



**Abstract**

The female proportions of students, lecturer and professors have risen gradually in Austrian universities in the last decades. Women however still form a minority among lecturers and professors and it is disputed what the prospects are for the further advancement of women in academia. This is a central question in this statistical analysis. The analysis tries to scrutinise the figures and presents a picture of the situation of women in Austrian academia based on publicly available statistics. The paper presents the Austrian University System as a system with ongoing changes and the ever more noticeable presence of women in the last years.

Furthermore some hypotheses are tested in order to explain gender stratification within the Austrian University System. It is shown that historical periods of massification of the universities lead to a relative rise in female proportions of both students and staff.

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## **Introduction**

In the so-called Field guide 1 of the project “Women in European Universities”<sup>i</sup>, Poulsen presented a general view of the current situation of the Higher Education (HE) system in Austria with special attention on women. That first inform was produced by intense literature studies and interviews. In this second training paper we will present relevant statistics to analyse the career prospects for women in the Austrian system of HE. We will entirely rely on the vast amount of public available statistics and so will not present any own collection of data. However in order to analyse the current state of affairs we will manipulate the existing data.

We will introduce our report by presenting a general view of the Austrian H E system in figures with gender as a basic breaking variable. We will describe the composition of the staff at the universities and explain how the proportion of women has varied over the years. After presenting detailed data about the lot of the student in all faculties in Austria we can make an analysis of regression with core variables. This should enable us to explain the development of the different progression of women in different ambits of the Austrian higher education system. Furthermore we will test hypothesis that could explain the variances of proportions of women in the different faculties and universities.

## **State of the art**

### **Data base**

The three most relevant data bases for our purpose are those connected to the Austrian National Statistics Office (Statistics Austria), the Ministry for Education, Science and Culture (BMBWK) and a special publication of statistics on the HE, the tri annual *Hochschulbericht*, published by the BMBWK<sup>ii</sup>. The publication *Education across Europe 2000* by Eurostat is used mainly for international comparisons or whenever no other sources are available. *Education across Europe 2000* is also a good source for its comparability but it still uses the International Standard Classification for Education (ISCED) of 1976.

Other sources like newspapers are only used when data is not available anywhere else.

The Statistics Austria has provided data via e-mail by one of its employees, Mr. Friedrich Nietsch. In addition, its statistical yearbook has been consulted. Some figures are also collected from the homepage of Statistics Austria. The data from the BMWF are downloaded from its homepage.

Also another source is being taken into account: The recently published 2001 version of Education at a glance ([www.oecd.org/media/publish/pbo1-23a.htm](http://www.oecd.org/media/publish/pbo1-23a.htm)). This version is based on the ISCED 1997.

## Availability of data

In general the data presented in this report has mostly been publicly available. Only few had to be ordered from the national statistics office, Statistics Austria. Overall the statistics are of a good availability and clearly easier to find than in Spain or the UK according to fellow students in the project. In the first case it is so because of their lack of tradition in collecting statistics on education, and in the second case because of changing standards in data collection. Of the seven countries participating in the project<sup>iii</sup>, we would say that Austria could be in the top in availability shared with another small, centralised state: Sweden.

It ought to be mentioned that there is a lot of statistics that we would like the national statistical office to produce, but with no real hope getting this done. Some data, which would allow investigating the state of affairs of woman in academia, is neither collected by the Statistics Austria central unity nor by international institutions. One example of data that is unfortunately not collected yet but would be of great interest in this respect is “average wages by position in the university divided by sex”. It would also be interesting to have data on where dropouts go when they no longer continue on the doctoral education. It would be interesting to know if they continue with academic work in private or governmental institutions or if they start off in the general labour market. For our purpose it would be very useful to have data on applicants by sex as well as data on the sex of the person the post was eventually given to. As Fochler, Hartel and Prenner (2000) indicate the success rate of men and women and to which degree stipends are given to each sex is not publicly available<sup>iv</sup>. However it is possible to get some of the data from the Austrian Academy of Science and the co-ordinator of EU-stipends by collaborating especially with these institutes. We will scrutinise some of these findings later on.

## Quality of data

In the overall picture the quality of the data is good. The time series were usually unbroken and there were good breakdowns according to sex. Furthermore we could not find any printing errors and the coherence throughout the data is fine. However, as we use mainly data published in the World Wide Web, the **reliability** is not as high as in a printed version. It is assumed that one has more control over a printed document as it exists throughout time and it is not subject to manipulation from outsiders. There is also a tendency for the printed version to exceed the on line version in volume. Moreover some of the statistics of students and teachers register the same person in two different categories for example if a student studies two main subjects at the same time or a teacher gives classes in two places at the same time<sup>v</sup>. **The validity**, however, is very high, or at least the external validity, as the sources have a high reputation in Austria and internationally. Statistics Austria is the official collaborator for Austria to the Statistical Office of the EU, Eurostat.

## Continuity and homogeneity of data

The statistics available are to a very high degree continuous out through the years, dating very far back some of them. There are few changes in breakdowns and the data has been collected since a long time ago. For instance are there reliable and comparable figures for students in the universities from the sixties and forth. But as far as the teaching staffs are concerned, there is a change in the category of the professor title, due to the University Organisation Act of 1993. This has to be taken into account when comparing data published before and after the law came into effect. Due to the new Law on University Service, Dienstrecht (BGB1. I Nr. 87/2001)<sup>vi</sup> there is a new career path for newly entering staff and personnel which is not tenured yet. However the Dienstrecht is only an interim solution until the foreseen new University Law will come into force. The new University Law is envisaged for the year 2002. The changes in the career ladder are shown in the chapter “Old” and “New” career path in academia.

It should also be noted that the vocational colleges ( Fachhochschulen) have only been founded in the middle of the 1990s and therefore some comparisons are conditioned by this fact. Furthermore it should be noted that the comparability between the Statistisches Jahrbuch 2001 and 2002, tables 4.23, is quite weak.

## Gender sensitivity

In general there is a fair amount of available statistics broken down by sex available. However, these do only contain basic information like students by sex, professors by sex and so forth. Unfortunately, data that could give us a clearer picture about the situation and career perspectives of women in Austrian academia (e.g. data about the conceding of grants by sex or data that could give us insights into selection panel decisions) are not collected.

An interesting feature of most of the available data on higher education in Austria is that it is broken down into *Inländer* (Austrian citizens) and *Ausländer* (foreigners). For the researcher that wants to study the distribution of foreign and national students in the different study areas there is a vast material available.

## Critique

- Critical points in career

A first critical point in a career for both men and women would be finding a post after they obtain their doctoral degrees or PhDs. Of course, apart from the mere finding of a post it would also be important for their future career that the post they eventually find is positioned in an important fields in terms of resources so that the job will not be dead-end, that is with good possibilities of advancement. It is also important that it is positioned in a important field in terms of intellectual status so that they would be able to change to another field in case there are no further career prospects in the given field.

When speaking of finding a post after the PhD there is evidence that although Austria has a rather high proportion of PhDs in relation to the general population the total size of academia is still comparatively small. So not everybody gets past this first hurdle even if they have got a PhD. Another question all together would be if they really want to get past this hurdle; if it is likely that the PhDs would want a career in Academia. Austria's low unemployment could give a hint about the good possibilities for a career in the private sector. Is there evidence that more men get over this first hurdle? With the existing figures at hand it is hard to prove. It is however easier to prove that women have a tendency of choosing scientific fields at the university that have less economic possibilities. Fochler, Hartel and Prenner (FIII/4, 2000) showed that in the fields of Natural Sciences, Engineering and Tech-



nology, Medical Sciences and Social Sciences there was a higher proportion of women among the researchers in the government- and private non-profit sectors than in the HE system. In the Humanities and Agricultural Sciences the picture was reversed.

A second critical point in a lifetime career is to take the final step to becoming a full professor. There is currently a huge load of people on the step just before on the career ladder, the limited university professor, waiting for a permanent position to be vacant<sup>vii</sup>.

Table 1: Staff in 1990 and 1999

Staff category	1990	1999	1999 in 1990 figures
Ordinary professors	1152	1276	111 %
Secondary professors	580	578	100 %
University- and hired assistants	5434	7238	133 %
Scientific personnel	7893	9883	125 %

Source: table 2.1.3 in *pocketstatistics.pfd* for the period 1990 to 1999, supplied by Statistics Austria.

In Table 1 we see that although the number of University assistant and hired assistants rose from 5434 to 7238 (133 %) and that of the scientific personnel altogether rose from 7893 to 9883 (125 %) the Ordinary Professor (Ordentlicher Professor) only rose from 1152 to 1276 (111 %) and Secondary Professor (Auserordentlicher Professor) remained stable from 580 to 578 (100 %).

Women are underrepresented on all these levels as we can see further ahead on Table 11. We can however not say anything about the success rates of the applicants. It would be highly relevant for further research on segregation and discrimination in academia to have access to the jury- and rector decisions on employment.

It is interesting to notice that in the 1990s there has been an increase in all staff categories, except secondary professors. The increase has however not been of the same size for the different categories. Table 1 shows us that the increase is mainly on the scientific personnel and university- and hired assistants. The particular high raise in these categories could maybe be explained by their comparably lower salary costs. The absent new recruitment of secondary professors could partly be explained by the fact that it was announced to disappear in the late 1990s. The num-

bers for the two professor types are indeed a bit suspicious especially that the number of Secondary professors go down by 2. It is possible that the new university professor title is counted under Ordinary professor. Nevertheless there should be evidence that the lower positions in the university hierarchy have greater growth both absolutely and relatively.

*Diagram 1: "Old" and "New" career path in academia*

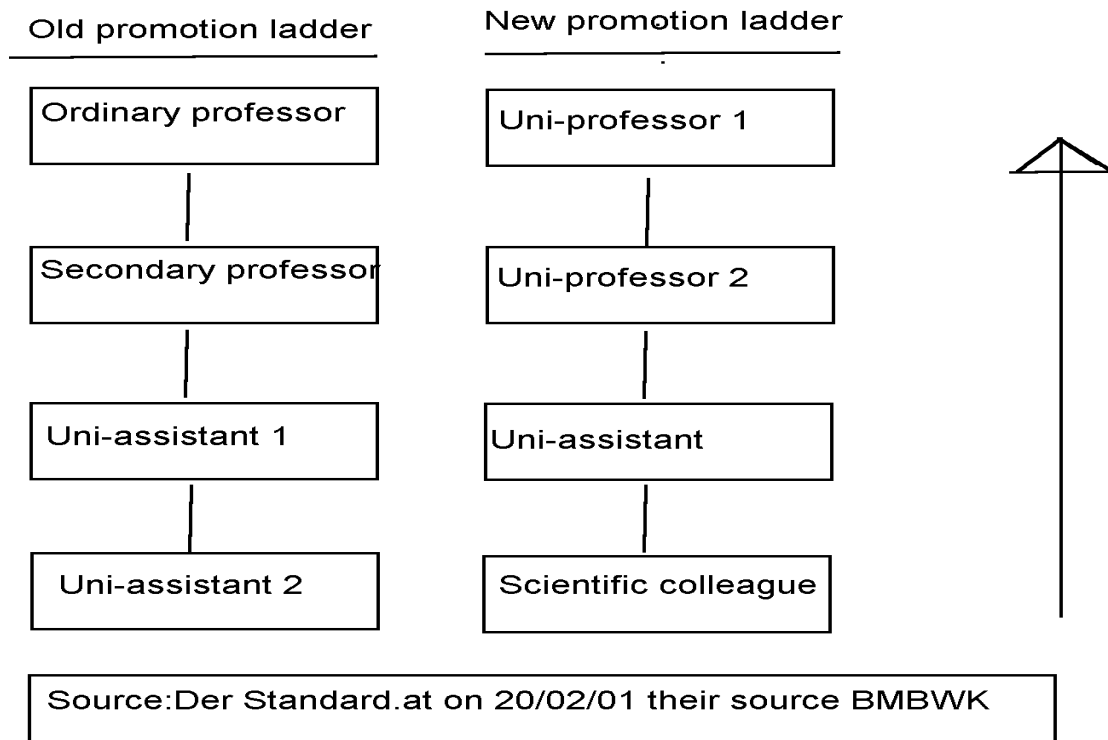


Diagram 1 shows how the changes of the re-qualification of titles for the term 1999/2000 affected the career path of Austrian scholars. The diagram is scheduling the official path to take and actual careers will differ slightly from this, as the plan is only an interim solution before the new University Law comes into effect. The changes are put to paper in the Change of University Service Act (Änderung des Universitätslehrerdienstrechts, Bundesgesetz BGBl. I Nr. 87/2001). The changes were made primarily to solve the problem young talented graduated have to enter a scientific position. Through flexibility of career changes the law will encourage mobility of young scientists. The most interesting measure is to regulate the change from provisional post as University Assistant<sup>viii</sup>.

At the first step in the new system is scientific colleague. To get this job one would need and ordering from the rector, which is but a mere formal procedure. In order

to come to the next step, university assistant, one would have to enter a contest and have the title of doctor. The job is still ordered by the rector where as it in the old system the minister formally ordered. To get one step further one would in the old system have to complete a Habilitation and was then automatically transferred to the next employment. In order to be a university professor of type 2, now one shall enter a new contest and there is no formal need to complete a Habilitation. Likewise the second highest step was unlimited pragmatised in the old system, and is now limited to a maximum of 7 years. To get to this post one would have to attend a job calling entitled by the rector. The highest step is quite similar in the two systems and it is usually reached when the applicants are between 50 and 65 years old.

When the new university law comes into force then the “pragmatised” tenured university personnel will no longer have a civil servant status, but be employed by the respective university<sup>ix</sup>. The new career path will be as follows: The first step is called “Assistent in Ausbildung” who are graduates that prepare their thesis and will be trained in management and teaching skills. They will also have to collaborate in departmental administrative tasks. They have a four-year limited contract, and when it expires they will have to apply for the post of assistant, which is limited to four years or for staff scientist, which is unlimited. Assistants and staff scientists can in theory apply for a professorship. The position of professor may be limited or unlimited<sup>x</sup>. All the figures to come in this presentation are however referring to the “old system”.

## ***Statistical Overview***

### **Introduction**

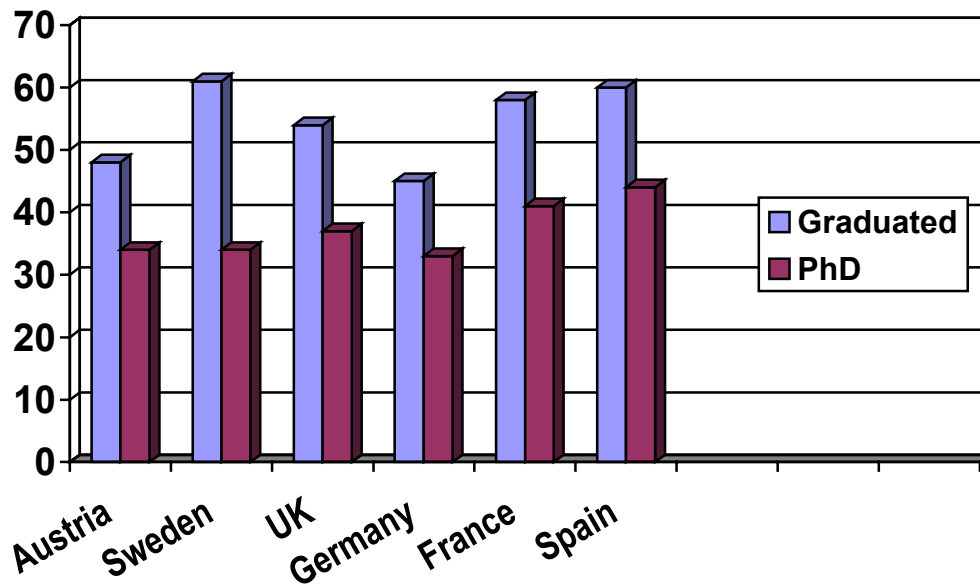
We are now going to put some figures into this skeleton we provided. We will present the Austrian University system by comparing it to other countries and describe the women proportion in some stages of a university career. After presenting the figures of the students we will try to draw a picture of the situation for the staff and the professorship. We are going to show the magnitude of the university system so that we can get a feeling of how many people are affected by sex structures. Do to the policy change that the emergence of Fachhochschulen meant we would also try to sketch out the magnitude and structure of these vocational schools.

## The university System (descriptive)

MAGNITUDE OF SYSTEM- In general the tertiary education system, and the university system, is not as extensive as in other countries. Only 11 % of the Austrian youth at the typical age of graduation completed tertiary education in 1999 according to the latest OECD data. But this comparable low proportion is also due to the fact, that the Austrian university system until very recently was a two-step system, with no possibility of taking a shorter degree as for example a bachelor degree. The OECD average was 25 % completing tertiary education in the typical age of graduation<sup>xi</sup>. Austria has spectacular figures on changes of the number of students at tertiary level between 1995-1999: A 44% increment of students in a time where the demographic changed from a 100 to 62! That is; with 1995 as a basis year (100) the number of students rose to 144 and the young people available in a certain age group has gone down to 62. Also 96,5% of Austrian students at level 6a (ISCED 97) (see abbreviations) studied in public schools and 3,5% study in private-government dependent institutions. This year nobody studied at fully private schools. The reason for this of course that the private universities in Austria have just been founded recently in the years 1999, 2000 and 2001. A full 100% of the students studied full-time in 6a institutions. This is as before mentioned because the figures from Statistics Austria do not register part-time students<sup>xii</sup>.

On the other hand the situation was comparably better when looking at the number of people who earned a PhD. Of an age cohort 1,4 % obtain a title of an advanced research programme. This is of course only true for the latest decades age cohorts, as if it would have been measured earlier the figure would be much lower. The OECD mean is 1,0 %. Spain had 0,5 %, which is very interesting taking their high level of university students in to account and France 1,2 % while Sweden had 2,4 %.<sup>xiii</sup> According to the same document, in Austria women obtained 34 % of the doctor titles in 1999. (See Figure 1).

Figure 1: Proportion of women by title 2000



Source: *Education at a glance 2001*, OECD, [www.oecd.org/media/publish/pb01-23a.htm](http://www.oecd.org/media/publish/pb01-23a.htm) P. 171 on 2001-06-20.

The ratio of women in first tertiary type A education (level 5A in the ISCED 1997) was meanwhile 48%. This has to be compared with the development in other countries such as France where 41% of PhDs awarded were given to women and 58% of first tertiary type A like university degrees were given to women. In Germany the figures were 33% for PhD and 45% for degrees. In Spain 44% awarded doctorates were women three years ago and 60% of the graduates were so. In Sweden the numbers were 34% and 61% respectively and in the UK 37% and 54%. The OECD average was 36% and 53%. It is maybe interesting to see that Sweden needs much more women students to get the same amount of women doctoral student as Austria.<sup>xiv</sup> Or in other words, that comparably less women in Sweden continue to finish a PhD in comparison with Austria. A crude interpretation of this would be that there is a greater discrimination against women inside Swedish academia.

In figure 1 it looks like the gap between the two stables (graduated and PhD) is smallest in Germany. This could be explained by a lesser discrimination in Germany once the students starts to research, or it could reflect that the PhD has a shorter duration in Germany than in the other countries. There are some indicators

that the last interpretation is true. For instance a doctoral thesis presented in the law within 2 years is considered within the normal.

## Students

Table 2: Women as a per cent of students and graduates

	% women of newly enrolled students	Total number of students	% women of accredited students	Total number of graduates	% women of graduates
<b>1971</b>	34,8	49063	27,7	4483	26,1
<b>1981</b>	47,2	112930	41,2	6606	35,5
<b>1991</b>	49,8	181416	44,5	9614	43,7
<b>1998</b>	54,7	200738	48,5	12980	47,2

Source: Austrian Central Statistics Agency, pocketstatistics.pdf provided by the agency

As we can see from table 2 the proportion of women of newly enrolled has gone from almost in accordance with the acceptance belt (see definitions) in 1971 to acceptable in 1981, 1991 and 1998. This is taking a percentage of women as acceptable if between 40 and 60. In 1998 women outnumbered the male freshmen by a large margin. Of women accredited as students the numbers has been acceptable since 1981. It is interesting to see that the total number of students has grown a lot between 1971 and 1981 and between 1981 and 1991 but not so much in the last period even if we control for the smaller number of years in the period 1991-1998. When speaking about graduates, the numbers are only acceptable for the last two periods. One valid explanation could be the time lack between entering the university and finishing it. Another explanation could be that women have a lower success rate than men. Another observation from the table would be that while the total number of students has grown with 409 %, the total number of graduates has only grown about 290 %. This could be explained in basically two ways: That the university has become harder on their students or that there was a pre-selection before that only allowed the best to continue in to university and that when these now precede to university does not meet standards. Other explanations could be worse study conditions, as the mass universities became a reality through the 1980s.

As we can see above the proportion of female has grown in the last decade. To be more precise it has grown in all scientific fields, even the natural sciences and farming<sup>xv</sup>. There are no black spots where the number of female students does not

grow. The number grows in the scientific fields where the number is still low and it grows in the fields where the proportion of females is high.

*Table 3: Number of universities by size-group in 1998*

	Students	N° of Universities
"Big universities"	40. – 80. 000	1
"Middle universities"	20. – 40. 000	3
"Smaller universities"	< 20. 000	12

Source: Own elaboration through data by Statistics Austria, design Bösch

Table 3 shows that in Austria there is one university, Wien Universität, way bigger than the others. There are three universities, which could be called middle universities and those are the universities of Innsbruck, Graz and the technical University of Vienna. The rest must be considered as small in any international comparison. The smallest of all are the four newly founded private universities.

*Table 4: Total number of enrolled and age cohorts*

<b><u>Women and the academe</u></b>	<b>1971</b>	<b>1981</b>	<b>1991</b>	<b>1998</b>
<b>New students enrolled</b>	8998	17314	20296	21114
<b>% of age cohort going to university</b>	9,0	13,9	19,3	25,3
<b>..</b>				
<b>% of age cohort going to university women</b>	6,3	13,4	19,6	28,5

Source: Statistics Austria, pocketstatistics.pdf provided by the agency

Table 4 shows in another way how equal opportunity is spreading slowly in to the system. Every year there is more students enrolled and in the second period women are recruited almost in the same scale as men and in 1998 they have clearly passed the men in the universities. We also see that in the last period from 1991-1998 the total number of new students enrolled rose only slightly, even considering the lesser number of years in this period. The latest data from 1999/2000 even tells us that the number of students enrolling to universities has stagnated. In 1991 for the first time a greater share of the female age cohort is going to the university com-

pared to males. Almost 3 of 10 women are going to university but only a bit more than 1 in 5 men. There are differences depending on which school the pupils come from.

*Table 5: % last-years pupils continuing to university after different secondary education after 3 and 5 semesters:*

	1990 after 3 semesters	1990 after 5 semesters	1996 after 3 semesters	1996 after 5 semesters
<b>Ordinary secondary school men</b>	78,6	80,7	74,3	76,8
<b>Ordinary secondary school women</b>	67,7	70,9	71,7	73,7
<b>Labour market oriented secondary school men</b>	45,6	49,3	36,5	39,8
<b>Labour market oriented secondary school women</b>	33,9	36,7	32,7	35,6

Source: Tabelle 1.5 in pocketstatistics delivered by Statistics Austria. Pupils in irregular ordinary secondary school are not reflected in the statistics.

Table 5 shows that as expected fewer pupils from labour market oriented secondary schools go to university than from the ordinary secondary school. Furthermore there is slight indication that men have an advantage in going to university from the labour market oriented schools compared to the ordinary schools, especially in the 1990 figures. It is assumed that they enter economy, engineering and natural sciences.



*Table 6: Number of students and female rates divided by field of study Winter term 1999/2000.*

	<b>Total</b>	<b>Total women</b>	<b>Women in % of total</b>
Regional planning and Architecture.	13124	3934	29,98
Agricultural Studies	5229	1939	37,08
Electro technical studies	4003	227	5,67
Humanities (as a second study subject)	20065	13678	68,17
Historian or Cultural Studies	20633	12768	61,88
Individual Degree Programme	1135	509	44,85
Engineering Construction branch	5905	285	4,83
Medicine	21106	11866	56,22
Mining and Metallurgy	2657	440	16,56
Natural Sciences	22767	11660	51,21
Pharmacy	2808	2092	74,50
Philosophic Humanistic Studies	45040	29637	65,80
Philological and Cultural Studies	29159	21703	74,43
Sports Sciences and Physical Education	2960	1281	43,28
Technical Master programme	942	223	23,67
Technical Studies (Short duration)	825	155	18,79
Technical Natural Sciences	13952	2160	15,48
Theology	3474	1386	39,90
Veterinary Studies	1915	1391	72,64
Translation and Dolmetsch Studies	3719	3138	84,38

Source: File sent by Statistics Austria, their source BMBWK.

There are several interesting things to be said about Table 6: Firstly we notice that there is a great difference in the proportion of students in the different fields of

study. One would expect that most of the fields would be in the acceptable interim between 40 and 60 % in the gender balance. Only 4 of the 20 fields of study are in this zone! The horizontal segregation seems to have a bastion in Austria. Of the 16 that are left, 7 areas of study have higher female proportion than the acceptable interim and 9 lower.

Secondly, quite surprisingly Natural Science (Naturwissenschaftliche Studien) has a majority of female students. In many countries it is expected to find a low level of female students in Science studies, because of the expectations of male likening of science. With the exception of Portugal this has also been true in the EU the last years<sup>xvi</sup>.

Thirdly, we know that Swedish women tend to choose shorter programmes than men<sup>xvii</sup>. It is therefore a bit surprising that not more than 18,79 % of the students on short technical studies (Techn. Kurzstudien) are women. The proportion is only slightly higher than in technical science (Techn. Naturwiss.) One would expect it to be clearly higher than technical sciences as short technical studies as the name indicates are studies of short duration. They do not include exactly the same sub-fields but they are both of a highly technical vein.

*Table 7: Number of doctoral students and female rates divided by field of study winter term 1999/2000*

	Total	Total women	Women in % of total
Humanities and Natural Sciences	9690	5603	57,82
Agricultural Sciences	890	293	32,92
Mining and Metallurgy	195	25	12,82
Law	4339	1827	42,11
Economics and Social Sciences	4070	1493	36,68
Engineering	4223	685	16,22
Theology	590	117	19,83
Veterinary Medicine and Medicine	397	257	64,74
Total doctoral and under graduate students	331202	168749	50,95

Source: File sent by Statistics Austria, their source BMBWK.

The lecture of the data on the doctoral students is not much different (see Table 7). First, however, we must notice that the categories are different from the under

graduates. This is of course a disadvantage when comparing the two groups. For doctoral students there are only 8 fields of knowledge with four fields with a lot of students (Humanities and Natural Sciences; Law; Economics and Social Sciences and Engineering), three with few students (Agriculture; Theology and Veterinary Medicine.) and one with very few students (Mining and Metallurgy). Also in the case of the doctoral students there are few fields with in the belt of acceptance, only 2 out of 8! Of the 6 remaining fields only one is over the acceptance belt and 5 are under. On these data we can conclude that the vertical segregation continues into the lots of doctoral students. It is though not as significant as it could be as only Engineering of the four big fields are very far from the acceptable belt.

The last figure, the almost 51 % female doctoral and graduate students reveal for us that the evolution in the most recent years has only accentuated the trend: Women are stabilising their majority among students. As noted in Poulsen (2001) the development in 1998, 1999 and 2000 has seen a rise in the total female number of graduate students and a fall (sic) of the total number of male graduate students. See Table 8.

Table 8: The latest development of graduated students and doctoral students

	Total Austrian nationals graduated 97/98	Total Austrian nationals graduated 98/99	Variation 97/98 – 98/99	Women Austrian nationals graduated 97/98	Women Austrian nationals graduated 98/99	Variation women 97/98 – 98/99	Men Austrian nationals graduated 97/98	Men Austrian nationals graduated 98/99	Variation men 97/98 – 98/99
Graduate and doctoral study	14148	14043	-0,74 %	6599	6799	3,03 %	7619	7244	-4,95 %
Only graduate	12521	12412	-0,87 %	5974	6233	4,34 %	6547	6179	-5,62 %

Source: Statistisches Jahrbuch 2001 and 2002 by Statistik Austria.

Table 8 give us a very clear indication of the development in the very last year. Slightly less people are finishing doctoral studies and graduate studies and some hundred less finish graduate studies. However the gender indications are much clearer: The absolute number of women finishing graduate studies is rising, which has been the development since women were allowed to study at universities at

the beginning of the last century. The total number of graduated men is however going sharply down, a total novel tendency. It is also possible to see that women has past men in total numbers of graduated in the latest year 98/99. It is not possible to compare figures for finished doctoral courses in the two latest years, as they are collected in accordance to different criteria. For a look at the development of the number of students since the 1950s please see additional tables

### **Staff (“next step”)**

In under graduate studies we have seen that there is a larger proportion of women in the universities and universities of arts than in the Fachhochschulen. It is therefore maybe a bit surprising that when comparing scientists only one in five were women in the Higher Education Sector and the state whereas every one in three of scientists in the Austrian Science Research Council (Österreichischer Akademie der Wissenschaften) and in the private public use sector were women<sup>xviii</sup>. So while it is in the universities, as opposed to the vocational schools, one would find the highest proportion of women under graduate, this is not true for the later career (Gaudart 1992, referring to 1985 figures).

Table 9: Employed in research in different sectors, including assistants, 2000

Sector of performance	Number of survey units	TOTAL	
		Total	Female share
<b>1. Higher education sector</b>	<b>1.031</b>	<b>7135,7</b>	<b>34%</b>
From them:			
1.1 Universities	812	5778,5	32%
1.2 Clinics of universities	79	959,5	47%
1.3 Universities of the arts	55	83,1	32%
1.4 Academy of sciences	78	308,5	37%
1.5 Research institutes of HTLs	7	6,3	19%
<b>2. Government sector</b>	<b>332</b>	<b>2107,4</b>	<b>37%</b>
<b>3. Private non-profit sector</b>	<b>41</b>	<b>100,4</b>	<b>54%</b>
<b>4. Business enterprise sec-</b>	<b>790</b>	<b>15114,3</b>	<b>19%</b>
From them:			
4.1 Co-operative area	32	1298,7	25%
4.2 Ziviltechniker	19	23,8	17%
4.3 Companies of power stations	11	33,2	9%
4.4 Company-owned R&D	728	13758,6	18%
<b>TOTAL</b>	<b>2194</b>	<b>24457,8</b>	<b>25%</b>

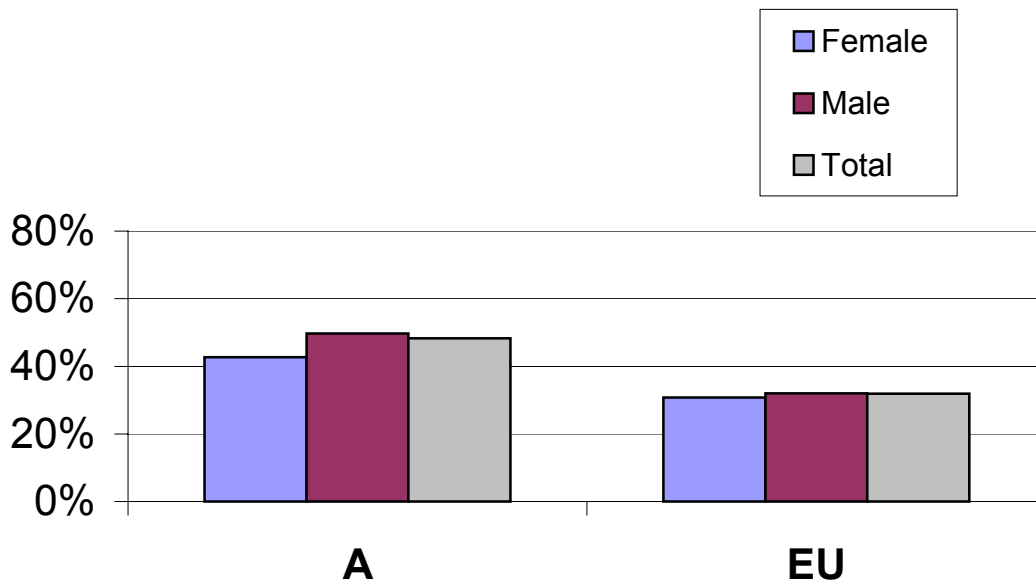
Source: Federal Institute Statistics Austria, Institute for Advanced Studies, Vienna

## Success in funding

A method to take into consideration when measuring gender discrimination in academia is comparing the success rate in funding research. The method is superior to that of merely comparing participation rates in different positions in the career ladder mainly because the differences in participation rates does not only reflect discrimination but also the interest of men and women in occupying these positions. By comparing the gender proportion of applicants of funding and the gendered rate of approved funding we escape from the problem of interest as all applicants of a fund is taken as wanting it. Moreover as mentioned before there are problems of time lapses when comparing the proportion of females in one position with another. The conceding of funds is done every year and what we measure is then one spot in time. The figures for applicants and approvals are as mentioned before however not publicly available.

Well are there then discriminations in the conceding of funds? *Ceteris paribus* there do exist discrimination. As we can see from Figure 2 men have better approval rates than women both when they apply for a selection of national funds and for EU funds. In the selection of national funds the approval rate for men is 50 % while it is only 43 % for women. The total approval rate for these funds is 48 %. In the battle for EU funds the advantage of the men is smaller: The male approval rate is 32 % compared to 31 % for women. The total approval rate is 32 %.

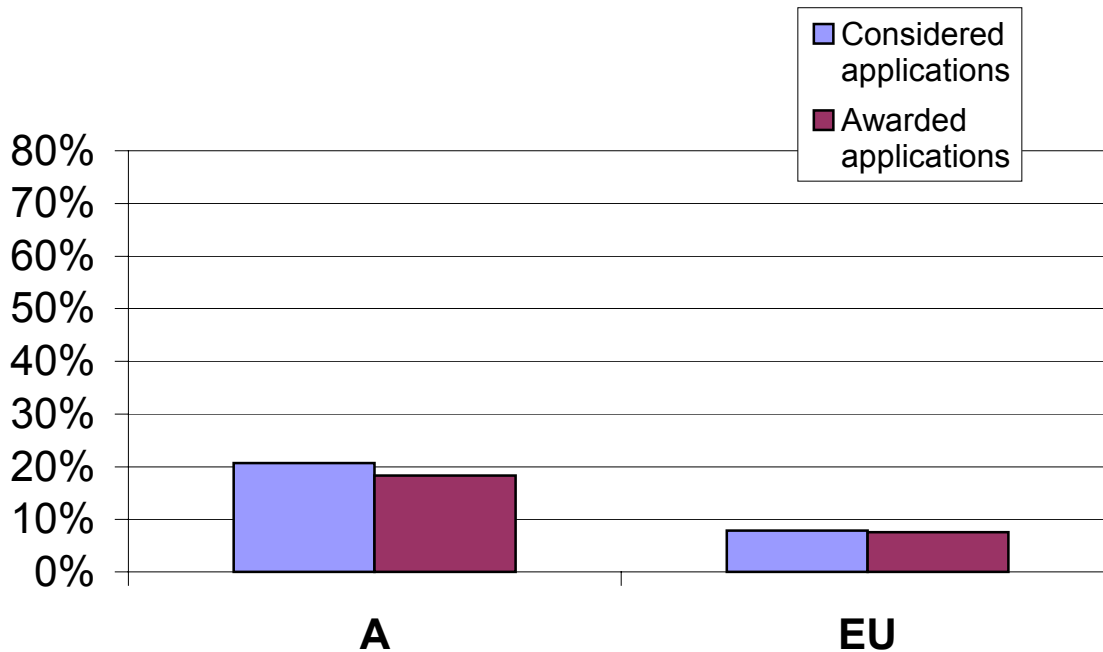
Figure 2: Female and male approval rates for Austrian grants (1997-1999) and for Austrian participation in EU grants (1994-1999)



Source: Austrian Science Fund, Austrian Academy of Sciences, F IV/2 in Fochler, Georg, Harthel, Margit, Prenner, Peter: *Building gender indicators*, Research report for the Austrian Ministry of Education, science and culture, Institute for advanced Studies, Wien, 2000.

Only about a fifth of the scholars who apply for the selection of Austrian funds are women (21 %). This figure diminishes to 18 % when the applications are awarded (see Figure 3). The figure of considered applications formulated by women for the Austrian administered EU funds are as low as 8 %! Of these applications a similar 7,6 % are awarded with the funding in question. There is no good explanation why the proportion of female applicants are so much lower in the EU funds compared to the selection of Austrian funds.

Figure 3: Female share of considered and awarded applications for selected Austrian grants (1997-1999) and for the Austrian participation in EU grants (1994-1999).



Source: Austrian Science Fund, Austrian Academy of Sciences, F IV/1m Fochler, Georg, Harthel, Margit, Prenner, Peter: *Building gender indicators*, Research report for the Austrian Ministry of Education, science and culture, Institute for advanced Studies, Wien, 2000.

We can however not be totally sure that the lower success rate of women is alone due to gender impact. The figures does not tell us if the female applicants generally where less qualified than their male counterparts. There are no indications though that this should be the case. Nor does the figures tell us anything about the social characteristics of the applicants. It is generally accepted among researchers of university affairs that female scholars with the same qualifications as men are on average some years older because some of them have born and raised children. Gender discrimination is in this case hidden in the impact of age.

Never the less I must emphasise that I believe that comparing applicants and rewarded applications for funding is the best available statistical method to examine gender discrimination in academia.



## Professors

Table 10: Professors by sex and university study year 1998/1999

University	Professors	Women professors	Women professors of total professors
<b>Wien</b>	641	60	9,4 %
<b>Graz</b>	256	13	5,1 %
<b>Innsbruck</b>	489	39	8,0 %
<b>Salzburg</b>	172	10	5,8 %
<b>TU Wien</b>	304	7	2,3 %
<b>TU Graz</b>	162	3	2 %
<b>Montanuni. Leoben</b>	80	1	1 %
<b>Uni. Bodenkultur</b>	108	9	8 %
<b>Vet. -Med.</b>	32	3	(9 %)
<b>WU Wien</b>	128	8	6 %
<b>Linz</b>	154	6	4 %
<b>Klagenfurt</b>	91	9	(10 %)
<b>Total</b>	2449	168	6,9 %

Source: List provided by Statistics Austria. Please note that in the heading “professor” is included University professor, Professor emeritus, Guest professor and HonorarprofessorInnen.

As we can see in table 9 there are some variations in the women proportion among the different public universities in Austria. The most marked out difference between the different universities are that the Technical Universities Wien and Graz along with the University of Mining and Metallurgy have a marked lower proportion of women; between 1 and 2,3 % women, while the other universities all have between 4 and (10) % women among their professors. It could be a coincidence that Wien has the highest proportion of women professors and by the same time it is one of only two Austrian universities with an acknowledged Co-ordination Centre for Feminist- and Gender Studies. Because of the general low number of female professors it is difficult to compare between disciplines.

## Fachhochschulen

The Fachhochschulen were started in the course 1994/1995 after a German pattern. The first year only roughly a thousand students enrolled but it has increased its popularity since then. In the 1999/2000 term there was about 10.000 students in Fachhochschulen compared to some 260.000 at universities and universities of arts. Of the total number of 9970 Fachhochschul students 2911 (29,2 %) of them were women. The proportion of women among Fachhochschul students has slowly increased over the last years. Women have a fair success in completing Fachhochschulen. In 1998/1999 197 women took their exam in such a vocational school, which constitutes as much as 28,2 % of the total number of graduated that year. For a regional distribution of the Fachhochschulen please see [www.bmwf.gv.at/3uniwes/2001/reform\\_02.htm#2](http://www.bmwf.gv.at/3uniwes/2001/reform_02.htm#2) .

## Hypotheses

In order to explore reasons for the gender distribution we have elaborated some hypothesis which to a greater or lesser extent have been confirmed or rejected. The hypothesis were chosen from what was considered as popular ideas within gender and organisation studies and what was feasible to invest with the mere use of numbers.

### I *The more feminised the studentship, the more feminised the professorship*

The hypothesis states, that the higher the female participation is among the students, the higher it would also be among the professors in the same institution. The hypothesis rests on the assumption that many women in the professorship of a university or Fachhochschule would attract more women in the rows of the students than if the opposite was the case. The pattern is well known from many European countries: The typical case is a comparable high level of female participation among students and professors in Humanities and a comparable low level of both female students and professors in the field of natural sciences. The hypothesis could be resumed in the more popular Women attract women. Arguably the relation could also be the other way around. Thus female scientists heading to be professors go for the fields with high women participation among students. It is however not very likely, as once initiated a career scientists tend to stick to their discipline and

much less change scientific field. It is an absolute minority that shifts from being a scholar in the natural sciences to become a professor in say Philosophy.

A relation of the first kind women attract women would be a almost static relationship, women chose to study a certain field in a moment (or a five year period), a field that has a high proportion of women professors. However the relation of the two variables could also be seen as dynamic. A high proportion of female students at a given time in history will result in comparably more professors in a careers time later, thus presuming that part of the students in the first period of time will go on to become a professor in the last period of time.

It is our intention to find data, which confirms or rejects both the static and the dynamic relationship of the hypothesis.

Table 11: Women proportions Universities in %

	1970	1975	1980	1985	1990	1995	1999
<b>First year students<sup>1</sup></b>	31,5	43,3	46,3	50,3	50	53,1	58,3
<b>Students<sup>1</sup></b>	25,7	32,8	39,7	43,1	44,4	45,9	49,1
<b>Graduated<sup>2</sup></b>	24,7	27,6	36,8	39,8	42,9	44,9	47,5
<b>Graduated doctoral students<sup>2</sup></b>	5,4	7	12,6	25,2	27,7	29,9	34
<b>Hired Assistents Vertragsass. (VA)<sup>3</sup></b>	25,8	VA + UA	VA + UA	28,6	29,4	36,4	42,6
<b>Univ. Ass. (UA)<sup>3</sup></b>	15,4	13,8	14,7	14,5	17,3	20,9	23
<b>Habilitations<sup>3</sup></b>	4 <sup>4</sup>	4,6	4,5	10,3	9,7	11,7	14,2
<b>Secondary Univ. Prof.<sup>3</sup></b>	3,4	5,5	3,7	4,9	5	6,3	6,2 <sup>5</sup>
<b>Ordinary Univ. Prof.<sup>3</sup></b>	3	2	1,5	1,7	2,1	3,2	4,4 <sup>5</sup>

1 Only nationals, Winter term, for 1998/1999 preliminary figures.

2 From 1985/86 graduated and PhD graduated, according to each Study Act. Source ÖSTAT; Figures for 1999 from Study Year 1997/98.

3 ProfessorInnen/AssistentInnen until 1995: Source ÖSTAT, Day of datagathering 1.12. of each year. 1999: Source BMWV-Pers.; Day of datagathering 1.3.1999.

4 1972.

5 1998; 1999 is in this sense not comparable, because the professorstatus is according to UOG 1993. Women proportion 1999: Univ. Prof. According to UOG 1993 3,9%, ao. Univ. Prof. 6,3%, o. Univ. Prof. 5,5%.

Source: BUNDESMINISTERIUM FÜR WISSENSCHAFT UND VERKEHR (BMWV) (Hg.) (1999a/1): Hochschulbericht 1999, Bd. 1, Wien: 92. Figures provided by Jessica Bösch

Peculiar that Hired assistants and University Assistants together are lower in 1975 and 1980 than University Assistants were in 1970!

From these figures we can conclude that there is no connection between high levels of female participation among the students and high level of female participation among the professors. While the proportion of students is constantly increasing over the years, the Ordinary University Professors have a constant low proportion of women. Also Secondary University Professors remain constant although they have a slight increase in the last period.

Table 12: Women proportions in Universities of Arts %<sup>1</sup>

	1970	1975	1980	1985	1990	1995	1999
<b>First year students<sup>2</sup></b>	41,3	49	42	45,1	46,3	53	56,1
<b>Students<sup>2</sup></b>	39,4	42,9	43,4	44,2	45,4	50,4	54,1
<b>Graduated</b>	45	44,4	46,5	48,8	46,7	54,1	53,7 <sup>3</sup>
<b>Hired Assistants</b>	k.A.	k.A.	k.A.	k.A.	36,8	49	51,6
<b>Hochschul ass.<sup>4</sup></b>	11,1	15,9	24	25,2	29,9	32,9	34,3
<b>Ordinary Hochschul - profes- sor<sup>4</sup></b>	4,1	2,4	11,2	15,1	13,8	16,3	18,2

1 From 1.10.1998 was the Hochschulen of Arts benamed as „Universities of Arts“.

2 Accepted and registered students: Austrian national registered students, , Winter term, for 1998/1999 preliminary figures. First year students 1994/95 only for four Kunsthochschulen.

3 Study year 1997/98.

4 ProfessorInnen/AssistentInnen until 1995: Source ÖSTAT, Day of datagathering 1.12. of each year. 1999: Source BMWV-Pers.; Day of datagathering 1.3.1999. From 1980 in Kunsthochschulen also ao. HochschulprofessorInnen old types; Women shares: 1970: 16,3%, 1975: 22,9%, 1980: 26,5%. (sic)

Source: BUNDESMINISTERIUM FÜR WISSENSCHAFT UND VERKEHR (BMWV) (Hg.) (1999a/1): Hochschulbericht 1999, Bd. 1, Wien: 92. Figures provided by Jessica Bösch.

Peculiar that apart from 1999 the female proportion of graduated are higher than the proportion of students! Hired assistants are also very close to the numbers of students. For the figures for every university we will have a look at table 9 in Poulsen 2001, where we can see that the hypothesis is true when we see to the static picture. 3 universities with less than 30 % female students also have less than 3,5 % of female professors. Of the receding 9 where the lowest female student participation is 43,4 %, 7 are over 3,5 % female professors<sup>xix</sup>. In all there seem thus to be support for our hypothesis. It would however be necessary to investigate data broken down by institution to get a more precise picture.

## II *In times of expansion of HE demand changes in favour of women- the Costa Rica thesis.*

In Costa Rica it is taken as a fact among members of academia that when the university system expanded strongly in the 1960s this was to the benefit of women. In these years the woman proportion of academic staff raised sharply<sup>xx</sup>. In 1990 37% of the University of Costa Rica faculty members were women. These figures are to be compared with about 10% in Peruan universities at the same time and 5-22% in US universities. The idea is that the expansion has to be especially abrupt and large of scale to have an effect, because other studies prove that it is the segregation of the past, which is one of the biggest influences of the hiring patterns of the present<sup>xxi</sup>.

Table 13: Total number of enrolled and age cohorts

<b>Women and the academe</b>	<b>1971</b>	<b>1981</b>	<b>1991</b>	<b>1998</b>
<b>New students enrolled</b>	8998	17314	20296	21114
<b>Period of time</b>		1971-1981	1981-1991	1991-1998
<b>Growth in newly enrolled students</b>		8316	2982	818
<b>Growth of newly enrolled students</b>		92,42%	17,22%	4,03%
<b>Growth in students per year of the period</b>		831,6	298,2	116,9

Source: Statistics Austria, pocketstatistics.pdf provided by the agency

Table 12 indicates how many new students were enrolled in a selection of years over the last three decades. It becomes clear that the biggest increase in new students enrolled is from 1971-1981. In these years the number of new enrolled students almost doubled while the figure from 1981-1991 only increased with a little more than one in six. In the last period from 1991-1998 it hardly rose and as mentioned before the latest predictions for 2000/2001 indicates a slight fall in new enrolled students. From this demonstration it is therefor obvious that the 1970s could be described as a period of rapid expansion. Is there a Costa Rica-effect in the 1970s Austria? To find out we need to see the growth of the women proportion in these years compared to others.

From the table in the appendix there are clear indications that the hypothesis is true. From the study year 1964/1965 and the next five years unward the number of students only rose from 48028 to 50.017 and likewise the number of women rose equally weakly from 11510 to 12389. So once again the discrimination of the past was a pattern for the discriminations in the following half-decade. It is noteworthy

that if the students studied according to a normal scheduled planning there would be practically none represented in both years 1964/1965 and 1969/1970. Then something happens in the beginning of the seventies after the student revolutions. In 1974/1975 the number of students has boomed to 75246. That is a raise of about 50 % since 1969/1970, but still it is short compared to the shift in number of women. The number of women students rose in the same period to 24420 or roughly 100 %! The next half-decade is also a period of rapid expansion and the total number of students is in 1979/1980 109121, a raise of some 45 %. In the same half-decade the number of females goes up to 42723, and again the rise is heavier for women, some 75 %.

As we have mentioned before the opposite is true for the 1990ies that even though the total number of new students in the universities fell, the number of women rose! This could be explained by the interference of Fachhochschulen, but not fully.

It could be interesting to compare the number of positions/professors on institutional level in a range of years. If the same thing is true for other positions in university it might be reasonable to recommend appointments on a big scale in few occasions instead of a constant flow of job offers. Obviously there are practical problems connected to this, but nevertheless it is advisable to expand rapid in a short period of time for equal opportunity reasons.

In future research it would also be interesting to include data of foundation of institutes and universities in times of reform and share of women professors. It could also be a recommendation for the statistical office to ask for national data by discipline in specific posts.

### *III The less attractive academia is, the higher the rate of feminisation*

In order to get support for the hypothesis we would search for the following

- wage gap- for HE educated people in general compared to academic staff
- unemployment rate for HE people
- number of applicants, number of PhD's, if possible new enrolments
- time series from expansion in three year steps

Many of these data are however impossible to get hands on and we are thus seriously handicapped in our attempt to find out if the hypothesis is true. Furthermore we would have to define what attractiveness of academy would be. If it is only material measures we are looking for it might be possible but still difficult. From table 13 we are able to see that the women share of the labour market rise as the women of the labour force with tertiary education does. This could indicate a relationship

between the two, but we have no chance of knowing in which direction the relationship goes.

*Table 14: Women and the labour force*

	<b>% women of the labour force concept</b>	<b>% women of the labour force with tertiary education</b>
<b>1971</b>	38,7	19,6
<b>1981</b>	40,4	25,7
<b>1991</b>	41,4	31,7
<b>1998</b>	43,1	35,2

Source: Austrian Central Statistics Agency, pocketstatistics.pdf provided by the agency

In Table 13 we might not be able to prove our thesis but we can see an indication of that the proportion of women in the labour market with a tertiary education has grown a lot, by 180% and is closing up into the proportion of women in the whole of the labour market. The ratio of women in the labour force with tertiary education is however still not in 1998 in the acceptable area.

With the poor data we have we would have to conclude that we are not able to prove the hypothesis true.

#### *IV The more feminised the studentship the more feminised the next step*

Here we have the latest data available on women professors and assistants and their share at different faculties.



Table 15: Graduated and PhD broken by sex 1997/1998<sup>xxiii</sup>.

	Total Graduated	Women graduated	Women graduated of total	Total PhDs	Women PhDs	Women PhDs of total
<b>Theology</b>	220	72	32,7%	38	10	26%
<b>Law</b>	1626	775	47,7%	358	123	34%
<b>Social Sciences and Economics</b>	2866	1237	43,2%	203	58	29%
<b>Philosophy and Humanities</b>	1408	1017	72,2%	173	93	54%
<b>History and Cultural Studies</b>	624	404	64,7%	130	70	54%
<b>Philology and Cultural Studies</b>	725	606	83,6%	66	41	62%
<b>Translation and Dolmetsch Studies</b>	113	106	93,8%	5	4	80%
<b>Natural Sciences</b>	1087	537	49,4%	324	114	35%
<b>Pharmacy</b>	205	165	80,5%	27	17	63%
<b>Science of Sports and Physical Education</b>	174	75	43,1%	16	8	50%
<b>Construction Engineering, Architecture and Regional Planning</b>	676	216	32,0%	48	6	13%
<b>Machine building</b>	336	14	4,2%	56	0	0%
<b>Electro technical Studies</b>	272	3	1,1%	71	4	6%

<b>Mining and Metallurgy</b>	151	14	9,3%	27	1	4%
<b>Agriculture</b>	471	168	35,7%	73	13	18%
<b>Veterinary Medicine</b>	193	124	64,2%	64	29	45%

Source: Table 2.3.2 Erstabschluesse and 2.3.3 Zweitabschluesse in pocketstatistics.pfd delivered by Statistics Austria and own manipulation. No grand total as the few receding fields of study were not comparable between graduate and PhD.

Table 15 shows how the women proportion varies from graduated to finished PhDs. It is worth noting that the data are from the same year so that it is not the same cohort at graduates and at finished PhD. To compare PhD women proportions with prior years please consult Fochler, Hartel and Prenner (2000). The mentioned study is supported with data by the Ministry of Education, Science and Culture (BMBWK) and their number of PhDs vary slightly from the one presented here. The reason for this variation is not known and would be subject to consultation with Statistics Austria.

Although the numbers are rather small in some of the categories we can still find evidence for our hypothesis. When a field has a high proportion of women in graduated it is most likely to have a relatively high proportion of women among the PhD degrees. As it takes at least 3 years to finish a PhD it is unlikely that these students were ever classmates with the ones graduating in 1997/1998. The reason for some fields of studies to have a high proportion of graduates are then not that they were directly encouraged in class by the ones taking there doctoral degree 1997/1998. It could however be that they were encouraged directly by the ones entering PhD the same year as they graduate, as these could have been class mates to them at one time during their studies. Other reasons for fields of studies to have high women proportions in both graduates and PhDs could be that these field appeals to women both as an interesting area to study and to do research in. There is also a restriction to go with this, namely that only very related fields of studies except other graduates than their own on their PhD courses. However the most logical and plausible explanation for the two proportions to co-vary is that the fields of study with many women among their students have a greater base of women to choose from when motivating further studies. It is logically easier to get a high proportion of women to finish their PhD if one has a high proportion of graduates than if one has a low proportion.

There is thus a support for this hypothesis although it would be necessary to find additional data to be on sure ground in the verdict. Such data could be doctoral students at each university and other positions both static figures and in a wider range of years.

*V The larger number of students the more female students*

At first sight there seem to be some small areas of studies such as Mining and Metalurgy (Montanistik) and technical studies where few women are enrolled both on under graduate level and in doctorate programmes. This could indicate that when a study is small and specific women are let out in higher rate than else. Elitism could be seen to prevent women from entering. A way to explain this would be in ways of group dynamics in smaller fields with a lesser level of front figures and thereby less women in top of the hierarchy. In larger areas of studies with more diversity there would be higher chances for women to find front figures of their own sex. Let us try out if this theory can be supported by statistical observations.

On a large set of data holding all the statistics for all the fields of study both for under graduated students and doctoral, the Liste aller belegten Studienrichtungen WS 1999/2000 by the Östat, we have done some data manipulation. We have run a series of regressions in order to show that the number of students of a field correlates with the proportion of women on that same field. There was however no correlation at all to be shown and the maximum  $R^2$  is .135 in a regression model with sums of accepted, started studies and fully registered studies. The T-statistics are in all models low with a low level of significance.

Our test makes it evident for us that there is no empirical relationship between the size of the field of studies and the proportion of women in that same field. The theory of particular male dominance in small groups does then not have any evidence in our material. It is more likely that there exist a general male dominance in all groups!

## ***Evaluation of national situation***

- We must discuss how to define best/worst practice, whether it should be simply where the highest women proportion is or where the women proportion rose the most in a given time frame. Without a definition of what such a practice could be and how it is detected empirically we can not work with such evaluations.

## ***Shortcomings and judgement***

- The number of “Total doctoral and under graduate students” sent to me by Statistics Austria does not correspond to the figure published in *Statistisches Jahrbuch 2002*, table 4.23. There are somewhat 15000 students less in the recently published *Statistisches Jahrbuch 2002*. The reason for this misfit could be that the second is cleaned for double registrations.
- It is difficult to compare the table 4.23 of the *Statistisches Jahrbuch* of the years 2001 and 2002. They have changed the fields of study. The same is the case of the table 4.24 for the same years, which surprisingly has not been subject to any comments in the foreword to the latest publication.

As follows a list of recommendations for Statistics Austria by Prenner et al, which I fully subscribe:

"Due to meet the national task of statistics by gender, the following statistics are necessary: all data mentioned below are by gender.

Students accepted first time, degree program students, master degrees, doctoral program students, doctor degrees, *Fachhochschule* program students by major fields of studies and scientific disciplines;

Research staff of the universities, universities of the arts, and R&D performing organizations by sectors of performance (higher education, government, private non-profit, and business enterprise), occupation (researchers, technicians and equivalent staff, and other supporting staff; classification of industry, science and technology (see Frascati manual 1993), employment relationship, working time, salary, and managerial positions (boards of universities, universities of the arts, R&D performing organizations, and advisory boards of research institutions); the data should also be in headcounts to highlight atypical and part-time employment, applicants and appointments for an employment as a full or associate professor;

Considered and awarded applications for Austrian public research funds and EU grants by type of grants, number of project participants, employment relationship, working time, salary, and managerial positions; boards of Austrian public research funds.<sup>xxiii</sup>

## **Conclusion**

The latest years of development in Austrian academia could in terms of figures be described with one word: Stagnation. Whereas the number of students and academic staff has risen through all periods of time after the Second World War it has no clear signs of stagnation. Especially the figures for students are worrying as there undoubtedly are fewer young people ready to study than before. As commented in earlier work (Poulsen 2001) political commentators are aware of the low level of Austrian with a tertiary education. Some have judged that the fall 2001 introduction of study fees was a step in the wrong direction towards greater difficulties in achieving a university title. It could be argued that the announced introduction of the bachelor degree would work in the other direction, persuading young people that otherwise wouldn't have gone to university to take a short education. As we have seen in this report the politically announced will to create a "knowledge society" is not accompanied by a growth of the university. The Fachhochschulen has grown since its introduction 1994 but with its only ten thousand students it cannot compensate fully for the tendency of fall in the universities.

The development in the student figures is particularly interesting in feminist terms. On student level the number of females is rising while the number of men is falling for the first time in recorded history! These revealing figures will be object of debate in the future as they can be interpreted in many ways. One interpretation could be that the large dropout rate of 50 % in general could dis-encourage young men to go to university as they might have lesser chances of getting good notes. There are some indications that this is true but it would have to be object of investigation. A more pessimistic interpretation could be that university has lost its attraction for young men.

Generally however academia is still, as expected, a male dominated work place. The female participation has risen but in all categories over students women still make up a minority. When women still does not reach 10 % of full professors after being in the universities for a century it calls for political action.

Such action could, however costly, be an expansion of the higher education sector. The Costa Rica-thesis gives some evidence that in times of great expansion women

representation grows more than average. The hypothesis would however need more empirical support to gain wider acceptance.

One could fear that small fields of study would make up ground for higher discrimination of women as informal structures, *ceteris paribus*, would be more important for academic success. This has however no foundation in the empirical evidence and no recommendations can be made in that direction.

There has also been some support to the hypothesis that the larger the number of female students is, the higher the proportion of women doctorate students or women professors there are. It is however difficult to detect in which direction such a relationship will work. We can softly conclude that a higher share of female students will despite attrition favour higher participation on doctoral and professors level.

## **Appendix**

### **Abbreviations**

BMBWK = *Bundesministerium für Bildung, Wissenschaft und Kultur*; Ministry for Education, Science and Culture

BMVW = *Bundesministerium für Wissenschaft und Verkehr*; Ministry for Education and Traffic

HE= Higher Education

- Basic definitions

Where no further indications, the definitions used in this inform as in the previous are based on the following Statistics Austria definitions:

#### **Academic staff:**

All staff on the payroll with teaching responsibilities (sometimes two or more persons share one post).

Categories:

University professors (UniversitätsprofessorInnen)

Professors Emeritus (Emeritierte UniversitätsprofessorInnen)

Visiting Professors (GastprofessorInnen)

(HonorarprofessorInnen)

Lecturer (UniversitätsdozentInnen)

University Assistants UniversitätsassistentInnen

(LehrbeauftragtInnen)

(StudienassistentInnen)

(Wissenschaftliche MitarbeiterInnen im Lehrbetrieb)

**Students:**

Regular students (ordentliche Studierende): Have successfully completed their studies at secondary level, i.e. passed the matriculation examination (Reifeprüfung). For adults without this formal qualification, an alternative is offered by a set of preparatory courses and a special examination (Studienberechtigungsprüfung), leading to admission in a certain field of study. Universities of arts hold special entrance examination to test the artistic ability. At Fachhochschulen additional examination may be required. Regular students may enrol programmes leading to a bachelor- or master-degree (Magister, Diplomingenieur) or to a Doctor degree. There is no limit on age and no full-time/part-time structure.

Non-regular students (ausserordentliche Studierende): Enrolled to vocationally oriented programmes at post-secondary level (Universitätslehrgang) or vocationally oriented post-graduate studies (MBA, Master of advanced studies). There are no statistics available on non-regular students at present. Therefore data are not included in UNESCO/Eurostat statistics.<sup>xxiv</sup>

Acceptable belt: This is a range that describes the proportion of women in a certain group to be in between 40 and 60 % of the total group. External validity: The definition is used in many equal opportunity studies especially in Finland and Sweden<sup>xxv</sup>.

**Additional tables/charts***Table 1.2.1 (1)*

1.2.1 (1) Studienjahr (Wintersemester)	Zahl der ordentlichen Studierenden (Inländer und Ausländer)	an wissenschaftlichen Universitäten und Universitäten der Künste	nach Universitäten und Geschlecht	seit dem Studienjahr 1955/56 *)
	Insgesamt			
	ZUS.	m.	w.	
1955/56	19.124	15.361	3.763	
1956/57	20.863	16.572	4.291	
1957/58	25.082	19.654	5.428	
1958/59	29.804	22.907	6.897	
1959/60	33.354	25.537	7.817	
1960/61	38.533	29.668	8.865	
1961/62	42.645	32.674	9.971	
1962/63	45.662	34.685	10.977	
1963/64	47.270	36.011	11.259	
1964/65	48.082	36.572	11.510	
1965/66	48.895	37.227	11.668	
1966/67	48.965	37.067	11.898	
1967/68	51.013	38.893	12.120	
1968/69	49.093	37.187	11.906	



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1969/70	50.117	37.728	12.389
1970/71	53.152	39.883	13.269
1971/72	57.930	42.368	15.562
1972/73	64.806	46.008	18.798
1973/74	70.878	48.948	21.930
1974/75	75.246	50.826	24.420
1975/76	81.324	53.643	27.681
1976/77	87.924	56.679	31.245
1977/78	94.386	59.382	35.004
1978/79	101.330	62.665	38.665
1979/80	109.121	66.398	42.723
1980/81	115.616	69.768	45.848
1981/82	125.505	74.635	50.870
1982/83	133.813	78.510	55.303
1983/84	142.159	82.717	59.442
1984/85	151.934	87.287	64.647
1985/86	160.904	91.395	69.509
1986/87	168.182	94.940	73.242
1987/88	175.510	98.560	76.950
1988/89	179.484	100.783	78.701
1989/90	186.149	103.944	82.205
1990/91	193.479	108.050	85.429
1991/92	201.874	112.254	89.620
1992/93	205.769	113.922	91.847
1993/94	210.639	115.651	94.988
1994/95	216.127	116.871	99.256

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1995/96	220.341	117.348	102.993
1996/97	220.345	116.071	104.274
1997/98	219.162	113.325	105.837
1998/99	221.067	112.367	108.700

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\*) Siehe auch Erläuterungen. Universitäten ab 1975/76, Studierenden dass in mehr als einer Universität studieren, sind in der Summe "Insgesamt" nur einmal gezählt.

Source: Statistics Austria, sent by Friedrich Nietsch

## Literature

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*Higher Education* 35. 367-397, 1998: Susan B. Twombly: "Women academic leaders in a Latin American university: Reconciling the paradoxes of professional lives".

*Plenum* 2/92, Dorothea Gaudart, "Zugang von Frauen zu F& E".

*Sociology of Education*, 1991, vol. 64 (july): 141-157, Konrad and Pfeffer: "Understanding the hiring of women and minorities in educational institutions".

- Other

Der Standard, 2/10/01

Der Standard, 25/05/01

- Web addresses

[www.bmwf.gv.at/3uniwes/03unirecht/hodir/drnov2001.htm](http://www.bmwf.gv.at/3uniwes/03unirecht/hodir/drnov2001.htm) on 20/10/2001

Statistics Austria: [www.oestat.gv.at](http://www.oestat.gv.at) on 06/2001 and [www.statistik.gv.at](http://www.statistik.gv.at) on 17/01/2002

[www.oecd.org/media/publish/pb01-23a.htm](http://www.oecd.org/media/publish/pb01-23a.htm)

- Interviews

Speech by assistant professor Erna Appelt at Innsbruck University October 2000.

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## Notes

<sup>i</sup> with the title Austria's system of Higher Education.

<sup>ii</sup> The latest version of the Hochschulbericht was published by the then called Ministry of Science and Traffic (BMWV)

<sup>iii</sup> The participating countries in Women in European Universities are apart from Austria: Germany, France, Poland, Spain, Sweden and the UK.

<sup>iv</sup> See Fochler, Georg, Harthel, Margit, Prenner, Peter: *Building gender indicators*, Research report for the Austrian Ministry of Education, science and culture, Institute for advanced Studies, Wien, 2000, FI/1. Their source: Federal Ministry of Education, Science and Culture.

<sup>v</sup> Which is the case in for instance the list of "all university studies", supplied by Statistics Austria

<sup>vi</sup> The Dienstrecht can be downloaded at

[www.bmwf.gv.at/3uniwes/03unirecht/hodir/drnov2001.htm](http://www.bmwf.gv.at/3uniwes/03unirecht/hodir/drnov2001.htm)

<sup>vii</sup> Speech by professor Erna Appelt at Innsbruck University, October, 2000.

<sup>viii</sup> By Lothar Matzenauer, [www.bmbwk.gv.at/start.asp](http://www.bmbwk.gv.at/start.asp)? on the 03/01/2001 look this up

<sup>ix</sup> Der Standard, 2/10/01 as supplied by Jessica Bösch.

<sup>x</sup> Der Standard, 25/05/01 as supplied by Jessica Bösch.

<sup>xi</sup> *Education at a glance 2001*, OECD, [www.oecd.org/media/publish/pb01-23a.htm](http://www.oecd.org/media/publish/pb01-23a.htm) P. 157, table 4.c.1 on 2001-06-20.

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<sup>xii</sup> *Education at a glance 2001*, OECD, [www.oecd.org/media/publish/pb01-23a.htm](http://www.oecd.org/media/publish/pb01-23a.htm) P. 150 and p. 155, chart C3.3 on 2001-06-20.

<sup>xiii</sup> *Education at a glance 2001*, OECD, [www.oecd.org/media/publish/pb01-23a.htm](http://www.oecd.org/media/publish/pb01-23a.htm) P.161 and p. 167 on 2001-06-20.

<sup>xiv</sup> *Education at a glance 2001*, OECD, [www.oecd.org/media/publish/pb01-23a.htm](http://www.oecd.org/media/publish/pb01-23a.htm) P. 171 on 2001-06-20.

<sup>xv</sup> See Fochler, Georg, Harthel, Margit, Prenner, Peter: *Building gender indicators*, Research report for the Austrian Ministry of Education, science and culture, Institute for advanced Studies, Wien, 2000, FI/1. Their source: Federal Ministry of Education, Science and Culture.

<sup>xvi</sup> In another document, the pocketstatistics also from Statistics Austria, Natural Science (Naturwissenschaftliche Studien) is defined in the following way: Including (1) Secondary school teacher training, Logistik, Mathematik, LA Darstellende Geometrie, Physik, Astronomie, Meteorologie und Geophysik, Chemie, Erdwissenschaften, Biologie, LA Biologie und Erdwissenschaften, LA Biologie und Warenlehre, Geographie, LA Haushalts- und Ernährungswissenschaften, Ernährungswissenschaften (inkl. ausgetauschter Studienversuch, Computerwissenschaften (ausgetauschter Studienversuch), Psychologie (nach UniStg)

<sup>xvii</sup> Schenk, Anett: *The higher education system in Sweden*, own print, 2001

<sup>xviii</sup> Xxi Papouschek, Ulrike; Pastner, Ulrike: *Außeruniversitäre Forschung - für Frauen eine attraktive Alternative zur Hochschule?* Project period: 1998/09 – 1999/06,

<sup>xviii</sup> The figures are also resumed in the 1999 Hochschulbericht.

<sup>xviii</sup> Higher Education 35. 367-397, 1998: Susan B. Twombly: “Women academic leaders in a Latin American university: Reconciling the paradoxes of professional lives”.

<sup>xviii</sup> p. 152, *Sociology of Education* 1991, vol. 64 (July): 141-157, Konrad and Pfeffer: “Understanding the hiring of women and minorities in educational institutions”.

<sup>xviii</sup> The definitions of the scientific fields are Austrian national. For internationally comparable data please consult OECD or Eurostat data.

<sup>xviii</sup> Fochler, Georg, Harthel, Margit, Prenner, Peter: *Building gender indicators*, Research report for the Austrian Ministry of Education, science and culture, Institute for advanced Studies, Wien, 2000.

<sup>xviii</sup> This is in Swedish literature known as interval of equal worth, jämställsintervall. See for instance Anne-Marie Morhed: *Det motstridiga könet*, Department of Sociology, Lund University Research Report 1998:11.