

## Funding higher education - where is Austria going?

### Summary

*The paper describes the new system of funding Austrian universities, which is mainly based on performance agreements. Secondly, the consequences of the old funding system with restricted public budgets in times of a "massification" of university education and an open access policy are described. Equity in access is dis-*

*cussed under these conditions, resulting in a very unequal system mainly due to the strong social selectivity of the school system. Moreover, reforming the open access policy will be at the top of the political agenda in the near future. We conclude that the new system of funding follows in its core the old culture of negotiation, because*

*objective criteria are rarely taken into account. Most of all this is true for the research performance of the universities. Overall, the efficiency of the system is hard to judge because relevant data is lacking. This won't change much in the near future.*

**Key words:** Austria, funding, equity, efficiency.

JEL: I280

### 1. Introduction

The Austrian system of higher education provides a unique case in some respects: a recent reform has changed a very highly regulated, traditionally state-financed, input-oriented system to a system relying on autonomous institutions. The funding of higher education is comparatively low, despite comparatively high overall education and training expenditure. Efficiency is not controlled systematically, and existing indicators point to rather low efficiency. The dropout rate has been one of the highest, and study duration is very high. The admission system is still based on the right to a study place acquired by a matriculation examination at upper secondary school. The universities are in general not allowed to restrict study places, and thus are in different proportions overcrowded. In terms of equity, there are indications that the system is quite unequal in terms of social background, and except for the gender proportion, strong inequality persists. Austria agreed to join the Bologna process early on; thus the study structure is in the process of change as well, which opens many questions about the consequences of these changes. Recently the first graduates of bachelor's studies have reached the labour market, and their pathways into further studies are not clear so far.

The paper is based on some in-depth analyses about the comparative financing of higher education (evaluation of OECD indicators), a comparative case study about costs and results of individual universities, a comparative study of admission mechanisms to higher education, and a set of representative student surveys focusing on the social study conditions (see Lassnigg, Steiner 2003, Unger et al. 2005, 2006, Lassnigg et al. 2007, HIS 2005, Unger, Wroblewski 2007).

### 2. System of funding

In the past the system of funding was based on a cameralistic system, with predefined budgets for the universities. Recently the universities have been given a high level of autonomy, and they are financed mainly on the basis of a performance agreement (*Leistungsvereinbarungen*), with 20% based on a set of indicators (*Formelbudget*). Teaching and research funds are not separated in the university sector, and the teaching load is not identifiable.

#### *Performance agreements (80% of total university budget)*

For the first time, performance agreements between the Ministry and the individual universities were signed at the end of 2006. They cover the period 2007–2009. The agreements describe the status

\* Institute for Advanced Studies, Vienna

\*\* Institute for Advanced Studies, Vienna

**Table 1: Coverage of performance agreements and intended projects of the University of Vienna as an example**

Topics of performance agreements	Example of the University of Vienna
1. Human resource development	Increase in number of professors and doctoral students
2. Research	Implementation of research foci, interdisciplinary research platforms, increase in third-party funded research
3. Teaching	Improved supervision of theses, implementation of the Bologna structure, expanded e-learning offers, expansion of courses for further education
4. Social objectives	Increase in number of female professors, measures for supporting scientific careers of females
5. Internationality and mobility	Increased participation in EU funded projects, increase in number of joint degree programmes, rising mobility of students, cooperation in teaching
6. Special units	University sport: rising number of participants

Source: University of Vienna (Mitteilungsblatt No. 99, 22.3.2007).

quo in teaching and research and the intended projects for the next three years in several areas with reference to the university development plans (see Table 1). The universities receive a lump sum for the achievement of the whole performance agreement. There is no money allocated to particular aspects of the contracts. Only the future projects are quantified with indicators (like the number of additional professors) and given a fixed deadline for their achievement. The next period of performance agreements will take into account whether or not the universities fulfilled all points in the foregoing agreement. However, it is not clear how this will be assessed and how over- and underachievements in certain points will be traded off. Moreover, most of the deadlines in the agreements are set for 2009, but as negotiations for the next period of performance agreements should be finished by 2009, their achievement cannot be taken into account.

In the agreements there is no connection to the number of students; only the subjects and the type

of degrees offered in each subject are fixed. However, the University of Business Administration, for example, signed the contract with the reservation that it can only fulfil it if the number of incoming students does not rise. Moreover, its agreement contains an estimation of future students in the newly established master's programmes. If more students decide to continue with a postgraduate programme (access is not limited by law), the university will not be able to fulfil the agreement completely. Even more, the estimates of the university (which are part of the contract) assume a dropout rate of 65% – like the current one.

#### *Indicator-based allocation of funds (20% of total university budget)*

Twenty percent of the total university budget is allocated according to an indicator-based system. All parties, the ministry and the universities, agreed on a set of 11 indicators and a very complicated formula of budget allocation based on these indicators (see Table 2). In general, the system takes the status quo of the universities' funding

**Table 2: Indicators used for the allocation of 20% of the total university funds**

Indicator	Weight
1. Number of active students in BA, MA and diploma studies within the official study duration according to the curricula (plus a grace period)	15%
2. Number of graduates in BA, MA and diploma studies	10%
3. Proportion of graduates within the official study duration according to the curricula (plus a grace period)	10%
4. Success rate of students in BA, MA and diploma studies	10%
5. Number of graduates in doctorate and PhD studies	15%
6. Income from research projects funded by the Austrian Science Fund or the EU	15%
7. Income from research projects funded by other sources	15%
8. Proportion of female professors	6%
9. Number of female graduates in doctorate and PhD studies	1%
10. Number of students participating in exchange programmes (outgoing)	2.5%
11. Number of first-time enrolled students in MA, doctorate and PhD studies without a prior degree from Austria	0.5%

Source: BMWF (Verordnung über das formelgebundene Budget der Universitäten, BGBl. II No. 120/2006).

into account, as well as the size of the universities and the improvement of the indicators versus a prior reference period and versus all other universities.

Indicators are weighted for the field of study and type of degree, and are standardised according to the size of the university. Scores are calculated with a sigmoid function for each indicator, mostly taking reference values from prior periods into account. The points per indicator are then weighted according to the share listed in the table above and summed for each university. Finally, the total scores are standardised according to the size of the university, and the overall budget is divided by these standardised total score points among the universities.

This complicated formula was developed to establish a fair system, which takes into account the different situations of, for example, universities of medicine or the arts. However, the formula is so complicated that the result is again a non-transparent system of budget allocation. Several universities were surprised when they saw the results. They expected an increase in their budget, but the result was a decrease (which is capped). Therefore, the ministry has already announced an evaluation of the formula.

Moreover, the complicated formula does not allow for calculating the value of each indicator in monetary terms. For example, if a university increases the proportion of female professors (indicator 8), one does not know how much money is allocated for this. This makes internal processes in the universities more difficult, and the administration can hardly award additional money for certain achievements of sub-units, like additional funding for an institute that appoints a female professor.

Another criticised point is the benchmarking of the current situation with the prior period. Improvements should be rewarded and standstills or declines should result in budget cuts. However, the University of Business Administration, for example, claims to have been operating at the limits of its capacity for several years already. Therefore, improvements are not possible anymore in their opinion. Of course, single indicators are criticised as well: to take only students within the defined study duration into account, for example, leads to different results according to the amount of *de facto* part-time students (officially there are only full-time students). Several subjects are more easily combined with student jobs or are more attractive for continuing education of the work force than others. Therefore, the average amount of time spent

by students for their studies per week varies between the universities, as does the proportion of students finishing in the intended period of time.

Apart from the lump sum of the university budget, there is a separate system of funding for additional research, which is very complex, due to different kinds of research (academic, applied, development) situated in different institutions and ministries. Thus, the financing of the services of universities is hardly transparent either.

A second and very much smaller sector of higher education, the universities of applied sciences (*Fachhochschule*), is organised on a very different basis: an accrediting council selects and periodically re-evaluates programmes, and funding is provided by the federal government on a per student ratio which is carefully monitored. The federal government admits a certain number of study places per programme and funds 90% of each place. The amount differs by subject, but it does not include the cost of the infrastructure. The providers of the programmes have to make do with this amount of money or raise additional funds (at least for the infrastructure). They are also allowed to accept more students than the federal ministry admits, but without federal funding. Mostly the necessary additional money is paid by the provincial governments, which are in most cases the providers of the programmes. Tuition fees are allowed up to the amount charged by the universities (less than €400 per term), but in three of the nine provinces, the institutions do not charge fees. Originally, it was hoped that this new funding system might raise more private money, especially from the business sector. In fact, it brought up the provinces as new players in the higher education sector and therefore resulted in “different” public money instead of notable private funds (Lassnigg, Unger 2006).

### 3. Consequences of restricted public budgets for higher education

Because of the missing regulation of study places, the increase of student numbers since the 1970s has not been matched with additional funds; thus, as in most other countries, the per capita funding went down (in real terms).

In Austria, this was to some extent hidden by three facts: first, little or no study activity of a high proportion of the counted student population. A retrospective analysis estimated that around 25% of university students included in the statistics for the year 2000, the year before the introduction of

fees, were inactive (Pechar, Wroblewski 2002). Therefore, “real” conditions in many areas differed very much from the “official” indicators.

Second, no formal part-time status exists, but for example, more than 60% of students work during the term (Unger, Wroblewski 2007). Therefore, the per capita number of enrolled students differs greatly from the number of full-time equivalents, which is not precisely calculable. However, more than 40% of students spent less than 30 hours per week on their study in 2006 (*ibid.*), a number that provides an indication of the potential part-timers.

Third, following from the high proportion of hidden part-timers, the average duration of study is very high in Austria. According to OECD data, the average duration of tertiary type A programmes was 5.6 years in Austria. Only in Germany (6.6) and the UK (5.9) is the average duration of study longer; the OECD average was 4.4 years (OECD 2006). Based on these figures, it may make sense to compare the cumulative expenditures per student over the average duration of studies instead of the annual expenditure. According to this indicator (OECD 2006), Austria spends more than most of the OECD countries for which data are available. Only Switzerland and Sweden have higher expenditures on tertiary education.

Nevertheless, a high proportion of a university’s budget is spent for staff. However, the number of scientific personnel could keep up even less with the growth of student numbers. Currently, there are 4.5 times more students enrolled in Austrian higher education institutions than in the year 1970, and the (nominal) budget increased by around four times, but the number of academics has only doubled in the same period (Pechar 2007). Moreover, the allocation of academics was as obscure as was the allocation of funds within the old system. Therefore, the ratio of students per academic shows the results of a system with open access and non-transparent and inadequate funding of the growing number of students.

While in some, mainly technical, subjects the ratio of students per academic is average in international comparisons, there are also the so-called “mass subjects” with ratios of more than 400 students per professor. In fact these constitute only a handful of subjects, but the majority of students are enrolled in these subjects. Pechar (2007) calculates that 30% of all university students are enrolled in subjects with an “extremely unfavourable” ratio of 50 or more students per academic, and a further 25% of all students are enrolled in subjects with an “unfavourable” ratio of 37 or more students per academic. Even if one took the proportion of

part-time students into account and estimated full-time equivalents, the picture would still be unfavourable in several subjects.

A very intense comparison of institutional budgets supports this argument (Unger et al. 2005): The Technical University of Vienna (which is not overcrowded in most areas) has a similar budget per student available and a similar ratio of students per academic as the Technical University of Darmstadt in Germany. However, both universities lag far behind the financial situation of the ETH in Zurich. The situation of “full universities” (excluding medicine) is quite different: on average, the budget of the University of Vienna is far below the budget per student of the universities in Munich and Zurich, as is the ratio of students per academic. However, a look at sub-units shows that the financial situation of the University of Vienna differs not too much from the situation of the University of Munich, apart from humanities, social sciences and economics – areas with vast numbers of students. Here again, the gap between the Austrian and the German universities versus the University of Zurich remains large in all subjects. The expenditures per graduate, however, differ much less among the analysed universities. A comparison of business schools showed similar effects (Unger et al. 2006): the expenditure per student at the University of Business Administration in Vienna (WU) is similar to the one at VSE in Prague and the Faculty of Economics at the University of Hamburg, but far less than at the Copenhagen Business School (CBS) or the Faculty of Economics at the University of Zurich. On the other hand, only Zurich spends more per graduate than Vienna.

In a word, the funding of universities has been very opaque, and the available data have not allowed for a sound monitoring of it. Different indicators show very different results. Some reasons for this are the many de facto part-time students, a longer study duration and a high dropout rate. The funding situation differs very much among the subjects. Only a few subjects face severe financial problems; however, these are the subjects which enrol a majority of the students. The situation may improve with the new budget allocation instruments, but they involve mechanisms to prevent financial shocks for single institutions due to a cap of maximal budget cuts; therefore, the reallocation of funds will take time.

Concerning research funds separate from higher education funding, there has been a long-standing assessment of very low research expenditure in Austria. However, more recently, research has discovered a quite substantial amount of research

funding, which had been hidden before. A supplemental funding offensive for research has improved the proportion substantially since the year 2000. These funds are raised mainly by the entrepreneurial sector.

#### 4. Cost-sharing

Due to the OECD figures, the funding of the Austrian system is almost totally public. Private expenditure covered 7.3% of the total expenditure on educational institutions in 2003 – this figure nearly doubled compared with the preceding years. The OECD average was 24%; in Japan and Korea private expenditures covered 60% to 77%, and in the United States 57% (OECD 2006).

Private money is particularly collected in two areas: first, since 2001 relatively small tuition fees are collected (below €400 per semester), and second, the private sector contributes mainly to applied research. However, these funds are not formally included into the university budget, and much of the funds goes to non-university research institutions. Thus in many areas there is a more or less deep cleavage between academic research on the one hand, and applied research and development on the other. The Austrian private sector is particularly reluctant to finance research in higher education.

However, an evaluation of OECD indicators shows that the figures about private funds are hardly comparable, and Austria is lagging behind the shares of private funds in most countries (Lassnigg, Steiner 2003). Totally missing are opportunity costs, which, however, matter very much when it comes to equity questions.

##### *Attempts to increase private funds*

Introducing tuition fees has been one attempt to increase private funds. This issue has been contested very strongly in the political arena; however, the current government has also retained them.

Other attempts have been initiatives to raise more private money for research and to increase interaction between academic research and applied research. Different kinds of programmes have been set up for joint research and development centres between university institutes, non-university research centres and enterprises. Some of these programmes have formed rather large and high-quality research and development centres based on academic quality assessment procedures.

#### 5. Equity in access

Equity in access has been a more or less neglected issue in Austrian higher education. The system is nominally “open”, as there have been no restrictions to access, which is conditional only on holding the Austrian matriculation examination. Selection is performed mainly by the school system, which is tracked after grade four (age 10 of pupils) in upper-level and lower-level programmes. There is also a strong social bias in the selection of school careers: as the recent census has shown, only 12% of pupils from a lower educational background compared to 77% of children from parents with a university degree attend a college-preparatory secondary school at the age of 12 (Bauer 2005). In other words, your likelihood of attending an upper-level programme is six times higher if your parents finished university, compared to children from parents with only a compulsory school certificate. Even more, according to PISA studies, the performance of pupils in Austria depends very strongly on the educational background of the parents. In reading, for example, the influence of the social background is the strongest among all EU countries (Breit, Schreiner 2006).

The social selectivity of the education system continues in the tertiary sector. A recent student survey confirmed earlier studies on this issue: Unger and Wroblewski (2007) calculated a so-called “recruiting quota” that shows the number of incoming students according to their fathers’ educational level per 1,000 men in the population with the same educational level. If the student’s father finished an apprenticeship, the recruiting quota is 7.9. If the student’s father is a university graduate, the quota is 42.9 – more than five times higher. For a simpler description, the population is divided into two groups, fathers with and fathers without a matriculation certificate (*Matura, Abitur*). The quotas are then 33.2 and 10.7 in favour of the more highly educated fathers (pictures for students’ mothers are similar). According to this simplified indicator, children from higher social classes are over-represented threefold at the universities.

This ratio was even higher several decades ago, but has ceased to change over the last decade. The introduction of tuition fees in 2001 led to an overall reduction in the number of incoming students for two years (in accordance with economic predictions about this), which was, contrary to all fears, not socially selective according to the recruiting quota. Meanwhile, the same number of new students started courses of university study as before the



introduction of fees, and enrolment at the universities of applied sciences even increased.

The situation at the universities of applied sciences is a bit less socially selective. Here, fathers with a *Matura* are “only” over-represented twofold among incoming students, although the sector does not follow an open access policy and each institution selects its students according to its own criteria. Because this sector has been in existence only 13 years and is still expanding, the social selectivity of the total higher education sector is reducing slightly. Currently, more than a quarter of all beginners start at a university of applied sciences, and there are plans to further increase this proportion.

However, comparative assessments have shown that the Austrian system is relatively inequitable, despite its so-called “open admission”. The last edition of the Eurostudent report (HIS 2005), for example, presents the ratio of students’ fathers to all men of corresponding age groups with higher education. This ratio is 2.6 in Austria, 2.2 in Germany, 2.0 in France, 1.7 in Italy and Finland, 1.6 in the Netherlands, 1.5 in Spain and 1.1 in Ireland (an indicator of 1.0 would show a socially equal distribution). Only in Portugal is the ratio much higher (5.4), but partly this is affected by various data problems. Usher and Cervenán (2005) published an Educational Equity Index (EEI) for universities based on a similar indicator. Austria, with an EEI score of 38, ranks in 12<sup>th</sup> place out of 13 countries. The Netherlands is the most equitable country, with an EEI score of 67.

As the European Court decided in 2005 that “open admission” must also be applied to non-Austrian EU citizens, big debates about the admission system have come up, and universities claim the right to select students. Some pilot programmes have been installed in certain study fields, for example, medicine. Here, the universities are now allowed to limit the study places and select their students themselves.

The Austrian Rectors’ Conference (Universities Austria) has launched a big research project to assess the admission system and to come up with alternative solutions (Badelt et al. 2007). Within this project, Lassnigg et al. (2007) looked at the social selectivity of different admission systems in several countries. Apart from the fact that there is hardly any international comparative literature about this issue, the first finding was that the effects of admission systems have to be analysed in the context of the whole system (including e.g. fees,

grants or other supportive measures like tax reductions or child benefits). However, the prior “education pipeline” (and its selectivity) is the most important factor. International studies (e.g. Usher, Cervenán 2005) have shown that systems where the admission to higher education depends on an entitlement of the school system (e.g. Germany, Austria) show the worst results with regard to social equity. In this sense, the open access to Austrian universities is far away from being open to anybody. Instead, it could be called a system with open access for the privileged.

However, the consequences of the subliminal discussion about reforms of the admission system are not easy to foresee at the moment. In general, equity issues have gained importance in public debate with the PISA results and swap from time to time with the universities. However, mainly tuition fees are discussed and contested under the equity topic.

## 6. Economic efficiency

### *Internal economic efficiency*

We can rate internal economic efficiency as not very good because of the lack of transparency for both input and output. The issue is further complicated by the bulk of recent changes. There is particularly a lack of information about the extent to which the infrastructure is really used by students and by the lack of information about the research activity and output of the staff.

Because of the high drop-out rate and the long study duration in the past, even the relatively low budget does not indicate a high degree of internal efficiency. Particularly if we calculate costs per graduate, based on the average per student expenditure, this indicator is very high.

On the other hand, some more in-depth studies about research efficiency have obtained a relatively high efficiency.

### *External economic efficiency*

Because of a lack of income information, there is not much evidence about the external efficiency of Austrian higher education. The individual rates of return of Austrian education and training are average, whereas there are indications that the social rates of return are comparatively low. Some simulations indicate that the public costs are too high; however, this might result rather from schooling than from higher education.

## 7. Planned and required changes

The first change is full implementation of the reform of the university sector. In terms of financing, the first round of performance agreements has just started, and information about the achievement indicators will soon be available. This will bring to light whether or not the reform might really improve efficiency.

A second change which can be foreseen is reform of the admission system. There are no clear plans at the moment; however, much points to the direction that the universities will get some discretion in selecting their students – maybe in PhD or master's programmes firstly. A study about the equity implications of admission systems mainly pointed out that massive and clearly targeted support programmes for applicants with a disadvantaged background are a main ingredient for improving equity (Lassnigg et al. 2007).

A third issue is how the system of grants is working, and might work under new conditions of admission. Available studies point out that the existing system of grants might be too broadly dispersed to more wealthy parts of the population, and not generous enough for the part of the population really in need of support. However, results of research also show that financial compensation is a necessary but not sufficient means for improving equity (ibid.). Much broader measures are needed, which also include the responsibility of the higher education institutions for improving equity.

A final issue, which is most difficult to point out now, is the impact of the new Bologna structure on financing and equity. It will be interesting to see how the recent priorities about the social dimension of the Bologna process, as signed by the ministers at their London meeting in May 2007, will be implemented in Austria: "National strategies and policies for the social dimension, including action plans and measures to evaluate their effectiveness" (London Communiqué 2007).

## 8. Conclusions

Major reforms have taken place in the Austrian higher education system during the past years, starting with the universities of applied sciences as a new sector in 1994 and continuing with a new university act in 2002 which gave the universities full autonomy and a new system of funding, implemented for the first time in 2007. The old cameralistic system of funding has been criticised of being non-transparent and based on having the

right contacts in policy and administration. This culture of negotiation was replaced by a twofold system consisting of performance agreements and a smaller part based on indicators. However, the university budget is allocated as a lump sum and no single performance indicator is valued in monetary terms. Even the main services of a university, teaching and research, are not separately financed. Neither does the system take the capacities of the universities, e.g. in the form of study places, into account. Apart from a few exceptions, a policy of open access to all university programmes is still the case. In a generalised manner, one can say the old culture of negotiation has mainly been replaced by a different culture of negotiation. Transparency of results is better than before, but still only in a much-aggregated way.

In addition to this, performance in research is hardly taken into account. Only the income of third-party funded research projects has a weight of 30% in the indicator-based part of the university budget, which allocates 20% of the total budget. Academics spend up to half of their working time for generally funded research – according to their own answers in the surveys of Statistics Austria. This is not yet considered adequately within the funding system, nor are the outcomes of this research evaluated by other measures – apart from internal evaluations of the universities.

The open access of the university system is a euphemism. Due to the strong social selectivity of the school system, one might better talk about open access for the privileged. Research shows that only massive direct interventions and support strategies promise to have positive effects on the reduction of social selectivity. However, the institutions themselves have a responsibility for the social composition of their student body – even more, if they are to be granted the right of regulating access to their studies themselves.

It is hard to say anything about the efficiency of the system in the given situation, be it internal or external efficiency. Because efficiency played no significant role in the debates of the last decades, a great deal of important data and information is missing for a well-founded judgement.

## References

- Badelt C., Wegscheider W. & Wulz H. (eds.), *Hochschulzugang in Österreich*. Graz: Leykam.
- Bauer A. (2005). *Volkszählung 2001: Soziodemographische Determinanten der Bildungsbeteiligung*. In: *Statistische Nachrichten 2/ 2005* (pp. 108–120). Statistik Austria, Vienna.

Breit S. & Schreiner C. (2006). *Sozioökonomische Herkunft und Schulleistung*. In: Haider G. & Schreiner C. (2006). *Die PISA-Studie. Österreichs Schulsystem im internationalen Wettbewerb*. Wien: Böhlau.

HIS (2005). *Eurostudent Report 2005. Social and Economic Conditions of Student Life in Europe 2005. Synopsis of Indicators*. HIS. Hanover.

Lassnigg L. & Steiner P.M. (2003). *Die tertiären Bildungsausgaben Österreichs im internationalen Vergleich*. IHS research report. Vienna.

Lassnigg L. & Unger M. (Eds.) (2006), *Fachhochschulen - Made in Austria. Review des neuen Hochschulektors*. Münster, Wien: Lit-Verlag.

Lassnigg L., Unger M., Vogtenhuber S. & Erkingen M. (2007). *Soziale Aspekte des Hochschulzugangs und Durchlässigkeit des Bildungssystems*. In Badelt C., Wegscheider W. & Wulz H. (eds.), *Hochschulzugang in Österreich* (pp. 361-477). Graz: Leykam.

London Communiqué (2007). *Towards the European Higher Education Area: responding to challenges in a globalised world. Communiqué of Ministers competent for Higher Education in the countries participating in the Bologna Process*. Accessible at: <http://www.dfes.gov.uk/londonbologna/uploads/documents/LondonCommuniquefinalwithLondonlogo.pdf>.

OECD (2006). *Education at a Glance*. Paris.

Pechar H. & Wroblewski A. (2002). *Retrospektive Schätzung studienaktiver Studierender an Universitäten der Wissenschaften für den Zeitraum 1996/97-2000/01*. Research report for the BMBWK. Vienna.

Pechar H. (2007). *Der offene Hochschulzugang in Österreich*. In Badelt C., Wegscheider W. & Wulz H. (eds.), *Hochschulzugang in Österreich* (pp. 21-81). Graz: Leykam.

Unger, M. & Wroblewski A. (2007). *Studierenden-Sozialerhebung 2006*. IHS research report. Vienna.

Unger, M., Schmutzer-Hollensteiner E., Bönisch M., Vogtenhuber S. & Lassnigg L. (2005). *Finanzvergleich von Universitäten in Zürich, München, Darmstadt und Wien*. IHS research report. Vienna.

Unger, M., Vogtenhuber S., Bönisch M., Pichna M & Erkingen M. (2006). *Finanzvergleich von Wirtschaftsuniversitäten in Zürich, Hamburg, Kopenhagen, Prag und Wien*. IHS research report. Vienna.

Usher, A. & Cervenán, A. (2005). *Global Higher Education Rankings 2005*. Toronto, ON: Educational Policy Institute.