Public funding of higher education: the Danish taximeter-model

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5.1 Background

In Chapter 3 we looked at arguments why higher education should be subsidised. In this chapter we look at how to organise this public funding. There is an increasing interest to link funding of higher education to educational production. Such a system in which funding is (at least to some extent) conditional on performance is typically referred to as output-based funding. In this chapter we focus on the pros and cons of this funding principle.

The link between funding and performance may promote efficiency because higher education institutes get an incentive to deliver output (as specified by the funding agency), since they lose income when they fail to do so. But an output-based funding system could also have disadvantages. High-powered incentives to produce graduates could lead to narrowly focussed training programs. Non-measurable skills may be undervalued in such a system. In addition, when educational quality is difficult to observe and the reputation mechanism works insufficiently, output-based funding entails the danger of falling standards. In particular, schools have an incentive to let pass students just below the critical border. The average quality of graduates is reduced when more of these so-called infra-marginal students receive their certificates.

An interesting example of an output-based funding system is the Danish taximeter-model. Funding in the taximeter-system is directly linked to student performance: higher education institutes receive funding per passed examination, the so-called taximeter-tariff. The incentives to promote efficiency are thus evenly distributed over the study program, and the system is flexible in the sense that funding is closely connected to educational production.

As we have seen in Chapter 1, the Dutch funding system is a kind of “all-or-nothing” model where the price is paid at the end of the ride (i.e. at the moment of graduation). The Dutch funding model is currently debated for its lacks of financial flexibility. And the government is considering the implementation of a new funding model in the HBO-sector, closely resembling the Danish taximeter-model. This new funding model is seen as a first step towards a voucher-system. Therefore, we also pay some attention to vouchers.

The set-up of this chapter is the following. In Section 5.2 we briefly discuss the economic theory on output-based funding systems and vouchers. The important features of the Danish taximeter-model are explained in Section 5.3. In addition to desk-research, we also interviewed a number of Danish experts of the taximeter-model. In Section 5.4 we look at the intended and unintended effects of this taximeter-system, and present some conclusions.
5.2 Funding models and economic theory

Various funding mechanisms have been developed and applied in practice. Each funding system has its own incentive structure and its own advantages and disadvantages. This section discusses two important funding models: output-based funding (often used in practice) and vouchers (often referred to in public debates).

5.2.1 Output-based funding

Output- or performance-based budgeting can be defined as the allocation of resources contingent on an output-indicator. Output-based funding systems are thought to be more efficient than input-based systems. In input-based systems, higher education institutions do not have an incentive to supply education at the lowest possible costs. Output-based systems, in contrast, provide high-powered incentives to deliver the output at the lowest cost. The important pros of output-based budgeting are:

- Promotion of efficiency;
- Transparent allocation of public funding;
- No requirements on production technology are imposed (e.g. staff-student ratios).

However, performance-based budgeting may sometimes be problematic. In particular, output-measurement difficulties could lead to:

- Misalignment of incentives, i.e. a wrong balance of tasks ("you only get what you pay for");
- "Cream skimming", i.e. the output-target is met but other aspects of output are ignored (think of a reduction in quality when institutions are paid for the number of graduates they deliver).

Also, output-funding may not work well when:

- The individuals do not have (enough) control over the performance measures when the relation between effort and performance measures is noisy.

And finally:

- Performance-based budgeting is only effective when efficiency-gains do not flow back to the government, but can be used by the institutions on their own discretion (Hendrikse, 1998);
- Output-based budgeting typically works poorly in cultures dominated by professional norms that denigrate speed and quantity of output relative to the quality, challenge, elegance, thoroughness, creativity or subtlety of the work done (cf. Baron and Kreps, 1999).
The crucial question is how output should be measured. A specific definition of output is necessary to implement output-based funding. Measures used in practice are the number of degrees or the number of passed exams. When output-measurement is difficult, high-powered incentives could be problematic. In particular, high-powered incentives could shift away effort from hard-to-measure activities (development of creativity, problem-solving attitude and general academic competences) towards measurable activities. This could not only lead to undesirable changes in the educational process, but may also affect the quantity or quality of the other main product of a university, namely scientific research.

How should output-based funding be applied when one study program is more difficult than the other? Difficult study programs could have lower completion rates, and a performance-based funding system should take account of these differences, otherwise it is tempting for higher education institutions to offer only “easy” programs. Alternatively, this problem can be mitigated when institutions can select their own students. As a result, institutions will try to select those students with the highest probability to complete their studies. In the remainder of the discussion we shall come back to these problems with output-based funding, and their practical consequences.

5.2.2 Vouchers

In the public debate, vouchers are often mentioned as an alternative funding system to increase efficiency in the higher education sector. The Box summarises the important characteristics of a voucher-system. Proponents argue that a voucher-system increases consumer sovereignty since students can vote-by-the-feet, forcing institutions to supply high-quality education. However, skeptics of voucher-systems stress that parents or students may not be sufficiently informed to make wise choices (Cohn, 1997). Therefore, information on quality of programs and courses, quality of personnel and labour market perspectives must be readily available to students.

It is often argued that vouchers could improve access to higher education because the investment in higher education made by the student is less dependent on initial (including parents’) wealth (cf: Barr, 1998b). However, it is possible to safeguard access to higher education by other means, e.g. student loans with an income-contingent repayment schedule (see Chapter 3), and perhaps at lower costs.

Finally, an often-mentioned advantage of a voucher-system is that the money follows the student. But this financial flexibility is already present in a pure input-based system where funding is directly linked to the number of enrolled students, and could also be introduced in output-based funding models, as the taximeter-system demonstrates.

3 It is also sometimes mentioned that vouchers limit the students’ “purchasing power” in terms of number of courses. But this depends on the specific organisation of the voucher-system. For instance, when vouchers are valued in years of registration we are back in the situation where students can take additional courses. And when vouchers are expressed in credits, an option would be to give more vouchers than minimally required.
Pros and cons of vouchers

Rosen defines vouchers as “grants earmarked for particular commodities, such as medical care or education, given to individuals” (1995, pp. 584). Therefore, vouchers form a system of demand-side funding. In case of education, students or their parents receive vouchers from the government which they can use to “buy” education. Schools hand in these vouchers to the government to receive funding (Cohn, 1997). For a good introduction on the economics of vouchers, the interested reader is referred to Bradford and Shaviro (1999) and Johnes (1993). Advantages of a voucher-system are the promotion of consumer sovereignty (voting-by-the-feet), and the promotion of competition among suppliers. To be effective, however, market imperfections (e.g. information problems, switching costs and indivisibilities in educational production) should not restrict freedom of choice.

The design of a voucher

In designing a voucher-system, three important choices need to be made:

- The criteria to be eligible for a voucher, such as personal or household characteristics (e.g. income or age);
- The freedom of choice on what to spend the voucher, for instance between schools;
- The voucher’s reimbursement structure (a typical voucher has a declining marginal rate of reimbursement – at the limit 100% reimbursement up to some ceiling, followed by zero reimbursement).

An additional comment on the reimbursement structure is in order. As mentioned above, vouchers often have a 100% reimbursement rate up to a certain cap and 0% reimbursement thereafter. Some people claim that this aspect makes a voucher system equitable, i.e. purchasing power for those who want to enroll in a higher education program is equally distributed. On the other hand it implies that students who follow an expensive program would face higher private contributions. From economic theory we know that the mix between public and private contributions should be calculated on the basis of the difference between private and social returns to education (among other things, see also Chapter 3). So the idea of a fixed government contribution per student may not yield an efficient outcome as total costs and benefits vary substantially across study programs. An optimal voucher-system in the higher education sector may have a different reimbursement structure, for instance a proportional contribution. Vouchers could also be used in the higher education system to provide targeted support for certain disciplines which are perceived to generate important benefits to society (e.g. medicine, technical studies, natural sciences). These issues need further attention, as they could complicate the implementation of vouchers in the higher education sector.

5.3 The taximeter-model of Denmark

5.3.1 The reforms of 1992

Prior to the introduction of the taximeter-principle, the Danish financing system did not leave much room for institutional autonomy. Since 1981 (until the reform), education activities at universities were funded on basis of a forecast of passed exams – but there was no adjustment when forecasts turned out to be untrue. Such type of funding system could easily be manipulated. Vocational colleges were micro-managed before 1991. The complete production structure was predetermined by the Ministry. Budgets were calculated from staff-student ratios.
Possibilities to internally relocate the public funds across different fields of study were limited. So funding received for students in economics had to be spent within this department, and could not be relocated to the physics department. Such a system is sometimes called “budgets itemised by program area” (cf. Skjødt, 1996).

The Danish higher education sector has been reformed drastically in 1992. In the government report from 1998 on the taximeter-model the following key-arguments for the reform are given:

- To promote efficiency, and to induce higher education institutions to become more results-oriented and customer-focussed;
- To link the allocation of grants to educational production so that institutions with more students and better results are rewarded accordingly;
- To avoid erosion of standards;
- To implement a system that is simple, fair, transparent and automatic;
- To promote quality-competition among higher education institutes.

The 1992 reform consists of a new funding system combined with a decentralisation of the government structure. The main changes are:

- A change of the funding mechanism. As of 1994, the institutions have received their funds in the form of a block grant. The amount of government funding is set by the taximeter-principle, the topic of our next sub-section;
- The introduction of four-year agreements on the total number of study places per institute (before the reform agreements on total study places were made on a yearly basis), and a considerable increase in the number of study places. Universities and vocational colleges have the freedom to reallocate the study places over the different fields of study. This increases their flexibility and makes them better able to adapt to changes in demand, which should lead to a better match between supply and demand. Each institution decides how many students will be admitted to each program and selects the students in case demand outnumbers its capacity. Only a few expensive programs, i.e. medicine and dentistry, have a nationally restricted admission.

5.3.2 The taximeter-principle

In the taximeter-model funding is directly linked to the number of students who pass their exams. This funding-principle is therefore a good example of an output-based funding system. The Danish higher education sector receives funds from the Ministry of Education to provide education (research-funding is under the auspices of the Ministry of Research and Information
Higher Education Reform: Getting the Incentives Right

4 The basic research grant has a historical base. Foremost the largest part of the grant is allocated according to last year’s distribution. Changes are incremental. Only a small part of the grant is related to the university’s income from teaching activities, that is “number of active students”\(^4\). Public funding also depends on the institution’s income from external funds, i.e. grants from the Danish Research Council, the Danish National Research Foundation, the European Union and so forth. Besides these quantitative measures, other more qualitative measures will be used in allocating the basic research budget over the institutions. This new system is not yet completely implemented and is still heavily debated (cf. Jakobsen, 1997).

5 But because of overlap, there are only 13 different tariffs, cf. Table 5.1.

Technology\(^4\)). The teaching component, which on average makes up one third of the revenues of Danish universities, is based on a unit-cost principle. For each student who passes an exam an amount of money is paid to the university. The total of these so-called active students determines the available budget in a particular year. In this system each exam is weighted. The weights of all exams of a 5-year program add up to 5. Universities do not receive compensation for students who fail their exams or do not take exams. The tariff paid per passed exam, the “taximeter”, varies according to the field of study, and has three components:

- A tariff for the costs of education and equipment;
- A tariff for joint costs (e.g. administration, buildings);
- A tariff for practical training (for a few subjects).

For the year 2000, the Minister uses taximeters for 20 fields of study.\(^3\) These tariffs are displayed in Table 5.1.

When the taximeter-model was implemented in 1994, tariffs were calculated under two important restrictions:

- The switch to the new funding system should not have budgetary consequences for the individual institutions in the first year;
- The taximeter-model should not lead to a relocation of funds between institutions in the first year.

These tariffs are therefore predominantly historically determined. The tariffs are not derived from cost-calculation of the most efficient supplier (i.e. benchmarking), so historically created inefficiencies will not be eliminated. Taximeter-tariffs are adjusted annually to balance the budget of the Ministry of Education. As of the introduction of the taximeter-model, there has been a lot of discussion about the level and differences between the taximeter-tariffs. For instance, at University of Copenhagen the faculty of science is actively lobbying for higher tariffs. This has also led to tension with other departments. Similar problems arise in the health faculty but here problems are less urgent as the health faculty receives more external funding.

Also the Ministry of Education is dissatisfied with the current tariff structure, and is considering to reduce the number of tariff groups. In addition, it has been suggested that there should be a premium for completion, as students often do not finish their thesis on time. In computer science, for instance, many students leave before graduating. Recall that this would
imply a move towards the current Dutch system, where funding is largely linked to the moment of graduation (cf. Chapter 1).

### Table 5.1 Tariff per full-time equivalent student for higher education in 2000 (DKK, excluding VAT)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Rate for direct teaching related expenditure</th>
<th>Rate for joint costs</th>
<th>Rate for practical training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law, Economics, Danish, History etc.</td>
<td>24,700</td>
<td>5,800</td>
<td></td>
</tr>
<tr>
<td>Psychology, Languages, Theology etc.</td>
<td>27,600</td>
<td>6,400</td>
<td></td>
</tr>
<tr>
<td>Teacher Training (domestic science)</td>
<td>27,600</td>
<td>7,900</td>
<td></td>
</tr>
<tr>
<td>Mathematical Economics</td>
<td>32,800</td>
<td>6,400</td>
<td></td>
</tr>
<tr>
<td>Educational Theory</td>
<td>32,800</td>
<td>7,900</td>
<td></td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>32,800</td>
<td>9,700</td>
<td>14,200</td>
</tr>
<tr>
<td>Marketing</td>
<td>34,200</td>
<td>6,400</td>
<td></td>
</tr>
<tr>
<td>Teacher Training (old program)</td>
<td>38,100</td>
<td>7,900</td>
<td>33,200</td>
</tr>
<tr>
<td>Teacher Training (new program)</td>
<td>40,400</td>
<td>7,900</td>
<td></td>
</tr>
<tr>
<td>Mathematics, Statistics</td>
<td>42,400</td>
<td>7,900</td>
<td></td>
</tr>
<tr>
<td>Music, Communication, Journalism</td>
<td>42,400</td>
<td>9,700</td>
<td></td>
</tr>
<tr>
<td>Athletics</td>
<td>47,800</td>
<td>7,900</td>
<td></td>
</tr>
<tr>
<td>Geography, Dentistry</td>
<td>54,500</td>
<td>7,900</td>
<td></td>
</tr>
<tr>
<td>Medicine</td>
<td>54,400</td>
<td>7,900</td>
<td>83,300</td>
</tr>
<tr>
<td>Computer Science, Physics, Chemistry, Biology</td>
<td>54,400</td>
<td>9,700</td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>62,800</td>
<td>9,700</td>
<td></td>
</tr>
<tr>
<td>Engineering, Agricultural Science</td>
<td>62,800</td>
<td>11,100</td>
<td></td>
</tr>
<tr>
<td>Veterinary Science</td>
<td>83,700</td>
<td>11,100</td>
<td></td>
</tr>
<tr>
<td>Ph.D.-program, non-laboratory subjects</td>
<td>87,900</td>
<td>21,100</td>
<td></td>
</tr>
<tr>
<td>Ph.D.-program, laboratory subjects</td>
<td>132,000</td>
<td>21,100</td>
<td></td>
</tr>
</tbody>
</table>

Note: 100 DKK is about Dfl.30, or €13.64. Reported tariffs refer to annual public funding of a student who passed all exams in that year.

* Self-governing colleges of education have an additional rate for capital expenditure (6,800 DKK in 2000).

Source: Personal communication with Jesper Wittrup, Danish Ministry of Education.

### 5.3.3 Safeguarding the quality of higher education

As mentioned before, an output-based funding system could give rise to quality problems. In such a system, it is tempting to let (infra-marginal) students pass their exams to increase revenues. What measures have been taken in Denmark to safeguard educational quality?

The Danish Ministry of Education acknowledged this danger and therefore established (already in 1992) an evaluation center: the Evalueringsinstitut (EVA). By performing regular evaluations of the educational programs this center should improve and maintain the quality of higher education.

EVA is funded by the Ministry of Education, but acts as an independent body with the task to evaluate the quality of study programs and to publish these evaluations. A negative evaluation does not have direct financial consequences for the institution, but the Minister could intervene when performance is not improved. Although EVA’s reports are publicly available, the
presentation is rather technical and it is written for the institutions and generally not read by the students. According to EVA, no overall change in quality has been observed since the introduction of the taximeter-model.

Another counterforce to the erosion of academic standards is the long-standing system of external examination. The external examiners should:

- Ensure a fair and equal treatment of all students;
- Monitor nation-wide quality standards;
- Advise the institutions on the quality of the programs, and annually submit a report of their impressions or critique to the institution (cf. Thune et al., 1996).

The three universities we visited make use of external examiners (“censorship”) more frequently than the required minimum. Aarhus uses more and more exams with censorship, and at Copenhagen Business School about 60% of the examinations are censored. The institutions reported a number of additional benefits of the system of external examiners, such as the informal exchange of information on quality of particular courses and the opportunity to meet and talk to colleagues (though it could be questioned whether this cannot be arranged outside the system of external examination).

Both the EVA and the Ministry of Education consider the system of external examiners as too costly. They believe that efficiency in educational production can be improved by having less exams censored by an external examiner. However, imposing a maximum use of external examiners seems to be at odds with one of the aims of the reform, namely to increase institutional autonomy. With an output-based funding system institutions have an incentive to produce efficiently, so apparently the intensive use of external examiners yields enough benefits to the institutions. By pointing at the expensive character of the system of external examiners, it seems as if the government tries to impose input-requirements or methods of production (as in a line-item budgeting system). Our interviews revealed that it seems to be a matter of money: the government may point at the inefficient use of external examiners as an excuse to reduce the taximeter-tariffs.

Our impression from the expert interviews is that universities question the functioning of the EVA while they attach heavy weight on the system of external examiners. Aarhus is not too happy with the EVA: evaluations are not always objective and too much dependent on the evaluation board. And University of Copenhagen criticises the “ivory tower character” of the external examiners must reflect a substantial (at least one third) number of employers of the graduates from the program in question. External examiners are either colleagues from other universities or people from business companies or the public sector. There is a national pool of these external examiners, but there are some complaints that the pool is too small. Professors can propose the name of an external examiner (this aspect makes it less objective). The Minister of Education imposes the rule that at least one fourth of the examinations should be taken in the presence of an external examiner.
EVA. But the three universities we visited were (very) happy with the system of external examiners, although they all acknowledge that it is a costly instrument to guard academic quality.

5.4 Evaluation of the taximeter-model

5.4.1 Danish evaluation studies
A first evaluation of the taximeter-system has been performed by the Danish Evaluation Institute (EVA) in 1995. The Ministry asked the EVA to evaluate whether the taximeter-model has had any negative effects on educational quality. In the response the EVA concluded that:

- No negative trends could be found in the most recent evaluations of the study programs. On the contrary, EVA actually found that the reform had resulted in increased awareness of student needs, and a more open attitude towards students’ suggestions, for instance by taking student evaluations more seriously;
- The teachers’ “professional ethic” in general prevents them from letting more students pass as a response to output-based funding;
- The intensive use of external examiners prevents the local examiner to let more students pass.

A second and much broader evaluation of the taximeter-model, not only in higher education but also in other parts of the educational system and other government sectors where the taximeter-principle is applied, took place in 1998 (Undervisningsministeriet, 1998). The overall conclusions of this evaluation were positive, not only for higher education but also for the other systems investigated. In particular, it was concluded that as a result of the reform the management of the education sector has improved considerably. There is an increased focus on “value for money”. For instance, managers are now more eager to find the best offer when buying new equipment or choosing a bank. Unprofitable activities are more rapidly discontinued, and the institutions have improved their ability to adjust and take up new initiatives, where before the reform they would often wait and do nothing until a real crisis occurred.

Also, educational institutions now seem to be more inclined to provide a good service to their students. Typically, additional effort is made to reduce the number of drop-outs. Furthermore, most institutions consider the quality of their teaching programs to be the decisive factor in the competition process.

The above mentioned effects are more pronounced at the vocational colleges than at the universities. One of the reasons could be that university funding is less affected by fluctuations in the number of active students, since taximeter-grants cover only about a third of their total revenues (the remainder include grants for research, capital expenses and so forth).
Furthermore, the governance structure at the universities is rather complicated, which could lead to agency-problems and hamper efficient management.

5.4.2 Student performance

One objective of the introduction of an output-based funding system was to improve student performance, i.e. to lower drop-out rates, to increase completion rates and to lower the length of study. Was the reform successful in this respect?

In Figure 5.1 we plot data on enrollment in Danish higher education (number of enrolled students as a percentage of the age cohort 20-24), entrants and graduates in higher education (also as a percentage of the age cohort 20-24) over the past twenty years. The figure clearly shows that enrollment started to increase around 1985, and in 1998 about 56% of the Danes within the 20-24 age group participated in some form of higher education. Also the fraction of people within this cohort entering and graduating from higher education increased. Between 1980 and 1998, the fraction of entrants as a percentage of the relevant age cohort doubled, while the fraction of graduates as a percentage of the relevant age cohort increased by approximately 85%. This suggests that completion rates have fallen and/or the average length of study has increased. So despite the introduction of the taximeter-model in 1994, we do not observe a clear improvement in student performance in the data.

Figure 5.1 Participation, inflow and outflow in Danish higher education, 1980-1998 (percent of age cohort 20-24)

Source: Data on enrollment, number of entrants and number of graduates are from the Danish Ministry of Education. Population data are from the UN (1999).
Figure 5.2 shows the number of graduates as a percentage of the number of enrolled students. A peak occurred in 1994, the year when the taximeter-model was actually implemented. About 20% of the enrolled students graduated in that year. For the years 1995-98 there is no clear evidence for a trend break in completion rates, though the period is too short to draw firm conclusions.

According to University of Aarhus, educational production (number of students times study performance) has risen during the first years of the taximeter-model. However, this upswing is due to a volume-effect in the sense that more students applied for a study place at Aarhus. The volume-effect is triggered by a temporary demographic wave. The intended positive effects from the taximeter-principle on completion rates did not appear. And there is no evidence that the drop-out rate has lowered or the length of study has shortened. Despite a more pro-active attitude of the university to prevent students from dropping-out through study boards and counselling, this has not yielded any positive effects. In other words, attempts by the university to prevent students from dropping-out turned out to be ineffective in Aarhus.7

University of Copenhagen is more positive about the taximeter-model. At the end of the demographic wave, the number of applications for study places at University of Copenhagen

7 To improve upon this situation, University of Aarhus started to monitor the cohorts entering in 1996 and 1999. Unfortunately, research results are not yet available.
dropped. A first reaction by the university was to lower entrance standards (mean grade points at secondary school), so that more students were admitted. But this did not turn out to be a sensible strategy. In fact, lowering entry standards led to an increase in the dropout-rate, and this strategy did not yield a positive effect on their revenue stream. Therefore, entry standards were increased again. This caused a reduction in the intake of new students, but completion rates (and thus taximeter-funding per student) increased.

Also according to the Copenhagen Business School (CBS), the taximeter-model has led to a more active attitude to improve study performance. A common problem in the Danish higher education program is the preparation of a thesis. About 40% of the students do not succeed to submit their thesis in time and students receive too little guidance. To improve on this situation, CBS developed a more active and student-friendly attitude with the result that more and more students are able to finish their thesis on time.

5.4.3 Budgetary effects

An often-mentioned drawback of the taximeter-system is its open-ended character (at least in the short-run). If more students pass exams, more resources are made available to the institutions. It is not possible to calculate in advance exactly how many active students there are, and therefore it is not possible to predict the exact funding to be paid by the government. This has already resulted in “unpleasant surprises”: in some years actual expenses exceeded the budget of the Ministry of Education by almost a billion Danish crowns. Not surprisingly, the Ministry of Finance is especially concerned about this problem. The Ministry of Education now has an agreement with the Ministry of Finance with regard to overspending. The Minister of Education may overspend 200 million DKK (approximately 70 million Dfl.) before intervention is needed. Some measures have been taken to decrease the likelihood of such negative surprises in the future. One of these measures is to set a fixed maximum grant for certain types of open education, for which it is particularly difficult to predict the number of active students. However, to the extent that the upswing in expenses reflects a general improvement in study performance it is only an inter-temporal reallocation of funds (future outlays are moved forward). So in our view overrunning the budget could actually be a sign that the taximeter-model is effective in improving study performance.

5.4.4 Quality once again

An often-heard argument against output-based funding systems is that educational quality may be lowered. Is this fear justified? Perhaps the most powerful mechanism to maintain academic standards is reputation. In an open sector where information about a school’s quality is readily available to (potential) students, the number of applications will be affected by the school’s reputation (cf. Chapter 4 on the US). A reduction in educational quality in response to the taximeter-model is considered to be “self-defeating” (University of Copenhagen). Neither the
universities nor the Ministry of Education and EVA reported a structural drop in academic standards, although some mentioned that students and academic staff occasionally express their concern about educational quality.

Institutions can select their own students. Entry standards vary across universities. Some universities receive ample applications, and they can select the best students. But especially the far-away colleges have to accept everybody. This will lead to quality differences. While this differentiation between universities is accepted, the Ministry of Education recognises that transparency is at stake.

People at Copenhagen Business School talked about a hump-shaped relationship between the average quality and number of intakes. When too few students are admitted, educational quality is too low because there is not enough student interaction and the scale is too small to generate enough financial means. And when too many students are accepted, the average quality of the student population is lowered.

In our interpretation, the expert interviews revealed that quality-differentiation has been promoted (though perhaps unintentionally) within the taximeter-system. Some universities strive for excellence and adopt a rigorous student selection policy. For instance, at University of Copenhagen we were told that their tough program in economics is used as a marketing instrument to attract good students – for instance by presenting examples of former students who were admitted to a Ph.D.-program at American top-universities. Other universities admit all applicants, which may come at the cost of educational quality. For a more elaborate discussion on the pros and cons of quality-differentiation, we refer to Chapter 4.

5.4.5 Competition

The taximeter-model should facilitate competition between schools. When the money follows the student, there should be no financial impediments to student relocations (apart from switching costs). However, Danish students are discouraged from switching between universities. Students have to add at least half a year to their study time when they switch to another university. This is because universities normally require students to take additional courses, as courses taken at another university may not be recognised, or considered to be “too light”. Students perceive these barriers to switch as a problem. Moreover, by erecting these barriers universities can reduce competition. Indeed, the intended effect of voting-by-the-feet has not appeared. As a consequence, the market for higher education is still to a large extent a regional one. Students want to live close to their relatives and are only prepared to move to another part of the country when programs are very different.

International mobility of students is also limited (apart from international student exchange programs) as degrees obtained in other countries are often not recognised. For instance, a Bachelor-degree from the UK is not accepted in Denmark.
There is some evidence that the taximeter-model induced universities to search for new markets. For instance, the University of Copenhagen has been more creative to attract students and money (also from firms) by offering new courses and programs. Or – as one expert put it – the taximeter-model “has triggered an incentive to build up new business”. It is admitted that some moral hazard is present in the sense that there is an incentive to supply soft courses, but this effect is counterbalanced through the danger of loss of reputation and students.

5.4.6 Other issues

Most Danish universities also apply the taximeter-principle for the internal allocation of funds over the various faculties. But it is applied in a less strict fashion, in order to prevent too large budget relocations between faculties. For example, at University of Copenhagen a growing department receives more money, but less than according to the taximeter-principle. It can be expected that the effects of the taximeter-model are mitigated when the internal allocation of resources is not brought in line with the external allocation principle.

Internal application of the taximeter-principle suggests that a department with reduced student performance (i.e. more students failing their exams) would receive less money. Can such budgetary consequences also translate into sanctions of underperforming academic staff? Copenhagen Business School reported that teachers who perform badly can be sanctioned. Staff cannot be fired but underperforming staff may be forced to teach less interesting courses or (in a more extreme case) to early retirement. But in practice the yearly performance evaluation with the manager is in most cases sufficient to signal problems and to try and solve them.

Aarhus mentioned that the taximeter-model implied a huge administrative burden. University of Aarhus developed its own information system. The implementation of an information system necessary to administrate the system according to the norms of the Danish General Auditor was very expensive. Also maintenance costs are regarded as high. But the other two universities we visited did not report any serious implementation problems. And we were told that University of Aarhus implemented a very sophisticated and student-friendly information system. This system should meet the rapidly increasing information requirements of students. The taximeter-model, as such, did not call for such an advanced information system.

Research funding is provided by the Ministry of Research and Information Technology. There is no formal link between the budget for teaching and the research budget. Surprisingly, there is no institute to evaluate the research output: the Evalueringsinstitut only evaluates teaching.

In the perception of government, universities used to spend too little time on teaching and too much on research. The taximeter-model provides high-powered incentives with respect to teaching. According to the people we interviewed, this has indeed led to an increased attention for teaching activities. So does this reshuffle crowd-out research activity? According to the
Copenhagen Business School, this has not led to an erosion of research output. On the contrary, research productivity has increased. Whether this is due to complementarity between education and research or to the removal of substantial inefficiencies is an open question.

So is the taximeter-model a good model? Let us recapitulate our findings in the form of three main conclusions:

• The taximeter-model only had a minor positive effect (if any effect at all) on student performance: there is no compelling evidence for changes in drop-out rates and completion rates;

• On average, no structural change in educational quality can be observed. But the taximeter-model has encouraged quality-differentiation across institutions. Some opt for a high-quality strategy and only admit the best students, other institutions accept all applicants and need to adjust their standards accordingly;

• Some institutions reported positive effects from the reform; our impression is that the taximeter-principle triggered a process of internal reorganisation at these institutions.