Economics Working Papers

2014-08

The public choice of university organization. A stylized story of a constitutional reform

Martin Paldam

AARHUS
UNIVERSITY
BUSINESS AND SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS AND BUSINESS

Aarhus 25/6-2014

3rd version

The public choice of university organization

A stylized story of a constitutional reform

Martin Paldam, Department of Economics and Business, Aarhus University[1]

Abstract: The essay presents and explains a highly stylized story of the reactions of the structure of a university to a constitutional reform – in the university law – that radically changed the power structure from a bottom-up representative system to a top-down hierarchical system practically without checks and balances. It was meant as a more business-like system to increasing effectiveness. However, the result has been precisely the reverse. Both the (relative) size and the salaries of the bureaucracy have increased, while its effectiveness has fallen. The bureaucracy has grown particularly fast in the special service bureaus outside the normal structure and in the PR-department. It is shown that these outcomes correspond to the predictions of public choice theory, notably of Niskanen's theory of bureaucracy.

Jel: D73, L32

Keywords: Constitutional reform, bureaucratic growth

Acknowledgement and notes:
This paper covers the period that ends in early 2014. I am grateful to many colleagues and friends for information. The first version of the paper has been presented at the Danish Public Choice Workshop 31st January 2014 and I am indebted to the participants. As consistent data are scarce, rumors are plentiful at my university. I have tried to sort by true and false, and to indicate what is based on secure and uncertain information. The first version of this paper has circulated widely at the university and been discussed in two issues of the periodical Forskerforum. It has also led to a set of questions in the Danish Parliament (Folketinget). As a result some information has appeared. Also, the main results from a large new report on the problems of the administrative reform (in Danish) have just been presented documenting the size of many of the problems mentioned below (and some more) in great detail, see Ekspertgruppen (2014). I am grateful to rector Brian Bech Nielsen and his 'data man' Bo Bjerre Jakobsen for a useful discussion of the data – see here the Appendix.

1. Street address: Fuglesangs Allé 4, Building 2632 (L), DK-8210 Aarhus V. E-mail: mpaldam@econ.au.dk.
URL: http://www.martin.paldam.dk.

I. Introduction: An organization under two systems

This essay gives an interpretation of a university reform process that went awry. The story told is highly stylized. The main effort is to give a theory-based explanation of a story that catches the key facts. It uses my own university as example. In 2013 it had about 38,000 students and 7,000 staff (in full-time equivalents) of which just about half was faculty. Many similar stories have occurred as university reforms have international fashions.[2] Denmark provides a fine example as the Constitution Law for the Universities was radically changed one decade ago:[3]

The *old system* was a representative democracy where the university rector,[4] deans and chairmen of departments were elected by the staff and (with a lower weight) the students.

The *new system* is hierarchical. A largely external board appoints the rector,[5] who then appoints the deans, who in turn appoint the chairmen of the departments.

The purpose of the reform was to increase the efficiency of the universities by a more business-like management. Section 2 shows that the reforms have had the reverse effect – section 3 explains why.

Till a year ago, after about six years of reforms, the leaders of the university gave no indication that they recognized that they had created large problems. Since then it gradually dawned also to the bosses that the reforms had failed, and it has been announced that new reforms will be launched to ameliorate the problems. My analysis suggests that the core problem is systemic: The university law gives the leaders too much leeway to pursue fanciful projects and to increase their own rents. Reforms may reduce these problems in the short run, but it is likely that they will be back as long as the temptation remains.

1.1 Overview of the explanations

The theories deals with the two types of university staff as defined in Table 1. ***A*** is the academic staff. ***B*** is the bureaucratic-technical staff, to which the group of bosses belongs. The main variables considered are the A-share and B-share, or rather the ***Ad-share*** that includes the ***Bd***-staff at the departments, and the ***Bc-share*** that is the B-staff outside the departments, mainly at the central and the faculty administrations, but also at various service centers.

2. See Goodal (2009) and Ginsburg (2011) for case studies of university reforms in the UK and the USA. Jamtveit *et al.* (2009) has put some data together for a group of European countries.
3. The University Law has often been adjusted, but the big change from bottom-up to top-down happened a decade ago.
4. 'Rector' is the term used for the university 'president' (USA) or 'vice chancellor' (UK).
5. The first rector under the new constitution, Lauritz Holm-Nielsen (2005-13, was appointed on non-academic merits. Goodall (2009) shows that research universities thrive much better under rectors, who are top academics.

Table 1. Data discussed

Data	Definition	Available
	Data available; see Appendix	
A-staff	Faculty, doing teaching and research	Series from 1991 to 2012 in Appendix
B-staff	Administrative and technical staff, including bosses	
	Data wanted: A division of B-staff into B = Bd + Bc	
Ad-staff	A-staff + Bd staff, at the departments	Only scattered data for the division of the B-staff in Bd and Bc are available.
Bc-staff	Bc-staff, at higher levels	

The key insight is simple: Under the old bottom-up system the Bc-staff is treated as a necessary cost that is controlled. Under the new top-down system the number and salaries of bosses grow rapidly. They have turned most of the B-staff into *their central* bureaucracy (the Bc-staff) that is allowed to grow too. Some such shift is no doubt inevitable, but the centralization has given a substantial step into inefficiency even if the Bc-staff has greatly increased.

The standard theory of economics deals with agents on a market that enforces cost minimization. In this theory bureaucrats are good 'Prussians' doing precisely what they should and nothing else (see Weber 1922). Public choice theory deals with agents who are not on a market, but still behave like (other) human beings.

A special branch of standard theory deals with the *worker managed* firm. It can be combined with the Public Choice theory of *political markets* where decision makers are elected. Together these theories explain why the old system worked fairly well. However, in order to justify the reforms the new leaders developed a story about how badly the old system worked. It is now abundantly documented that the new system works substantially less well.

Public choice theory also deals with *bureaus* with a hierarchical structure. Here Niskanen's theory of bureaucracy is relevant. It shows how bureaus use *murky information* to *maximize* budget, staff and rents. If the bureau has an external board, the problem of *capture* arises. It is shown that these theories provide a fine explanation of the dynamic path of the new system into inefficiency.

1.2 Three limitation of the analysis

A paper can only cover so much, so a lot has to be excluded. Three main limitations are:

(i) The story about the relation between the central administration and the administrations of the faculties is not told at present. The University leaders claim that the administration is integrated. I doubt that it is, but the available information does not allow much analysis of this aspect.[6]

6. It is possible that a partial explanation of the bureaucratic growth is competitions between the deans about the size of their B-staff. The Dean of Business and Social Sciences has kindly provided me with budgets for 2008-13 for his faculty. Recently he (proudly?) announced that he has reached 291 in his administration.

(ii) The allocation within the A-staff is not discussed. The bosses will probably argue that they have improved this allocation. I assess that these improvements are dwarfed by the big reallocation between the Ad and the Bc-staff made by the new system, and the downward jump in the efficiency of the administration.

The author has, as I believe all economists do, taught his students *the golden rule of trust in data*: If a boss (of any kind) uses selected data to prove his case, but refuses to publish these data in a well-documented form, you should take it for granted that you are being manipulated.

(iii) The data for the University are as murky as predicted by Niskanen. Series are short, contradictory, rarely overlap, footnotes with definitions are missing, etc. From the golden rule follows that there is a lot the bosses do not want the staff and the ministries to know. The poor state of published data is a main reason for the stylized nature of the story.

However, it is easy to find some data, and the Data Appendix gives the data I have found. They are not what I wanted, but they still document a steady annual decrease in the A-share, but not the shift from Ad- to Bc-staff, due to the new constitution.

The story is not about nasty or stupid bosses. It is about a bad constitution inducing 'normal' decision makers to give in gradually to temptations and pressures. The poor outcome represents endogenous processes in a hierarchical organization with too few checks and balances.

2. The stylized story, with two main facts to be explained

Section 2.1 outlines the reform process. Section 2.2 gives a few data on the Ad- and Bc-shares leading to Fact 1. Section 2.3 looks at data for the perceived effectiveness of the administration leading to Fact 2. Section 2.4 considers the idea of a unified central administration, and finally section 2.5 depicts the two facts in a PPF-IC-diagram.

2.1 The reforms and their purpose: Centralization and bureaucratization

When the new law had given the University a new rector (in 2005) he started to build his *senior management group*, the SMG,[7] and many new bosses were appointed. They isolated themselves in the Headquarter, which was greatly embellished, and vastly increased the PR-department. It appears that the main efforts of the PR-department are spent on informing the rest of the staff in the right

7. SMG is rector, his deputy, the four deans and the director. The external chairman of the board and the 14 (new) deputy deans and 9 (new) deputy directors, and about 15 (new) others, etc., also belong to the 'bosses'. The 27 heads of departments are (much) smaller bosses. The author has worked at the University for 38 years and knows a couple of these bosses from the old system, but he has lost contact with them since they were elevated. Most bosses never visit departments to mingle with underlings.

way. Then the structural reforms started.[8]

All advice was based on the visions of the rector, internal discussions among the new bosses and reports by external consultants. Thus, the full responsibility for the reforms rests with the SMG, notably with the (old) rector. The reforms have had four main axes:

(A1) Inclusion of as many other institutions of higher learning and research as possible.

(A2) Reorganization into four faculties (from nine) and 27 departments (from 56) to reduce their numbers and absorb the new institutions.

(A3) Creation of a unified central administration that is isolated from the ones administrated.[9]

(A4) Weakening of all decentralized authority turning all non-boss staff into underlings.

When (A1) to (A4) are seen together it appears that what the SMG really wanted was *power* (as such) and turning the administration into a *tool* serving that purpose. They wanted to break the easy collaboration between the B- and the A-staff, and make the administration a real bureaucracy – their bureaucracy.

I wonder if the SMG fully recognized even in its own internal discussions that what they did was a centralization and bureaucratization, but somehow they all agreed that they needed *higher salaries, more staff and more powe*r. They did recognize that this was not what the A-staff wanted, and power for its own sake is not really nice, so the SMG came up with other reasons. Maybe they even believed these reasons, but they seem like really tired old ideas:

The words endlessly repeated are 'modern mass university', 'globalized' and 'interdisciplinary'. Recently the chairman of the board summarized these 'ideas': They were to turn the University from a small provincial into a large international one. Also, the new structure would enhance interdisciplinary research that for some reason (not revealed) is declared to be the future of *all* research.[10] The relation between these words and the realities of the reforms has escaped most staff. If there is a relation, it has certainly not been explained in an academically serious way.[11]

The University has swallowed: Aarhus and Herning Business Schools, The University of Education in Copenhagen, The Danish Institute of Agricultural Sciences and The National Environmental Research Institute (DMU, Risø), etc. In 2012 it also swallowed the Engineering College of

8. I make no attempt to give a historical description of the reform process, see here Johansen (2013).
9. Part of this process was a unification of all administrative and educational IT-programs. It was done rather fast with the predictable consequences.
10. Denmark has two universities built on the interdisciplinary idea in the 1970s – they have not been academically successful. This is not to deny that there are fields where interdisciplinarity is needed.
11. While it is demanded that the A-staff base their work on science, no such demands are required from the bosses. They justify their decisions by reports from consultants, visions and fashions.

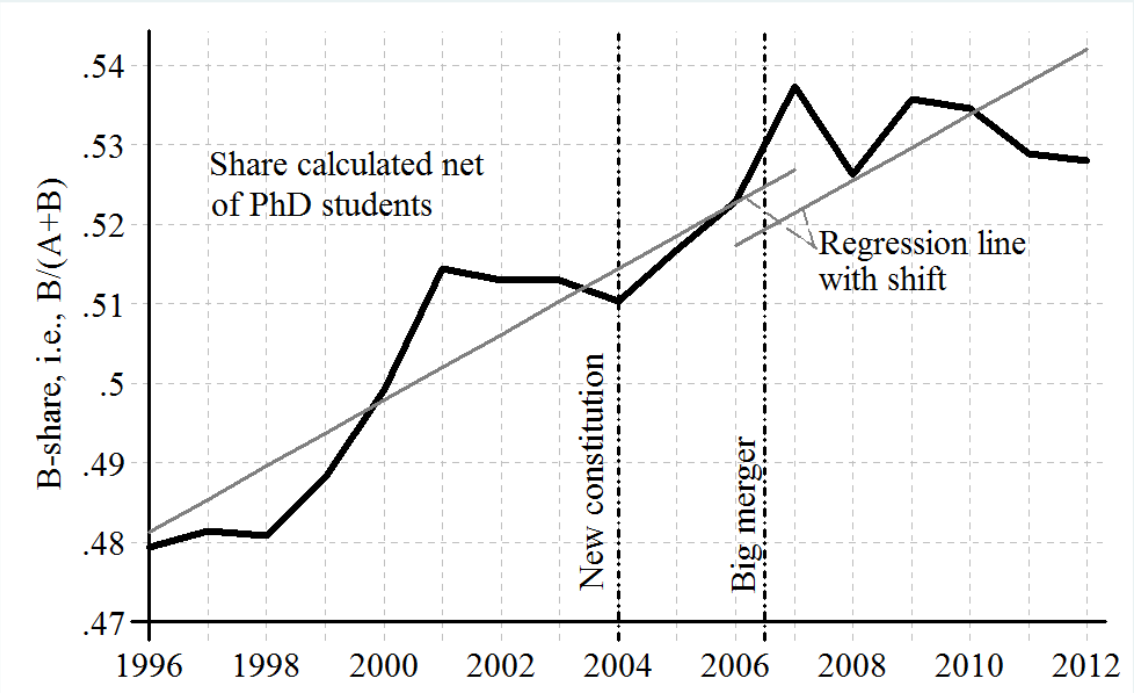
Aarhus.[12] It all gives an impressive bulk and large digestion problems.[13]

The old faculties and the newly merged institutions were turned into four new faculties: Science, Health, Social and Arts, with 27 humongous departments with about 200 staff (including PhD students and the Bd-staff), having a leadership with little power. It appears that the idea of the merger was the same as the one of the collectivization of agriculture in Russia in the late 1920s. It was necessary for central control. It has, of course, loosened the loyalty of the individual A-staff to his department. Also, most of the B-staff was moved to one unified central administration.

2.2 Some data for the A and the B share: Fact 1 the large shift

The SMG has often claimed that the share of administration at the University is only 10%. To keep that number stable several redefinitions have been necessary. The Data-Appendix gives numbers for the A- and B-staff. The main series is shown on Figure 1 – the previous 5 years are rather similar. The B-share has grown by 0.4 pp (percentage points) p.a. for the 22 years where the data exists.

Figure 1. The A-share: The two long series



Note: The regression use time and a shift dummy that is zero before 2006 and one from 2007 onwards.

12. This merger is not yet included in the data discussed.
13. The University is now at the locations shown at http://www.au.dk/om/organisation/find-au/bygningskort/?e=3d7b-687f-819b-4d2e-bc7f-b8c8b639400e. It is all over the country, and, of course, in China.

It is possible that Figure 1 shows a braking process at the end, but it difficult to assess due to the merger process that is still ongoing. The analysis in the Appendix shows that the main reason for the variation in the share is the movements in the A-share entering through the denominator.

The B-share is thus about 53% (or 53.5% without the merger). The Bc-share is less well known, but it appears to be about 40%. About 1/3 of those are 'technical', i.e. in IT, gardening, janitors, etc. So basically the Bc-share in administration is about 26%, of which some are in the faculty administration and some are in service centers. From Figure 1 (and the analysis in the Appendix) I conclude that the B-share has increased by 4 pp since the new constitution, and that the Bd-share has fallen by at least as much. Thus, I conclude:

(F1) The Bc-share has increased app 8 pp in the first decade of the new system.

All University salaries are on a public scale, but there has been substantial job re-classification so that the B-staff has gained strongly relatively. If all staff is ordered by the salary received from the University, my original guess was that at least the top 70 would all be bosses in the B-staff. After a rather big discussion, it has been revealed that it is only 65.[14] This number has gone up about three times since the reforms started, and the wage gap between that group and the rest has greatly increased. Thus, the increase in the B-share is larger if calculated in budget shares.

It decreased the respect of the A-staff for the SMG that the University developed a budget deficit of about 5% of the budget in 2012/13.

The increase in the B-share corresponds to a similar sized loss in the A-share, and those who suffer the loss are, of course, the promising young researchers seeking employment as assistant professors. They have to look elsewhere for a job. And for the next couple of years there will be few openings due to the deficit.

2.3 The effectiveness of the administration: Fact 2 reduced effectiveness

In the new system bosses have no incentives to talk with the staff, and they have largely ceased to do so. However, they appointed a lot of PR-staff to talk the talk. The main source of information to the staff is now newsletters, brochures and pamphlets on glossy paper with text to match and many pretty color photos. People who have looked at the PR brochures from 2008-13 and then considered

14. The 70 with the highest salaries include 15 that also teach and do research, but 10 of those are center leaders, etc. It will also interest people with some knowledge of Danish wages that 45 bosses have annual salaries in excess of 1 million DKr per year. The published statistics does not include bonuses and salaries from units that are legally separate from but de facto belong to the university, such as the University Research Foundation. Also, further down in the Bc-staff there has been large-scale replacement of people with an office skill-education with university graduates with a higher salary (known in Danish as special- og seniorkonsulenter).

the data in Table 2 must think that there are two universities with the same name.

The APV was a poll done in 2012 of the A- and B-staff to measure stress at the workplace.[15] Among the many questions posed were a few dealing with the relations to the SMG and the effects of the administrative reforms. Table 2 gives the items and the pattern in the answers. The top panel (I) shows that both the A-staff and the B-staff felt that the SMG does not listen and does not justify the decisions they make. Obviously, the efforts of the PR people have convinced very few.

Table 2. The assessment of the SMG and the administrative reforms in the polled APV

		B-staff	A-staff			
		all	Science	Health	Social	Arts
	I: Assessing the SMG, senior management group:					
(1)	Inform the staff about future decisions	24%	27%	29%	15%	17%
(2)	Listen to the opinions of the staff	15%	18%	18%	7%	7%
(3)	Clearly justify the decisions made	16%	18%	19%	10%	10%
	II: Assessing the administrative reforms: It is now better at					
(4)	Quickly react to needs arising	22%	10%	9%	2%	6%
(5)	Treat everybody the same	57%	35%	34%	22%	38%
(6)	Service and cooperate with the A staff	19%	9%	11%	7%	11%
	III: The relative satisfaction in the B-group and the four faculties					
(7)	The average of the six answers from	25.5%	19.5%	20.0%	10.5%	14.8%

Note: The percentage (of all respondents) for the sum of the two positive of five categories: (i) Fully disagree, (ii) disagree, (iii) don't know, (iv) agree, (v) fully agree. The APV was done in 2012.

The staff was also asked about the success of the administrative reforms. The results are given in the middle section (II). It is clear that the staff thinks that the reforms have decreased the effectiveness of the administration. Thus, the second key fact to be explained is:

(F2) The efficiency of the administration has considerably fallen.

Rumors at the University say that the APV-results chocked the SMG. They probably believed that things were going as well as described by their 'courtiers' and the PR-department.[16] Soon after, the rector was not reappointed. It is unclear if he wanted to continue, but he probably would for a shorter period.

15. The main results of the APV have recently been confirmed by a whole set of polls and focus group interviews under publication, see Ekspertgruppen (2014). I am grateful to my colleague Torben M. Andersen, who has headed the group, for discussions.

16. The information void of a 'dictator' only informed by courtiers is a key theme in Wintrobe (1998). I have heard that some members of the SMG already started to suspect that there was trouble even before the APV was published, but they certainly admitted nothing before it could not be hidden.

The last row (7) of Table 2 shows that the B-staff is the least discontent, while the A-staff in the Faculty of Arts and, in particular, Social Sciences are the most dissatisfied.

The new rector has been an active teacher and researcher till recently. He joined the SMG a few years ago only, and he has made nice speeches and even started by visiting the departments. He has now exchanged his deputy and is in the process of exchanging the director and one of the deans, so new people will soon be a majority in the SMG. However, the remaining group of bosses remains, and he is subjected to the same temptations and pressures as the old one. Also, the recent round of savings to cover the budget deficit did not augur well for the rule of the new rector. The 308 jobs that were saved did not include any of the bosses who had made the mess.

2.4 The idea of a distant unified central administration

One of the key policies of the SMG has been to create a unified central administration that is strictly separated from the A-staff. The centralization progressed in three main steps: In the old system the administration had two anchors: One to the director (and the rector) and one to the departments and the (old) nine deans, who worked within their faculties. First, the second anchor-line was severed. Second, the (new) four deans were moved to the Headquarter. Third, the 'central' B-staff was moved to buildings close to the Headquarter, and the A-staff was told not to enter. Also, all telephone calls have to go through an entry level service. These are radical reforms to secure that the Bc-staff should work for the SMG and not for the A-staff. Row (6) in Table 2 shows that the second part of that aim has been fully met.

The primary activities of teaching and research are done by the A-staff, so they know what is going on at the floor level, and are the first to see problems that occur. Consequently, the separation has greatly reduced the information flow to the administrators. The bosses keep stressing how hard the Bc-staff works. This is probably true. It is much more difficult to administrate when you are isolated from the sources of the information needed. If your boss demands that you work with one hand tied behind the back, the work gets much harder.

It has also made the administrative chores at the A-level more cumbersome. Thus, the total amount of time spend on administration has gone up, and administrative lags have increased. In short, it changed our friendly and efficient administration into a heavy and slow bureaucracy.

Nobody in the A-staff wanted a large unified anonymous administration in a distant building. We want a flexible administration that is easy to communicate with. Clearly the whole idea of a unified central administration is a silly, harmful idea seen from the interests of society, the students and the A-staff. Also, it has made the work of the B-staff more mechanical and dull.

But it did change the B-staff into a tool of the SMG, and it created a big need for more

bureaucrats, and hence more bosses, so the Bd-staff had to be increased and consequently the A-staff had to be reduced. The productivity of the Bd-staff has fallen in two ways. (i) There are relatively more people doing the same work, and (ii) they do it less well, especially as the administration is substantially slowed down.

2.5 The stylized story on figure 1

The rumors are that the SMG and the other bosses have held numerous meetings about their reform strategy and high goals, and the importance of talent development, etc. However, the combination of (F1) and (F2) is bad and harmful, notably for talent development.

Figure 1. A sketch of the story told

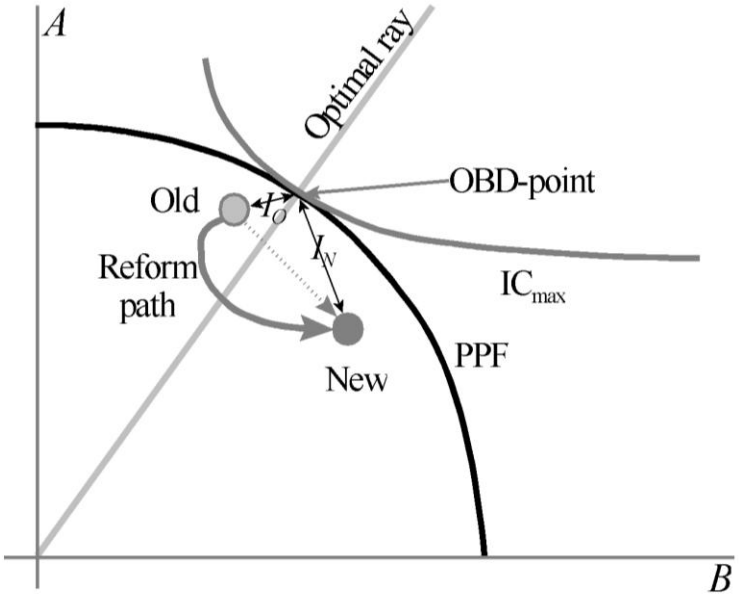


Figure 1 shows what has happened. The two main curves are PPF, the production possibility frontier, and IC_{max}, the best indifference curve of the population. If the University was ruled by the mythical beast known as the omniscient and benevolent dictator, it would produce at the OBD-point. In practice it is impossible to reach that point, but one should try to get close.

The ineffectiveness is shown as the distance to the OBD-point. It is I_O in the old system and I_N in the new system. The old system had a relatively high (but growing) A-share and some ineffectiveness. If the reforms had aimed at identifying and reducing this inefficiency, most observers would have liked them. However, the reforms have not been concerned with such trifling matters – they have been visionary aiming at totally restructuring the University.

The thick gray arrow shows the path of the reform process. Reforms are costly, so the curve

is not a straight path from old to new, as drawn by the dotted arrow, which has a slope of app -45 degrees (as per equation (3) below). It is rather a curved path below the straight path all the way. The short-run total costs of doing the reforms are due to half the staff being reshuffled: amounts to about 500 mill DKr or 10% of one annual budget.[17] That is twice as large as the deficit in 2013.

The new system has two characteristics as explained above: (i) It has a lower A-share. (ii) It is further away from the OBD-point, so it is less efficient. The SMG claims that both the A- and B-staff have to learn from doing under the new system before it works as envisioned, but it is clear that efficiency is permanently lower under the new system.

Why the SMG that consists of intelligent and well-meaning people can make decisions that end up generating an outcome that presumably is the reverse of the desired needs an explanation.

3. The theory explaining the story

Section 3.1 deals with the standard theory of a university as a business, which is strongly at variance with the empirics. A key point made is that public universities are shielded from market signals. Section 3.2 looks at the theory of the worker managed firm, while section 3.3 considers the self-controlled hierarchical organization. Section 3.4 surveys Niskanen's model, while section 3.5 looks at the theory of regulatory capture. Finally, section 3.6 shows that the new system has much fewer checks and balances than the old one.

3.1 The neoclassical framework: Any relevance?

Public universities are not business enterprises. They are some sort of SOEs (state owned enterprises), with a complex product. The old system was almost a bottom-up 'worker managed' firm and the new system is a top-down 'self-managed' firm.

Consider a model with two categories of expenditure: A-staff, *A*, and B-staff, *B*, and take the costs of buildings, furniture, computers, travel etc. to be proportional to *A* and *B* and included. The production function is:

(1) $Y = F_1(A(B))$ or $F_2(A, B)$, the equal productivity condition is $\partial Y/\partial A = \partial Y/\partial B$

The formulation F_1 reflects that the product Y is produced by the A-staff, but they have to have

17. The fee to consultants was announced to DKK 197.5 million. This includes fees to IT-consultants. About half the staff has been moved from one building to another. The costs of the actual move must be close to DKK 100 million. The moved staff has probably spent two weeks, packing, unpacking, getting telephones and computers working etc. This is 2½% of the budget or DKK 120 million. Finally, the costs of repainting, new furniture, etc., should be added.

some technical-administrative support, their salaries have to be paid, the premises have to be cleaned etc., so perhaps formulation F_2 is preferable. The micro-theory of (1) can be developed as usual. Universities are constrained by budgets, *C*. The next point to note is the budget constraint:

(2) $w_A A + w_B B = C$, where the w's are wages. By a division by w_A (2) yields

(3) $A + pB = C/w_A$, here $p = w_B/w_A \approx 1$. Is the price of one B-staff in terms of A-staff

The marginal A-staff is an assistant professor. The equal productivity condition can be used to discuss substitution between *A* and *B* so that:

(4a) If $\partial Y/\partial A > \partial Y/\partial B$, some *B*s should be replaced by *A*s

(4b) If $\partial Y/\partial A < \partial Y/\partial B$, some *A*s should be replaced by *B*s

These simple equations are easy to develop and make (much) more complex, notably by dividing *A* and *B* in more categories.

Business managers are responsible to the shareholders, and there is a bottom line everybody can see. Also, there is a market for shares that signals how outsiders think that the company is doing. The high salaries of some business managers are justified in the value they add to their company. This is measured as the profit of the firm and by the increase in the share prices.

Public universities are shielded from such market signals. The University is owned by society, and the bottom line is the budget minus the costs incurred, where nothing is market based. Also, there are no shares on the market.

Imagine that there had been shares with a market price. It would surely have dropped like a stone after the first couple of years of the reforms. This would have told everybody that the SMG and their staff generated negative value, and their salaries would have been adjusted accordingly. This would have caused many to leave and the policy to change.

3.2 The old bottom-up system: A worker-managed firm?

Under the old system, the staff and the students elected the 'political' bosses.[18] That is, the rector, the deans and the heads of departments. They appointed the administration, but as the bosses had to have the confidence of the voters, they talked *with* them. Also, the administration had two lines of control where one was anchored locally at the faculties. As most of the voting power was delegated

18. The University Law of 1970 gave equal power to the students. This turned the universities into palaver clubs with endless meetings, but gradually the system was changed into representative democracy where the staff had most of the voting power. From about 1990 to the big reform in 2003 are the good years of the old system. They are certainly the best period I have experienced.

to the staff it was some kind of a worker managed firm.

A large literature discusses how much voting enforces rationality. Most of this literature deals with national elections; see Nannestad and Paldam (1994) and Wittman (1997). It appears that in elections of great interest to the voters – as the one discussed – the imposition of rationality is fairly large. Swiss Cantons are rather independent and studied in a large literature. Six cantons are smaller or of about the size of Aarhus University (when the students are included). It appears that they are well run, and has little unnecessary bureaucracy, see Christoffersen *et al.* (2014).

A small literature discusses the theory for the worker managed firm. It was started by Ward (1958) and Vanek (1970). It concentrated on an idealized version of the Yugoslavian system – known as the Illyrian firm[19] – and showed that in theory such firms might work rather well. When the Yugoslav political system collapsed so did the economic system. Since then little has been written about that case.

Over the years a lot has been written about the Kibbutz in Israel.[20] They did well up to a point, especially when they were subjected to military threats from abroad, but they had big problems when the economy of Israel became a normal western economy.

Also, it is a fact that most worker managed firms in the West have been only marginally less efficient than private companies in the marketplace. They have actually been more efficient in small high-skill firms in law, architecture, accountancy etc., where employees after a test period become partners and co-owners in the firm. The empirical literature of 43 papers till the early 1990s is submitted to meta-analysis in Doucouliagos (1995). It appears that the productivity is much the same in worker-managed firms and other firms.

Thus, it is not surprising that the University had an effective and rather cheap administration under the old system,[21] and due to the representative democracy and the normal sized departments with about 30 – 60 staff per department, the staff really felt that they belonged. The main advantage of the system was that it kept bosses from doing things that could not be defended when they had to face the voters. It also forced the bosses to be accessible.

However, there were some problems of slow adjustments to national and international conditions, at least in some departments, and the structure of the University was somewhat conservative. The Ministry tried to force the universities to adjust the structure of the departments to both their productivity and the demand on the market for their candidates by the way budgets are allocated to faculties and studies. Two principles were (still are) used: (1) money accrued to the

19. The Roman province of Illyria was located much where Yugoslavia used to be before 1990.
20. The author has been tutored in the subject by Yoav Kislev (Rehovot School of Agriculture), who is one of the leading experts; see Csaki and Kislev (1993) and Zusman (1988).
21. But the B-share still increased by 0.4 pp per year.

studies according to the amount of exams (STÅ) produced, and (2) the STÅs were given different prices according to some norms said to represent an assessment of the value for society of these exams and the nature of the studies.

Clearly the system worked reasonably well. But instead of trying to adjust the system to be better the SMG decided to change it completely, with results as told. To get some insight in the institutional dynamics that have caused all the problems, it is necessary to consider the theory of Public Choice. It is a rather large field, so I will refer to the more basic work only.[22]

3.3 The new top-down system: Abolishing checks and balances

If the old and the new university constitution is compared, the key difference is that the control from the staff has been abolished. No leader is elected, and the board is dominated by outsides.

Many observers of the human condition have noted that power is an intoxicating drug that creates dependency. Therefore, it has often been proposed that organizations should have some checks and balances. It is important to recognize that it is difficult to think of effective safeguards in a public university. As the normal market signals do not work and boards are easy to capture, it is hard to come up with anything but control from the staff.

In the old system the need of the main bosses to be elected and reelected did exercise some control. There was also a board of elected representatives, and in some distance a ministry which controlled the budget. In the new system no boss is elected, and the board seems to be captured – as discussed in section 3.5. As before, there is a distant ministry which controls the budget and little else. The Ministry and the University have a 'contract.' It is available on the net.[23] It has detailed goals in many fields. The more goals, the larger is the leeway. As far as the rumors go, the contract does not seriously constrain the University. And when the SMG fulfils the contract they get handsome bonuses.

This amounts to a large reduction in the checks and balances in the system. The parliament wanted a more business-like management, but the outside controls of businesses in the form of sales and a market-based balance sheet are missing. There are no shares that are traded on the stock exchange. Also the University is careful to limit the statistics that allow outsiders (such as the staff) to follow what is going on. Thus, instead of a more business-like management the reforms have given a less responsible one. Thus, it would seem that some sort of representative democracy has to be reintroduced to get the University back on tracks.

22. The standard references to public choice theory are Mueller (1997 and 2004), Rawley and Schneider (2004) and Shughart and Razzolini (2001). This paper is meant to be readable to people outside public choice as well, so the theories are covered with nutshell verbal surveys only.
23. See URL: http://www.au.dk/om/uni/strategiogpolitik/aarhus-universitets-udviklingskontrakt-2012-2014/.

3.4 Bureaucrats as humans: Niskanen's model – bureaus want to grow

The basic insight about bureaucracies is due to (the American) William A. Niskanen.[24] His book from 1994 brings his papers (from the 1970s) in the field. The key observation is that all bureaucrats have a joint interest in the growth of their bureau. It gives jobs, perks and appointments.[25] The key method to reach these ends is to make it as unclear as possible what they produce and what the necessary costs are. Therefore the bureau stresses multiple and grand goals – not few and concrete goals.[26] It makes sure that statistics are unclear with shifting undefined criteria so that the data cannot be compared over time.

Under this cover the bureaus try to appropriate as much rent as possible. In Niskanen's model they appropriate it from the tax-payers. They receive a consumers' surplus from the production of public goods, and the model predicts that bureaus grow till they have appropriated all consumers' surplus. Then the tax-payers gain no net welfare from the public good produced, and the bureau gets everything. Then the budget becomes binding. This can be nicely illustrated by diagrams or solved as a maximization problem, where the constraint is the taxpayer reaction that must occur when the consumers' surplus disappears.

In the case of the University the B-staff has appropriated rent by squeezing the Ad-staff. This is surely not what the board wants, and probably not what the SMG wants either, but there is a temptation. And the marginal A-staff is an assistant professor, who is not even hired, so it appears an easy choice for a boss who wants another man in his bureau. The Bc-staff is isolated from the Ad-staff, and the SMG has turned the Bc-staff into their instrument, so there is a steady upward slide in the Bc-staff. Also, thanks to extra work necessary when the information flow from the Ad-staff to the Bc-staff was reduced, the Bc-staff desperately needs more people to do the work.

The university strategy statements stress how important it is to nurse talent and the brilliant research done by young researchers. But it is never mentioned that every time a new boss is appointed it costs the University two assistant professors, and every time a new Bc-staff is needed it costs one assistant professor. And now that the University has overspent it essentially means that such talent will have to look elsewhere for positions for the next couple of years.

The slide was slowed down by the good Prussian tradition of Danish civil servants, who work hard to do their duty. But if the reader looks back on Figure 1, it is obvious that there is a

24. Niskanen's examples were from his time as a young bureaucrat in the Pentagon, i.e., the US ministry of defense. I propose that universities are a similarly fertile area of study.
25. A literature has experimented with models for the three goals of the bureau: Budget, staff and rents. I only consider results that are robust to all three goals.
26. The age-old goals of universities are to produce teaching and research, but the University also stresses that it should provide popularization of research and policy advice to the general public and the various organs of the state. Adding soft goals is the classical method to make goals less transparent.

steady erosion in the size of the A-staff.

This theory also explains the rapid growth of the semi-independent service centers. They all do something useful, but the theory predicts that they will keep growing till they have appropriated all consumers surplus of the rest of the University. Hence, they grow till they stop generating any net welfare to the rest of the University. Some already seem to have exceeded that point.

Niskanen's theory was independently developed by (the Hungarian) János Kornai in his theory about soft budget constraints (see Kornai 1986).[27] His idea is that when any organization has a soft budget constraint, it will inevitably expand till the constraint grows hard. It might take some time, but it will inevitably get there. Niskanen used empirical examples, but Kornai is a theorist, so he derived his theory from economic fundamentals. Essentially people want to maximize costs, and they will slide into doing it until something stops them. In Kornai's terminology they will always push on till the soft budget constraint becomes hard. Good Prussian traditions will only delay the process – not stop it.

Still another aspect of the model is the 'flypaper effect'. It deals with a bureau that administrates a flow of money that should be passed on. The empirical observation is that such bureaus always manage to extract some rents. This observation moved from the vernacular into economic theory by the neat model of Hamilton (1983). The budget to the University is, in principle, given to the faculties and even departments. But on the way the flow encounters the SMG (incl. the deans), who has great freedom to tax – the reader may guess what they do!

The same applies to external grants where the freedom to tax is levied with a heavy hand – the tax wanted by the SMG has steadily risen to 44%. It appears that most private donors refuse to pay, and gets away with it. So, in practice, the high tax is a transfer of public research money from research to administration.

So it is no wonder that Aarhus University managed to increase the share of the Bc-staff by 8% over just a decade. This is bad, but it is really a shame that this is accompanied by a decrease in the effectiveness of the administration, even when all the bureaucrats are reported to work very hard! My claim is that if the contact between the A- and the B-staff had not been severed, it might still have happened, but it would have happened without a large decrease in the effectiveness of the administration.

3.5 The theory of regulatory capture

In connection with the international banking crisis (2008-10) it was often proposed that public

27. Kornai developed his theory at the same time as Niskanen. I heard Kornai presenting it at an UN-ECE conference in Bulgaria in 1971, before Niskanen's first book came out.

agencies regulating banks should be introduced to prevent such crises in the future. But there is a problem: Such agencies already existed, and had done so for a long time. There is no obvious relation between the seriousness of the crisis and the size and power of the existing regulating agencies across countries. Clearly, it is a problem if regulators actually regulate.

The classical papers on this observation are by George J. Stigler.[28] He analyzed time series for the relevant outcome before and after a regulating agency was introduced. There was often a short blip when the agency was introduced, but no lasting impact. Basically, the outcome was the same before and after, so the regulating agency had no effect. This made Stigler propose that such agencies are normally captured by the regulated.

The theory of regulatory capture does not have a basic formal version, but a lot of arguments have been made to explain the process, and numerous cases have been cited in its support. The main explanation given is in accordance with Olson's (1965) theory of collective action: The regulated is a small group with strong interests that is easy to organize, while those who benefit from the regulation are many, who are much more widespread and each has small interests, so they are much more difficult to organize. Hence, the regulated can exercise much stronger political pressures on the agency than the intended beneficiary of the regulations.

Most University board members are appointed on the advice of the SMG and get all their information about the University from the SMG. So all conditions for a successful capture are present, and it seems to have happened. The chairman of the board during the first eight years of reforms managed to remain fully invisible to the staff, while the new chairman has given a few speeches, making it obvious from where he has his ideas. He seems to visit Aarhus only for the board meetings. It was only when the APV made the problems visible and the deficit started to emerge that the board did not reappoint the rector.

4. Some examples

Where the biggest growth has taken place at the University is in the semi-independent centers set up to service the A-staff. The important point about these centers is that on the one hand they are doing something useful, but on the other hand they are too big and growing – precisely as predicted by the Niskanen-Kornai theory. The SMG does not appear to try to assess the marginal costs and benefits of such centers. It rather appears that each center is a client of one boss who provides protection.

Section 4.1 deals with the PR-staff that has increased tenfold under the new system. A

28. The studies are published together in Stigler (1965). They were mentioned in the motivation when he was awarded the Nobel Prize in 1982.

similarly large increase is in the staff teaching teaching as discussed in section 4.2. Section 4.3 lists a few more cases. Section 4.4 considers internationalization, and finally 4.5 turns to an indicator of the character of the old and the new system.

4.1 PR-staff: The biggest expansion area

One of the fields where information about the B-staff is most hidden is the field of PR-staff that is listed under various names, such as communication, branding, press officers, and under the heads of the internal newspeak journals, etc. Most of the many positions are new. They have probably increased from less than 10 to more than 100 in the last decade. As the rest of the B-staff they are shielded from contact with the A-staff.

A time study of the workload would probably show that the main job of this large new group is to put the right spin of all information coming from the top to us underlings. To this end they issue many glossy brochures and periodicals. Normally there are a couple of fine color photos of the rector surrounded by smiling students, or brilliant young researchers doing nice research. All pamphlets concentrate on the good news, and the text is carefully drafted so as to have the glossy hype preferred by PR-people. It seems that they describe the University as the SMG wants it to be:

The sun is shining, the students are happy, and the University is doing great and very nice research and will do even more in the future. It is stressed how interdisciplinary everything is: We all work hand in hand, while we dance and sing. There is nothing about the core strategy of centralization and bureaucratization, and nothing about young researchers seeing doors closing because bureaucrats rush in.

It is a simple fact that few of the A-staff even open these brochures, and when they do it turns them grumpy.[29] And as shown in section 2.3 the staff of the University feels that it is poorly informed about the reforms. The A-staff has a long training in reading and understanding difficult stuff – and the papers we produce contain rather few glossy photos. So the great efforts of the army of PR-people do not work.

One of the PR activities is in branding. Everything we do should advertise our University. So that, e.g., all e-mails are doubled up with branding, our home pages should be a branding instrument with fancy maps of the location of our co-authors, all under the control of some anonymous bureaucrat, etc. It is worth recalling that ‘branding’ started as a mean of making sure everybody knew who owned the cattle. The branding chief should ask himself if the cattle really like to be branded.

29. This is amply confirmed by Ekspertgruppen (2014).

4.2 Teaching of teaching: An equally rapid growth

In order for a university teacher to teach well she needs both experience and some coaching. The coaching is concentrated on the assistant professors. They should also teach, and to get tenure they desperately need to do research. However, they have been at school the previous 20 - 22 years and most have been teaching assistants. As they cannot spend much time learning more about teaching, they quickly get impatient with courses with a high ratio of big wooly words to substance.

The teaching of teaching is a major growth industry at the University – especially at the Faculty of Arts. In 2007 Aarhus University merged with the Danish University of Education, which is now the Department of Education. It has the standard size of a department at the University, with a staff of about 250 of which 157 are full time A-staff and 26 are part-time. Thus the University has abundant capacity to teach teaching.

In addition the Faculty of Arts has a Centre of Teaching Development and Digital Media with a staff the home page claims to be about 60, even when it lists 108 people.[30] Thus, the teaching of teaching seems to be the largest single activity at the Faculty of Arts.

For a number to compare with: About 5 people teach Slavic languages, literature, and culture. This is down from about 15 just 20 years ago. So while the students get fewer teachers they can rejoice in the thought that an army of teachers teach them teaching!

Other faculties also have such centers. The Faculty of Social Sciences has the CUL, Center for Teaching and Learning. It started in 2007 with one man, known as a good undergraduate teacher. Now he is the leader of a center with 22 people. The faculty has about 60 assistant professors. For the next few years there will be much fewer. Thus, 22 teaching coaches seem rather excessive – 3 would appear more reasonable. But of course the center has made a big effort to find things to do to justify further growth,[31] as a look at its home page will show.

4.3 Some other centers

In connection with internationalization the SMG has created an international center to help foreign staff and students who come to Aarhus and native staff and students going abroad. All departments had B-staff specializing in this, and it is much easier to talk to them, but still the new center has its uses. It started with a staff of 22 just four years ago and it has already reached 31. This is an annual growth of 9%, with no end in sight.

The Technology Transfer Center is a commercial type enterprise helping researchers at the

30. It appears that it is partly the Aarhus branch of the old Danish University of Education that was merged into the University. The home page gives no information about the history of the center, but when you check the CVs on the home page, it becomes evident that it has grown rapidly in the last 5 years

31. Their biggest accomplishment is that they made the APV discussed in section 2.3.

University making contracts with private companies and international organizations. It appears that the balance sheet lacks both (imputed) income and expenditure posts. As the data are now it appears that there is work for two to three people in this field, but the director of the center has a staff of 17.

Aarhus University Press is publishing books written by the University staff and others. Most books published sell in app 200 copies. Nearly all the manuscripts come with a big subsidy and authors get no fee. But Aarhus UP runs with a deficit, so app. every fifth year the equity capital is exhausted. Then new capital has to be paid in by the University – each time with a stern warning that this is the last time. Thus, the University has for many years taught Aarhus UP that it has a soft budget constraint.[32] It is no wonder that the books published are very handsome.

Another center is the brand new AIAS, Aarhus Institute of Advanced Studies. It is the flagship in the interdisciplinary internationalization strategy of the SMG, and as fits for a flagship no expenses have been spared. The idea is to invite foreign star researchers in different fields to come and spend time together with a similar sized group of University star staff in a special center that is isolated from the rest of the University. It seems to be an expensive way to create precariously little internationalization, but hopefully the foreign stars will be carefully branded.

4.4 A note on internationalization

In the various international rankings the University has been around No 100, just after Copenhagen, for the last two decades where such rankings have been made. In a world with about 25'000 institutions of higher learning this is not bad, especially for a university in a small county, with its own language. Those of us who regularly visit foreign universities will probably agree that Aarhus University is a reasonable one.

The author started his career at the University in 1975 when the department was almost purely domestic, but this started changing in the late 70s. Since then internationalization has accelerated. In other departments a similar development occurred – sometimes a little before, but normally a little later. This is reflected in staff, publications and citations. With the large increase in the quality and accessibility of international search engines it is easy for all of us to check everybody's publications and citations.[33] I think that the University does rather well compared to a similarly sized state university in the US.

The secret of internationalization is *networking*, where researchers come to know foreign colleagues working in their field. They meet at conferences, exchange papers, and come to work at

32. The University press is from well before the university reform, and legally it has had a complex story as it has been separated from the university by various 'fig leaves'. However, it has behaved exactly as predicted by Kornai.
33. In my opinion the best such engine is Harzing's. It is free to use, see references – the reader may check how it works by looking up the stars at AIAS.

joint papers or in joint projects. Due to the deficit funds such cooperation is being reduced.

The A-staff has lots of such connections, and more than 95% owes nothing to the initiatives of the SMG. Still it seems that the SMG believes that internationalization is something they do. How they can possibly believe so, I fail to understand. Why it helps the internationalization of the University that academic staff is being replaced with technical-administrative staff and travel budgets are being cut is really strange.

4.5 Art acquisition and display: Indicators of the distribution of power under two systems

Artists have to find donors and therefore art follows power. Aarhus University has a fine policy of buying art, and Denmark has an active art life. Most of the leading artists during the life of the University are nicely represented on its walls. A recent book (Laugesen 2013) covers the fine art collection. The display of the new art purchased indicate the distribution of power.

Under the old system art was distributed all over the University, especially where many people passed. Maybe they did not look at it, but they could – and some did (we still do).

Under the new system the art purchased serves to embellish the Headquarter of the University, notable the SMG corridor and the meeting room of the rector, which is also the room where royalty, ministers, ambassadors and rectors from other universities are received. The University even had an artist in residence for several years working on this project. Underlings do not see this splendor, but a handsome book shows what has been done, see Hansen (2010), and hopefully guided tours will soon be organized.[34]

It also appears that the (old) rector had plans to build the highest tower in town on the University premises.

5. Conclusions

One telling event in the saga of the reforms occurred about a year ago when the dean paid one of his biannual visits to my Department to tell us what the SMG had decided and how well everything was going. At the end some questions were allowed. One was if the dean would be so kind as to point to something that had improved for the A-staff as a result of the reforms. After an embarrassingly long period of thinking the dean had to give up.

I know that the SMG consists of perfectly normal and reasonable people. Over a period of about six years they made a large set of bad decisions: Far too many bosses were appointed, at far

34. A guided tour has already been organized for the staff of the sub-department of art history.

too high salaries, they have increased the administration and at the same time reduced its quality. The departments have been merged to a humongous size that makes no sense, etc. Service bureaus have been allowed to grow out of hand. Also, a considerable budget deficit has emerged.

It has been shown that these outcomes correspond to the predictions of public choice theory, notably of Niskanen's theory of bureaucracy. The theory does not predict the speed of adjustment. What has happened at my University is not strange – much the same has happened at the other Danish universities. It has just gone a little faster at Aarhus, due to a 'visionary' rector.

Fortunately, most staff in the departments feels a strong loyalty to their students and their research, so things do work at the micro level. However, the loyalty to the University has suffered as the staff has seen that their university has been taken over by a bunch of 'fat cats'.

The simple truth is that it is dangerous if the group of bosses in any institution has too few external constraints. This creates a strong temptation to cut themselves off from feedback from their underlings. Then they gradually lose their internal constraints, develop steadily more wishful thinking, and slide into the empire building and the consumption of rents. Hence, the center grows and those left in the periphery are squeezed.

I think that the main policy message is that power is a dangerous drug, and all organizations need checks and balances. At Danish Universities the academic staff has no power at all, and consequently most bosses have stopped talking with them. The key problem is that nobody else outside the SMG and their subordinate bosses have any real control over what happens. The board is captured and as long as the SMG manages to obfuscate the statistical information they can do almost what they want.

Above we have seen what they did. It is certainly not what they said they wanted to do, and perhaps it is not even what they believe they tried to do, but still it is what they did!

References

Aarhus University, 2013. *Profile 13/14*. Aarhus

Abramo, G., Cicero, T., D'Angelo C.A. 2012. Revisiting size effects in higher education research productivity. Higher Education, 63, 701–17

Answer in the Parliament (April 2014): Aarhus Universitet. 70 højest lønnede efter samlet fast løn i 4. kvartal 2013

APV 2012. *Psykisk arbejdsplads-vurdering 2012*. 8 reports and an English summary: Psychological Workplace Assessment 2012. Aarhus University 2012

Christoffersen, H., Beyeler, M., Eichenberger, R., Nannestad P., Paldam, M. 2014. *The good society. Denmark and Switzerland*. Springer, Heidelberg

Csaki, C., Kislev, Y., eds., 1993. *Agricultural Cooperatives in Transition*. Westview Press, Boulder, Co

Doucouliagos, C., 1995. Worker Participation and Productivity in Labor-Managed and Participatory Capitalist Firms: A Meta-Analysis. *Industrial and Labor Relations Review* 49, 58-75

Ekspertgruppen, 2014. Hovedrapport. Ledelsesnærvær, inddragelse og Administrativ Understøttelse, Juni. Available from the URL: http://medarbejdere.au.dk/strategi/problemanalysen/forside/

Forskerforum issues 272 and 273 Available from the URL: http://www.forskeren.dk/

Ginsberg, B., 2011. *The Fall of the Faculty. The rise of the all-administrative university and why it matters*. Oxford UP, Oxford, NY

Goodall, A.H., 2009. *Socrates in the Boardroom: Why Research Universities Should Be Led by Top Scholars*. Princeton U.P., Princeton, NJ

Hamilton, B.W., 1983. The flypaper effect and other anomalies. *Journal of Public Economics* 22, 347-61

Hansen, M.F., 2010. *Refleksioner. Erik A Frandsens kunst på Aarhus Universitet*. Aarhus Universitetsforlag, Aarhus

Harzing, A.-W., *Publish or Perish*. Home page with search engine at http://www.harzing.com/pop.htm

Jamtveit, B., Jettestuen, E., Mathiesen, J., 2009. Scaling properties on European units. *PNAS* 2009 106 (32) 13160-63

Johansen, L. 2013. Universiteter under forandring: En historisk konkret analyse af den faglige udviklingsproces på Aarhus Universitet Speciale, Sociologisk Institut, Københavns Universitet

Kornai, J., 1986. The soft budget constraint. *Kyklos* 39, 3-30

Kyvik, S., 1995. Are big university departments better than small ones? *Higher Education* 30, 295-304

Laugesen, P., 2013. *Hvad ved Kunst? Værker på Aarhus Universitet*. Aarhus Universitetsforlag, Aarhus

Mueller, D.C., 1997. *Perspectives on Public Choice. A Handbook*. Cambridge UP., Cambridge (U.K.)

Mueller, D.C., 2003. *Public Choice III*, Cambridge: Cambridge University Press, Cambridge (U.K.)

Nannestad, P., Paldam, M., 1994. The VP-Function. A Survey of the Literature on Vote and Popularity Functions after 25 Years. *Public Choice* 79, 213-45

Niskanen, W.A. Jr., 1994. *Bureaucracy and Public Economics*. Edward Elgar, Aldershot (U.K.), 6 older essays

Olson, M., 1962. *The Logic of Collective* Action*: Public Goods and the Theory of Groups.* Harvard UP, Cambridge Ma

Rowley, C.K., Schneider, F., 2004. *The Encyclopedia of Public Choice*. Kluwer A.P., Dordrecht

Shughart, W.F., Razzolini, L., 2001. *The Elgar Companion to Public Choice.* Edward Elgar, Cheltenham (U.K.)

Stigler, G.J., 1965. *The Citizen and the state. Essays on Regulation.* Chicago UP, Chicago (11 older essays)

Vanek, J., 1970, *The general theory of labor-managed market economies* Cornell U.P., Ithaca, N.Y.

Ward, B., 1958. The Firm in Illyria. Market Syndicalism, *American Economic Review* 48, 566-89.

Weber, M., 1922. *Economy and Society.* New edited version 1992 University of California Press, San Francisco, Ca

Wintrobe, R., 1998. *The political economy of dictatorship*. Cambridge U.P., Cambridge U.K.

Wittman, D.A., 1997. *The Myth of Democratic Failure: Why Political Institutions Are Efficient.* University of Chicago press, Chicago, Il

Zusman, P., 1988. *Individual behavior and social choice in a cooperative settlement*. Magness Press, Jerusalem

Data appendix

Since the first version of the paper was published (on the net) people have given me some data, and I have had a meeting with the (new) rector Brian Bech Nielsen and his 'data man' Bo Bjerre Jakobsen. I am grateful for their help, but I still think that the University should make an 'official' set of consistent time series allowing all of us to see what has happened.

I want to state from the start that what I have been able to document is not what I wanted. The key facts of the centralization and bureaucratization of the University are still hidden. Table 1 lists the two main sources used. I concentrate on source (1). The data in source (2) are essentially the same.

The ***A-staff*** is known as VIP's in Danish. It is the academic staff doing teaching and research. ***B-staff*** is TAP's in Danish. It is the administrative and technical staff. When an A-staff becomes head of department or something higher, he should move from A- to B-staff.

Table 1. The two main sources

(1)	**The annual data publication from the University, mostly named 'AU i tal'.** URL: http://www.au.dk/om/profil/publikationer/auital/2011/ital2011. These data have few notes. In principle available since 1997 but the links before 2000 are broken. 10-year tables from 2002 to 2006. One set of tables 2000-2004. Another 2005, 2006 and 2007. Then the format completly changes. One major data break discussed below ab D1 and D2
(2)	**Data for all Danish universities** URL: http://www.dkuni.dk/Statistik/Universiteternes-statistiske-beredskab. Starts in 2005. Most series start in 2007. Five separate publications with definitions and notes.

1. Long series

Section 1.1 reports the main series since 1991. Section 1.2 looks at these data, while section 1.3 deals with the main missing link in the data: The A-staff on 'scholarship'. Section 1.4 covers students, and section 1.5 considers productivity.

1.1 The long series 1991-2012: The D1 and D2 definitions and the Dif series

The B-staff seems to be consistently defined, while the A-staff has two definitions: D1 (definition 1) excludes the ***Dif*** series for the staff on 'scholarship', while D2 (definition 2) includes the Dif series. Table 2 reports the series. Column (4) gives the available data for the Dif series and an assessment of the missing values as explained in section 1.3.

Table 2. The staff of Aarhus University 1991-2012. All in full-time equivalents

(1) Years	(2) A-staff D1	(3) A-staff D2	(4) Dif from Table (4)	(5) B-staff	(6) Total staff D1	(7) Total staff D2
1991	**1302**	1612	*310*	**1038**	**2340**	2650
1992	**1392**	1702	*310*	**1196**	**2588**	2588
1993	**1369**	1688	*319*	**1259**	**2628**	2628
1994	**1408**	1779	*371*	**1253**	**2661**	2661
1995	**1407**	1792	*385*	**1365**	**2772**	2772
1996	**1465**	1801	*336*	**1349**	**2814**	2814
1997	**1519**	1842	*323*	**1410**	**2929**	2929
1998	**1560**	1882	*322*	**1445**	**3005**	3005
1999	**1546**	1869	*323*	**1474**	**3020**	3020
2000	**1498**	**1813**	**315**	**1493**	**2991**	**2991**
2001	**1442**	**1777**	**335**	**1528**	**2970**	**2970**
2002	1471	**1810**	*339*	**1550**	3021	**3021**
2003	1489	**1841**	*352*	**1568**	3057	**3057**
2004	1583	**1965**	*382*	**1650**	3233	**3233**
2005	1570	**1985**	*415*	**1678**	3248	**3248**
2006	1566	**2018**	*452*	**1716**	3282	**3282**
			Merger			
2007	2612	**3183**	**571**	**3033**	5645	**5645**
2008	2786	**3474**	**688**	**3095**	5881	**5881**
2009	2807	**3638**	**831**	**3239**	6046	**6046**
2010	2884	**3880**	**996**	**3312**	6196	**6196**
2011	3019	**4115**	**1096**	**3389**	6408	**6408**
2012	3238	**4369**	**1131**	**3623**	6861	**6861**

Note: Bolded numbers are reported in 'AU i Tal', various years. Numbers in italics are my assessment. The definitions D1 and D2 are discussed in the text above and in section 1.3.

1.2 A look at the series in Table 2

The full Table 2 follows if the Dif series of column (4) is accepted. Figure 1 shows the three main series from columns (2), (3) and (5). The vertical axis is logarithmic to deal with a growth process. The three curves look log-linear, except for the level shift in 2007 due to the merger. Table 3 shows that this impression gives a fine explanation of the data.

Column (6) in rows (1) to (3) of Table 3 shows the growth rate of the staff when the shift due to the merger is controlled for.[35] For the B-staff it is 2.8% p.a., while the growth rate for the A-staff is half of that by *both* definitions

Figure 2 shows the same development in the two shares. The curves for the A- and B-shares add to one for each definition, so they are not shown

[35]. Note that 100 times the estimate to time equals the growth rate (as it should) in rows (1) to (3) of Table 3.

Figure 1. The A- and B-staff for the 22 years from 1991 to 2014

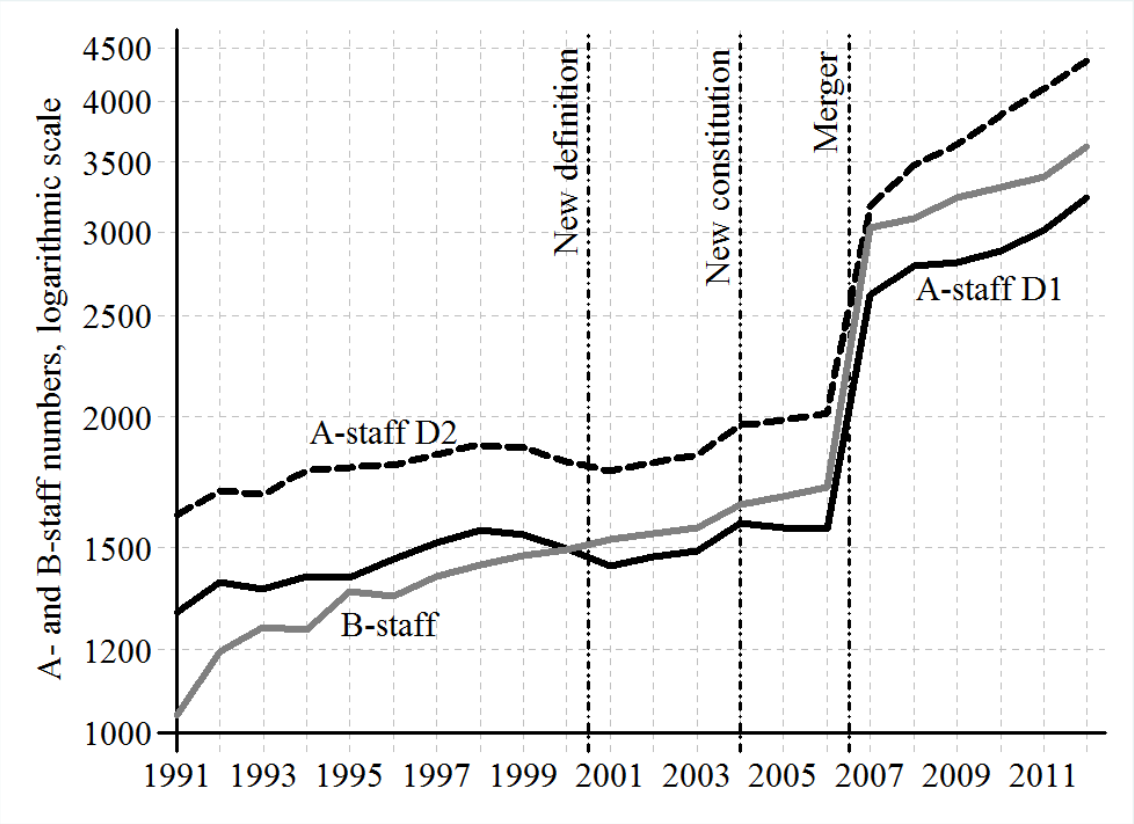


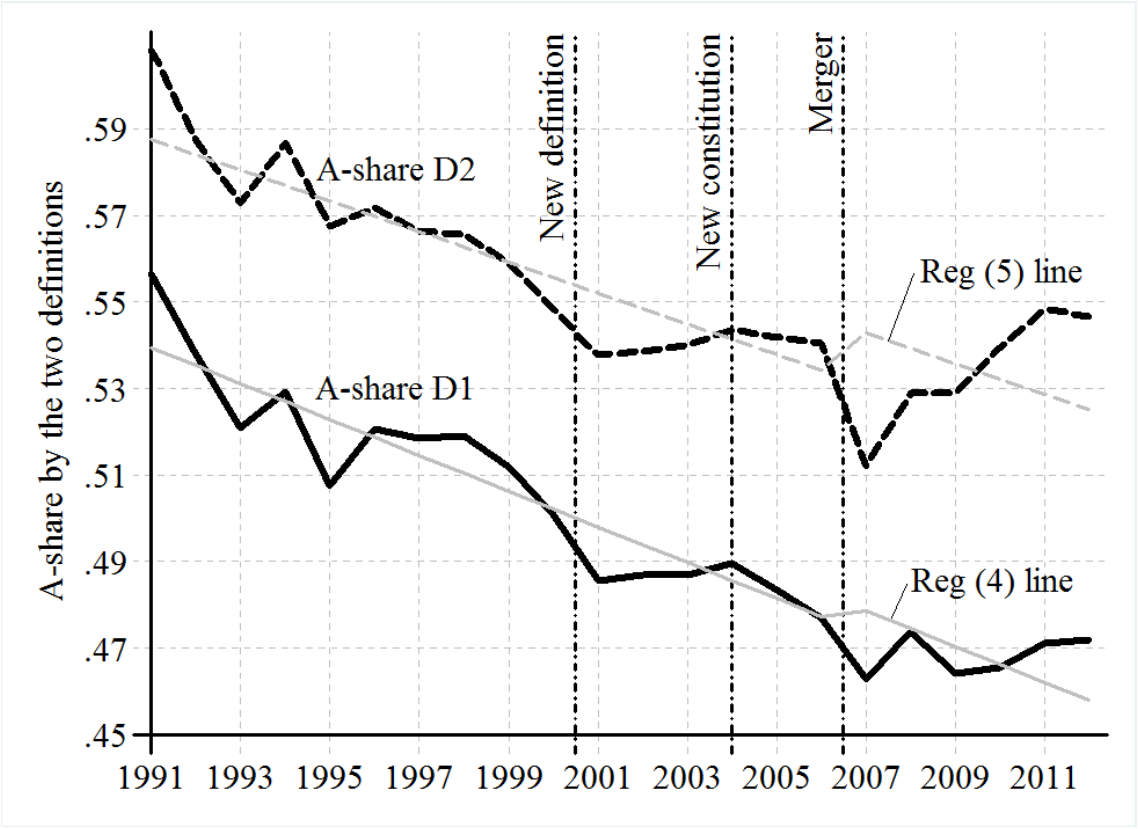
Table 3. Explaining the development in the Staff by time trends and a shift after 2006

Row	(1) Ln is natural logarithm	(2) Column Table 2	(2) Time (year) Estimate (t-ratio)	(3) Shift dummy [a] Estimate (t-ratio)	(4) Constant Estimate (t-ratio)	(5) R^2	(6) Growth $100(e^{estimate}-1)$	(7) Shift
			Explaining the (natural) logs to the numbers					
(1)	ln(A D1)	(2)	**0.011** (5.2)	**0.550** (18.0)	**-14.944** (-3.5)	0.985	1.1	73.4
(2)	ln(A D2)	(3)	**0.013** (4.6)	**0.579** (14.1)	**-18.923** (-3.3)	0.976	1.3	78.4
(3)	ln(B)	(5)	**0.028** (15.7)	**0.528** (21.0)	**-48.147** (-13.6)	0.994	2.8	69.6
			Explaining the A-share. The pattern for the B-share is the reverse					
(4)	A-share D1	(2)/(6)	**-0.0041** (-8.6)	0.0055 (0.8)	**8.786** (9.2)	0.893	0.41	-
(5)	A-share D2	(3)/(7)	**-0.0036** (-5.3)	0.0121 (1.2)	**7.662** (5.7)	0.713	0.36	-

Note: Brackets hold t-ratios. For *Df* = 20 the 5% and 0.5% significance levels are 2.1 and 3.2, respectively. Bolded estimates are significant. Figure 2 shows regressions (4) and (5), where the calculated growth is in percentage points. (a) The shift dummy is zero till 2006, and 1 from 2007.

The regression results for the B-share in rows (4) and (5) are the reverse of the ones for the A-share, so that the numerical values of the estimates are the same while all signs change. For the shares the most linear curve is for D1. It shows a fairly linear fall of about 9 pp (percentage points), or 0.41 pp per year as found in Table 3.

Figure 2. The A-share: The two long series



Note: The two regression lines from rows (4) and (5) in Table 3.

The constitutional change is well after the middle, so it appears that the fall is 5 pp before the change and 4 pp after. It looks as if the curves level off at the high end, so maybe the curve will converge to a stable value in the future. For 2013 the development has probably been as usual, but then for 2014 a savings round has occurred where the B-staff has decreased more.[36] Maybe there will even be an increase in the A-share in 2014.

The merger has been a rather complex operation that is still in the process. It is surprising to see that the coefficients to the share dummy in the share regressions in rows (3) and (4) of Table 3 are insignificant, so it looks as if the A-share in the aggregate of the merged institution was almost the same as in the old university. Also, the University has continued the mergers in 2012; this time with the Engineering College of Aarhus.

1.3 The 'scholarship' adjustment: Dif is about half of the PhD students

Column (4) in Table 2 is repeated as the Dif column (6) in Table 4 that shows how the gaps in the

[36]. The staff reduction in 2014 is 94 A-staff and 204 B-staff amounting to 308 in total. This is 3.6% of the staff, corresponding to a shift of 1.4 pp. With everything else happening this may not materialize.

series are filled out. Dif is the share of PhD students included in the A-staff (and some of the postdocs?). The numbers found in the sources are given in column (2). How they are inter/extrapolated is given by the numbers in italics in column (5).

Table 4. The estimate of Dif and the students

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Years	Scholarship	All PhD students		Dif	Dif	Students	
	data	Old Uni.	Merged	Fraction	number	Old Uni.	Merged
			Before merger Dif-fraction is (2)/(3)				
1991		*705*			310	**14531**	
1992		*705*			310	**16124**	
1993		**725**		*0.44*	319	**17303**	
1994		**843**		*0.44*	371	**18506**	
1995		**874**		*0.44*	385	**18852**	
1996		**763**		*0.44*	336	**18772**	
1997		**735**		*0.44*	323	**19247**	
1998		**731**		*0.44*	322	**19841**	
1999		**735**		*0.44*	323	**20582**	
2000	**315**	**709**		0.444	**315**	**20793**	
2001	**334**	**700**		0.477	**334**	**21588**	
2002		**709**		*0.4775*	339	**21888**	
2003		**738**	**877**	*0.4775*	352	**21948**	**30801**
2004		**799**	**964**	*0.4775*	382	**20547**	**29767**
2005		**870**	**1023**	*0.4775*	415	**20176**	**28426**
2006		**947**	**1083**	*0.4775*	452	**19607**	**28447**
			Before merger Dif-fraction is (2)/(4)				
2007	**571**		**1194**	0.478	**571**		**29550**
2008	**688**		**1430**	0.481	**688**		**28982**
2009	**831**		**1610**	0.516	**831**		**30414**
2010	**996**		**1822**	0.547	**996**		**32304**
2011	**1096**		**1964**	0.558	**1096**		**34129**
2012	**1131**		**1900**	0.595	**1131**		**37624**

Note: Bolded numbers are from the tables in 'AU i Tal'. The data in italics are my guesses. The students in columns (7) and (8) are discussed in section 1.4.

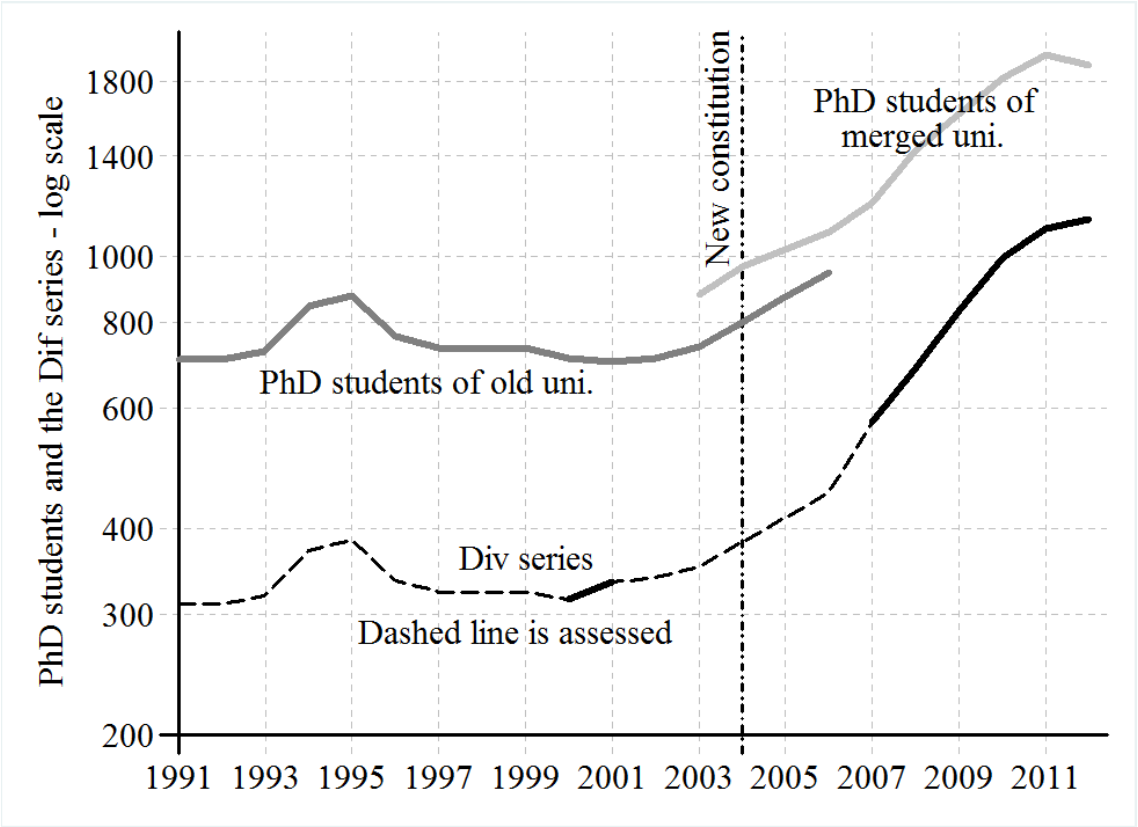
The statistics distinguish between two types of PhD students: (i) Some are 'students' and receive SU, the general student stipend, though at a higher rate. They are counted as students in the statistics. (ii) Some are 'candidates' (they have a 'master' degree) and receive a scholarship. They are counted as A-staff. Most PhD students change from (i) to (ii) during their PhD period.

The new constitution gives an upward kink in the number of PhD students, and hence a

strong rise in the Dif series. In section 2.1 it is shown that half of the rise in Dif is absorbed by the remaining A-staff.

It is difficult to decide if the series should include PhD scholarship holders or not in the A-staff. An argument to do so is that PhDs after a period of coursework become full time researchers. However, they often end up producing a thesis that is only published in the departmental PhD-series, and they do much less teaching than other faculty. Also, they need counseling by their advisers. So, it is problematic to include the PhD students as A-staff.

Figure 3. The share of the included A-staff on scholarship



It appears that postdocs should be in the A-staff and are included in all data probably since 2000. Before that most postdocs had other titles and were included. The inconsistent treatment of postdocs is likely to give a small overestimation of A-staff before 2000, so the fall in the A-share D1 is probably a bit too small.

The various categories in Table 4 are shown as the curves on Figure 3. It is difficult to make a reasonable assumption about the inter-/extrapolation that makes the guestimated data in column (6) change by more than $\pm$ 25. Thus, the two key columns (2) and (3) in Table 2 are fairly robust.

Section 2.1 interprets the behavior of the staff categories to the growth of the PhD share, i.e., the dif-variable.

1.4 Students

Columns (7) and (8) in Table 4 give the number of students at the University. It appears that they do not include any of the PhD students. Figure 4 shows the number of students. The numbers started to fall after the change of constitution, but it has resumed its growth after 2008. The fall from 2003 to 2008 is hidden in the merger.

Figure 4. The number of students at the old and the merged university

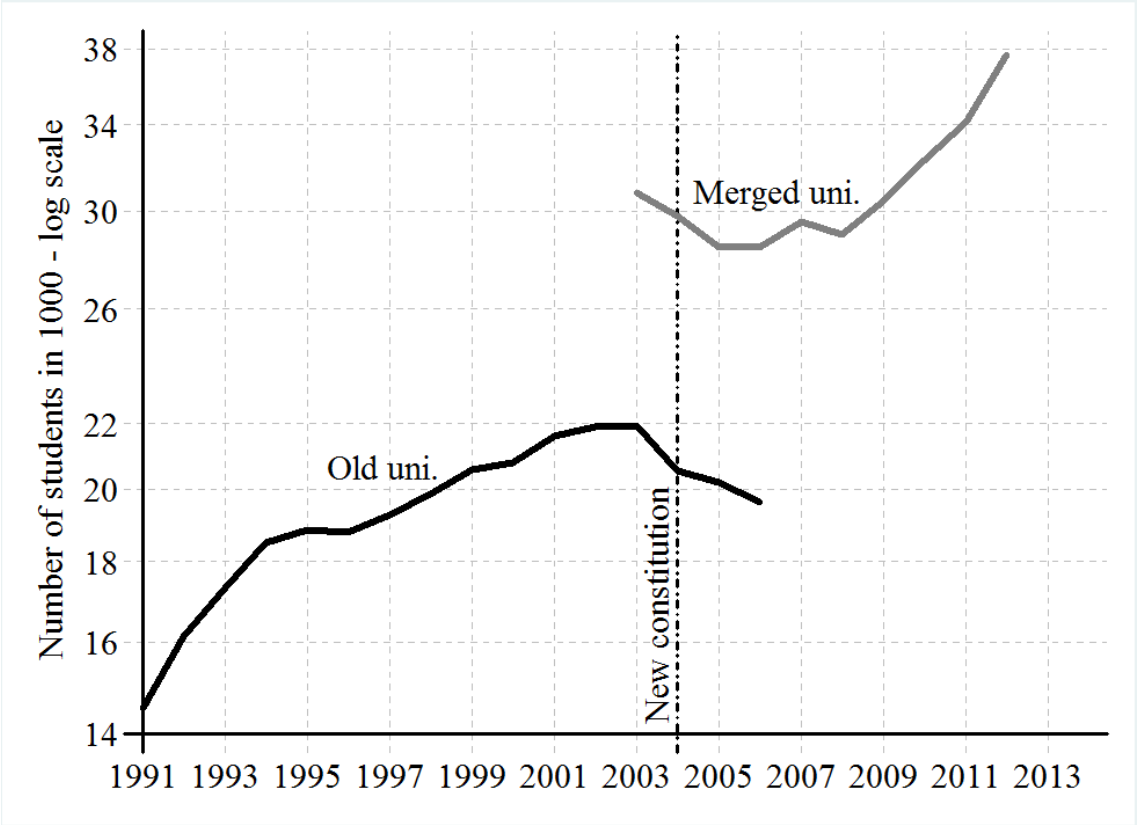
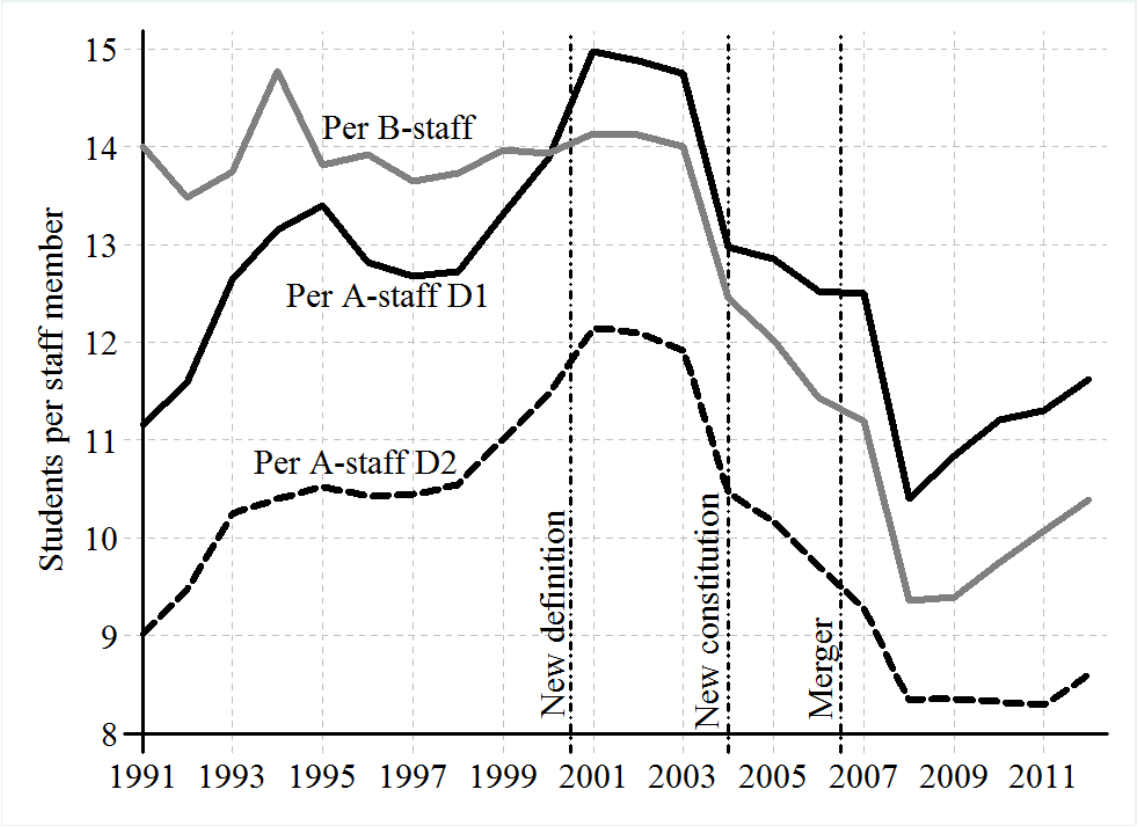


Figure 5 looks at the number of students per staff. The shares show how the almost log-linear increase in the staff and the stagnating student population give rather big movements in the shares. But by and large the number of students per staff falls, especially under the new constitution where grants to universities have increased. One reason for the increase since the merger is that it includes some ‘pure’ research institutes.

Figure 5. The number of students per staff member



The largest fall in the number of students per staff is for the B-staff. Here the fall is from a level of 14 to a new level of 8.5. This should give a 60% improvement in the service level.

1.5 Productivity

The production of the A-staff is teaching and research. The number of students per teacher has a fairly constant long-run level, though with large movements around that level. The methods by which research output is measured have changed substantially over time, but irrespective of the measurement the production of research publications has increased considerably more than the staff. Thus the productivity of the A-staff has increased.

It is much easier to measure the productivity of the B-staff as they participate indirectly in the activity of the A-staff and the students. Thus it is some average of the shares (i) of students per B-staff and (ii) the shares of A-staff per B-staff. As both shares have decreased the productivity has fallen with one caveat. The service level provided by the B-staff to the students and the A-staff may have increased correspondingly.

However, all evidence shows that the students and the A-staff feel that the service they get from the B-staff has decreased substantially, under the new constitution, so the productivity fall is larger than suggested by the numbers given.

2. Three notes of interpretations

Here section 2.1 deals with the changes in the A/B-structure when Dif increases: What gives in when Dif grows. Sections 2.2 and 2.3 consider the externally financed staff. Finally, section 2.4 considers some the shocking alternative data.

2.1 How is the Dif squeezed in?

Under the new constitution a strong increase has occurred in the stock of PhD students at the University. About half of these students are counted as A-staff by D1 (definition 1). At the same time the A-staff increases less than the B-staff. This is true even by D2 (definition 2) where the part of the A-staff is included in the A-staff.

Table 5 takes the Dif-variable to be exogenous and shows how the staff 'reacts' to the inclusion of extra PhD students. The table is made from Table 3 by adding Dif as an extra regressor in column (2). Row (3) shows that the B-staff does not react to this inclusion. However, the A-staff obviously does. Especially by the D2 definition as it includes Dif.

Column (2) in rows (1) to (3) is a log-log relation. Estimates from such relations are elasticities. Thus, if the PhD's in the A-staff increase by 1%, then the rest of the A-staff increases by 0.127 %. The AD1/Dif-ratio is about 4, so app 50% of the increase in Dif is paid for by a drop in the A-staff by D1. The AD2/Dif ratio is about 5, so the elasticity 0.314 means that about 150% of the increase is 'compensated. It is the 100% + 50%, where the 100% is the addition of Dif and the remaining 50% is the same as already found.

Table 5. The effect of increases in the PhDs in the A-staff

	(1)	(2)	(3)	(4)	(5)	(6)
		Explaining the (natural) logs to the numbers				
Row	Log to staff	Ln(Dif)	Time (year)	Shift dummy	Constant	R^2
(1)	Ln(A D1)	**0.127** (2.2)	**0.0085** (3.7)	**0.464** (9.6)	**-10.36** (-2.3)	0.99
(2)	Ln(A D2)	**0.314** (6.5)	**0.0066** (3.5)	**0.367** (9.2)	**-7.61** (-2.1)	0.99
(3)	Ln(B)	0.028 (0.5)	**0.0271** (12.8)	**0.510** (11.5)	**-47.15** (-11.5)	0.99
		Explaining the shares – the shares to the B-staff are precisely the reverse				
	Staff-share	Dif-share [a)]	Time (year)	Shift dummy	Constant	R^2
(4)	A-staff D1	0.194 (1.7)	**-0.0042** (-9.2)	0.0019 (0.3)	**8.87** (9.7)	0.909
(5)	A-staff D2	**0.736** (5.7)	**-0.0037** (-9.0)	0.0016 (0.3)	**7.89** (9.6)	0.899

Note: See note to Table 3. (a) when the A-share is by D1, so is the Dif-share, and when the A-share is by D2, so is the Dif-share.

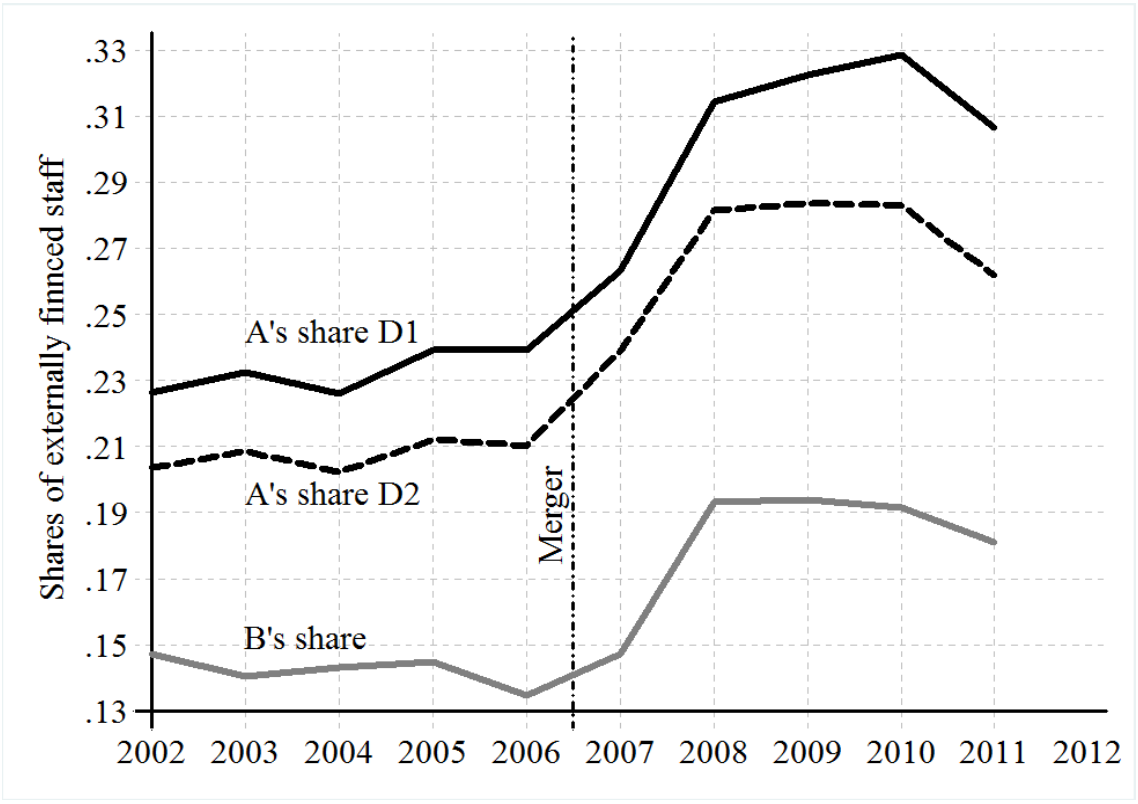
2.2 Externally financed staff

In 2010 external sources financed about 28% of the A-staff by D2, and 19% of the B-staff. Table 6 and Figure 6 show the data. They are short series, and they suggest that the share of external finances increases, but this may be due to the merger.

Table 6. The staff that is externally financed

	All staff			Externally financed		Shares of external finances		
Years	A D1	A D2	B	A	B	Of all D1	Of all D2	Of B
2002	1471	1810	1550	456	228	0.226	0.204	0.147
2003	1489	1841	1568	491	220	0.233	0.209	0.140
2004	1583	1965	1650	495	236	0.226	0.202	0.143
2005	1570	1985	1678	534	243	0.239	0.212	0.145
2006	1566	2018	1716	554	231	0.239	0.210	0.135
2007	2612	3183	3033	1038	447	0.263	0.239	0.147
2008	2786	3474	3095	1251	598	0.314	0.281	0.193
2009	2807	3638	3239	1322	628	0.323	0.284	0.194
2010	2884	3880	3312	1401	634	0.328	0.283	0.191
2011	3019	4115	3389	1350	614	0.306	0.262	0.181

Figure 6. The development in the externally financed staff



2.3 Long run expenditure data

All data presented till now have been staff data. In order to analyze the changes in the importance of external finances, expenditure shares can also be considered. All available data for the aggregate share are given in Table 7. They are shown in Figure 7.

Here four years of overlapping data for the old and the merged university exists. Notes to these data point to many changes in definitions, but it still appears that they are reasonably comparable. The data are in current prices in the beginning and in fixed prices at the end year later on, but as the data are deflated by the same indices the ratios are rather consistent.

Table 7. The share (times 1000) of external finances in the university expenditures

	Data for old university							**Avr**	Data for merged university						**Avr**
	2000	2001	2002	2003	2004	2003	2006		2007	2008	2009	2010	2011	2012	
1991	258							**258**							
1992	268	268						**268**							
1993	283	282	268					**278**							
1994	261	260	261	261				**261**							
1995	245	244	245	245	245			**245**							
1996	236	255	255	255	255	255		**252**							
1997	272	292	292	293	293	293	293	**290**							
1998	245	277	277	277	278	278	275	**272**							
1999	242	274	274	273	273	273	273	**269**							
2000	238	256	256	251	251	252	251	**251**							
2001		238	239	233	233	233	232	**234**							
2002			235	234	235	236	236	**235**							
2003				235	235	235	235	**235**	290	290	290	290	290	290	**290**
2004					227	227	228	**227**	285	285	285	285	285	285	**285**
2005						229	239	**234**	287	287	284	287	287	287	**286**
2006							245	**245**	296	295	292	296	296	296	**295**
2007									297	297	297	297	297	297	**297**
2008										333	333	333	333	333	**333**
2009											322	322	322	322	**322**
2010												282	277	276	**278**
2011													278	278	**278**
2012														299	**299**

Note: The shares are multiplied by 1000 for better visibility. The two bolded averages are the lines shown on Figure 7.

Figure 7 and Table 7 show that the share of external finances in the old university has a significant downward trend. It is included on Figure 7. The only reason for the increase on Figure 6 is that the new parts of the university have a much larger external share than the old.

Figure 7. The two average series from Table 7

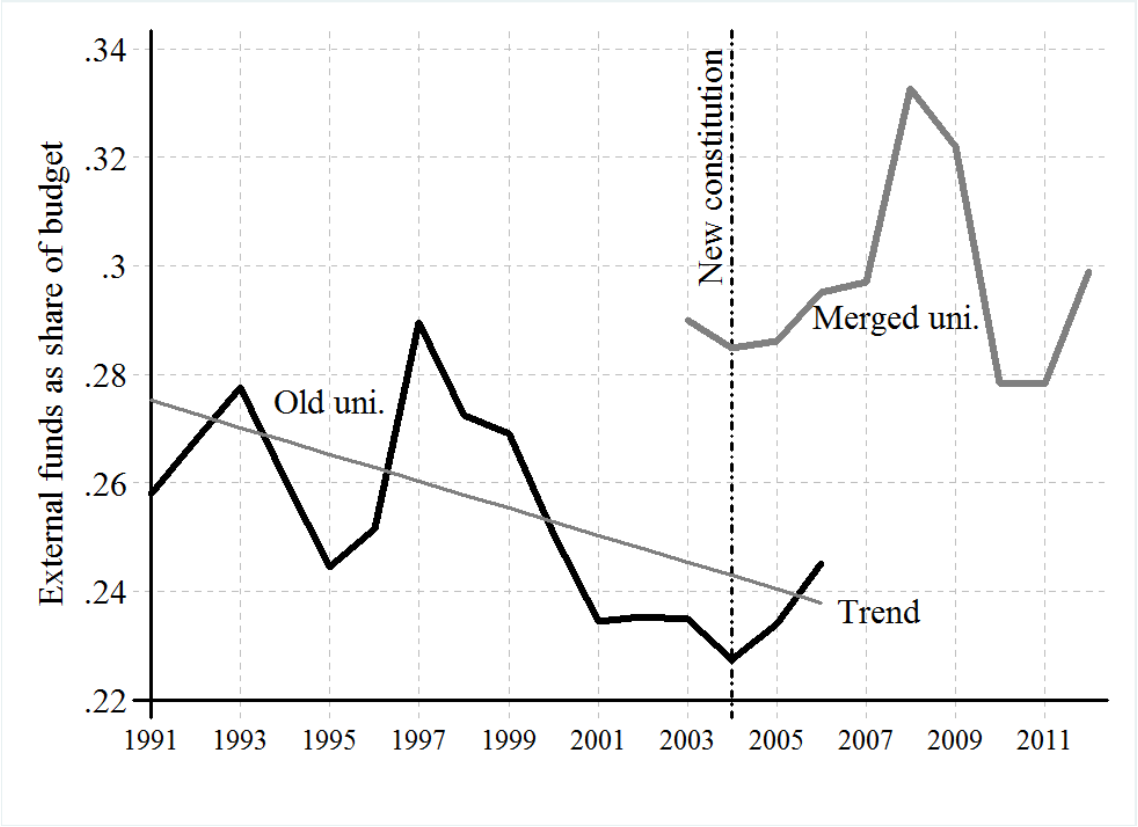


Table 8. Tests for trends in the share of external financing of the university budget

	Time (years)	Constant	N	R2
Old uni	-0.0025 (-3.2)	5.213 (3.3)	16	0.417
Merged uni	0.0007 (0.3)	-1.075 (-0.3)	10	0.013

Note: See note to Table 3.

Table 8 also shows that the 10 observations for the merged university have no trend either way. When the share of external finances went down this would have an effect on the A- and the B-share, but the big fluctuations in the external share of finance is poorly reflected in the A- and the B-shares, notably on the B-shares.

2.4 Shocking data to carry in your shirt pocket

In the publication Profil 13/14 the staff for 2011 and 2012 was given as reported in Table 9a. They were given in a special section of the publication, with a perforated line to detach. It was shown how the note could be folded to be kept in the breast pocket closest to the heart of all staff. And many staff members, including me, certainly took it to heart! I also reported the table in the first issue of my paper, with a note that these numbers did not tally with other statistics on the home

page of the University. As far as I know the University has never explained the discrepancy in any of its publications.

The data from Table 2 are different and less shocking, though they are still bad. They are given in Table 9b. The explanation of the difference is that Table 9a counts part-time staff as one person, while Table 9b converts part time staff to full-time equivalents.[37]

Table 9a. All employees from Profil 13/14

	Total staff			Shares of		
	2011	**2012**	Change	A, 2011	B, 2012	Change
A staff	**6,313**	**6,321**	8	56.3%	54.7%	-1.6%
B staff	**4,905**	**5,230**	325	43.7%	45.3%	1.6%
	11,218	**11,551**	333	100.0%	100.0%	0.0%

Note: The bold data are the ones from Profil 13/14. No notes are given to the data

Table 9b. Full time equivalent from Table 2

	Total staff			Shares of		
	2011	2012	Change	A, 2011	B, 2012	Change
A staff	4,115	4,369	254	54.8%	54.7%	-0.2%
B staff	3,389	3,623	234	45.2%	45.3%	0.2%
	7,504	7,992	488	100.0%	100.0%	0.0%

Table 9c. First differences between Tables 9 and 10

	Total staff		
	2011	2012	Increase
A staff	2,198	1,952	-246
B staff	1,516	1,607	91
	3,714	3,559	-155

The two tables 9a and b thus show that the increase in A-staff in Table 9b hides a much bigger fall in part time staff, while no such change occurred for the B-staff.

3. Conclusions: What has been found and not found?

The above data show a steady increase in the B-staff relative to the A-staff. The increase is about 9% of the staff since 1991, when the merger is controlled for. The change of constitution in 2003 does not change this trend, though it is unclear at the end due to the big process of merger. I

[37]. I am grateful to Bo Bjerre Jakobsen for this information.

conclude that the general relative increase in the B-staff since the constitutional reform is 4%. However, what I really want to know is where the B-staff works. The University has 3 levels:

(i) The central level – very far from the A-staff. Upward shift
(ii) The faculty level – far from the A-staff. Upward shift
(iii) The department level – close to the A-staff. Downward shift

The reform process after the new constitution has essentially reduced the B-staff at level (iii) and increased the B-staff at levels (i) and (ii). ***Here consistent time series data are very difficult to extract from the statistics***.

The two main devices to move staff from (iii) to (i) and (ii) have been to reduce the number of departments and remove the service personnel such as IT, repair, study administration, etc. to a higher level. If the shifts away from the departments are added, the total shift in the location of the B-staff is between 4 and 5%, which should be added to the general increase in the B-staff of 4%. This gives two numbers about the effect of the constitutional reform to explain in the main paper:

(I) A general shift from A-staff to B-staff of 4 percentage points
(II) A shift of B-staff from decentralized jobs at the departments to central positions in the faculties and higher levels. It is much less well documented, but likely to be of at least the same magnitude.

Taken together (I) and (II) constitute a major shift in the allocation of the staff. The main paper sets it at 8 %. The excessive centralization and bureaucratization explains why the students and the A-staff feel that the administration works much less well than it used to do under the new constitution.

Economics Working Papers

2013-23: Ritwik Banerjee: An Evaluation of the Revenue side as a source of fiscal consolidation in high debt economies

2013-24: Nabanita Datta Gupta, Mona Larsen and Lars Brink Thomsen: Do wage subsidies for disabled workers result in deadweight loss? – evidence from the Danish Flexjob scheme

2013-25: Valerie Smeets, Sharon Traiberman and Frederic Warzynski: Offshoring and Patterns of Quality Growth: Evidence from Danish Apparel

2013-26: Torben M. Andersen, Jonas Maibom, Michael Svarer and Allan Sørensen: Do Business Cycles Have Long-Term Impact for Particular Cohorts?

2013-27: Martin Paldam: Simulating publication bias

2013-28: Torben M. Andersen and Allan Sørensen: Product market integration, tax distortions and public sector size

2014-01: Leonie Gerhards and Neele Siemer: Private versus Public Feedback - The Incentive Effects of Symbolic Awards

2014-02: Casper Worm Hansen, Peter Sandholt Jensen and Lars Lønstrup: The Fertility Transition in the US: Schooling or Income?

2014-03: Mette Trier Damgaard and Christina Gravert: Now or never! The effect of deadlines on charitable giving: Evidence from a natural field experiment

2014-04: Christina Gravert: Pride and Patronage - The effect of identity on pay-what-you-want prices at a charitable bookstore

2014-05: Julia Nafziger: Packaging of Sin Goods - Commitment or Exploitation?

2014-06: Sylvanus Kwaku Afesorgbor and Peter A.G. van Bergeijk: Measuring multi-membership in economic integration and its trade-impact. A comparative study of ECOWAS and SADC

2014-07: Hristos Doucouliagos and Martin Paldam: Finally a breakthrough? The recent rise in the size of the estimates of aid effectiveness

2014-08: Martin Paldam: The public choice of university organization. A stylized story of a constitutional reform