

## ***Mecanismos de financiación de la Educación Superior en Alemania***

### ***Higher Education Funding: Mechanisms in Germany***

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#### **Resumen**

A lo largo de la década, ha tenido lugar un cambio de paradigma en la financiación de las universidades alemanas: los criterios de autonomía, competencia y ejecución son ahora el centro de atención. Los esfuerzos de dirección de los gobiernos pasaron de intervenciones reguladoras a sistemas de incentivos financieros.

Sin embargo, el modelo de financiación alemán no es independiente de su contexto - por el contrario, se determina por ciertos factores que se describen.

Este artículo también presenta los principales instrumentos de financiación de los gobiernos y programas federales y estatales acerca de cómo los instrumentos de financiación pública en Alemania tratan de equilibrar tres objetivos principales. Además, señala que estas herramientas tienen un punto en común y ofrece una visión general sobre los tres pilares típicos de los modelos de financiación (básico, orientado al rendimiento e innovación-/orientado a los perfiles). Se pueden combinar de diferentes maneras.

Para concluir, en el artículo se destacan varias lecciones aprendidas.

### **Palabras Clave**

Financiación de Educación Superior, Alemania, los instrumentos de financiación, "modelos de los tres pilares", la financiación básica, la financiación orientada a la ejecución, la financiación innovación-/orientada a los perfiles

### **Abstract**

Within a decade a paradigm shift in the funding of German universities has taken place: autonomy, competition and performance criteria now take center stage. Steering efforts of governments shifted from regulatory interventions to financial incentive systems. Nevertheless, the German funding model is not independent from its context – on the contrary, it is determined by certain factors that are described. This article also introduces major funding instruments for federal and state governments and shows how public funding instruments in Germany try to balance three major purposes. Furthermore, it points out that these tools have a common ground and offers an overview on the three typical pillars of funding models (basic, performance-oriented and innovation-/profile-oriented). They can be combined in different ways. To conclude, the articles highlights several lessons learnt.

### **Key words**

Higher Education Funding, Germany, funding instruments, "three-pillars-model", basic funding, performance-oriented funding, innovation-/profile-oriented funding

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### **The German funding model is not independent from its context**

Higher education funding models are never inalterable and they are influenced by the contexts in which they are implemented. Thus, the examination of a country's funding model of higher education at first has to consider the determining factors resulting from the country's specific situation. When it comes to the funding model in German higher education there are a number of influencing **political conditions**: Due to the federal system and the state responsibility there is a coexistence of 16 systems, one for each of the German "Länder" – this implies that one cannot talk about "the" German model but that one can only identify different models and maybe reduce their variety by clustering their features to a typology of funding instruments. Within this system the federal government plays specific roles: It initiates only projects of national relevance, it is responsible for the financial student support system and it has some competences to engage in research funding. Regarding the latter, the federal government throughout the last years promoted a specific political objective: the aim of pushing a number of universities to "world-class" research excellence had large effects on funding instruments.

At the same time, we could find other framework conditions in German higher education that largely defined the development of funding instruments. Another important factor of the German funding models' design is the fact that the steering approach of governments has shifted from regulatory interventions to financial incentive systems. This changes the nature of

funding: whereas a funding system used to guarantee that money had to be spent for the desired categories of expenditures in the past (line-item budgeting) the new funding approach requires systems that reward or sanction performance of higher education institutions in line with state policy objectives.

Apart from the political context common **social trends** like a specific demographic development can also have an influence on the evolution of a nation's funding model. In Germany the special situation has occurred that for a certain time student numbers are highly increasing at the moment, but that they will decline later on because of shrinking age cohorts. This also hints at the fact that higher education funding needs instruments that react to such developments.

When it comes to Germany, last but not least distinctive **features of the higher education system** have to be mentioned too: The dualism of universities and universities of applied sciences ("Fachhochschulen") adds to the complexity of the German higher education funding models. Furthermore, in Germany a strong non-university research sector exists in juxtaposition to the research efforts at universities as well as universities of applied sciences.

The German higher education funding described in the following paragraphs could only be understood referring to the background of all these contextual factors. Here we will focus on the elements of public funding of universities, leaving aside the (in Germany still limited) private funding components.

### **In Germany, there are a couple of major funding instruments for federal and state governments**

According to preliminary estimates by the Federal Statistical Office (Statistisches Bundesamt), in 2012 the federal government put around 4 Billion Euros into the higher education system, the funding volume coming from state governments was around 21 Billion Euros (Statistisches Bundesamt, 2012: 54).<sup>1</sup> The five major funding instruments are:

- The institutional funding through state governments (with 16 different models – or even more, as in some states we find separate allocation models for universities and universities of applied sciences).
- Earmarked project funding related to specific political purposes by state or federal governments (for instance the federal government initiated project funding on teaching quality (e.g. "Quality Pact for Teaching") or is about to support innovations in teacher training).
- The federal government's "excellence initiative" promoting top research,
- The federal-state co-funded "higher education pact" financing additional students (due to the demographic situation explained above).

<sup>1</sup> In order to put these amounts into relation to Germany's gross domestic product (GDP): In 2009 Germany's expenditure on tertiary education (ISCED 5 - 6) was 1,3% of the GDP (Statistisches Bundesamt, 2012: 27), overall, the educational expenditure was 5,1% of the GDP – this is below the average of the states of the OECD or the 21 EU countries (Statistisches Bundesamt, 2012: 78).

- The federal-state co-funding of research projects, graduate schools etc. through the “Deutsche Forschungsgemeinschaft (DFG)”, in institution with a role close to research councils existing in many countries.

The excellence initiative especially gained a lot of attention in the last years even internationally and its perceived success contributed to a stimulation of similar approaches in other European countries. This peer-reviewed competition open to all fields awards universities with three forms of support of outstanding research: graduate schools, research clusters and, if at least one graduate school and one research cluster have passed, a future “excellence plan” could be financially supported. These measures enhance (interdisciplinary) collaboration (also with non-university research institutions), international competitiveness and manage to involve young and world-class researchers (Deutsche Forschungsgemeinschaft, 2011).

### Public funding instruments in Germany try to balance three major purposes

The overview on German framework conditions already indicated a certain degree of complexity in the public funding system. In the following analysis we will try to find patterns and typologies in order to make the complex system understandable.

In order to describe the outlines of the German higher education funding models – and also to be able to evaluate their effectiveness – the objectives of the different models are an important parameter: What shall the mechanisms achieve?

Three purposes can be identified for all the instruments mentioned above:

- **Basic funding** shall be guaranteed. This way, the higher education system can develop a certain stability and even offer multi-period planning horizons. Furthermore, higher education institutions will be autonomous with regard to specific strategies – as long as there is a stability granted through basic funding.
- **Competition** shall be created. This can be achieved with the help of rewards or sanctions and it leads to a performance orientation.
- **Targeted incentives** shall be induced. They foster the development of individual strategies/profiles of higher education institutions. The ex ante funding of innovations and excellence is a good example for that.

Taking a look at the major higher education funding instruments in Germany we could relate them to the purposes mentioned above (Fig. 1):

	Basic funding	Competition	Targeted incentives
State institutional funding	X	X	X
Earmarked project funding		X	X

Excellence initiative		X	X
Higher education pact	X		X
DFG research funding		X	

Fig. 1: Purposes of funding instruments used by federal and state governments in Germany

### The German state institutional funding models are diverse, but with some common ground of a “three-pillars-model”

In all German states universities’ expenditures are granted through partial or comprehensive lump-sum budgeting, universities’ revenues are based on the idea of a goal-oriented funding, carried out in the so-called “three-pillars funding model” (Ziegele, 2013).

Three pillars can be identified: basic funding, performance-orientated funding and innovation-/profile-oriented funding. They have to be balanced as each of them stands for a distinct major function/objective of funding models as explained above. They are not exclusive; in most German states a coexistence of two or even all three approaches can be found.<sup>2</sup>

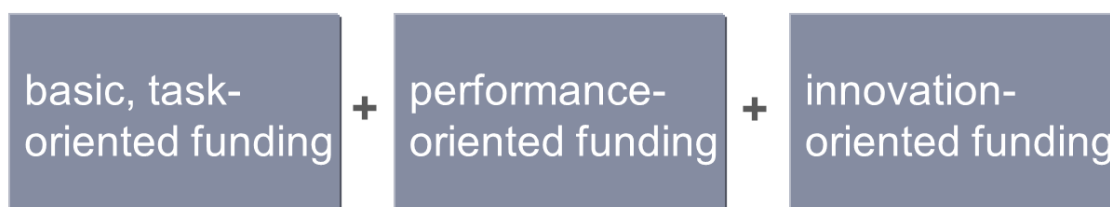


Fig. 2: The three pillars of higher education funding in Germany

- The **basic funding** provides higher education institutions with a financial amount that is largely stable over a specific period of time and which therefore guarantees that higher education institutions and their departments receive reliable basic financing with a relatively stable planning horizon. The intention is that costs are covered and higher education institutions are supported to fulfill their tasks.
- The **performance-oriented funding** implies that the funder has certain steering objectives in mind and wants to influence the behaviour of the people involved in higher education (administrators/policy makers, but also lecturers and researchers who in the end determine the performance) in a certain manner, according to public objectives. The desired performance is incentivized and will be rewarded. Outcomes contradicting the

<sup>2</sup> Of course, there are other approaches of describing and clustering existing models. Some authors e.g. identify four distinct (in fact similar) approaches: negotiation, incremental, formula funding and contract funding (Jongbloed 2009).

targets of the performance-based funding are sanctioned and competition is induced. Usually, formula funding is applied as instrumental option. With formula funding there are automatic ex-post funding reactions on the development of funding indicators.

- On the contrast, the so-called **innovation-/profile-oriented funding** underscores intentions that are supposed to be carried out in the future. The ex post-orientation of performance-based funding has no pre-funding component and could endanger financial discretion to promote new developments. With the innovation component, innovations are financed in advance and the results of novelties can be monitored and controlled – so funding still has an output-oriented character.

Applicable especially for the first and the last funding pillar is the instrument of **performance contracting** (sometimes also called “performance or target agreements”): negotiated agreements between states and institutions will guarantee a certain level of funding if the institutions meet the defined goals. Negotiations take place between the funders and recipients of financial resources in a relation characterized by partnership. As a result a contract is drawn up which represents a consensual solution in terms of the developments that are to be initiated as well as stipulated targets. If the contract contains a multi-year basic funding it will be an instrument for the first pillar, but it will also be able to be a form of performance-oriented funding linked to the third pillar if the performance objectives are clearly measured and linked to financial incentives. A difference compared to the funding formula is that the contract deals with promises for future performances that have to be rewarded and sanctioned (Ziegele, 2013).

A more detailed analysis how the three pillars are combined in different states reveals a typology of funding models in German states.

### **The three pillars are combined in different ways – three types of combinations can be found in Germany**

#### *Type 1: Combination of “historical” and performance-oriented funding*

The basic funding which underlies this type is adapted from the historical budget that has been allocated before (sometimes also called “incremental budgeting”, as it works with incremental increases or decreases of budgets according to the situation of public budgets and changes in political priorities, always using the starting point of the allocation used the year before). It is staff-oriented (with the purpose to enable universities to pay salaries for desired staff numbers) and will change if staff planning changes, for instance if there is the political will to establish a new faculty within a university. Sometimes a “general deal” is negotiated, meaning that a lump sum budget is allowed and that qualitatively described strategies/targets are fixed in a general contract. So the “deal” from the perspective of the government is “we give you the money to be spent autonomously, but we have to agree upon the underlying strategic orientations beforehand”. Historical basic funding is often combined with a performance-oriented element based on formula funding, the third pillar plays a minor role in that type of funding model.

A good example for the use of this funding model type is the state of Lower Saxony: There, a combination of basic funding (with a “general deal” contract covering a list of politically desired topics which have to be addressed in the universities’ strategies), a performance budget (implementing formula with indicators that determine up to 10% of the overall budget) and only some innovation programs (small, competitive funds are allocated according to specific indicators, e.g. family orientation, humanities program, internationalization program) are used. The performance indicators used in Lower Saxony as represented in Fig. 3 are quite typical for formula funding, the weights of the indicators are determined by political priorities regarding the importance of different tasks and the importance of specific performance aspects within a task. For instance in Lower Saxony teaching and research receive equal relevance in the formula, within the dimension of teaching the output aspect of graduation is seen as the most important aspect leading to a weight of 75% within the teaching indicators. The integration of gender equality indicators results from a political preference for this issue, as all the indicators and weightings express a political will.

<b>Task and weight of task</b>	<b>indicator</b>	<b>weight within task</b>
<b>Teaching (48%)</b>	first semester students	21%
	graduates (weighted according to study duration)	75%
	incoming students	2%
	outgoing students	2%
<b>Research (48%)</b>	research income (in Euro)	74%
	Ph.D.s	24%
	Humboldt stipends	2%
<b>Gender equality (4%)</b>	newly appointed female profs	40%
	female graduates	20%
	female Ph.D.s	20%

Fig. 3: Indicators for performance-oriented funding in Lower Saxony and their weights

Some of the other German federal states also opted for this type of funding model, yet, how they are carried out varies. For example, the size of the performance-oriented pillar will be diverse if you regard all states that use this type of funding model: It constitutes from 0 up to more than 20% of the budget allocated.



### *Type 2: Indicator-dominated model with basic formula funding*

Traditionally, basic funding has consisted of a historical, staff-oriented budget – nowadays the “money follows student”-approach rewarding the enrollment of students is another opportunity which in some states (partially) replaces the funding of staff depicted in the first pillar. The instrument of formula funding extends its scope to basic funding. Hence, funding shifts from financing the supply to financing the demand, usually taking into account cost per student according to field groups with different cost levels. This form of funding integrates a dynamic component into basic funding: basic funds adapt to a university’s success in the competition for students, existing staff is not per se funded if there is a lack in student demand. The degree of flexibility can differ: if the funding referred to a number of study places the university and the state government agreed upon a loss of real demand would not automatically lead to a decrease in places funded. But if the formula takes into account the actual number of students the basic budgets will adapt directly to demand shifts, probably requiring to adapt staff numbers to the demand situation. Understandably so, staff numbers could not adapt as quickly as student numbers, the funding models include mechanisms to stabilize funding streams over time (for instance, by calculating the formula with a multi-year average of student numbers to reduce cyclical effects).

A federal city state whose funding model can be classified as this type is Berlin (Senatsverwaltung für Bildung, Wissenschaft und Forschung Berlin, 2011): There, a comprehensive model has been instigated which integrates demand-oriented basic funding and performance-orientation in an overall funding formula. It is conceptualized as a “price model”: Each unit of the indicators used in the formula is rewarded by a specific “price” (a defined volume of money). As examples for these prices Fig. 4 shows universities in Berlin would get 13.000 € per year for a humanities and 43.000 € for an arts student. Every 1000 € external research income are rewarded by a premium of 500 €. The calculation of the overall lump-sum budget is quite an easy and transparent exercise of multiplying indicators with prices and adding up all the resulting products.

Indicators		“Price” (€)
basic funding price, examples (€)	humanities (university), per student	13.000
	engineering (university), per student	24.000
	engineering (FH), per student	18.000
	arts (university), per student	43.000
research rewards, examples (€)	third-party-funding (per 1.000 €)	500
	participation graduate school (per school)	300.000
	Ph.D.s (university)	25.000
	regional cooperation contracts (FH)	25.000

gender/ diversity rewards, examples (€)	newly appointed female professors	up to 70.000
	female Ph.D.s	10.000
	first semester students with migration background	10.000
	first semester students with migration background in teacher education	25.000

Fig. 4: Berlin's "price model" is an example for an integrated model for demand-oriented basic funding and performance-orientation

The case of higher education funding in Berlin also shows potential virtues and problems of price models: On the one hand it allows dynamics in the overall budget development, here, budgeting is not a zero-sum game and overall performance increases will lead to overall budget increases (in Berlin until 2013 higher education institutions could earn up to 73 Mio € more if they increased their performance). On the other hand due to fiscal constraints it is unrealistic to expect an overall public budget that is perfectly adaptive to performance. In the end it is most likely that prices will have to be cut in the case of increasing overall performance, leading back to the zero-sum game and inducing frustration if expectations could not be fulfilled.

*Type 3: Negotiation model with target agreement/performance contract as its major instrument*

This type sets its focus on basic funding with the help of a negotiated contract together with elements of innovation-oriented funding, also based on contracts/agreements. In contrast, performance-oriented funding plays only a minor role. When it comes to the chosen contract design different forms are in use in the single German states: negotiated students numbers can be part of the contract (Hesse), negotiated numbers of graduates (Hamburg) or quantified performance goals (with sanctions if the goals aren't achieved) (Saarland). For innovation-oriented funding, different instruments are utilised, e.g. target agreements on profile-oriented projects that include measurable goals. The funding could be established according to aspiration and attainment of objectives.

Performance contracts (target agreements) are a major innovation in higher education funding but their success depends on their design: Good performance contracts have to implement a structured bottom-up-top-down dialogue, include the requirement to develop SMART goals and relate performance measurement to profiles and strategies. They should run for more than one year (with possibilities to adapt) and set priorities instead of listing everything a university does. "Institutions use the multi-annual contracts as a means to protect themselves against annual cut backs" (Benneworth, et al., 2011 : 15).

### From the German experiences some lessons could be learnt and an outlook derived

As a result of the inspection of Germany's 16 states and their funding models it can be said that there is **no one-size-fits-all solution**. The adequate model depends on the size of the state, negotiation culture, data quality, historical differences in funding volumes (universities founded in the massification period in the 1960s and 70s quite often started from a lower level of basic funding) and so on. For instance, small city states such as Hamburg or Bremen are more inclined to use negotiation models.

Higher education institutions appreciate the individualization of performance measurement through **target agreements**, but they could be dangerous (for autonomy, rising bureaucracy, inflexibility through multi-year perspective...), yet the right methods could even avoid this. A general conclusion from the experiences is that it always makes sense to combine formula funding and target agreements, as the one instrument is able to compensate the shortcomings of the other one. For instance a formula is simple and sets clear objectives – but it is not adequate to support future innovations financially. The combination of both creates a balance between ex post rewards and ex ante funding.

The **use of indicators** stimulates discussions and transparency, has incentive effects, even if distributed funds are only low. Negative impact of indicators on quality is often assumed, but until now empirical research on the effect of funding models provides no proof for this.

There are some **risks** of funding models that should be avoided: Typical frustrations occur because of zero-sum games, discretionary political funding compensating formula outcomes, vicious circles of continuous deterioration in case of bad indicator outcomes, leading to formula cutbacks, again lower performance, again cutbacks and so on. Finally, it should not be forgotten that isolated development of funding systems is problematic, close links to autonomy, reporting and quality management towards coherent steering approaches have to be taken into account.

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