently. At the University of Klagenfurt many positions have been converted into staff scientist positions. At the UoV there are only very few staff scientist positions.

The precise consequences of these fundamental changes are difficult to evaluate by now as the period of implementation is too short and regulations are about to change again within the next year due to the new collective contract. However we expect to find strong tensions between the generation who entered under the “old” conditions and those who are facing new legal conditions. Furthermore it is interesting to retain, that in the lower and more short-term positions the number of women has risen rather strongly reaching the 50% quota in some fields, but in the higher ranks success has not been so good. The average of female full professors is still very low (see chapter 3 for more details on gender distributions).

The second reform was the introduction of study fees from the year 2001/02 onwards. In this case it is also unclear what the long-term consequences will be.

The third change was the new University Act (UG 02), which is perceived by the government as a logic final step in rendering universities completely autonomous. The rector has now indeed much more power than before. S/He has budgetary and personnel autonomy and university structures have been reshaped in fundamentally new ways allowing her/him to have clearer responsibility structures with regard to the faculties. Institutes, which were central elements of the structure before, have no formal power anymore and are merely organisational units in order to simplify the day-to-day handling of tasks. However they were also kept alive as they have high symbolic value within the respective scientific community. The critique of this reform was mainly focusing on the fact that it was driven by the ideas of the New Public Management and a kind of neo-liberal policy. The universities should become responsible for their own concerns and gain university autonomy by law. The state now finances universities on the basis of performance agreements. Accountability and evaluation have become integral parts of intra-university policy making. Furthermore in order to assure that universities are more responsive to societal needs, quite powerful governing boards containing important stakeholders were installed (select the rector, have to approve major strategic decisions, etc.). They consist of people in high positions in society, politics or economy in Austria and are appointed by the universities and by the Austrian government. About 32% of the members have a background as businessmen/entrepreneurs, 30% are scientists, 20% hold high positions in art and culture, the rest is subdivided into medicine,

⁷ For more details on these contracts see chapter 3.

management and law. Austria-wide less than one third of the members are female (Gulas 2006: 85f).

On the level of personnel policy this reform meant that contract researchers (third-party funded research) became members of the university. So far employment law allows temporary contracts until a total duration of six years. Then the university either has to offer an indefinite contract or to stop employing the person for a certain amount of time. This is currently debated as it brings flexibility for the institution, but more insecurity and restriction for young researchers.

2.3. Research Funding Patterns

As described in chapter 2.1. Austria has a rather complex funding structure, even though it has been improved through recent reforms. Different funding interests in the application oriented segment have been reorganised under the head of the FFG, which aims at creating synergies between similar funding interests while trying to keep alive a certain bottom-up funding strategy. Furthermore the ministries mentioned above run their own special research focuses. One major example could be the Genomics programme GEN-AU funded by the Ministry for Education, Science and Culture (BMBWK). On the side of basic research the FWF is the major funding agency for all disciplines. It has a long standing tradition in funding bottom-up research, but also numerous programmes funding researchers going abroad, coming back to Austria, supporting female researchers in their careers, etc.

For the social sciences as well as for the humanities money for research mainly comes from three national sources: the FWF, the „Jubiläumsfonds“ of the Austrian National Bank as well as special programmes by the BMBWK. To give a rough idea of relations in funding between the social sciences, humanities and natural sciences (including medicine) we could use the recent figures presented by the FWF: 5% social sciences, 15% humanities, 80% natural sciences & medicine. The total expenditure for research proposals was about 108 Million €, not including all other measures. Altogether about 2000 doctoral and post-doctoral researchers are employed via FWF projects. Thus this funding agency is quite central for early stage researchers.

A small side remark should be made here to point at an important difference between funding in the social and in the natural sciences. In the former field competition for external funds is very high as the majority of the scientific community is organised in small extra-university associations (more than 150 associations of this kind exist all over Austria) completely dependant on these funds. In the natural sciences institutions are always much bigger and have some stable public funding.

Of course money coming from EU framework programmes is also of importance here. Universities, which were not so competitive as compared to extra-university research institutes, are now trying to support these activities. Major changes in this field could also occur as in the 7th framework programme there is more place for the humanities and social sciences, and the creation of the European Research Council should also be an additional possibility for funding.

As can be seen in Figure 2.2. three key sources have fed the growth of Austrian R&D spending over the past years. For one, the trend got its greatest momentum from the additional spending by the business enterprises sector. The second important financial

source is the public sector, which has risen but much less than the other sources. The third major source of financing is money coming from sources outside Austria. In the long term, the relative scale of the three chief financing sectors has shifted towards the business enterprise sector, due to its higher growth rates. Domestic companies are now financing 43 percent of domestic R&D spending. The percentage share of the public sector declined over the past decade to a current rate of 36.6 percent. Foreign financing has been relatively constant at 20–21 percent for the past few years. These shifts can be interpreted as being in line with the logic of the Lisbon agenda.

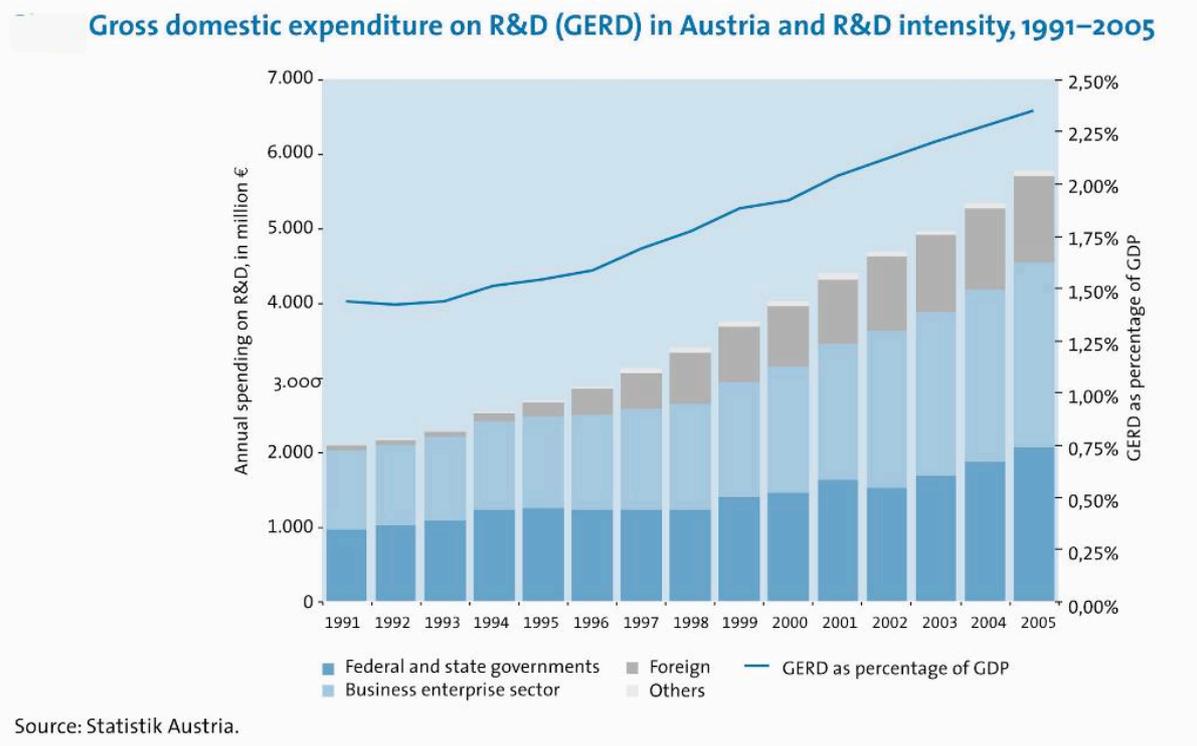
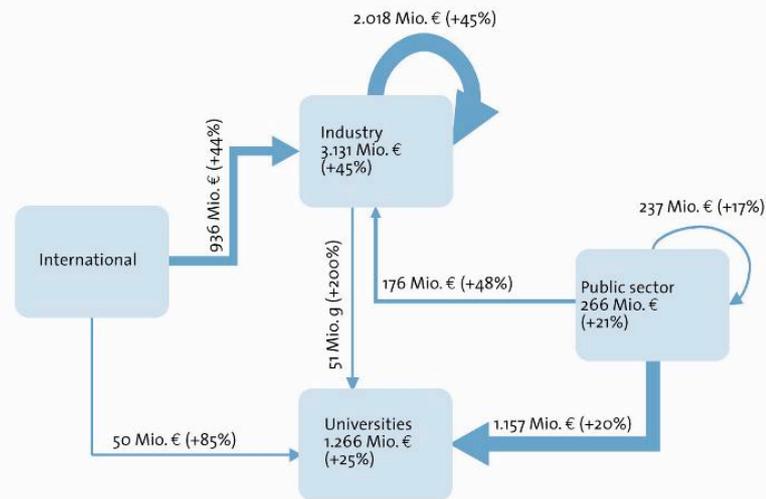


Figure 2.2: Gross domestic expenditure on R&D⁸

The dynamics of the financial flows can be seen very nicely in Figure 2.3. Indeed it is interesting to remark that half of the public sector money for R&D goes into universities. Industry tends to spend its R&D money within its labs. However, it should be remarked that more money than ever goes into university collaborations. International money plays an important role for both universities and industry.

⁸ Federal Ministry of Education, Science and Culture 2005e

Financing and performing of R&D, 2002, and change between 1998 and 2002, in million €



Source: Statistik Austria, representation by tip. For a better overview, several minor financing flows and the private non-profit sector were left out, so that the sum of financing and implementation is not identical in some sectors.

Figure 2.3: Financial flows in the R&D sector⁹

⁹ Federal Ministry of Education, Science and Culture 2005e.

3. Gender Equality

The proportion of women at Austrian universities has increased during the last decades but is still not satisfactory as measured by the official goal of at least 40% in all personnel categories. Indeed there are currently more female students (53.5%) than male but although female students in average graduate faster and with higher success (Flicker/Sauer 2002: 264) they are not equally represented within the scientific personal (26.7%), let alone in high institutional positions as professorships (13.7%) (BMBWK 2005a: 131ff).

After Federal Equal Treatment Act 1993, and reinforced by the White Paper on the promotion of women in science by the former Minister for Science and the Transport Sector in 1999, the concern about gender equality at universities has gained broader attention. Since then there have been major changes in the legislation concerning equal opportunities in research as a result of the University Act 2002 (UG 02), that has been elaborated in chapter 2 of this report.

3.1. Contents and Extent of Equal Opportunities Legislation

There is one national law that explicitly deals with equal opportunities for men and women employed in the public sector, the Federal Equal Treatment Act (B-GBG 1993). It includes general promotion of women, women quota-regulations and concrete plans for the promotion of women in different political departments (including universities). Institutions have to develop a system trying to reach higher percentage for women on all levels and have to give objectives to be reached within the next two years (*Affirmative Action Plans*). As mentioned above the overall aim is to raise the quota of women until the level of 40% is reached. Until then the Act instructs universities to privilege equally qualified women over men in application procedures (B-GBG 1993; §42). Thus formally a system of “positive discrimination” is in place. Since the above-mentioned University Act (2002), this instruction is applicable for third-party funded personnel too. But in effect decisions on personnel are left to project leaders (monocratic decision-making) and are not monitored on a regular basis.

3.2. Other Relevant Legislation that has Impact on Gender & Research

Other gender equality-relevant legislation is situated at different levels: EU-level, national level, institutional level, curricula level.

As an **EU**-member state Austria has to ratify the principle of anti-discrimination that has been decreed by the European Council in 2000 (EC 2000) and has committed to adopt gender mainstreaming in its policies. Reports by political opposition parties and NGOs have pointed out that the Austrian government was not too successful in fulfilling these EU principles (e.g. Weinzinger et al. 2005, esp. chapter 9).

On a **national level** the above-mentioned University Act 2002 (UG 02) has shaped the general framework for supporting women in the academic field anew. In this law equal opportunities and promotion of women are explicitly pointed out as basic principles of the Act (§2, Abs.9; §3, Abs.9) and the aim is formulated to “balance” the numbers of women and men at the universities in all positions (§41). The Act has at least three gender-relevant dimensions:

(1) Legal protection: The University Act instructs universities to setup two university-intern control-institutions: an “Equal Opportunities Working Party” (2006) and an Arbitration

Commission. The Working Parties must have access to documents that affect applications (application texts etc.) and have a right to complain about questions of employment, not including a veto right. In 2003 a network of all Working Parties in Austria has been formed within a broad national working group (Working Group 'Women at Universities' 2006).

(2) The encouragement of programmes to promote women (see chapter 3.5.).

(3) The commitment for universities to establish a coordinating institution for "women- and gender research".

Criticism Formulated in the Literature Against the University Act 2002 and the Public Services Law-Amendment 2001:

The University Act (UG 02) – interwoven with the above-mentioned Public Services Law-Amendment (2001) – might have a remarkable impact on gender equality. Members of the "Equal Opportunities Working Party" and other feminist actors have especially criticised the new decision-making structures at universities:

Firstly it is argued that the University Act has created a "gender-gap" in decision-making on a structural level by strengthening the role of monocratic organs and university professors – a group that is still dominated by men (91%-93%) (Ulrich 2004: 360). Especially their role in deciding on personnel is being discussed more frequently.

Secondly it is criticised that now upcoming women get into equally influential positions (as they are increasingly rare and fixed-term) harder than the former generation. In the forthcoming years positions from the "old system" will coexist with those created by recent legislation. That – is assumed – will create a structural power-gap between younger researchers holding more flexible posts and long-established and male-dominated tenured staff and professors holding life-contracts. It is further assumed that this situation will have an influence on the composition of the above-mentioned Working Parties as it is now setup by the university senate where professors are in the majority. Prior to the University Act 2002, the Working Parties themselves could propose their future members (Ulrich 2004: 348).

Thirdly the system of fixed-term contracts is seen as a structural problem for women's careers. It implies a necessity to continually apply for the next career stage (every 2-6 years), what can be seen as an additional obstacle for women's careers assuming that every application is a potential barrier for women to move up in the institutional hierarchy. This is especially highlighted in regard to the increasingly monocratic and intransparent decision-making (Flicker/Sauer 2002: 266f).

Finally it is criticised that some legislation that has impact on gender equality is still missing. It is pointed out that there are no specific regulations for parental leave and short-term stand-in. The general maternity protection in Austria lasts at least 16 weeks (usually 8 weeks before and 8 weeks after child-birth). During this time the mother gets "maternity benefit" (average net wage from the past 13 weeks). After this time the mother and/or father can decide to be on parental (maternity) leave for a maximum of 36 months. During this time they are entitled to a remuneration for child-care (€ 436,- per month; paid by the state) – independently from previous employment status or salary. During parental leave one is generally protected from dismissal (GPA 2006: 7-20). This regulation is designed for a labour market where permanent posts are most usual. With the shift from permanent positions to fixed- (and often short-)term contracts a structural problem for maternity leave conditions

could be faced.¹⁰ For fixed-term contracts within projects, dismissal protection evidently does only last until the projected end of the contract. That can increase the extent to which research continuity is disrupted by having a child and can thus mean an obstacle or delay for one's career. Furthermore there is no satisfactory system for the departments in place to compensate for the absent employee. In the case of column 1+2 posts there is no short-term stand-in for maternity leave foreseen. After parental leave the contract continues – elongated for the duration of parental leave. In most cases full deputyships (fully new posts for 4 years) are hardly affordable by the institution. This legal situation is seen as an obstacle for women to get employed, as decision-makers might worry about them becoming pregnant (see also Flicker/Sauer 2002: 267, Neissl/Wolfgruber-Frankhauser 2003: 163).

The recently newly built government (led by the social-democratic party) plans to make some changes in parental leave regulations. According to the published governmental programme not only women with an employment should be entitled to “maternity benefit” but also women that live on “contracts for work and services”¹¹. Besides it will be possible to choose between the above-mentioned 36 month/€436-model and an 18 month/€800,- model. These modifications are supposed to make it easier for women to re-enter employment-market (Government Programme 2007: 129).

Most relevant for gender issues at the *institutional level* are the *Affirmative Action Plans for Women*: The University Act 2002 has made it obligatory for universities to publish a kind of master plan about the intended support of women in academic careers and to publish numbers of men and women in relevant positions at university on a biannual basis (Ulrich 2004: 360).

In some *Curricula* Women- and Gender-Studies have been included. In the case of Molecular Biology at UoV it is pointed out in the qualification profile that critical reflection upon feminist perspectives on molecular biology has to be part of the curriculum's aims. It is to be guaranteed by two obligatory lectures and an optional study focus.

The qualification profile of one of the two sociology-curricula at UoV stresses that women- and gender-studies are to be treated equally within courses about social theories, methodologies and practice-oriented issues (Curriculum Sociology 2003). Students can choose for feminist theories within sociological theories and for gender issues within “special fields of sociology”. At the UEBA there is no curriculum for sociology but curricula for seven MA and two PhD programmes, some of which have obligatory classes on social sciences. Courses on “women in economics” are optional for the study of (international) business administration and economical pedagogy.

At last there has been established an *advisory organ* for the Ministry of Education, Science, and Culture” that advises the Ministry in the promotion of women (BMBWK 2006).

3.3. Other Policies that Affect Gender Issues

The most important research funding institutions concerning the promotion of women within the academic system are the Austrian Science Fund (FWF), the Austrian Academy of Sciences (ÖAW) and the Ministry of Education, Science and Culture (BMBWK). Alongside general promotion-programmes for graduates and post-docs they provide several women promotion and training programmes, scholarships and prizes that have the aim to support

¹⁰ That holds true of course not only for the academic field but also for broad sectors of the labour market.

¹¹ Mostly short-term contracts that are closed to fulfill specific tasks.

women at different career stages. They include scholarships to finish PhD theses, scholarships to stay abroad, prizes for scientific theses etc.

In 2002 the National Research Council and three Ministries have established an initiative for the promotion and encouragement of women in science and technology – “fFORTE”. This organisation provides scholarships and public relations to sensitise decision-makers to improve the position of women in research and engineering careers.

One level of women promotion programmes is designed for graduate students. There are yearly or biannually awarded prizes for master theses of high quality by women (Maria Schaumayer-Prize) and especially on gender issues (Gabriele-Possanner-Prize: € 1.900,-). At the PhD-student-level there are two women-specific scholarship programmes (DOC-fFORTE, WIT). They aim at increasing numbers of qualified female researchers in disciplines in which they are underrepresented, which are engineering, natural sciences, medicine, life sciences, mathematics, internet technologies.

Until 2010 more than 40% of professorships are going to be vacant at Austria’s universities (BMBWK 2007). Therefore it is important to support post-doc women in order to meet the preconditions for getting professorships.¹² In the Austrian system a “Habilitation”¹³ (or a qualification which is seen as equivalent) is the central precondition:

Currently at post-doc-level and upwards most yearly awarded programmes are not specialised in terms of the research field. The Herta-Firnberg-Scholarship (FWF) supports women in an early post-doc period, while the Elise-Richter-Scholarship (FWF; since 2006, following the Charlotte-Bühler-Scholarship that expired in 2005) finances women to work on their “Habilitation” or other qualifications for academic careers in order to meet the essential preconditions for professorships.

fFORTE holds the programme “excellencia” to increase the numbers of female professors at universities: Universities get a certain amount of money if they occupy a professorship with a female researcher.¹⁴

One type of the above mentioned Possanner-Prize (“Gabriele-Possanner-National-Prize”) is biannually awarded to researchers that contribute to/increase gender democracy through their research (BMBWK; € 7.300,-), one type of the Schaumayer-Prize also goes to female senior researchers (Habilitation is a precondition) awarded by the Austrian National Bank.

Promotion of Women at the UoV and UEBA:

At **UoV** the Center for Gender Equality (2006) is dedicated to coordinating actions to guarantee equal opportunities. Among others the “Human resources development” as well as the “National Union of Students at the University of Vienna” organise women-specific courses for employees resp. for students that are free of charge on a regular basis (e.g. rhetoric-courses, self-management-courses, coaching for the writing of theses etc.) (Human Resources Development 2006, National Union of Students 2006). There are some that have proofed to be very promising: e.g. a curriculum for career planning for female scientists and a

¹² Unfortunately recent calls for professorships do not indicate gender-sensibility. Since 2005 only 4 out of 33 new professorships were given to women at the UoV (fFORTE 2006).

¹³ A „Habilitation“ is a bit like a higher level PhD but has to meet specific additional requirements. The writer has to show that she/he is able to contribute relevant accomplishments to her/his academic field. Teaching experience and a publishing record are necessary preconditions. Those who successfully finished this level of education obtain the title “DozentIn” and are allowed to supervise master and PhD theses. One can either work on a “Habilitation” during an employment at university, apply for a scholarship or make it free-lance.

¹⁴ <http://www.oeaw.ac.at/stipref/>

mentoring programme. The first is a three-semester training and coaching programme for young female scientists, which is currently taking place for the fifth time. The second round of the mentoring-programme, where young female researchers get support from professors in small training groups, shall contribute to the building of professional and informal networks and thus to their integration in the academic system (Nöbauer et al. 2005). Since February 2001 there is an information centre for sexual harassment for university personnel at the UoV (Information Centre for Sexual Harassment 2006).

Apart from the Working Party and the Arbitration Commission that are regulated by law, there is no special centre for gender equality at the **UEBA**. There is one person in charge of women's promotion and gender equality at the Human Resources Department who writes the required women's reports.

Unions:

Universities do have works councils (usually two – for general university staff and for academic staff) that represent staff interests. E.g. they provide information on legal issues, regularly make suggestions for improving working conditions and have the right to submit legally questionable dismissals to the court. The chairman of the works council for academic staff at the **UoV** is involved in the negotiations of the forthcoming collective contract for university staff. The GÖD (Union of Public Services) – known to be one of the rather conservative unions in Austria – represents the university staff on a national level.

3.4. Structures That Affect Work Life Balance

Work-life balance is not an issue at the institutional level within universities. Generally the UoV and UEBA have established child-care for children from babyhood to the age of 12 years at different locations. Both are accessible for university personnel as well as for students. Opening hours are not always suitable as they are sometimes limited to the so-called "core-opening-hours" of the university (UoV: Monday to Friday: 9.00-15.00) (Child-Care-Office 2006).

There is no kindergarten affiliated to the MFPL (that is located at a different place than the main university building) but it is a common practice that researchers' children attend the kindergarten of a company that is located next to the campus. There are rumours that the university is going to establish a kindergarten for this location soon.

Nursing leave is not regulated separately by universities, but by the Austrian employment law. Employees have the right to one free week nursing leave per year, two weeks in case one has a child younger than 12 years who is living in the same household (Chamber of Labour 2006).

4. University/Institute Structure and Policy Levels

In this chapter we describe the institutions of interest in terms of scientific employee-types, numbers of women in different career stages, age of scientific employees and we will shortly describe the major research focuses.

We have chosen different units of observation for the natural sciences and the social sciences. They are part of the University of Vienna (UoV) and the University of Economics and Business Administration (UEBA). The UoV is one of the biggest research institutions of Austria with more than 1.600 scientific employees (BMBWK 2005b: 14). The UEBA with app. 450 scientific employees is still quite a big university for Austrian standards (BMBWK 2005b: 26). At both universities app. 35% of scientific personal are women (BMBWK 2005b: 14, 26), while only 12% resp. 8% of university professors are female. Both institutions lie above the Austrian average and the amount of women in high positions has risen in the last 20 years. The numbers of female professors in different age-groups are an indicator for this change: While in the age-group of 60-68 years only 7% resp. 4% of professors are female, in the age-group of 41-50 already 24% resp. 13% of professors are women (BMBWK 2005b: 72f).

For molecular biology we have chosen the “**Max F. Perutz Laboratories**” (MFPL), which are an umbrella organisation for academic research institutions at the Campus Vienna Biocenter, founded in 2005. MFPL are one of 15 organisations (including publicly funded research institutions as well as private companies) located at Vienna Biocenter, which is not the only location for research in genetics and molecular biology in Vienna, but the most prominent one. MFPL are going to be reorganised as a faculty of the University of Vienna in 2007. Until now they consist of laboratories from UoV and the Medical University of Vienna.¹⁵ Altogether there are more than 50 labs, employing more than 400 researchers active in seven broad research focuses:

- Cellular structure and dynamics
- Cell cycle, differentiation and chromatin
- Microbial and viral pathogenesis / Immunobiology
- Plant molecular and developmental genetics
- Protein structure and function / Computational biology
- RNA biology
- Signal transduction and intracellular transport (MFPL 2006a)

About 20% of group-leaders and more than 50% of post-docs, PhD- and diploma students are female (see table 4.1.). App. 25% of the researchers is international staff (MFPL 2006b).

The **Department of Sociology at the UoV** is the biggest department for sociology at an Austrian university. Having initially been two departments of sociology – located in two different faculties with two rather different research traditions, each hosting one study program – they have been fused in the course of the reorganisation procedure of the UOG93 in the year 2000. While being one department now, different research focuses and research

¹⁵ The MFPL has been established because of a recent separation of the Medical University of Vienna from the University of Vienna. The MFPL is meant to be a stakeholder for all academic institutions at this research site.

approaches are still noticeable. There are 5 full professors¹⁶ (one of them has already retired), all of them male. Recently the two curricula have been restructured. One curriculum focuses more on economics and law, finishing with a master degree (4 years). The other one rather follows a cultural studies approach and offers a bachelor (3 years) and a master degree (1 year). Main research focuses of this department are social gerontology (relationship between generations), life course research, social politics, research on Eastern Europe, sociology of medicine and health, and analysis of social structures. Some research projects are not conducted in the framework of the department but at separate institutions like the Department of Sociology of Medicine and Health of the Society of Ludwig Boltzmann or the Austrian Institute for Family Studies.

The **Department of Sociology and Empirical Research** is located at the **UEBA**. It is the second largest department of sociology at a Viennese university. There is no curriculum for sociology, but obligatory and optional sociology courses are offered for students of economics and business administration. Research at this department comprises basic research as well as applied research. There is research on qualitative methods in social sciences, on dependencies of cultural and economic processes, organisation studies and in the interdisciplinary research field of interactions of economy, ecology and society.

To make the numbers that are presented in this chapter understandable we want to describe the different categories of qualifications and types of employees: Only very recently bachelor degrees have been introduced into curricula, so researchers currently working at Austrian universities mostly have a master as their first title. The average time for writing PhD theses varies and can last from app. 2 to 10 years. In many cases (especially in the Human and Social Sciences) students write their PhD thesis either unpaid or get scholarships which they apply for. Others are employed at university either as third-party funded contract researchers (duration between a few months and app. 3 years) or as university assistants column 1 (2 or 4 years). The latter are quite rare, but assumed to be safer employments and hoped to be the first step into an academic career. The post-docs (column 2) usually have contracts between 4 and 6 years.

4.1. Background Figures for Natural and Social Sciences¹⁷

As in other countries the situation of women at universities in Austria can be illustrated by the common term of the glass ceiling (vertical segregation). While female student numbers are currently quite high (> 63% at the UoV; BMBWK 2005c) the numbers drop increasingly in higher academic positions. The effect is significant for the UoV as a whole as well as within single disciplines and institutions. The following numbers show the gender distribution within

¹⁶ With “full professorships” we mean both “ordinary” professorships according to the old employment law as well as the new “full professorships” according to the new employment law. See also: FN 18.

¹⁷ A few general remarks on the type and quality of existing data: Exact figures of the whole institution “Max F. Perutz laboratories” (MFPL) are hard to find, as it is a relatively young association and therefore subject to changes and restructurings. Concerning numbers of students in Austria the BMBWK has publications on a yearly basis. But numbers for PhD students published there are not suitable for our purposes, because they are summed up by faculty instead of discipline. For Social Sciences data on third-party-funded personnel is not very reliable as most employees in this category are ascribed to the faculty instead of the department due to bureaucratic reasons.

the institutions observed and highlight other structural aspects that will be the basis for further qualitative investigation during the project.

Age Patterns

Age patterns at all universities in Austria show a peak at the ages between 31-40 years. It seems to be the case that the age of women and men in different employment categories do not differ. That means that it does not depend on gender, when people enter a certain stage of their academic career (Fiedler et al 2003: 147ff).

It is worth mentioning that the age structure at the department of sociology of UEBA is remarkably flat. There are no young researchers (no one younger than 35 years), most (8 out of 13) are at the age of 45-50.

Gender and Leading Positions

In recent years the number of women in higher positions was steadily increasing, but the most prominent positions are still held by men: At UoV there is a male rector who has 4 deputy rectors out of whom 1 is female. Out of 17 deans and centre managers only one is female and only 5 out of 19 deputy deans/centre managers are women. Again, a male rector administers the UEBA. 2 out of 4 deputy rectors are female, all official department managers are male.

Students and PhD Students

In total, numbers of female students as well as graduates exceed numbers of male students in almost every discipline that is relevant for the kind of research that we are investigating (The only discipline where women are underrepresented at a student level is chemistry with 45%. See annex: table 4.1 + 4.2). In natural sciences and social sciences the percentages of female students are almost equal (57% resp. 59%). These rates increase when it comes to final degrees: E.g. in sociology 75% of graduates were female in 2005, 65% in the observed disciplines in life sciences. Even in chemistry 61% of the graduates were female (see annex: table 4.2).

Even if these data are only available for the faculty-level it becomes clear that when it comes to PhD students the numbers change in favour of male students. However, in total still more women than men finish their PhD thesis (see annex: table 4.3. + 4.4.).

Scientific Personnel

Statistics of scientific personnel in general already show almost equal percentages for men and women on faculty-level. This can be seen as due to increasing numbers of female students and graduates and as due to successful programmes to integrate women into research. But still there is a remarkable difference if data are specified due to position, funding source and full-time equivalents.

We could get access to very clear data concerning numbers and women quota at the respective departments and faculties at the UoV. While in the social as well as in the natural sciences the number of women is relatively high for column 1+2 (49-68%) the quota drop radically when it comes to Extra-ordinary Professors, Visiting Professors and Ordinary (Full)

Professors.¹⁸ For these high level positions numbers of women are remarkably low especially for the natural sciences: In the meantime 20% of full professorships are held by women at the Faculty for Social Sciences (even though 0% for Sociology) compared to only 12% in the Faculty for Life Sciences (see Tables 4.5. + 4.6.).

MFPL

The available data (see table 4.7.) show that there are 52 group-leaders of which 9 (17%) are female (MFPL 2006c). At the level of post-docs the number of men and women is almost equal, but more men are employed as university assistants: 12 out of 44 men, but only 7 out of 45 women. The figures show that the less stable or the lower a position is, the more women are involved: 58% of the PhD students, 61% of the diploma students, 67% of the technicians¹⁹ and 80% of administrative staff are women.

As table 4.8. and 4.9. show, the higher a position is the more men are present in the field of sociology: Whereas all 4 professors, the retired professor as well as the majority of Associated, Assistant and Visiting Professors are male, all Assistants, the majority of Teaching Assistants, Lecturers and administrative personnel are female. At the department of UEBA the distribution is not as clear as at the UoV: Even though there are more male professors and only female administrative staff, the other positions are more equally distributed.

Teaching Assistants

The positions lowest in the academic hierarchy are teaching assistants and tutors. They are dedicated to facilitate the teaching activities of a department and even if the work done is mostly administrative there are departments where those posts are used as research support personnel. Numbers show that women are highly overrepresented in this group (app. 65% in both faculties of UoV) (Human Resources Department 2006).

Contract Researchers (Researchers Paid by Third-Party Funds)

In third-party-funded projects only fixed-term employments are possible (between app. 3 months and 3 years), especially in the Social Sciences also rather short-term appointments – like “contracts for work and services” – are usual. In contrast to having a university position, third-party-funded employments do not mean any significant difference in regard to salary but university posts are perceived as a better employment situation with career benefits. Third-party-funded posts are much more likely to be part-time jobs (at the observed disciplines 30 hours/week in average) and of shorter employment periods.

¹⁸ The distinction between Extra-ordinary (E.o.) and Ordinary (O.) Professorships is based on the former (prior to the Public Services Law Amendment 2001) employment system of universities in Vienna. While both have written a “Habilitation” and thus have the necessary preconditions for professorships in Austria, Extra-ordinary Professors have never undergone the application system for (ordinary) professorships but their former contract with the university has only become permanent.

¹⁹ “Technicians” (also called “lab managers”) in Austria are staff trained in lab technology, however it is not an academic training. Training facilities in Austria are increasing. Some technicians have first started an academic study and have then turned towards a lab technician/lab manager (e.g. because of too much stress with academic career or because of parenthood and marriage). In some labs technicians/lab managers are the most continuous factor within a lab (concerning research work and know-how), considering that most other staff is changing relatively frequently.

This situation is especially relevant for academic institutions within the life sciences where 43% of the scientific personnel is financed by third-party funds (research projects funded by the national research fund FWF, the ministry, EU, etc.), in contrast to only 6.5% in the social sciences. In none of the observed institutions the percentage of men in third-party-funded employments is higher than that of women (Human Resources Department 2006). Actually at the MFPL more than 80% of the female scientific employees are contract researchers in contrast to only 60% of male researchers (see Annex; Table 4.10.).

It also turned out that within third-party-funded personnel women are more often and to a higher extent employed part-time. This is more obvious for the Faculty of Social Sciences than for Life Sciences but the tendency is clear for both scientific fields (see Annex; Table 4.10. + 4.11.). This is an interesting phenomenon which should be analysed in more detail on a structural level.

Special Feature of the Research Landscape

Within the MFPL a group called “**MARS**” (Max F. Perutz Laboratories Affiliated Researchers) has formed as a lobby for the promotion of independent researchers (mostly group leaders). It constitutes of 14 researchers at the age of 35 to 45 years – active in various research focuses – that have not (yet) succeeded in getting the quite rare tenure track positions available in Austria. Therefore they are forced to constantly apply for individual funds and scholarships and ask for “permission” to use university labs, facilities and rooms.

Together they demand research resources from the academic system arguing that they contribute a lot to the academic system, a fact that is not acknowledged yet. They argue that according to widely accepted criteria for the quality of scientific work as the Impact Factor (IF) and the amount of publications they do research of high quality (53.2 impact factors per person, more than 7 publications within 5 years per person). Additionally they provide their experience in teaching and supervision of thesis. Women are only slightly overrepresented within this group (8 out of 14).

4.2. Short Remark on the Situation of Women in Research Outside the Academic Context

Unfortunately there are no numbers available for women in the private research segment within the social sciences. But in the last years there have been some efforts to collect data on the number of women in natural sciences and engineering. For the year 2005 a comprehensive “Gender Booklet” describes the situation of women in the biggest private research institutions in Austria. In comparison to academic research, percentages of women are extremely low there: only 21.4% (vs. e.g. 48% within the Faculty of Life Sciences). Even though full-time employments are dominant for women too, problems seem to persist in terms of equal salaries and representation in decision-making bodies like supervisory and management boards where women hold only 4.3% of positions (Research Austria 2005: 8, Human Resources Department 2006).

5. Researchers in the Institutions – Institutional and LCQ Data Presentation

Concerning the access to the institutions we encountered big differences between the disciplines: Whereas it was relatively easy to get in touch with molecular biologists (MB), sociologists (S) were more hesitant to engage with the project. In the field of molecular biology a prominent lab leader was interested in the project, distributed our leaflet, arranged an opportunity to present the project at a meeting of lab leaders and introduced us to colleagues. Accordingly it was relatively straight forward to get access to different labs and talk to researchers at the different academic levels: lab leaders, senior researchers, post-docs, PhD students and diploma students. In some labs we interviewed technical staff, too. In the field of sociology we started contacting different institutions, but were discouraged either by the head of the institutes or by researchers within the respective institutions. After some reflections about potential reasons, we decided to choose a different approach and started to focus on individual researchers instead of trying to get agreement from whole institutes. We asked individual researchers we knew or had contact to if they were willing to give us interviews. Using this approach proved to be more productive and corresponded better to the research structures in sociology (see below). Researchers in sociology far less understand themselves as part of an institutional structure and thus were more ready to agree as individuals than to engage a whole institutional structure.

5.1. Description of Interviewed Researchers

We carried out the Life Course Questionnaires (LCQs) as face-to-face interviews with researchers in the chosen disciplines. This means that we went to their labs and offices, asked them the questions which the consortium had agreed upon and tape-recorded their answers. Hence we got scaled answers as well as narrative explanations for these answers. The additional qualitative data helped us to better grasp the research situations and environments as a background for the interpretation of the dataset. These data are of high value for further stages of research (esp. the participant observation and the in-depth interviews).

Altogether we have interviewed 48 biologists and 23 sociologists. All biologists are working at MFPL, 13 sociologists are affiliated with the UoV, 10 with the UEBA. In molecular biology we carried out interviews in 7 different labs that are situated at the UoV (MFPL). Five of them are led by male group leaders, two by female. Four of them are rather big (7-15 members), three have just a few staff members (3-4). One lab leader is an associated researcher (self-financed), six are affiliated to and paid by the university.²⁰

Whereas only 29% of the interviewed group leaders were female, 80% of post-docs, 75% of PhD students and 70% of diploma students were women. In sociology the majority of interviewees were women too (61%). Our samples thus reflect the clearly gendered distribution of positions at both departments. But even compared with the position and gender distribution of MFPL or at the sociology departments as a whole (see tables 4.7.-4.9.), women are overrepresented in our sample (see tables 5.1. and 5.2.).

²⁰ As some of them are visiting professors, this might of course change during the time of our research.

Concerning disciplinary belongings, we noticed a higher variety in the field of molecular biology. While our sample in sociology was more homogeneous (87% were sociologists by training, the others psychologists resp. economists) interviewees at MFPL came from different disciplines (biology, chemistry, biochemistry microbiology, physics, pharmacology), the majority being trained in biology (54%)²¹, and interviewed lab members belonged to two different faculties (life sciences, chemistry). Thus it can be assumed that disciplinary training is more important for social sciences than for the “life sciences”. Speaking in general terms of “molecular biologists” and “sociologists” is actually a generalization. Nevertheless we will use them for simplification.

Speaking of social origin, the majority of interviewed biologists come from families with a high level of education. Altogether 64% had fathers and 67% had mothers with at least A-level education. 47% resp. 38% of interviewees have academic training too. Our data suggest that the parent’s level of education is of higher relevance to women than to men. Almost 50% of female researchers have academically trained parents (both, fathers and mothers) whereas less than 1/3 of the male respondents have this family background. This difference could mean that for women in order to enter an academic career in the natural sciences, the parents’ educational background plays a more important role than for their male counterparts.

Sociologists show a broader variety of backgrounds. A high percentage of sociologists have a father (41%) and/or a mother (46%) with vocational training. Only 32% have fathers, 27% mothers who had A-levels and/or academic training.²² This corresponds with research done in Germany, where authors found that students with working class backgrounds chose a subject in the social sciences significantly more often (Hasenjürgen 1996:70).²³ The gender dimension of the relevance of the parents’ level of education seemed to be different for sociologists: Only 7% of female, but 38% of male sociologists have a highly educated father, but 36% of female and 13% of male sociologists a highly educated mother. This suggests that gendered role models within the family are more crucial in the social sciences as the mother’s education plays a more significant role for women and the fathers’ education for men.

Most interviewed researchers have the Austrian **citizenship**, but the numbers vary a lot according to disciplines. As mentioned in chapter 4 MFPL is a place with a rather high percentage of international researchers (25%). In biology 58% of interviewees were Austrians, the rest coming from Germany, Hungary, Slovakia, Italy, Denmark, Sweden, France, Belgium, Spain, Russia and Slovenia. Most non-Austrians were PhD students, post-docs and visiting professors. In contrast the sample of sociologists was more homogenous regarding nationality. Most interviewed researchers were Austrians, 12% came from Germany. Even outside our sample we hardly found any evidence of international scientific staff. It can be assumed that this is partly due to language: In the social sciences many publications are in national languages, teaching is generally done in German and there is a

²¹ Two technicians did not have academic training, therefore they are not included in this calculation.

²² One sociologist did not want to tell us his family background and is therefore excluded in this calculation.

²³ See also Spielauer et al. (2003) who stated that young men from an urban and academic background are most likely to go to university and finish their studies.

higher focus on regional/national research issues than in molecular biology.²⁴ Knowledge of German thus seems to be a prerequisite for an academic career in this field. Especially for qualitative or even hermeneutic approaches, sociological research is seen as inseparable from language.²⁵ These approaches are important for some sociologists at both universities. But as international collaboration and communication increase, English is becoming more important as working-language as well as for publications in international journals. So it may be expected that the necessity to speak very good German might become less central in the future.

5.2. Basic Data Concerning Career Development

It appears that **career patterns** in sociology differ quite substantially from those in molecular biology: Whereas app. half of the interviewed sociologists did not follow a “linear career path” – doing e.g. vocational trainings of different kinds before starting their academic training (second-chance education) – or had longer periods of non-academic professional experiences, literally none of the MBs did so.²⁶ Quite on the contrary some diploma students in molecular biology even expressed the feeling that special interests, trainings and education differing from biology are not appreciated in their labs.

Another interesting difference between the disciplines lies in the number of multiple and part-time employment. Whereas only 8% of MBs had part-time contracts at their departments, 30% of Ss are working part-time. The majority of part-time researchers are female (75% in biology and 71% in sociology). Working part-time thus is gendered in our sample – regardless of discipline – and thus reflects the general situation on part-time employments at the UoV as shown in table 4.11.

Concerning multiple employments there is also a big difference between the disciplines: Only 25% of biologists (7 male and 5 female) have second jobs²⁷ mainly as tutors, lecturers and research on contracts for work and services at their own department. Only two biologists hold non-academic second jobs. In contrast 39% of Ss have one or two other jobs – 33% of which are academic and 67% non-academic (working for NGOs, as part-time journalist, as consultant for companies, etc.). As reasons for multiple employment interviewees mainly indicated financial and career reasons as well as other reasons like enjoying this kind of work, wanting to have a second string to their bow etc. However, a far higher percentage of sociologists make non-academic professional experiences and it can be assumed that non-academic work or trans-disciplinary academic education is more common than in molecular biology. It does not seem to have been an obstacle to an academic career for the more senior staff we interviewed. However the increasing number of age limits for scholarships and the increasing normativity in career structures also in the social sciences may make it more difficult to establish such broader qualifications for the younger generation.

²⁴ See e.g. the number of Austrian and German journals in this field published in German.

²⁵ Siegfried Lamnek e.g. describes the linguistic turn in interpretative sociology (Lamnek 2005).

²⁶ Hasenjürgen (1996) records that in Germany the group of students of sociology who had vocational trainings and experiences especially those with second chance education is remarkably higher than in other fields, but that there are no figures available for scientific staff. Our sample indicates that this is similar in Austria and that it is not only true for students, but also for sociologists staying in academia.

²⁷The term “second jobs” here refers to jobs aside from the main employment contract at the investigated institution. For sociologists the “second job” would sometimes be the job with more income.

There is a further difference in age structures of scientific careers. In general, sociologists obtain their academic degrees and qualifications at a later point of time than biologists. The average age of graduation was 28 vs. 25,1 years. The average age to become a doctor was 32,8 vs. 28,8 years and 41 vs. 37,4 years for obtaining a “Habilitation”.

There seems to be a further difference in professional cultures between the social sciences and molecular biology. **Professional activities** within the scientific community (membership in associations, editorship of scientific journals, hosting conferences, giving keynote speeches, etc.) and **public appearances** (media articles etc.) play a role in earlier stages of their careers and generally a bigger role in sociology. E.g. 39% of sociologists compared to 2% of biologists are editors of a scientific journal or 26% sociologists but no biologist in our sample is chairing a scientific association. These data reflect the different epistemic structures of both scientific fields; research in molecular biology that is integrated into a much bigger and more international scientific community and research in sociology that mostly has a focus on German-speaking countries and national questions. Furthermore there are more small social science journals, which might explain the greater percentage of people with editorial experiences.²⁸

Concerning public appearances, a higher percentage of sociologists are giving public lectures; 11% of biologists and 44% of sociologists. Sociologists appear to go public more often and at an earlier stage of their careers.

Another interesting difference is connected to **publication patterns**. While most senior sociologists at both departments (35% of all interviewed sociologists) had written text books that they also use for teaching, only 3 biologists wrote (mostly chapters of) a text book. We have some hints that in molecular biology it is neither reasonable (because of fast changes of findings in this field) nor prestigious to write text books. Further knowledge which would find its way into text books runs through a tight selection process and is highly standardised in biology. For sociology this is far less the case as every text book highlights different facets and approaches to the field not entering into direct negotiation or competition with other approaches.

Amongst molecular biologists papers in international journals are the most common way of publication (the higher the impact factor the more prestigious the publication), whereas in sociology books are still important. All sociologists from post-doc level on had published monographs and edited anthologies. When asked about their most important publications almost all sociologists referred to at least one monograph and then either to papers in anthologies or in journals. Even though some mentioned that journal publications, especially those in international and peer-reviewed journals, become more important, our respondents did not rank their own publications according to these new standards.

Staying abroad: A majority of molecular biologists (especially PhD-students, post-docs and lab leaders) has been in a foreign country for studying or research (69%, regardless of gender). Having children mostly did not prevent women from staying abroad in our sample, even if the time was described as exhausting. In sociology more than half of all interviewees

²⁸ According to Tony Becher (1989, chap. 5) epistemic structures in molecular biology could be labelled “urban” being highly specialised, many research co-operations, high competitiveness and structures in sociology as “rural” having a broad perspective, low competition and less research co-operation.

spent some time abroad during their studies or first working experiences (59%). In our sample of sociologists however gender plays a role: 64% of female and 25% of male researchers have been studying in a foreign country. All women went abroad before they had their children. One female sociologist expressed regret that she could never realize this plan because of her child.

Researchers' **salaries** varied of course due to positions, and thus gender inequalities in positions obviously have an impact on the financial situation.

Although the Austrian pay-scheme for university staff does not distinguish between gender there are some gendered differences in payment due to three structural reasons. The first is that men hold most senior positions in both scientific fields; most male respondents in our sample had higher salaries than female respondents. Secondly, difference is also caused by a gendered distribution of part-time and full-time contracts, and a third source of discrepancy is rooted in different career patterns of women and men: Austrian universities take into account previous employments at federal institutions – especially in old contracts. This means that the longer and more constantly a person was working before his or her employment at university the higher are the initial salaries at university. Women tend to have more interruptions in their careers and/or part-time instead of full time jobs and therefore start with slightly lower salaries.

As there is no obligation to employ third-party funded researchers according to standard pay-schemes (with the exception of projects funded by the FWF) so far, it remains an open question if there are differences in payment here. In our sample the standard schemes are mostly applied but the sample is too small to make general statements.

While at Vienna Biocenter diploma students often get stipends for their work (in our sample only three students wrote their thesis without getting money), this is not the case at the Department of Sociology. But diploma students of sociology can get jobs as teaching assistants (can be employed as support in both teaching and research). Therefore we have, with the exception of one diploma student working as teaching assistant, no diploma students in our sample of sociologists. The further two interviewed teaching assistants were PhD students. The diploma student was male, both PhD students were female. Even though teaching assistants are designed as jobs for undergraduate students, it seems that the number of PhD students working as teaching assistants is increasing.

5.3. Personal Careers and Institutional Settings

Institutional settings were perceived rather differently by sociologists and biologists: Whereas all MBs – especially the young ones – considered their labs as the primary research unit and point of reference, sociologists did not refer to any research units smaller than their departments.

There is a big difference in terms of the **age** of researchers at the departments. While diploma and PhD students are an important part of research life in molecular biology (the former often getting stipends, the latter are regularly employed, both do work that is integrated in ongoing projects in the lab), there are hardly any diploma or PhD students employed at the Department of Sociology. The youngest regular research staff is university assistants (post-docs). Many sociologists linked to the department are not employed by the university. However they are considered as “externals” who either teach (“lecturers”) or do

research on the base of contracts for work and services.²⁹ In our sample especially the younger ones have had a number of previous involvements in research projects, but hardly any (part-time or full-time) employments as researchers. As a lot of these were short-term and part-time contracts, sometimes even diploma and PhD students of sociology have a rather high number of different research affiliations.

It can be assumed that this major difference in socialisation of young researchers within the academic system does have implications on the way they identify with their institutions. While young biologists showed rather strong identification with their labs, young sociologists had rather vague identifications. Due to various jobs at the same time and sometimes missing work places and networks at the department some sociologists could not identify any of these as their main or favourite project or affiliation.

Compared to other questions about **career satisfaction** in the questionnaire the satisfaction with promotion options, job security, career options and salaries was rather low among MBs. Especially associated researchers, post-docs and PhD students expressed their dissatisfaction with job security, while – not surprisingly – professors and others with permanent positions were satisfied with their situation. Concerning salaries most diploma students and professors were happy with their salaries – the first because work on diploma thesis is usually unpaid. Amongst the very unsatisfied persons there were primarily associated researchers, (part-time) post-docs and diploma students who did not get paid for their work.

Amongst sociologists the lowest amount of satisfaction was expressed concerning promotion opportunities, training and career developments and support by the management. Like biologists, sociologists valued job security and salaries very differently according to their status: Whereas the visiting professor, one external lecturer and the student assistants were (very) unsatisfied, most professors and assistants were satisfied with their salaries. The former mentioned plus university assistants (i.e. all persons with short-term and some with fixed-term contracts) were (very) unsatisfied with job security, while researchers with permanent positions – professors, but also one student assistant who has an officially permanent contract – were satisfied.

Regarding job security amongst sociologists a big gender gap is visible: While 8 out of 9 men were “very satisfied”, only 5 out of 14 women felt the same. The majority of women (8) was (very) unsatisfied. As all of them were amongst those with short-term contracts, it can be assumed that this is the reason for their dissatisfaction. In both disciplines the highest level of satisfaction was attributed to flexibility of working hours, independence, and interest of the work.

Another major source of discontent amongst sociologists’ is the balance between research, teaching and administration. These tasks are differently distributed in the scientific fields of interest: Whereas the average percentage of research is 86% for biologists, it is only 39% for sociologists. This distribution is clearly due to the fact that in MB much more young researchers are employed and early stage researchers have significantly less duties in administration/management and teaching in both disciplines. Most researchers mentioned that they would prefer to do more research but less teaching and administrative stuff – which shows a clear value difference between teaching and doing research. A second explanation for these differences probably lies in different ratios of teachers to students in the two fields:

²⁹ Exact figures: See chapter 4

At the sociology department at UoV less teaching personnel is in charge of two different curricula of sociology while the bigger staff at the Department of Molecular Cell Biology is in charge of only parts of the curricula for biology.

In sociology more young researchers were concerned about **missing support and mentoring** by senior researchers or professors as well as networks amongst each other than in biology. It can be suggested that the lab structure and closer connections to professors and/or senior researchers in the lab makes it easier for molecular biologists to network with and get support by more experienced colleagues. The relatively poor integration of young researchers into academic institutions in sociology (research being conceptualised much more as an individual activity; little opportunities to collaborate on a longer term basis; dissociation between work on projects and own dissertation) strengthens the perception of social science as an agglomerate of individually researching people. As a reaction to this situation in October 2006 a new institution called “Graduates Centre” was established at the Faculty of Social Sciences and Humanities at the University of Vienna. It offers workshops for PhD students (e.g. research methods, information about research grants, scientific writing, etc.) and shall work as a platform for (interdisciplinary) networking and distribution of information amongst PhD students. The impact of this centre has to be evaluated in subsequent studies, but it can be assumed that it cannot compensate missing mentoring and support by senior researchers.

Work-life balance

One indicator for evaluating the work-life balance might be the difference between the working hours that are given on researchers’ contracts and those they really work. The ***estimated real working hours*** of MBs varied between 30 and 76. As table 5.5. shows, most biologists said that they would be working between 40 and 59 hours. The tendency to work overtime is observable at all levels of the hierarchy, from diploma students to professors. While most diploma students thought that this is an exceptional period in their lives, post-docs and professors saw their amount of work as a normal part of academic life. The real working hours of the four part-time employed biologists varied: Whereas one man said, that he works about the amount of hours he is employed for (30 per week), all three women said that they worked at least 20 hours more than they are paid for. Our data also suggest that having children in some cases had a relevant impact on the way researchers perceive their work-life balance. It sometimes is a reason for strict management of working hours (no more than 40h/week) or for part-time employment – for male and female participants.

A tendency to work overtime is clear for sociologists too – but to a lower extent. The estimated real working hours were not always easy to calculate (see table 5.6.). As 6 researchers had only part-time contracts or contracts for work and services at the university the amount of time they work for the university and for their other jobs of course varies a lot. While none of them works less than 40 hours per week in total, their work in institutional boundaries varies between 10 and 20 hours. The amount of real working hours of researchers with full-time contracts was estimated between 35 and 60.

It became clear for both disciplines that having children made it more difficult for researchers to adjust to the unwritten norm of extending their working time beyond the standard 40 hours. In our sample this situation concerned mainly but not exclusively women.

The majority of biologists (67%) and sociologists (83%) usually work on weekends too. In both fields these figures differ according to gender. In both biology as well as sociology fewer female than male researchers told us that they were working on weekends.

Finally, two details are worth mentioning. The first is that two female technicians and one male sociologist considered raising their children as a second job – as a responsible task that takes time and energy, but is hardly valued as such. Secondly, not all researchers shared the concept of a “work-life balance”. Some objected dividing their time into private life and working life and saw the boundaries much more fluid.

5.4. Epistemic Communities

The empirical material collected so far does not allow detailed statements with regard to epistemic cultures. From the LCQs we have collected data on scientific collaborations in the fields, highly valued research groups and journals and the most influential scientific conferences.

Asked about their research collaborations our interviewees mentioned a broad range of collaborations regarding intensity, importance and continuity. Thus in the following the meaning of “collaboration” can range from exchange of resources or information or project collaboration to very close collaboration through decades of professional experience. In MB research collaborations are mainly organised on the level of labs: This means that lab leaders or senior post-docs establish co-operative research projects, in which their students are sometimes involved. Only in very few cases PhD students (or diploma students) have own co-operations on the level of information-exchange.

Altogether the interviewed biologists told us about more international (42) than national (26) partners. 73% of national collaborations are maintained with other institutions located at Vienna Biocenter, ranging from other academic institutions at the MFPL to very frequent co-operations with IMBA (“Institute of the Molecular Biotechnology GmbH”) or IMP (“Research Institute of Molecular Pathology”; both are co-operations between the Austrian Academy of Science and Boehringer-Ingelheim) or commercial companies like Intercell. These broadly established collaborations at one research site within the Vienna Biocenter indicate that the Campus as a whole is a quite well functioning organisational unit regarding scientific networks. Exchange of expertise and resources as well as division of work and a joint use of infrastructure take place in inter-institutional co-operations. The current state is a result of almost 20 years of promotion and planning of a joint research site beginning with a contract between the UoV and IMP signed in 1988 (Müllner 2002: 3). Further frequent national co-operation partners are medical, technical and general universities in various bigger Austrian cities. International collaborations are mostly within EU projects, sometimes with partners in the USA or Canada. It is remarkable that almost all collaboration partners are located in the so-called “Western” world.

Sociologists mentioned altogether 21 national and 20 international current collaboration partners. We could see different collaboration patterns in the two departments we observed. While the department at the UoV seems to collaborate especially with departments of other Austrian universities and different smaller non-university research institutions, the department at the UEBA has more intra-university collaborations as well as the Academy of Sciences, private persons, commercial institutions and public institutions.

This situation might be explained (1) by the fact that sociologists at the UEBA run no independent curriculum and collaborate in their teaching with many other institutes within the

own university and (2) by the fact that some researchers at the UoV run their own private research institution that is widely connected to their own research. International research collaborations in the field of sociology were mostly with partners in Germany (45% of all international co-operations), some also with institutions in other EU countries or the USA.

The “**top three national research groups**” that were cited of course varied a lot between research fields and disciplines. The institution most frequently mentioned by biologists partly match with our data on collaboration; the University of Innsbruck, IMBA Vienna and IMP Vienna. 45 out of the 75 mentioned institutions were located at the Campus Vienna Biocenter itself. This indicates that researchers at Vienna Biocenter rate their own institution/campus relatively highly and assess it as prestigious. The answers further indicate high emphasis for non-commercial institutions that are located in Vienna.

In the field of sociology different professors and departments of the Universities of Vienna (9) and Graz (7) were mentioned most often. Interestingly those at the UoV were trained sociologists as well as e.g. psychologists or historians. Apart from these a variety of smaller non-academic research institutions (e.g. IFF, FORBA, etc., altogether 36%) were pointed out. 75% of all mentioned national institutions are located in Vienna. Commercial institutions and public bodies were never mentioned. The emphasis of sociologists lies – as for collaborations – on non-commercial research institutions and university departments, mostly in Vienna.

The diversity of the mentioned “top 3 research groups” is even stronger on an **international level** and depends very much on the specific research questions. Many MBs mentioned names of lab leaders (biology) or professors (sociology) instead of institutions as a whole. A comparison of locations of the mentioned researchers resp. research units shows that most are in Northern America and the EU. Researchers from post-socialist European countries are mentioned only twice. Research units from other continents (Africa, Asia or Latin America) are not mentioned at all. This means when it comes to prestige and reputation the interviewed researchers concentrated on the so-called “Western world” in both scientific fields, but the specific locations of interests varied: Whereas molecular biologists focused rather on the Anglo-American world (49% of all mentioned institutions), sociologists concentrated on the German speaking context (60%).

The most interesting outcome concerning **conferences** was that only a few researchers mentioned interesting or important conferences or congresses on a national level: Only 12 out of 48 biologists referred to either a very specific congress or conferences of the Austrian Society for Biochemistry and Molecular Biology and the Austrian Association for Genetics and Genetic Engineering as exceptions. In sociology, conferences of the Austrian Association for Sociology were mentioned by some researchers but most sociologists stressed that conferences in Austria are not most relevant for them and that they prefer international meetings.

Journals that were said to be the most prestigious ones in molecular biology are “Nature”, “Science” and “Cell”. They were mentioned by researchers of all positions (diploma students to lab leaders). Other frequently mentioned journals were PNAS or EMBO. This coincides with the attributed impact factors of these journals, which rank Science first, followed by Cell, Nature, PNAS and EMBO. So our findings show that generally calculated impact factors of the top journals relatively well correspond to the importance attributed by researchers.

In sociology favoured journals differed: 23 researchers mentioned 44 different journals. They seemed to vary by departments, but also by research interests, theoretical backgrounds and schools (e.g. quantitative versus qualitative approaches). The most popular journals were “Kölner Zeitschrift für Sozialpsychologie und Sozialforschung” and “Soziale Welt”. In contrast to molecular biology, half of the mentioned journals were in German language.

6. Conclusions and Questions

Instead of giving final conclusions, which would be difficult to make on the basis of a mere overview, we would rather like to identify emerging questions that seem relevant for the forthcoming stages of research.

What Are Changes in Research and Higher Education Geared to?

Currently a lot of changes are going on in the fields of research and higher education. Not only within the EU (Bologna process, new framework programme, European Research Council), but also on a national level (new laws on university organisation, university autonomy, employment at universities and university curricula; reorganisation of funding bodies, etc.) restructurings are taking place. Changes are generally inscribed into a strong economic logic stressing the necessity to improve management, accountability, public visibility of science, service orientation, international competitiveness, etc. Not only the transformation of the conceptualisation and rhetoric framing of academic work can be observed, but work culture itself is undergoing quite important transformations. At this moment it seems difficult to evaluate the impact of such measures both from the inside and from outside. This will make our research interesting and challenging. Our present observations suggest that major differences in impact can be expected in the two fields of molecular biology and sociology. For forthcoming stages of our project it will thus not only be important to grasp first effects on career patterns, knowledge production and gender aspects but also on the ways these elements are perceived separately as well as in their intertwinedness by the researchers themselves. This will be a central task especially for the in-depth-interviews as well as for the discourse analysis.

Generation/Time and Disciplines

Most ongoing or recently introduced reforms seem to be oriented along structures and values predominantly present in parts of the natural sciences. Therefore adaptation is perceived less radical there, and changes are depicted more than gradual shifts. Accordingly these fields are sometimes depicted as “better prepared”, or “one step ahead” compared to social sciences.

In the social sciences the changing research structures and evaluation parameters seem to have a much deeper impact on the self-understanding. Publication patterns are changing fundamentally and the introduction of a focus on peer-reviewed journals and impact factors is a very recent development in the social sciences. Evaluation and turnover times (journal publications are perceived as rendering results quicker – although times are much longer for the social sciences than for the natural sciences) have become shorter, what is partly perceived as an additional pressure. We also assume that the increasing focus on externally funded projects causes changes in research cultures. The mentioned changes require additional skills such as networking and co-operation building capacities as well as administrative skills and introduce a quite different perception of time as a resource, but also as a structuring element. In particular senior scientists expressed their worries about the tension between traditional ways of organising research and newly implemented demands and standards of research funding, quality assessment, career patterns etc. They quite frequently interpret these changes as a lack of respect and appreciation for past scientific activities.

There are some questions that will be central to investigate: In which ways will changing institutional boundary conditions impact on research patterns in general and on specific elements of scientific work cultures? How do researchers explain their strategies of adapting or resisting these changes? How do they reinterpret and integrate these new standards into personal work processes and concepts of research? Are visions of alternatives formulated? Can gender-relevant aspects of these changes be identified?

Life Course and Career Patterns

Social scientists often speak of a „normality of the precarious“ and a „normality of the atypical“. Our observations until now indicate that those descriptions hold true especially for the social sciences but only very marginally for the field of molecular biology. In the latter field career stages seem to be highly standardised and age patterns (age at which people achieve career stages) do not vary much.

In sociology there is a broader variety of life courses. Some researchers had other vocational or educational trainings before or during their studies, some had periods of non-academic jobs, some still have non-academic jobs while working at university. Their working life seems more fragmented than that of molecular biologists. This is especially true for early stage researchers: In our sample only very few are employed at university and most have short-term research or teaching contracts. Many have several working contracts at various institutions – often at the same time - but no “academic positions” as such. Even the decision which of their contracts could be considered as “main job” or as “second” or “other” job was unclear quite often. Such life courses do not only challenge perceptions of typical career patterns, measurements for career advancement or social benefit systems, but also question the categories in our own questionnaire.

However it should not be overlooked that the line between classical academic careers and non-academic careers is much softer in the social sciences than in the life sciences. While in the social sciences it is possible to create a quite independent research environment in the form of small associations (there exist more than 150 such small associations in the social sciences) and seek for project funding, this seems to be hardly possible in the natural sciences.

In both scientific fields – molecular biology and sociology – generational differences can be found: Whereas many of the more advanced researchers hold permanent positions and tell that short term contracts in various research projects were but a pre-stage to fixed term and finally permanent positions at the university, both advanced and younger scholars stress that this is not the case anymore for the younger generation. The availability of permanent positions at the university is limited, and the period of scholarships, short-term projects and external funding has expanded.

The generational differences imply a gender difference. While most representatives of the older generation are male, the number of women is rising in the younger generation. It remains to be observed if and how the competition for university posts is gendered. There are some hints that “a conscious career planning” is becoming more important in this competition and that men tend to be more aware of this necessity. Other studies further indicate that the kind of career strategies differ between men and women (Leahey 2006) and it will be important to go deeper into these issues.

Individual Researchers versus Institutions

A closer look at policy papers and funding programmes suggests that investigating the relation between the logic of institutional developments and individual career developments could be revealing. Universities no longer offer tenure-track positions and early stage researchers are asked to apply for scholarships and third-party funded research projects. At the same time the new University Act limits the time for working as a contract researcher without interruption at one university to 6 years. After this period the university would have to offer a contract without time limit and some university rectors seem to be reluctant in wanting to go this way. Further receiving scholarships and funding – especially from post-doc level on – is linked with being affiliated to an institution or having support from a professor. That is described to be relatively difficult in the field of social sciences.

The situation of early stage researchers seems to be gendered too. As we could show for the UoV, women are overrepresented in the segment of contract and “independent” researchers and part-time employment while underrepresented in university posts. This is only partly due to generational gender differences. If university posts are regarded as a better starting point for an academic career, this shows a structural gender dimension of employment structure that has a tendency to discriminate women.

It remains to be seen how a forthcoming collective contract will impact on this situation as well as how universities will adapt their ideals to the work realities. How will universities manage to attract very good researchers if they offer no clear career structures? How will the institutions create constructive arrangements between researchers who are financed by the universities basic budget and those who work on research projects? What structures could be developed that both sides can profit from (researchers benefit from infrastructure and networks at universities and universities benefit from researchers who bring money, research and teaching potential)?

Epistemic Communities and Co-operations

Epistemic cultures and communities seem to be largely different in the social and the natural sciences. According to Tony Becher (1989) epistemic structures in molecular biology could be labelled “urban” being highly specialised and competitive, having many research co-operations, being focused on a smaller number of high-profile research questions. In contrast, structures in sociology could be characterised by the term “rural”, having a broad perspective, low competition, a broad range of topical areas and less research co-operations. Concerning international exchange and collaborations, data from the life-course questionnaires suggested that biologists focus rather on the Anglo-American area, while sociologists remain in the German-speaking region. Accordingly the variety of nationalities within Vienna-based researchers is broader in molecular biology and it is much clearer that moving abroad is expected as normal part of a research career. Especially in the social sciences the structure will probably change due to the new collective contract for all scientific staff (requesting international experience in order to get further employment) and new evaluation systems.

One focus of further research in this project will be the question how far new employment patterns (contract research, project orientation) have an impact on the epistemic culture. Does it change the kind of research questions that are asked if research is modelled after a normalised project standard? Do researchers increasingly define smaller epistemic packages (both in research and publication) in order to make them fit better into the fragmented career patterns? Do they adapt their choices of research areas accordingly? What impact does this

have on collaborations and networks? And does it change the self-perception of scientists/researchers in their relation with the institution they work?

Do different epistemic cultures and histories implicate different gender relations? Are the fast changes and the young history of the life sciences opening up spaces for new (and differently gendered) images of scientists/researchers?

Gender Differences

Existing statistics show that there is still a massive glass ceiling for female scholars at Austrian universities. One fact that could distinctively be affecting the gender distribution within the next decade is the fact that due to the employment wave in the 1970s within the next 5 years app. 40% of all professors and many senior researchers will take retirement. It is argued that therefore gender equality actions are especially crucial to be developed for this personnel-section and levels of qualification that are prerequisites (Habilitation in the Austrian case). Nevertheless the majority (88% at UoV in 2005) of new positions for professors are still given to men. So one could question the assumption that an increasing number of qualified female researchers will be sufficient to increase the number of women in the higher levels of employment. Of course before drawing any conclusions a broad range of factors influencing these choices have to be considered. E.g. mobility patterns are an important issue as the majority of appointed professors are neither from the home institution nor from the home country. And imaginations of ideal age for employment or the image of the profession might lead to the fact that women implicitly find these expectations not in line with their self-perception. These are but a few first ideas how to explain the slow changes taking place.

Interesting questions in this regard are: How far do the ongoing structural changes affect female researchers differently from male researchers? What are the consequences of the above mentioned economic logic underlying these changes and the resulting pressure on individual researchers in regard of evaluations (publishing, acquiring third-party funded projects, attending conferences, networking, etc.)? Do they have different impacts on career patterns of men and women? Have existing measures for gender equality made a difference so far? And if so, how? Do universities and other research institutions cope with issues of "work-life balance"? Do researchers get support to combine family tasks and working demands necessary for an academic career?

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8. Annex

(Abbreviations: Prof.; Associate (Extra-ordinary) Professor = Ac. Prof.; Retired/"Emeritiertes" Professor = Emer. Prof.; Visiting Professor = Visit. Prof.; Assistant Professor = Ass. Prof.; University Assistent = Univ. Ass.; Lecturer = Lect.; Technician = Tech.; Teaching Assistant = Teach. Ass.; Administrative Staff = Admin.)

Chapter 4:

Table 4.1: Students trained in Sociology and Molecular Biology in Vienna (Federal Ministry for Education, Science, and Culture 2005d)

	Sociology (SoWi)	Sociology (GeWi)	Biology	Molecular Biology	Chemistry	Food- and Biotechnology
Women	468 (52%)	249 (75%)	1.829 (62%)	425 (52%)	252 (45%)	572 (53%)
Men	347 (48%)	151 (25%)	1.098 (38%)	385 (48%)	303 (55%)	502 (47%)
total	816	400	2.927	810	555	1074
	Sociology		Biology			
Women	717 (59%)		3.078 (57%)			
Men	489 (41%)		2.288 (43%)			
Total	1.216		5366			

Table 4.2: Graduates trained in Sociology and Molecular Biology (Federal Ministry for Education, Science, and Culture 2005d)

	Sociology (SoWi)	Sociology (GeWi)	Biology	Molecular Biology	Chemistry	Food- and Biotechnology
Women	24 (75%)	46 (75%)	148 (71%)	3 (33%)	23 (61%)	46 (56%)
Men	8 (25%)	15 (25%)	61 (29%)	6 (67%)	15 (39%)	36 (44%)
Total	32	61	209	9	38	82
	Sociology		Biology			
Women	70 (75%)		220 (65%)			
Men	23 (25%)		118 (35%)			
Total	93		338			

Table 4.3: PhD Students in Faculties (Federal Ministry for Education, Science, and Culture 2005d)

	Social-, Economic-, Sciences	Natural and Human Sciences	University of Natural Resources and Applied Life Sciences
Women	117 (32%)	2.340 (59%)	219 (40%)
Men	245 (68%)	1641 (41%)	332 (60%)
Total	362	3.981	551

Table 4.4: PhD Graduates (Federal Ministry for Education, Science, and Culture 2005d)

	Social-, Economic-, Sciences	Natural and Human Sciences	University of Natural Resources and Applied Life Sciences
Women	7 (30%)	279 (56%)	44 (45%)
Men	16 (70%)	220 (44%)	53 (55%)
Total	23	499	97

Table 4.5.: Pre-doc University Assistents (Column 1) and Post-doc University Assistents (Column 2); f = female, m = male (Human Resources Department 2006)

Institution	Column 1 (f)	Column 1 (m)	total	Column 2 (f)	Column 2 (m)	total
Faculty for Life Sciences	18 (67%)	9 (33%)	27	39 (49%)	40 (51%)	79
Faculty for Social Sciences	7 (50%)	7 (50%)	14	15 (68%)	7 (32%)	22

Table 4.6.: Associate (A.) Professors, Visiting (V) Professors und Full (F) Professors at the UoV; f = female, m = male (Human Resources Department 2006)

Institution	A. Prof. (f)	A. Prof. (m)	V. Prof. (f)	V. Prof. (m)	F. Prof. (f)	F. Prof. (m)
Faculty for Life Sciences	19 (24%)	68 (76%)	2 (29%)	5 (71%)	4 (12%)	29 (88%)
Faculty for Social Sciences	4 (20%)	16 (80%)	2 (33%)	4 (67%)	5 (20%)	15 (80%)

Table 4.7.: Gender Distribution at the MFPL (MFPL 2006d)

	Lab Leader	Post-doc	PhD Student	Diploma Student	Tech.	Admin.	Others ³⁰
Female	9 (17%)	45 (51%)	77 (58%)	37 (61%)	31 (67%)	16 (80%)	9 (60%)
Male	43 (83%)	44 (49%)	56 (42%)	24 (39%)	15 (33%)	4 (20%)	6 (40%)
Total	52	89	133	61	46	20	15

Table 4.8.: Gender Distribution at the Department of Sociology of UoV (Human Resources Department 2006)

	F.Prof.	Emer. Prof.	A.Prof	Visiting Prof.	Ass. Profs	Univ. Ass.	Lect.	Teach. Ass.	Admin.
Female	0	0	2	5	2	2	27	14	6
Male	4	1	6	12	3	0	27	11	1
Total	4	1	8	17	5	2	54	17	7

Table 4.9.: Gender Distribution at the Department of Sociology of UEBA (UEBA 2006)

	F.Prof.	A.Prof	Vis. Profs	Ass. Prof.	Univ. Ass.	Lect.	Admin.
Female	1	3	0	1	1	4	3
Male	2	1	1	2	1	18	0
Total	3	4	1	3	2	22	3

Table 4.10: Funding of Scientific Personnel at the MFPL (MFPL 2006c)

MFPL	Female	Male	Total
Scientific Personal	177 (49%*)	185 (51%*)	362
University-Funding (Scientific Personal)	24 (13,5%**)	65 (35%**)	89
Third-Party-Funding (Scientific Personal)	142 (> 80% **)	110 (app. 60%**)	252

*of scientific personal

** of female resp. male scientific personal

³⁰ Mostly trainees or collaborators with minor working contracts

Table 4.11.: Average of Full-time-employment-equivalent (FTE) per Person (Human Resources Department 2006)

	Women	Men	Total
Faculty of Social Sciences	0.77	0.82	0.79
Faculty of Life Sciences	0.71	0.95	0.79

Chapter 5:

Table 5.1: Gender Distribution within MFPL-Sample

	Lab Leaders³¹	Post-docs	Univ. Ass.	PhD Students	Diploma Students	Technicians
Female	2 (29%)	8 (80%)	1 (part time) (33%)	9 (73%)	8 (73%)	3 (100%)
Male	6 (71%)	2 (20%)	2 (66%)	3 (27%)	4 (27%)	0 (0%)
Total	8	10	2	12	12	3

Table 5.2: Gender Distribution within Sample of Sociologists

	F. Prof.	A. Prof.	Visit. Prof.	Ass. Prof.	Univ. Ass.	Res. Ass.	Lect.³²	Teach. Ass.
Female	1	3	0	1	3	3	1	2
Male	2	2	1	3	0	0	0	1
Total	3	5	1	4	3	3	1	3

Table 5.3: Estimated Real Working Hours of Molecular Biologists: Men and Women

	30-39	40-49	50-59	60-69	70-76
Men	1	5	7	3	1
Women	4	13	11	1	2

Table 5.4: Estimated Real Working Hours of Sociologist Working Full Time: Men and Women

	35-40	41-50	51-60
Men	1	1	5
Women	1	6	0

³¹ Lab leaders include Professors, Visiting Professors and associated researchers. One person included here is Professor, but not a lab leader.

³² Lecturers are external teaching personnel with contracts limited for one class and semester.