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***Financing of Education: Some Experiences from
ten European Countries***

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Financing of Education: Some Experiences from ten European Countries

by

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Abstract: Education is one of the most important services provided by public governments in almost every country worldwide. However, the most important cross-country observations about education – like the PISA report by the OECD or the TIMSS by the IEA – focus only on international benchmarks to compare the knowledge capacity of pupils. This paper provides a general overview of the different forms to finance education in the framework of intergovernmental transfers as well as educational providers in ten European countries. We observe the educational system in Austria, Belgium, Denmark, France, Germany, Italy, Spain, Sweden, Switzerland and the United Kingdom and point out the similarities and national distinctions in the respective transfer system regarding education financing or the allocation mechanism for primary and secondary schools as well as universities.

JEL Classification: H7, H1, I2

Keyword: Intergovernmental transfers, Educational Finance, Austria, Belgium, Denmark, France, Germany, Italy, Spain, Sweden, Switzerland, United Kingdom

1. Introduction

Education is one of the most important services provided by public governments in almost every country worldwide. However, education and its indirectly linked expenditure – like for example school meals or the cost of school transportation – can be provided by public governments as well as private companies or households. Moreover, the expenditure for education is not only spent in the educational institutions themselves, because the agency and Ministry, which support the education process by developing curricula or generating further vocational training for teachers, are also cost-intensive. The following table 1 provides a general overview of the different types of educational expenditure:

Table 1: Classification of educational expenditure

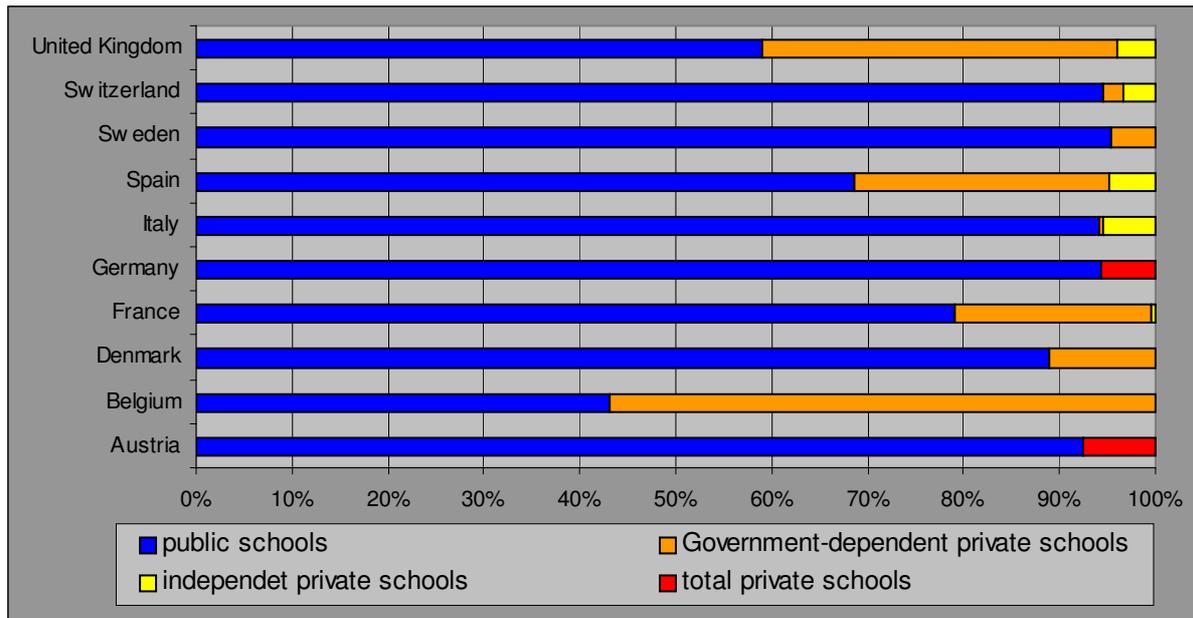
	Expenditure at schools and universities	Expenditure at public and private institution
Education	Public schools	Curricula developed by the Ministry of Education
	Private schools without any subsidies by public governments	Further vocational training of teachers financed by private foundations
	Private schools financed by fees and public governments	Evaluation, which grads the teaching ability of professors, financed by public and private institutions
Research	University research funded by public governments	Research to strengthen the teaching ability by the Ministry of Education
	University research funded by companies or private foundations	Research to optimise the class schedule by private companies
	University research funded by public and private institution	Research to ease the integration of foreign children founded by public and private institutions
Miscellaneous	Maintenance of school buildings by public governments	Voluntary school meals offered by public governments
	Sports activities or ancillary services provided by private clubs	Student grants for apartments and further living costs founded by private foundations
	Public-Private-Partnerships at the new building of schools	School transportation organized by private companies, which were paid by public governments

Source: own illustration

In the United States of America or Canada private institutions are a mayor source to finance educational expenditure. In Europe the impact of private institutions on the education sector is lower compared to the USA and Canada. In the majority of all European countries the pupils

attend public schools, except in Belgium, where over 56 % of all pupils in the primary and secondary schools go to private schools. However, all private Belgian schools are also mainly funded by the government. The following figure 1 presents a summary of the school landscape – as a distribution between private and public schools - in ten European countries in the school year of 2001 / 2002:

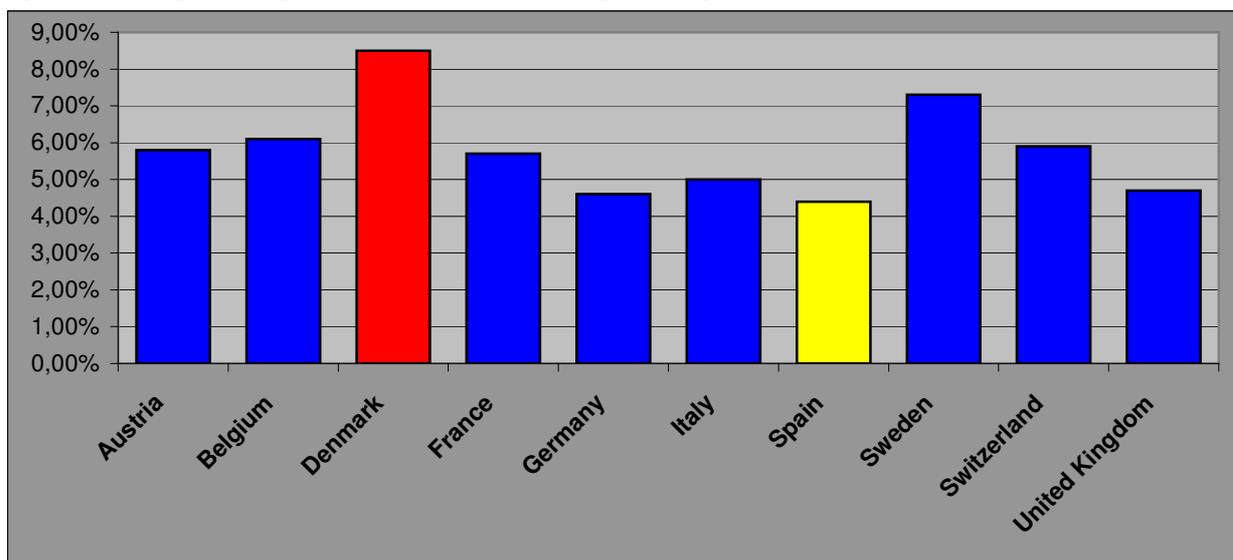
Figure 1: Distribution of pupils in the secondary and primary schools according to the institution type, who attended school in the school year of 2001 /2002²



Source: own calculation and European Commission, 2005, page 74.

The total public expenditure on education related to the Gross Domestic Product (GDP), which can be observed in the following figure 2, varies between 4.4 % in Spain and 8.5 % in Denmark:

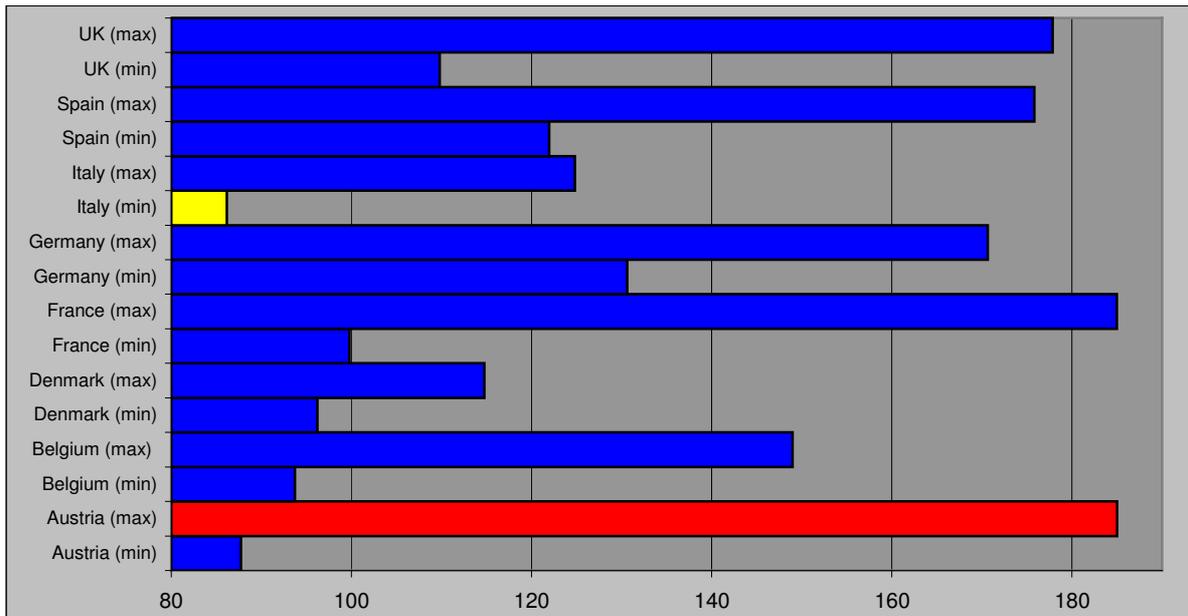
Figure 2: Total public expenditure on education as a percentage of GDP in 2001



Source: own calculation and European Commission, 2005, page 163.

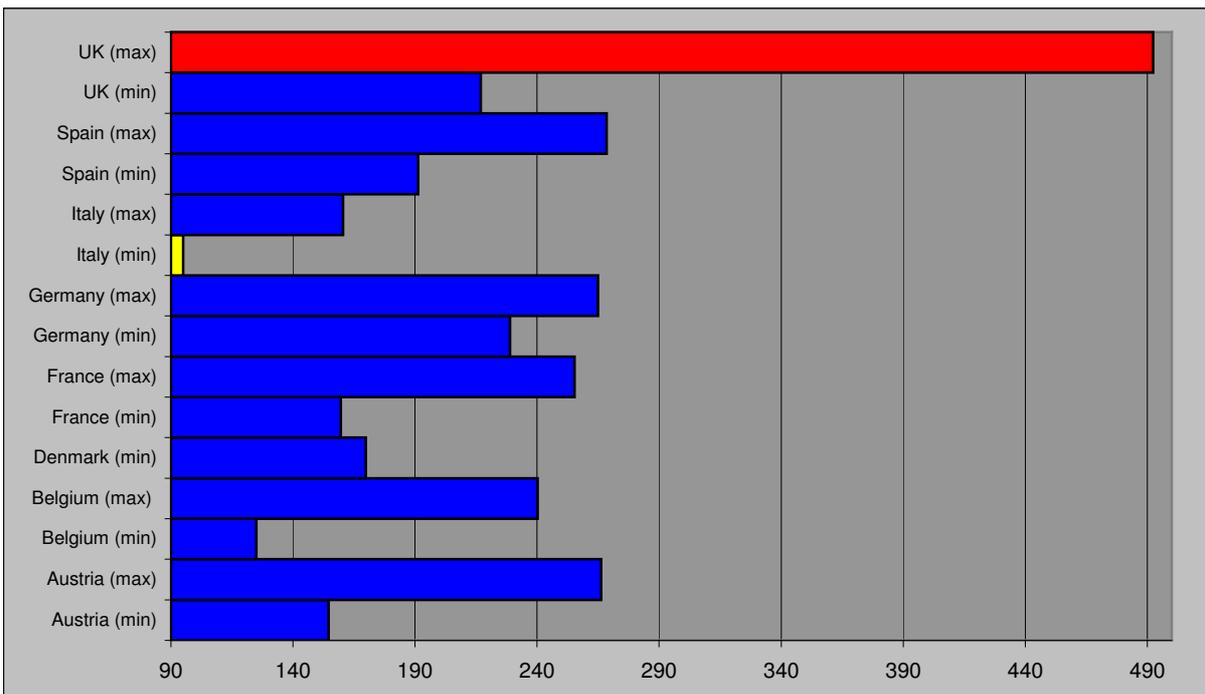
Moreover, the salaries of the teachers and school heads in the European primary and secondary schools vary within a country – mainly due to the age of teachers or the size of the school and to a lesser extent due to their individual qualifications – and between the ten observed countries. The following figures 3 and 4 point out the salary structure of teachers and school heads in nine European countries³ in the school year of 2000-2001 based on a salary per capita national GDP ratio:

Figure 3: Salary structure of teachers in primary schools in the school year of 2000-2001 based on salary per capita GDP ratio (100 = the teacher earns the exact amount of the national GDP)



Source: own illustration based on various data provided by the Eurydice

Figure 4: Salary structure (minimum and maximum) of school heads in upper secondary schools in the school year of 2000-2001 based on salary per capita GDP ratio



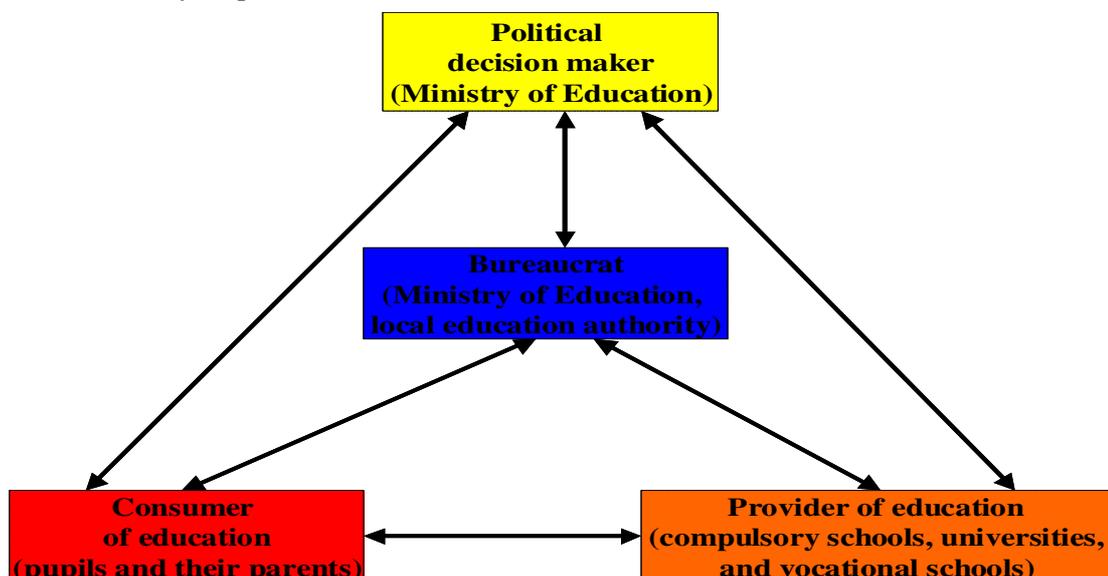
Source: own illustration based on various data provided by the Eurydice

The Italian teachers and school heads received the lowest minimum salary level in relation to their national GDP per capita, while the school heads of the British upper secondary school earned the highest salaries. In both comparison, Germany has the smallest salary gap between the minimum and maximum salary of the teachers and the school heads.

A number of professionals in the public administrations or politically interested groups opine quite often that a higher educational output can only be received by means of a higher concentration of expenditure on the education system. However, the empirical observations do not underline such an absolute argumentation, because additional funds available to an existing education system of a country have not improved the pupil performance in a sustainable manner (see Gundlach, Gmelin and Wößmann, 2001; Hanushek, 2003; Krueger, 2003; Wößmann and West, 2006)⁴. Furthermore, pupils from a country with a significantly higher level of educational expenditure or smaller class sizes than other countries are not necessarily in a better condition in an international comparison (see Wößmann, 2003). In fact, the actual research suggests that about two-thirds of the variation in student achievement is the product of home environments, not schools.⁵

For this reason, the education system of a country can be improved not only by the additional allocation of finances, but rather the accountability in the educational sector is one of the key factors. However, accountability in the framework of education is a highly intricate concept and we try to simplify the different interactions and players in the following figure 5 in which the consumers provide their preferences of elected and non-elected institutions. These institutions try to reproduce the wishes to the providers of the education and “constrict” the work of the providers of education by regulation and financial sources:

Figure 5: Accountability in (public) education



Source: own illustration

2. Educational expenditure assignments between the different tiers of government

Decentralisation of education is one possibility to strengthen the accountability and to produce some positive incentives for all actors in the education process. Education decentralisation can be classified as follows:⁶

- *Education deconcentration*, Deconcentration describes the situation in which the central ministry of education shifts some responsibility to their own regional or local offices, but these offices are still a part of the central administration. In Germany the states are the major decision-makers for primary and secondary schools and every state has its own regulation concerning the maximum number of pupils for a class. However, the final decision of whether an additional class will be offered at a school belongs to the local educational administration (*staatliche Schulämter*) and the school itself can only file an application for a further class.
- *Education devolution*, Devolution includes the transfer of responsibility from the central government to an independent and elected tier of government like states and provinces or even local authorities. This form of educational decentralisation can be observed in Belgium and Spain, where the central government, in the transformation process from a unitary country to a federal country, has shifted mayor responsibility in the secondary and primary system to the Belgian language communities and the Spanish Autonomous Communities.
- *Education delegation*, Delegation means that one tier of government has shifted the decision-making responsibility to the school, but de jure this responsibility still belongs to this tier of government. A practical example is the Danish primary school system where some municipalities have delegated the responsibility to their respective schools, but the Danish municipalities can reclaim their rights in this respect at any time.

A huge number of possible educational functions and areas exists, which can be decentralized like teacher hiring and dismissal, teacher salary specification, school construction and maintenance, the evaluation of the performance of the schools as well as universities, examination and degree of supervision of a school head, faculty dean or university president and finally the structure and organisation of the schools and universities itself. Moreover, in some European countries, like Belgium, Spain or Switzerland, the question of the official teaching languages is a very hot “political potato”, while in Denmark and Italy with their small German-speaking minorities as well as the Danish minority in the northern German state of Schleswig-Holstein, the teaching language plays only minor role. In Europe, the curriculum and the teaching methods are in mainly fixed by the central ministry of Education

and their respective regional offices and only the subnational governments of Belgium, Germany and Spain possess an independent in this area. Finally, as a matter of fact it is also possible to decentralise the financing of education from the central government to the subnational and local authorities. Under the goal of strengthening the accountability, decentralisation of the financing of the educational expenditure is reasonable, because on the one hand the school providers have to consider the preferences of the citizens and clients and on the other hand the educational providers are not influenced by the central government and can make their decisions quite independently. Nevertheless, “over-decentralisation” also has negative impacts (see Werner, Guihéry and Djukic, 2006) and especially universities generates huge education spill-over, which are not redundant.

In many European Union countries, local authorities play a significant part in the provision of compulsory education. This participation is the result of different levels of autonomy in every country and the different kinds of schools considered.

A group of certain local authorities – mainly in the Nordic countries and in the United Kingdom – themselves undertake the funding of schools and determine the amount of funds, which are used for education. These local authorities use their own tax revenues as well as vertical government transfers to provide primary and secondary education. In other countries, the educational expenditure is fixed at a higher government level, but the local authority may – or must – supplement it with its own resources. In a third group, the budget volume for education is determined and financed completely by higher tiers of government, but the local governments can decide how this fixed budget is distributed between the different forms of schools as well as between equal school forms. These three forms of classification can be observed in the field of teacher salaries, in the maintenance and construction of new schools as well as in the necessary equipment for schools.

A further classification, based on the level of autonomy and the highest level of government which participates in the education system, can also be used to characterise the European education landscape. While the British and Scandinavian local authorities consider about huge autonomy, the local authorities in Germany, Spain, France, Italy and Austria are only responsible for the operational resources and the school buildings. However, in this second group of these five European countries the local authorities are not responsible for the salaries of the teachers, and in Italy and Spain are the local authorities are not completely responsible for the equipment and the operational resources in the schools.

Belgium and Switzerland can be placed into a third group, because on the one hand the complete education finances of the primary and secondary schools are shifted from the central

Table 2: Financial responsibility of education between the different tiers of government

	Universities			Secondary schools			Primary schools		
	Salaries	Buildings	Equipment	Salaries	Buildings	Equipment	Salaries	Buildings	Equipment
Italy ¹²									
central	X	X	X	X			X		
regional						X			
upper-local					X			X	X
lower-local									
Spain									
central	X	X	X						
regional	X	X	X	X	X	X	X	X	
upper-local									
lower-local									X
Sweden									
central	X	X	X						
upper-local									
lower-local				X	X	X	X	X	X
Switzerland									
central	X	X	X						
regional				X	X	X	X		
local					X	X	X	X	X
UK									
central	X	X	X						
upper-local									
lower-local				X	X	X	X	X	X

Source: own illustration

Table 3: Content and administration responsibility for schools between the different tiers of government

	Curriculum	Textbooks selection	Teacher salary scale	Teacher pay out	Teacher promotion	Teacher & school evaluation	Additional classrooms
Austria							
National MoE	X	X	X				
Regional MoE				X	X	X	
Local education a.					(X)	(X)	X
School (board)		(X)					(X)
Belgium							
National MoE							
Regional MoE	X		X	X	X	X	X
Local education a.							
School (board)		X					

Table 3: Content and administration responsibility for schools between the different tiers of government

	Curriculum	Textbooks selection	Teacher salary scale	Teacher pay out	Teacher promotion	Teacher & school evaluation	Additional classrooms
Denmark							
National MoE	X		(X)			EVA ¹³	
Regional MoE							
Local education a.			X				X
School (board)		X	X	X	X		X
France							
National MoE	X		X	X	X	académie ¹⁴	
Regional MoE							
Local education a.							X
School (board)		X					
Germany							
National MoE			X				
Regional MoE	X	(X)		X	X	X	(X)
Local education a.						X	X
School (board)		X					(X)
Italy							
National MoE	X	X	X	X	(X)	INVALSI ¹⁵	
Regional MoE							
Local education a.					X		X
School (board)							
Spain							
National MoE	(X)		X			X	
Regional MoE	X			X	X	X	X
Local education a.							
School (board)		X					X
Sweden							
National MoE	X					NAE	
Regional MoE							
Local education a.						(X)	
School (board)		X	X	X	X	X	X
Switzerland							
National MoE							
Regional MoE	X	X	X	X	X		(X)
Local education a.						X	X
School (board)		(X)					(X)

Table 3: Content and administration responsibility for schools between the different tiers of government

	Curriculum	Textbooks selection	Teacher salary scale	Teacher pay out	Teacher promotion	Teacher & school evaluation	Additional classrooms
UK							
National MoE	X		X			Ofsted ¹⁶	
Regional MoE							
Local education a.					X	(X)	
School (board)	(X)	X		X			X

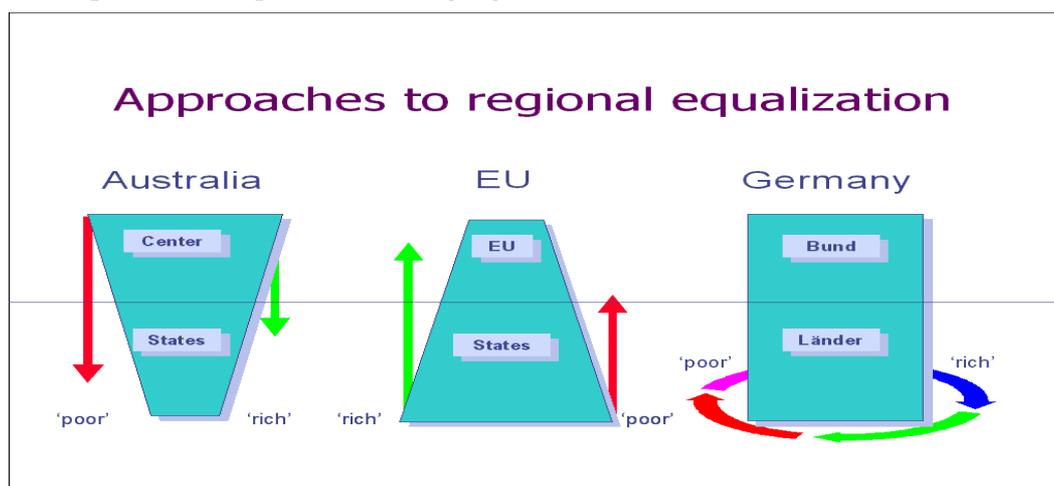
Source: own illustration

3. Consideration of the education cost in the intergovernmental transfer system

Grants and transfers from national to subnational governments or from subnational governments to local authorities exist in federal as well as unitary countries. However, the characteristics of these conceptions differ between the countries and are mainly influenced by the geographical, cultural and political circumstances.

If intergovernmental transfers are used as an interregional equalisation system, the two major goals of the equalisation are to lower the vertical fiscal gap between governments and to reduce the spill-over effects. Furthermore, the economic reasons for an equalisation system can be assumed by fiscal imbalance, minimum standards of service, interjurisdictional spillovers, differential net fiscal benefits across states and stabilisation objectives (see Shah, 1995, page 216-219).

Moreover, fiscal equalisation can obtain both a vertical and a horizontal dimension. Horizontal equalisation is typically combined with asymmetric vertical grants designed to close vertical fiscal gaps and to correct regional fiscal imbalances. A classic example of horizontal equalisation is the German equalisation system among the federal states or the Nordic local equalisation system. The Australian case can be described as a vertical equalisation with a strong horizontal effect. A very unique situation is the conception of national tributes to the European Community where economically weaker nations have to pay a smaller transfer, measured per capita, than the economically stronger nations. A similar weak supranational government without its own tax revenues like the EU existed in Bosnia and Herzegovina until the introduction of the VAT in 2006 (see Werner, Guihéry and Djukic, 2006). The following figure 6 illustrates the different approaches to interregional fiscal equalisation:

Figure 6: Examples of fiscal equalisation among regional administrative bodies

Source: Spahn / Werner, forthcoming

Like the general characteristics of the intergovernmental transfer system, the ten European countries consider education costs in their respective transfer systems in very different ways. The majority of the countries (Germany, Austria, Spain, Belgium and Italy) have devolved major parts of their education system to their subnational governments, but the central government does not equalise the exact cost of the education delivery and the subnational governments benefit from a general tax sharing of the personal income tax (PIT) and the value added tax (VAT). The fixed portion of the tax revenues is distributed between the subnational government mostly by the number of the inhabitants for the VAT and by the principle of residence for the PIT¹⁷. Only Belgium considers, among other indicators, the number of potential students for the distribution of the so-called “VAT grant”¹⁸ between the Flemish and Walloon community.

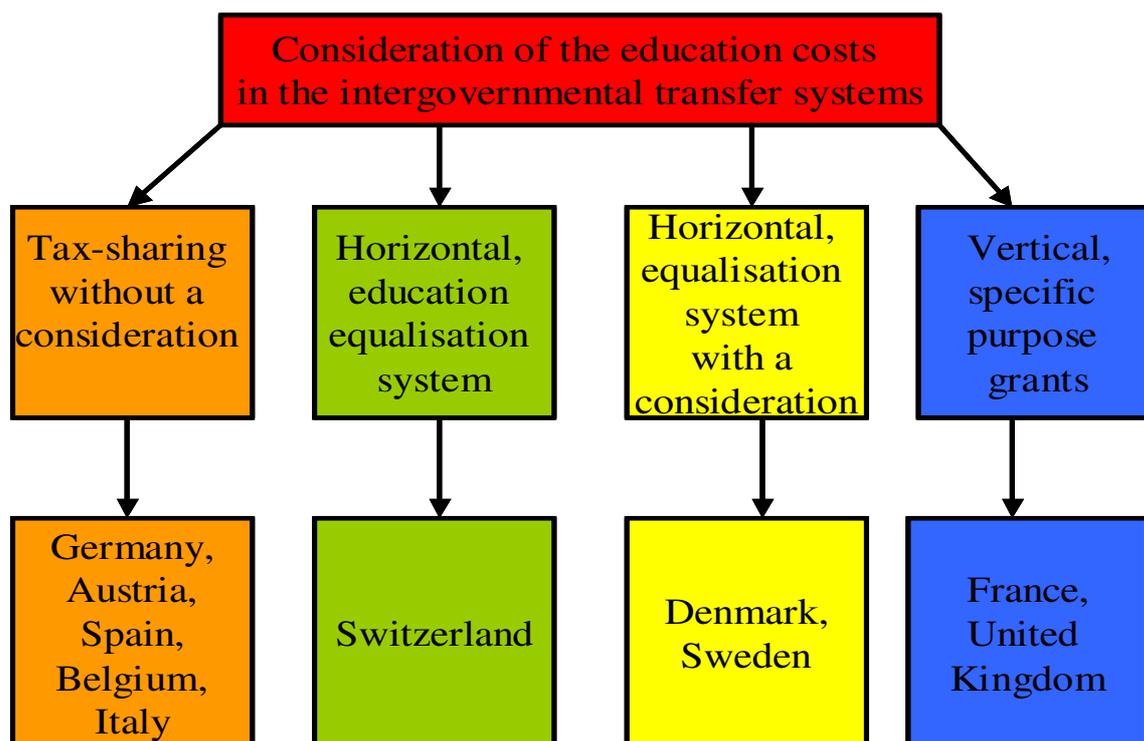
Switzerland has recently reformed its equalisation system. The new § 132 of the constitution introduces a tax sharing of the withholding tax, of which the cantons receive 10 %¹⁹ of the whole tax yield, and the new inter-cantonal fiscal equalisation system (NFA) has been approved and will be fully implemented in 2008. Because of the huge tax autonomy of the cantons and municipalities, Switzerland cannot be grouped into the same tax-sharing class. Moreover, in Switzerland a horizontal equalisation between the cantons exists, in which cantons without universities or with students who attend the university of a neighbouring canton, have to pay a transfer to the canton which provides the university. This kind of educational cost equalisation is very reasonable and in accordance with the theoretical framework to reduce spill-over effects between the same tiers of government.

In its local horizontal equalisation system, Denmark also considers the educational costs, like in Switzerland, but Denmark does not use a pure educational equalisation. Instead, the measurement of the different expenditure needs also considers the ageing structure of the

population or the portion of migrants and the respective tax base of the municipality and Amtskommuner (see Werner and Shah, forthcoming).

Finally, France and the United Kingdom do not practise any tax-sharing or horizontal equalisation system. Both countries use vertical grants from the central government to the subnational governments to finance the education cost. The following figure 7 summarises the different considerations of educational costs in the ten European countries:

Figure 7: Consideration of educational costs in the respective intergovernmental transfer system



Source: own illustration

After the general classification of the ten European countries in four categories the following section deals with a detailed description of six country-specific arrangements to finance education.

Germany uses a tax sharing system between all tiers of governments for its most important taxes and the German equalisation system does not consider any education cost (see Spahn, 1997, Werner, 2003; Werner / Xue, 2004 as well as Guihéry / Werner, 2005).

However, since 1969, the German constitution²⁰ has determined that the new construction of a university is a common task of the central government and the 16 states. Therefore, a university building planning commission (UBPC)²¹ exists, which consists of representatives of the Bund and the Bundesländer and decides about the priority of the new buildings. The exact distribution between the central government and the states as well as within the states varies from fiscal year to fiscal year, but the main goal is that the Bund covers nearly 50 % of the

total cost and each state has to pay 50 % of the building cost of its respective university. The UBPC has already developed 34 planning reports and the actual 34. report covers the time period of 2005-2008.²² The following table 4 points out the result of the 1st planning report of 1972, the last planning report before the reunification in 1989 and the completed planning report for 2003:

Table 4: Structures of the planning report of the UBPC in € million in 1972, 1989 and 2003

	1972			1989			2003		
	State	Bund	Total	State	Bund	Total	State	Bund	total
Saarland	5	3	8	36	21	57	24	14	38
Lower Saxony	67	68	135	53	46	99	92	70	162
Rhineland-Palatinate	13	34	47	53	39	92	33	28	61
Schleswig-Holstein	11	30	41	44	35	79	193	147	340
North Rhine-Westphalia	151	268	419	125	76	201	92	70	162
Baden-Wuerttemberg	67	148	215	193	109	302	186	153	339
Bavaria	86	97	183	207	99	306	188	218	406
Hesse	58	87	145	71	39	110	81	68	144
Berlin	14	19	33	50	36	86	36	46	82
(Hanseatic city) Bremen	11	26	37	21	19	40	23	31	54
(Hanseatic city) Hamburg	16	22	38	28	19	47	44	29	73
Saxony-Anhalt	-	-	-	-	-	-	53	47	105
Mecklenburg-Western Pomerania	-	-	-	-	-	-	36	38	74
Thuringia	-	-	-	-	-	-	68	48	116
Saxony	-	-	-	-	-	-	78	66	144
Brandenburg	-	-	-	-	-	-	42	30	72
All states	499	-	-	891	-	-	1,246	-	-
Total Central government	-	802	-	-	528	-	-	1,060	-
All tiers of government	-	-	1,301	-	-	1,419	-	-	2,306

Source: UBPC, 2005, page 28-29

Since 1970, Belgium has changed from a unitary country to a federal country with four tiers of subnational governments. Especially the three language communities (Flemish, French and German) as well as three regions (Flanders, Walloon and Brussels) have provoked a quite complex structure, due to the fact that every tier of government possesses different forms of revenues and the Flemish community and Flemish region additionally have a common budget. Therefore Gérard's description of the Belgian federalism as a „*twofold federalism*“ (Gérard, 2001, page 10) is skilful.

Compared to Austria, where the subnational portion of the PIT and the VAT is mainly based on the inhabitant number, as well as Germany and Spain, which also use the derivation principle for the PIT distribution, the Belgian tax sharing system is different and therefore instead of tax sharing, the phrases “VAT transfer” or “PIT transfer” are sometimes used to describe the Belgian intergovernmental transfer system. However, in the respective financial law itself the two transfers are called a shared tax, since its funding comes from the proceeds of the federal PIT and the VAT.

The total amount of the “VAT transfer” to the two communities increases by the same growth rate as the consumer price index. The distribution of the fixed VAT portion between the Flemish and the Walloon community is based on – generally speaking – the number of students in each of the two communities (for a detailed description see Van der Stichele and Verdonck, 2001).

In Switzerland all three tiers of government can levy their tax rates independently on the direct taxes, but since 2001 the tax base of the direct taxes as well as the tax year have been completely harmonised. Therefore the tax “jungle” (Duss and Bird, 1979, page 62) has now dwindled a bit but it has not yet been fully cut back, especially regarding the PIT and the wealth tax.

On the other side, all revenues from indirect taxes like the VAT or all excises belong to the central government and only a small tax-sharing between the central government and cantons exist for the stamp taxes and the withholding taxes.²³

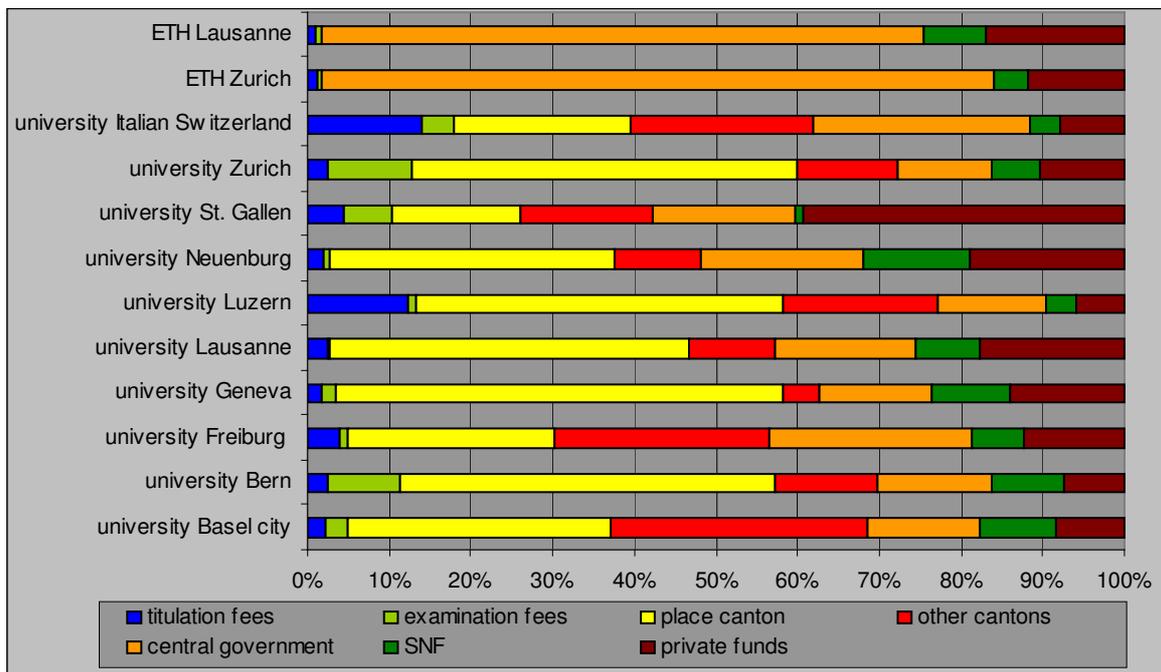
In the context of the educational cost, in Switzerland a very smart solution for the financing of the universities exists. In Switzerland 12 universities exist and two of twelve – the Swiss Federal Institutes of Technology (*Eidgenössische Technische Hochschule*, ETH) in Lausanne and Zurich – are institutions of the central government. The remaining 10 universities are located in 10 cantons and therefore 16 of 26 Swiss cantons do not have to finance a university directly. However, it happens very often in Switzerland that a student has his residence in one canton but he attends the university of a neighbouring canton. This situation can be used as a classical example of spill-overs, and a possible solution could be the concept of functional, overlapping, and competing jurisdictions (FOCJ) developed by Frey and Eichenberger (see Frey and Eichenberger 1995).

Nevertheless, the cantons do not use the FOCJ concept to solve this problem, but the canton where a university is placed receives funds from the other cantons, where the commuting students have their residence. The calculation of the funds is very detailed, which means that

the different costs of a faculty towards a university as well as the respective duration of every student have to be borne in mind for the calculation.

The total expenditure cost of 12 universities amounted to € 3.16 billion in 2004, while nearly 20% originated at the ETH Zurich and 52 % was generated by the ETH Zurich, the University of Zurich and the University of Geneva. Moreover, the impact of the inter-cantonal university equalisation differs from university to university and has its highest influence at the University of Basle city and the University of Italian Switzerland. A detailed overview of the financial structure of the twelve universities can be observed in the following figure 8:

Figure 8: Financing structure of the 12 Swiss universities in 2004



Source: own calculation based on Bundesamt für Statistik, 2005, page 12

Like in all Nordic countries, the Danish local authorities have a huge impact on all areas of public expenditure and generate one of the highest portions of the national GDP worldwide. The Danish municipalities and counties (*Amtskommuner*) are mainly financed by local surcharges on the PIT. Moreover, the Danish local tax sovereignty also consists of some local property taxes (*Grundskyld, Daekningsafgift and Frigorelseafgift*) and the grants from the central government are not as important as in other European countries.

However, in Denmark a very all-embracing local equalisation system exists which includes the following four elements: equalisation of the expenditure needs between the respective local tiers of government, equalisation of the tax bases between the municipalities and the respective local tiers, general grants from the central government and various special grants from the central government (see Werner and Shah, forthcoming).

The equalisation of the expenditure needs is based on the age of the municipal citizens as well as on some social factors like for example children with a single parent, the number of unemployed people or welfare recipients. Indeed, the actual educational cost of a municipality is not completely considered in the Danish local equalisation system, but the very detailed age diversification and the fact that one of the highest amounts per capita is assigned for pupils (age group 7-16) produces a strong bias.

France has a four-tier government structure and due to the “two decentralization laws” of 1982 the regions and départements received for the first time a completely constitutional status in France.

In the framework of the decentralisation laws of 1982, the départements gained the responsibility for the maintenance and new construction of the *collèges*, which is the mandatory secondary school for pupils of the age of 11 to 14, while the region have been responsible for the new construction and the maintenance of the second wing of the secondary school; the *lycées* are visited by French pupils from the age of 15 to 18. Because of shift of this fiscal burden from the central government to the upper local authorities, the regions and départements received a transfer called the *Dotation générale de decentralization* (DGD). Due to the grant reform of the year of 2004, the DGD was reduced significantly, the regions benefited for the first time from the *Dotation Globale de Fonctionnement* (DGF) and one of the major features of the French grant system is the high degree of block grants compared to specific subsidies (see Prud'homme, 2006). A further important block grant in France is the compensation grant due to taxation of local investments by the national VAT (*Fond de compensation de la TVA*, FCTVA) and therefore the local authorities receive a rebate of their VAT payments for investments from the central government. Especially for the new construction of school buildings such a tax rebate for the VAT should not be underrated.

Furthermore, the regions and the départements are newly involved at a tax sharing of the TIPP (interior tax on oil products). For the long run the central government plans to allow regional tax setting (see Guengant and Josselin, 2006, page 10).

Moreover, the French ministry of education introduced a special programme called *zones d'éducation prioritaire* (ZEP) in 1982. The goal of the ZEP is to strengthen the education of pupils with a migration background or pupils whose parents receive social welfare. If a school is classified as a ZEP school, the average classroom size will be reduced and the teacher salary will be increased. This “positive discrimination” has not avoided the fact that the pupils from ZEP schools achieve lower results in national educational evaluation tests (see Meuret, 1994 or Caille, 2001). But on the other hand, all opponents of the ZEP idea have to consider

that without these special subsidies the gap between the pupils would probably be much bigger.

The local authorities in the UK possess some of the smallest tax sovereignty of all industrialised countries worldwide, because their own tax revenues plus charges and fees only amount to less than one-third of the total revenues of the local authorities. Their main revenue source is the grants from the central government, e.g. the English local authorities were funded to an extent of 62 % (including the “redistributed” business tax) by grants in the fiscal year of 2003-2004 (see ODPM, 2005, page 33).

In the fiscal year of 2003-2004 the central government introduced a new calculation of the grants called Formula Spending Shares (FSS), which replaced the old calculation formula named Standard Spending Assessments (SSAs). The following table 11 points out the structure of grants towards the local authorities in England in the fiscal year of 2005-2006:

Table 11: Structure of the grants to the local authorities in England in 2005-2006

	in %	€ billion
General block grant	44.43 %	38.694
“Redistributed” business tax	29.92 %	26.060
General and specific purpose grants	18.39 %	16.019
Police grant	7.26 %	6.302
Total	100 %	87.075

Source: own illustration based on various publication of ODPM

The general block grant consists of children’s service, adults personal social service, fire and rescue, highway maintenance, environmental and cultural service, police and capital financing of seven components. Like in the Nordic countries, the respective local expenditure needs²⁴ are considered in this block grant, but the local authorities are free to spend the grant in any area of expenditure.

Every one the seven components has nearly the same value in the equalisation formula and the “children service” component is mainly influenced by educational needs like the residential pupil number of each local authority. The “children service” component itself has four sub-components and besides the number of pupils and their different ages the number of pupils with a migration background or the distinction between primary or secondary pupils is also considered. The remaining six components of the general block grant consider very marginally²⁵ or not at all not any educational needs in their formula.

In the last few years the central government has increased the general and specific purpose grants compared to the block grant. This development has weakened the transparency of the British grant system and has undermined the revenue sovereignty of the local authorities, but

on the other hand the maintenance or the new construction of school buildings were – due to the numerous special grants in this area – has been relatively easy to manage for the local authorities, or rather the local school boards.

4. The financing of education providers and the different allocation mechanisms

The expenditures for education are not only spent in the educational institutions for recurrent expenses, capital investments, specific purposes and research, because the respective national education ministry and its regional and local administration bodies are also cost-intensive. Additionally, the indirect costs of education like the funding provided to students or their families by means of tax benefits, scholarships and subsidised loans to defray or delay the cost of tuition fees or living costs are also not redundant. However, in this section we only describe the different forms of allocation mechanisms for universities and highlight some similarities and differences for education providers at primary and secondary schools.

The political decision-makers have the following options to finance the universities:

- *Earmarked grant based funding*, The ministry of education shifts earmarked funds to a small number of universities or just even one university for a specific purpose. A handicap of grants for special purposes or earmarked grants is that they excluded per definition some universities and the grant receiving university is limited in its autonomy, because the university is only able to spend the fund on projects with are covered by the goal of the grant. In Italy the central government and the province of Bozen-Southern Tyrol have arranged special treatments for the University of Bozen, because it is a trilingual university and the province is dominated by a German-speaking majority.
- *Block grant based funding*, The ministry of education transfers to each university or to a assembly of all universities a single block grant. A huge advantage of this form of funding is that the universities receive more flexibility and autonomy to launch their “own” funds, but if the amount of the block grant is not determined by a transparent formula but rather by political goals, the danger of political pork barreling is omnipresent. A interesting solution to avoid such political pork barreling exists in England with the Higher Education Funding Council for England (HEFCE). The HEFCE was founded in 1992 and is not part of the central government or one of its departments. Therefore the HEFCE works within a policy framework set by the Secretary of State for Education and Skills, but is not part of the Department for Education and Skills (DfES).After receiving a block grant from the central government the HEFCE distributes by its independent decision the funds to 87 universities and 45 specialist institutions and general colleges in England.

- *Formula based funding*, The ministry of education allocates the funds to the university based on a general formula. The factors of these formulas can be input-orientated – like the number of enrolled students at the universities, the number of employed staff at the universities or the salary amount of the university staff – or output-orientated, e.g. the number of students who are completing a university degree or the number of research publications in referred journals. In Switzerland, the central government uses input-orientated factors for its formula to determine its basic subsidies to the universities as well as the horizontal, inter-cantonal education equalisation system. The respective formulas mainly consider the number of enrolled students for the legal duration of their studies at each university and weigh the academic disciplines differently, e.g. a PhD student has more weight than a bachelor student and a physics student has more weight than a business administration student. An output-orientated formula based funding can be found in Denmark. In 1994 the taximeter model was used for the university for the first time and the Danish tertiary education institutions do not receive any funds for students who do not take exams or who fail their exams.²⁶ Using such an allocation mechanism, the taximeter model creates such positive incentives for the universities to reduce the duration of study and the dropout rates of the students. But on the other hand, a strict teaching quality control is necessary, because for a faculty or university it is now attractive to lower the work effort or to shift the failed student just to the lowest mark for passing the exam.
- *Contract based funding*, The ministry of education distributes the funds to the universities based on a contract. The contract includes general goals and a very detailed description for the universities and can be input or output-orientated. Moreover, in contracts with a medium or long term duration it is possible to incorporate some penalties if one of the contract party does not comply with the contract; e.g. the central government can hold back or even cut the funds in a three-year contract, if the university does not uphold the contract. A perennial contract based funding provides the universities with planning reliability and fund autonomy as long as they receive the goals and on the other hand the ministry of education is able to control and, if necessary, to punish the universities. In France the ministry of education accredits all degree programmes of the universities. Since 1989 the universities have had to renew their accreditation every four years and the ministry of education uses this procedure to evaluate the university and conclude individual contracts with each university. Indeed the funds of the contracts from the central government are not that important like the salary of university staff or the subsidies for the maintenance of the buildings, but the French universities take these

reaccreditations very seriously. In Austria the central government concludes with every university an individual performance agreement (*Leistungsvertrag*) for a term of three years. The university develops the draft of the performance agreement, which can be negotiated between the university and the ministry of education. Compared to France, the Austrian contract funding is very embarrassing, because with the new three year period starting in 2007 nearly 80 % of the transfers from the central government to the university are determined by the contract. Furthermore, the Austrian ministry of education has implemented a strict funds reduction if the universities default.

- *Competitive funds (mainly for research expenditure) based funding*, The ministry of education announces a tender of funds and the universities submit their proposal for receiving the funds. The competitive element of this allocative mechanism is that not every proposal of the university can be fulfilled and based on the evaluated ranking – this ranking can be arranged by the ministry of education itself or an independent evaluation institution – only a minority of universities or even one university receive the funds. Competitive funds are mainly used for funds regarding the research of universities in Europe. Since 1951 in Germany the German Research Foundation (DFG – *Deutsche Forschungsgemeinschaft*) has existed and it is funded by the central government and 16 states.²⁷ Every university, faculty or even a academic person can submit their proposal for research funding to the DFG and the DFG rejects or approves the proposal. The politicians of the central government and the states are represented in all decision-making bodies, whereas scientists and academics hold the majority on the DFG boards. Fairly similar institutions to the German DFG are the Austrian Science Fund (*FWF*), the Swiss National Science Foundation (*SNF*), the Belgian National Fund for Scientific Research (*FNRS*), the Spanish Office for Science and Technology (*OCYT*), the Italian National Research Council (*CNR*), the French National Scientific Research Centre (*CNRS*), the Danish National Research Foundation (*Grundforskningsfonden*) and the Swedish Research Council (*Vetenskapsrådet*). In the United Kingdom no single institution exists which includes research funding of all relevant scientific disciplines; rather, a number of different public research funding institutions can be found and the most important are the Economic and Social Research Council (*ESRC*), the Engineering and Physical Sciences Research Council (*EPSRC*) and the Medical Research Council (*MRC*).
- *Registration fee based funding*, A further option for the ministry of finance is that universities obtain the permission to ask the students for a registration fee or even general tuition fees. In Europe a tuition fees free study is a “holy cow”, because in some countries

– namely in France and in the Scandinavian countries – free education access is the goal of the politicians as well the majority of the voters. The supporters of the idea to avoid tuition fees believe that education is a public good and tuition fees will prevent potential students from blue-collar families from embarking on a university career and only students from rich families will be able to go into higher education. It is undoubtedly true that tertiary education has a positive impact on a nation's economy and therefore a complete private university system is not reasonable. However, the policy of banning tuition fees, which was practised in Germany and France over decades, has not generated a higher portion of students from blue-collar families in the universities compared to countries with tuition fees. The United Kingdom introduced tuition fees in 1998 and Austria, Spain and Italy and Portugal have since followed suit. In Germany with the strong position of the 16 states in all education affairs the situation exists that some states have recently introduced tuition fees while the majority of the states still forbid the universities to use such a revenue source from the direct education consumer.²⁸

Additionally to the different financing systems of the universities in Europe we present some good samples of the administration and funding of the primary and secondary schools. Since 1814 the right of a seven-year education has existed in Denmark and the institution of a comprehensive school (*Folkeskole*) is therefore even older than the first Danish constitution of 1849. Today the *Folkeskole* is a municipal matter and the central ministry of education fixes only the minimum number of teaching hours per pupil or the general goal of the curriculum and publishes curriculum guidelines for the individual subjects.²⁹ The published curriculum guidelines are recommendations and as such are not mandatory as long as the general goals of the curriculum are not undermined. For this reason each Danish municipality is responsible for all elements of the *Folkeskole* like planning and the establishment of the school, hire and fire of the teachers as well as the school head, the size of a class and the number of teaching hours. The municipalities themselves are able to delegate some of the decisions or even all decisions regarding the local *Folkeskole* to elected school boards (*Skolebestyrelse*). The school boards are elected bodies consisting of the pupil, the parents of the pupils and the school head. The pupils are elected for one school year and the parents, who have the majority of seats of the school board, have a legislative period of four years. The school board decides about the textbooks, the distribution of the school budget funded by a block grant by the municipalities and, if the municipalities have delegated this right, about the class size, number of teaching hours and the teacher selection as well as the teacher salary.

Furthermore, in Denmark a transparent regulation of funding of primary and secondary private schools exists. Parents are free to decide to send their children instead of a public Folkeskole to a private school and the state will cover 80-85 % of the total current expenditure cost of the school and the remaining 15-20 % of the current education cost has to be paid by the parents themselves. The private school has to be non-profit orientated and not linked to other private schools. Private schools have to generate their own “starting school budget” and construct their school building without any public financial support and receive the public funds after the first school year. The private schools have to create, like the Folkeskole, school boards on which the parents also have the majority of the seats. The majority of the Danish private schools are Christian religious schools, Rudolf Steiner schools, German minority schools or Muslim³⁰ religious schools.

In England compulsory education from the age of 5 to 16 exists and the majority of the primary and secondary schools are comprehensive schools, however in a small number of areas a grammar school system also exists. A uniform curriculum, which is divided into four “Key Stages”, four nationwide pupils tests, which are externally set and marked, and final uniform examinations tests (General Certificate of Secondary Education) are further features of the English education system. Due to the standardised national examinations it is possible to receive a good measurement of the education output in England as well as of each individual school. Especially the school performance – since 1992 published by the so-called “League tables” – are a well known indicator for the parents to compare the school of their children and for the teacher to compare their effort and results with similar schools.

The Education Reform Act of 1988 introduced a “*market type mechanism*” (Glennerster, 1991, page 1268), because – besides the introduction of the uniform examination test and the establishment of a new type of school³¹ – the parents receive an increasing choice of the schools to which the parents can send their children. The reform process was concluded by the fact that the schools were funded mainly by the number of enrolled pupils, the school has to accept new pupils until they receive the capacity limit and the school boards receive more responsibility from the local authorities.

Under the aspect of strengthening accountability, the Education Reform Act of 1988 is reasonable, because the consumers of education are able to make their decision on the basis of better information, the providers of education have an incentive to attract more consumers and the bureaucrats and the politicians have decentralised the daily business of the school to a school board and can develop general goals for a uniform curriculum.

5. Conclusion and policy implications

During the last few years, countless studies have looked at decentralisation trends worldwide and at the practical implementation of fiscal federalism. Many studies have analysed the impact of fiscal federalism on the size of government (for a good overview see Feld, Kirchgässner and Schaltegger, 2003) or observed the impact of decentralization on economic growth (see, e.g., Davoodi and Zou, 1998) and stability (for example, Fukasaku and de Mello (1998) and Prud'homme, 1995). Recent studies have also investigated the relationship between decentralisation of government activities and corruption (Treisman, 2000; Tanzi, 2000; Fisman and Gatti, 2002), democratic participation (Huther and Shad, 1998) or tax morale (Torgler and Werner, 2005). However, in many areas the empirical evidence is mixed, which indicates the relevance to present more empirical results.

The goal of this paper was to provide a brief overview of the general intergovernmental transfer structure in ten European countries and how the educational costs are considered in the respective transfer and grant system. Moreover, we have tried to classify the different conceptions and regulations, present the current reform process in every country and point out the strengths and weaknesses education system.

However, we do not suggest that any of the ten European systems is the “unique golden example” for other industrialised or developing countries at all, because in the area of fiscal federalism and intergovernmental transfer system it is obvious that the phrases “one size fits all” is quite redundant. For a developing county the benefits of a detailed expenditure needs equalisation system like in the Nordic countries could be lower if the intensive cost to provide and prepare the necessary statistical data is borne in mind. Also, the reasonable horizontal education equalisation system between the Swiss cantons in University financing to reduce the spillover effect can develop its full successful impact only in a country which has a high subnational tax sovereignty and direct democracy options. Furthermore, a university building planning commission like in Germany needs a political background, which is described by Spahn and Franz quite skilfully as “*Consensus Democracy and Interjurisdictional Fiscal Solidarity*” (Spahn and Franz, 2002, page 122).

Nevertheless, the presented European transfer systems and their impact on the education system can be used as a spin-off for various sectors of fiscal reforms. Therefore, it will be interesting to observe whether fiscal federalism reform tendencies in the mentioned ten European countries will have an impact on education in Europe in the future.

6. Appendix

Table A1: Survey of some empirical research results offactors which affect the education output

Factor	Empirical result	Literature
<i>Personal situation of the pupil:</i>		
Socio-economic background of the pupil	Pupils with academic parents and high number of available books at home reach better performance than pupils from blue collar families and a lower number of books	Entwilese, Alexander and Olson, 1997; Albouy and Waneck, 2003, Plug, 2004; Schütz, Ursprung and Wößmann, 2005; Schütz and Wößmann, 2005
Pupils from immigrants	Pupil with a migration background poll badly, however the main reason for this circumstance can be found in their socio-economic background	Entorf and Minoiu, 2005
Gender of the pupil	Female pupils have a better reading performance than male pupils, while male pupils in general perform better in Mathematic and Natural Science than female pupils	Fuchs and Wößmann, 2004a
<i>Equipment and personal resources of the school</i>		
Total expenditure per pupil	No significant effects on the pupil performance	Hanusek, 2003
Class sizes	No significant effects on the pupil performance	Meuret, 2001; Hanushek, 2003; Wößmann, 2005
Ratio of computers per pupil	No significant effects on the pupil performance	Fuchs and Wößmann, 2004b
General teaching materials	Textbooks and construction materials have the highest impact of all education utilities on pupils' performance	Pritchett and Filmer, 1999; Fuchs and Wößmann, 2004a
<i>Institutional environment</i>		
Infantile education / preschool	Positive effect on the pupil performance, especially on pupils with a migration background	Currie, 2001; Cunha, Heckman, Lochner, and Masterov, 2005
Ratio of trade union members per total number of teachers	Negative effect on the pupil performance	Hoxby, 1996
Competition between private and public, state run schools	Positive effect on the pupil performance	Neal, 2002; Hoxby, 2003

Source: own illustration mainly adapted by Wößmann, 2006

Table A2: Distribution of the tax revenues in Austria between the Bund, states and municipalities in 2001 and 2005

	2001				2005			
	Bund	States	Municipalities	€ billion	Bund	States	Municipalities	€ billion
Tobacco tax	100 %	--	--	1.234	73.204 %	15.191%	11.605%	1,337
Insurance tax	100 %	--	--	0.814	73.204 %	15.191%	11.605%	1,135
Payroll tax	100 %	--	--	3.876	73.204 %	15.191%	11.605%	2.071
CIT	71.891 %	14.941 %	13.168 %	6.235	73.204 %	15.191%	11.605%	4,418
PIT	71.891 %	14.941 %	13.68 %	3.814	73.204 %	15.191%	11.605%	2.235
Wage tax	71.891 %	14.941 %	13.168 %	15.154	73.204 %	15.191%	11.605%	16.414
VAT	67.437 %	18.341 %	14.222 %	16.48	73.204 %	15.191%	11.605%	17,94
Tax on mineral oil	91.91 %	6.75 %	2.394 %	2.880	73.204 %	15.191%	11.605%	3.565
Property tax	--	--	100 %	0.479	--	--	100 %	0.523 *
“local tax”	--	--	100 %	1.797	--	--	100 %	1.946 *
Petty taxes	--	--	100 %	0.734	--	--	100 %	0.734 *

* = tax revenues in 2004

Source: Werner, forthcoming

Table A3: Tax revenue assignments in Germany between the central government, the federal states and the municipalities in 2003

	Central Government	States	Municipalities	Revenues in 2001
Consumption tax	100 %			€ 60.75 billion
Inheritance tax		100 %		€ 3.069 billion
Property tax			100 %	€ 9.076 billion
PIT	42.5 %	42.5 %	15 %	€ 141.396 billion
Value added tax	51.4 %	46.5 %	2.1 %	€ 138.935 billion
CIT	50 %	50 %		€ - 0.426 billion
Interest rebate	44 %	44 %	12 %	€ 29.846 billion
Trade tax	14.8%	7.7%	77.5 %	€ 24.533 billion

Source: Werner, 2003, page 83

Table A4: Fixed portion from tax-sharing for the five Italian Special Statute Regions (SSR)³²

	Valle d'Aosta	Trentino-Alto Adige	Sicily	Sardinia	Friuli-Venezia Giulia
PIT	90%	90%	100%	70%	40%
CIT	90%	90%	100%	70%	40%
Interest rebate	90%	90%	90%	--	--
Stamp tax	90%	90%	90%	90%	--
TV tax	--	90%	100%	--	--
Motor vehicle tax	90%	90%	100%	--	--

Table A4: Fixed portion from tax-sharing for the five Italian Special Statute Regions (SSR)

	Valle d'Aosta	Trentino-Alto Adige	Sicily	Sardinia	Friuli-Venezia Giulia
Inheritance tax	90%	90%	100%	50%	--
Alcohol tax	90%	90%	100%	90%	--
Beer tax	90%	90%	90%	90%	--
Tax on mineral oil	90%	90%	100%	90%	--
Electricity tax	90%	100%	90%	90%	100%
Tobacco tax	90%	90%	100%	90%	--

Source: Brosio, 2004, page 19

Table A5: Distribution of the tax revenues in Spain between the central government (CG), the regions and the municipalities for 2002-2006

	"Foral" regions and CG			15 regions and CG		
	CG	Region	Municipalities	CG	Region	Municipalities ³³
Personal income tax	--	100%	--	67%	33%	--
Corporate income tax	--	100%	--	100%	--	--
Value added tax	--	100%	--	65%	35%	--
Tax on mineral oil	--	100%	--	60%	40%	--
Tobacco tax	--	100%	--	60%	40%	--
Alcohol tax	--	100%	--	60%	40%	--
Property tax	--	--	100%	--	--	100%
Insurance tax	--	100%	--	100%	--	--
Local trade tax	--	100%	--	--	--	100%
Tax on vehicles	--	--	100%	--	--	100%
Tax on vehicle accreditation	--	100%	--	--	100%	--
Tax on electricity	--	100%	--	--	100%	--

Source: author's own illustration

7. References

- Albouy, Valerie / Waneck, Thomas (2003) : Les ine´galite´s sociales d'acce`s aux Grandes Ecoles in *Economie et Statistique*, Number 361, page 27–47.
- Brosio, Giorgio (2004): *Intergovernmental relations in Italy*, Survey report No. 5 on European Fiscality by the l'Institut de Recherches Economiques et Fiscales, Paris / France: l'Institut de Recherches Economiques et Fiscales
- Bundesministerium für Bildung, Wissenschaft und Kultur (BMK) (2005): *Statistisches Taschenbuch*, 1.Edition, Vienna / Austria: Bundesministerium für Bildung, Wissenschaft und Kultur.
- Bundesministerium für Finanzen (BfF) (2006): *Bundesfinanzgesetz 2006 – Beilagen*, 1.Edition, Vienna / Austria: Bundesministerium für Finanzen.

- Bundesamt für Statistik (2005): *Finanzen der universitären Hochschulen*, 1.Edition, Neuchatel / Switzerland: Bundesamt für Statistik.
- Caille, Jean P. (2001) : Les collégiens de ZEP à la fin des années 90: caractéristiques des élèves et impact de la scolarisation en ZEP sur la réussite in *Education et Formations*, Volume 61, Issue 1, page 111–140.
- Clark, Demon (2005) : *Politics, Markets and Schools: Quasi-Experimental Evidence on the Impact of Autonomy and Competition from a Truly Revolutionary UK Reform*, Mimeo.
- Currie, Janet (2001): Early Childhood Education Programs in *Journal of Economic Perspectives*, Volume 15, Issue 2, page 213–238.
- Cunha, Flavio / Heckman, James J. / Lochner, Lance and Masterov, Dmitry V. (2005): Interpreting the Evidence on Life Cycle Skill Formation, *NBER Working Paper 11331*, Cambridge / USA.
- Dafflon, Bernard (2004): *Federal-Cantonal Equalisation in Switzerland: An Overview of the Present System and Reform in Progress*, Working Paper No 356 of BENEFRI Centre d'Études en Économie du Secteur Public (CÉÉP), Faculté des Sciences Economiques et Sociales, University of Freiburg / Switzerland.
- Davoodi, Hamid / Zou, Heng fu (1998): Fiscal Decentralization and Economic Growth: A Cross-Country Study in *Journal of Urban Economics*, Volume 43, Issue 2, page 244--257.
- Duss, Roland / Bird, Richard M. (1979): Switzerland's Tax Jungle in *Canadian Tax Journal*, Volume 27, Issue 1, page 46-67.
- Entorf, Horst / Minoiu, Nicoleta (2005): What a Difference Immigration Policy Makes: A Comparison of PISA Scores in Europe and Traditional Countries of Immigration in *German Economic Review* Volume 6, Issue 3, page 355–376.
- Entwisle, Doris R. / Alexander, Karl L. and Olson, Steffel L. (1997): *Children, Schools, and Inequality*, 1.Edition, Colorado / USA: B. Westview Press.
- European Commission (2005): *Schlüsselzahlen zum Bildungswesen in Europa 2005*, 1.Edition, Brussels / Belgium: Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaften.
- Feld, Lars P. / Kirchgässner; Gebhardt and Schaltegger, Christoph A. (2003): *Decentralized Taxation and the Size of Government: Evidence from Swiss State and Local Government*, Working Paper of Phillips-University of Marburg.
- Fisman, Raymond / Gatti, Roberta (2002): Decentralization and Corruption: Evidence Across Countries in *Journal of Public Economics*, Volume 83, issue 3, page 325-345.
- Frey, Bruno / Eichenberger; Reiner (1995): Competition among Jurisdictions: The Idea of FOCJ in Lüder, Gerken (ed.), *Competition among Jurisdictions*, 1.Edition, London / United Kingdom: Macmillan.
- Fuchs, Thomas / Wößmann, Ludger (2004a): What Accounts for International Differences in Student Performance? A Re-examination Using PISA Data, *CESifo Working Paper 1235*, München / Germany.

- Fuchs, Thomas / Wößmann, Ludger (2004b): Computers and Student Learning: Bivariate and Multivariate Evidence on the Availability and Use of Computers at Home and at School in *Brussels Economic Review*, Volume 47, Issue 3-4, page 359–385.
- Fukasaku, Kiichiro / de Mello, Luiz (1998): Fiscal Decentralization and Macroeconomic Stability: The Experience of Large Developing Countries and Transition Economies in Fukasaku, Kiichiro and Hausmann, Ricardo (ed.), *Decentralisation and Deficits in Latin America*, 1.Edition, Paris / France: OECD
- Gérard, Marcel (2001): *Fiscal Federalism in Belgium*, Paper for the conference on Fiscal Imbalance in Quebec City / Canada at September 13-14, 2001.
- Gershberg, Alec I. / Winkler, Donald R. (2003): *Education Decentralisation in Africa: A Review of Recent Policy Practise*, mimeo
- Glennerster, Howard (1991): Quasi-markets for education? in *Economic Journal*, Volume 101, Issue 408, page 1268-1276.
- Guengant, Alain / Josselin, Jean-Michael (2006): Local Power to Tax and Devolution: An Empirical Assessment of the French Constitutional Reform, Working paper 12-2006 of the Centre for Research in Economics and Management at the Universities of Rennes 1 and Caen
- Guihéry, Laurent / Werner, Jan (2005): Les finances publiques en Allemagne - Quelles réformes? in *Revue de l'OFCE*, Volume 94, page 111-137.
- Gundlach, Erich / Gmelin, Jens and Wößmann, Ludger (2001): The Decline of Schooling Productivity in OECD Countries in *Economic Journal*, Volume 111, Issue 471, page 135–147.
- Hanushek, Erich A. (2003): The Failure of Input-Based Schooling Policies in *Economic Journal* Volume 113, Issue 485, page F64–F98.
- Hoxby, Caroline M. (1996): How Teachers' Unions Affect Education Production in *Quarterly Journal of Economics*, Volume 111, Issue 3, page 671-718
- Hoxby, Caroline M. (2003): School Choice and School Competition: Evidence from the United States in *Swedish Economic Policy Review* Volume10, Issue 3, page 9–65.
- Huther, Jeff / Shah, Anwar (1998): *Applying a Simple Measure of Good Governance to the Debate on Fiscal Decentralization*, World Bank Policy Research Working Paper No. 1894
- Krueger, Alan B. (2003): Economic Considerations and Class Size in *Economic Journal* Volume 113, Issue 485, page 34–63.
- Meuret, Denis (1994): L'efficacité de la politique des zones d'éducation prioritaires dans les collèges in *Revue française de Pédagogie*, n° 109, page pp. 41-64.
- Meuret, Denis (2001) : *Les Recherches sur la réduction de la Taille des Classes*, Rapport pour le Haut Conseil de l'Evaluation de l'Ecole, Paris /France.
- Neal, Derek A. (2002): How Vouchers Could Change the Market for Education in *Journal of Economic Perspectives* Volume 26, Issue, page 25–44.

- Office of the Deputy Prime Minister (ODPM) (2005): Local Government Financial Statistics England No.16, 1.Edition, London / United Kingdom: Office of the Deputy Prime Minister
- Planungsausschuß für den Hochschulbau (UBPC) (2005): 34. Rahmenplan für den Hochschulbau nach dem Hochschulbauförderungsgesetz 2005–2008, 1. Edition, Berlin / Germany: Planungsausschuß für den Hochschulbau.
- Plug, Erik (2004): Estimating the Effect of Mother's Schooling on Children's Schooling Using a Sample of Adoptees in *American Economic Review* Volume 94, Issue 1, page 358–368.
- Pritchett, Lant / Filmer, Deon (1999): What Education Production Functions Really Show: A Positive Theory of Education Expenditure, *Economics of Education Review*, Volume 18, Issue 2, page 223–239.
- Prud'homme, Remy (1995): Dangers of Decentralization in *World Bank Research Observer*, Volume 10, Issue 2, page 201-210.
- Prud'homme, Rémy (2006): Local Government Organization and Finance in France in Shah, Anwar (ed.), *Local Governance in Industrial Countries*, 1.Edition, Washington, DC / USA: World Bank.
- Schaltegger, Christoph A. / Frey, René (2003): Finanzausgleich und Föderalismus: Zur Neugestaltung der föderalen Finanzbeziehungen am Beispiel der Schweiz in *Perspektiven der Wirtschaftspolitik*, Volume 4, Issue 2, page 239-258.
- Schütz, Gabrielle / Ursprung, Heinrich W. and Wößmann, Ludger (2005): Education Policy and Equality of Opportunity, *CESifo Working Paper* 1518, München / Germany.
- Schütz, Gabrielle / Wößmann, Ludger (2005): Chancengleichheit im Schulsystem: Internationale deskriptive Evidenz und mögliche Bestimmungsfaktoren, *Ifo Working paper* 17, München / Germany.
- Shah, Anwar (1995): Theory and Practise of Intergovernmental Transfers in Ahmad, Ehtisham / Qiang, Gao / Tanzi, Vito (ed.), *Reforming China's Public Finance*, 1. Edition, Washington, DC / USA: International Monetary Fund.
- Spahn, Paul Bernd, / Franz, Oliver (2002): Consensus Democracy and Interjurisdictional Fiscal Solidarity in Germany in Ahmad Ehtisham and Vito Tanzi (eds.), *Managing Fiscal Decentralization*, Routledge Studies in the Modern World Economy, 1.Edition London, Routledge Taylor & Francis Group.
- Spahn, Paul Bernd / Werner, Jan (forthcoming): Germany at the Junction between Solidarity and Subsidiarity in Richard Bird und Robert Ebel (ed.), *Fiscal Fragmentation in Decentralized Countries: Subsidiarity, Solidarity and Asymmetry*, Cheltenham / United Kingdom: Edward Elgar Publishing.
- Tanzi, Vito (2000): Some Politically Incorrect Remarks on Decentralisation and Public Finance in Dethier, Jean-Jaques (ed.), *Governance, Decentralisation and Reform in China, India and Russia*, 1.Edition, Dordrecht / Netherlands: Kluwer Academic Publisher

- Treisman, Daniel (2000): The Causes of Corruption: A Cross-National Study in *Journal of Public Economics*, Volume 76, Issue 3, page 399-457.
- Van der Stichele, Géraldine / Verdonck, Magali (2001): Les modifications de la loi spéciale de financement dans l'accord du Lambert in *Courrier Hebdomadaire*, Volume 43, Issue 1733, page 1-52.
- Werner, Jan / Xue, Wue (2004): **德国联邦州之间的财力均衡** in *政研究*, Volume 5, Issue 7, page 63-65.
- Werner, Jan / Guihéry, Laurent and Djukic, Ognjen (2006): *Fiscal Federalism in Bosnia and Herzegovina: Ten Years after the Dayton Treatment and Still not in a Steady Condition*, Paper presented at the 62nd Congress of the International Institute of Public Finance in Patmos / Cyrus.
- Werner, Jan / Shah, Anwar (forthcoming). Horizontal Fiscal Equalization at the Local Level: The Practice in Denmark, Norway and Sweden in Shah, Anwar (ed.), *Macrofederalism and local Finance*, 1.Edition, Washington, DC / USA: World Bank..
- Werner, Jan (2003): El federalismo Alemán: en Estado de Fluctuación in *Zergak Gaceta Tributaria del Pais Vasco*, Volume 25, Issue 3, page 81-114.
- Werner, Jan (forthcoming): *Das deutsche Gemeindefinanzsystem: Reformvorschläge im Kontext der unterschiedlichen Einnahmenautonomie der lokalen Gebietskörperschaften in Europa*, 1.Edition, Frankfurt am Main / Germany: Peter Lang:.
- Winkler, Donald R. (1989): *Decentralisation in Education: An Economic Perspective*, Working Paper No. 143 of Population and Human Resources Department of the World Bank, 1.Edition, Washington, DC / USA: World Bank.
- Winkler, Donald R. (1989): *The Design and Administration of Intergovernmental Transfers: Fiscal Decentralization in Latin America*, World Bank Discussion Paper No. 235, 1.Edition, Washington, DC / USA: World Bank.
- Wößmann, Ludger / West, Martin R. (2006): Class-Size Effects in School Systems Around the World: Evidence from Between-Grade Variation in TIMSS in *European Economic Review*, Volume 50, Issue 3, page 695-736.
- Wößmann, Ludger (2003): Schooling Resources, Educational Institutions and Student Performance: the International Evidence in *Oxford Bulletin of Economics and Statistics* Volume 65, Issue 2, page 117-170.
- Wößmann, Ludger (2006): Bildungspolitische Lehren aus den internationalen Schülertests: Wettbewerb, Autonomie und externe Leistungsüberprüfung in *Perspektiven der Wirtschaftspolitik*, Volume 7, Issue 3, page 417-444.

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jan.werner@publicfinance.de Anwar Shah, World Bank, 1818 H-Street NW, Washington, DC 20433, U.S.A, email: ashah@worldbank.org. The findings, interpretations, and conclusions expressed in this paper are entirely those of the author. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent.

² For Switzerland the data for the school year of 1999 / 2000 have been used.

³ If in a country exists a distinction between small and bigger schools we used always the salary data of the bigger school. For Sweden exist no general data for such a salary overview and for Belgium we used the salary arrangement of the Flemish community and for the United kingdom we exclude the Scottish salary structure and mentioned the general average of England, Wales and Northern Ireland.

⁴ The majority of these empirical observations are focusing on the impact of reducing the class size to improve the pupil qualification.

⁵ An overview of some empirical research results are located in the appendix.

⁶ The classification is mainly adapted by Winkler, 1989 page 5-11; Winkler 1994, page 19 as well as Gersberg and Winkler, 2003, page 2-7.

⁷ Spain can be placed into this group as well, because the delivery of educational services is mainly the responsibility of the seventeen Autonomous Communities. The Autonomous Communities also regulate school programmes beyond the minimum structure and content determined by the State. However, how important such minimum structure could be politically developed, can be observed in the bilingual education in Catalan and Spanish in the Autonomous Community of Catalonia, which is one example of the famous pork barreling politics in Spain. Moreover, the university education in Spain is regulated by the State through the Ministry of Education and Culture and therefore we have decided Spain should not be put into the same class as Switzerland and Belgium.

⁸ In Austria the salaries of the teachers for the primary schools, for one wing of the secondary schools (*Hauptschule*) and for the polytechnic institutes (*Polytechnischen Schulen*) are completely financed by the central government.

⁹ In Belgium some differences exist between the French, the Flemish and the German (speaking) communities. In Belgium the investments in school buildings are financed by the upper-local authorities (provinces) or directly by the school, which is itself mainly financed by the municipalities.

¹⁰ In Denmark the costs of primary and secondary schools are borne by the municipalities or directly by the respective school, which has a global budget financed by the municipalities.

¹¹ In some German states the municipalities instead of the upper-local authorities (*Landkreise*) are responsible for the maintenance and construction of new primary schools.

¹² In Italy the teachers of the primary and secondary schools are civil servants of the central government and the level of the teacher salaries is mostly equal in Italy. However, in some tiers of government with a highly autonomous status, like the province of Bozen-Southern Tyrol, the administration of the teachers is enforced by upper-local administrations. Moreover, the province of Bozen-Southern Tyrol, with its own laws and different salary brackets, can offer its teachers higher salaries. These higher salary brackets are necessary, because the pupils are sometimes educated in a trilingual manner (German, Italian and Ladin). Furthermore, the central government and the province of Bozen-Southern Tyrol have also arranged special treatments for the University of Bozen.

¹³ The Danish Evaluation Institute (EVA) evaluates the teachers as well as the schools at all levels of the education system. EVA is a self-governing institution, which conducts evaluations both on its own initiative and upon request from the central ministry of education, local authorities or the school boards.

¹⁴ In France exists 30 *académies* each headed by a rector, which is fully responsible on behalf of the central minister of education. A single *académie* observes the schools of several *département*.

¹⁵ The National Institute for the Evaluation of the Education and Training System (INVALSI) conduct the nationwide evaluation of the school and the respective pupils performance of the schools.

¹⁶ Ofsted conducts the evaluation of the schools in England and is a non-ministerial government department accountable to Parliament. The counterpart of Ofsted is in Wales the Estyn and in Northern Ireland the ETI.

¹⁷ An overview of the tax sharing in Austria, Germany, Italy and Spain is located in the appendix.

¹⁸ However, the Belgian "VAT grant" is not a classical grant, because it is completely financed by the VAT tax revenues.

¹⁹ 5 % based on the population number and 5 % for equalisation purposes between the cantons.

²⁰ Based on article 91 a and article 91 b of the German constitution (*Grundgesetz*)

²¹ Research apparatuses and equipments with value of over 125,000 € are also included in this common task.

²² The maximum volume of the total states portion amounts € 12,370 billions for 2005-2008, but the Bund has fixed only his part for the fiscal year of 2005 with € 925 millions yet.

²³ The new § 132 of the Swiss constitution introduces a tax sharing at the withholding tax, in which the cantons are receiving 10 % of the whole tax yield (5 % based on the population number and 5 % for equalisation purpose between the cantons.) Moreover, Switzerland has recently approved a new inter-cantonal fiscal

equalisation system (*Neuer Finanzausgleich*, NFA) and this equalisation system will be fully implemented in 2008 (see Schaltegger and Frey, 2003 as well as Dafflon, 2004).

²⁴ The tax base of the council of every local authority is considered also in the formula, but the impact towards the final grant from the central government towards the respective local authority is quite small.

²⁵ For the „Fire and Rescue“ component the average number of absent pupils of primary school age is regarded. However, the impact of this factor is small in the formula and is also indirectly linked to educational cost.

²⁶ However, it has to be borne in mind that this feature is only one of the four components of the complete taximeter model.

²⁷ In 2004 the DFG has a budget of € 1.351 billion and is funded by 58 % by the central government and by 42 % by the 16 federal states.

²⁸ In 2005, the German supreme court in Karlsruhe ruled that individual states could introduce fees at university, effectively ending the principle of free education in Germany that had survived since the 1960s. Five states ruled by Germany's conservatives - Bavaria, Baden-Wuerttemberg, Hamburg, Lower Saxony and Hesse have introduced or prepared the respective laws for fees of around € 500.

²⁹ A further feature of the Danish Folkeskole is that it is not an examination-oriented school and therefore a pupil attends a class with pupils of the same age and repeaters are quite rare. Pupils can repeat a class only under special circumstances and with the consent of the pupils' parents. A final examination exists only after leaving the comprehensive school.

³⁰ The majority of the Moslem immigrants – mainly from Turkey – prefer to attend the public comprehensive schools and the immigrants in Denmark are included in the daily school lives more than in France or Germany.

³¹ A detailed description of the Grant Maintained schools can be found in Clark, 2005.

³² In Italy the 20 regions are divided into 15 Ordinary Statute Regions (*a statuto ordinario*, OSR) and five Special Statute Regions (*a statuto straordinario*, SSR). Similar to the two Spanish “foral” Autonomous communities, the five SSR receive a higher tax-sharing portion than the 15 OSR, but on the other hand they are not included in the equalisation system and receive only vertical grants from the central government.

³³ Since 2004, cities with more than 50,000 inhabitants and capitals of provinces have received 1.6975 % of the PIT, 1.7897 % of the VAT and 2.0454 % of the consumption taxes. Moreover, cities with a population between 20,000 and 75,000 and with a high number of tourists received also a fixed portion from the tax on mineral oil and the tobacco tax. Furthermore, the provinces participated at the tax sharing at the PIT, VAT the consumption taxes since 2004. Due to this new introduced tax sharing between local authorities and the central government a huge number of vertical grants were abolished.