DEVELOPMENT OF LOCAL PUBLIC FINANCE IN EUROPE

PETER FRIEDRICH
JOANNA GWIAZDA
CHANG WOON NAM

CESIFO WORKING PAPER NO. 1107
CATEGORY 1: PUBLIC FINANCE
DECEMBER 2003

CESifo *Working Paper No. 1107*

DEVELOPMENT OF LOCAL PUBLIC FINANCE IN EUROPE

Abstract

This paper investigates the development of local public finance in Germany, Switzerland, Poland and the United Kingdom. In this context important characteristics of municipal expenditures and revenues are examined in these countries. Differences in government structure (i.e. unitary or federal) do not appear to have a crucial role for municipal finance. The ways to protect local fiscal autonomy are discussed in the framework of the vertical fiscal equalisation system. In particular the application of the principle of parallel fiscal development between a state and its municipalities is examined.

JEL Classification: H7, H2, H4, H6, H8.

Keywords: municipal finance, fiscal autonomy and decentralisation, intergovernmental transfers, Europe.

Peter Friedrich
University of the Federal Armed Forces
Munich
Werner-Heisenberg-Weg 39
85579 Neubiberg
Germany
peter.friedrich@unibw-muenchen.de

Joanna Gwiazda
University of Agriculture
Ul. Orlat Lwowkowskich 38/51,02-495
Warsaw
Poland
jmlg@poczta.onet.pl

Chang Woon Nam
Ifo institute for Economic Research
Poschinger Str. 5
81679 Munich
Germany
nam@ifo.de

This paper was presented at the 50th Annual North American Meetings of the Regional Science Association International (RSAI) in Philadelphia in 2003.

1. Introduction

In several European countries a large number of municipalities suffer from fiscal stress due to various reasons.[1] Municipal finance through public debt, local fees, profits from municipal enterprises, sales of property has already reached natural or institutional limits. The fiscal autonomy of municipalities is weakening rapidly as municipal expenditures rise while revenues decrease.

Adapting the system of intergovernmental fiscal relations to the new circumstances is a challenge. The allocation of tasks and the distribution of financial resources between the tiers of government is particularly important. In Germany the latter involves the systems of vertical financial relations among EU, federal government and states (Bund-Länder Finanzausgleich), the horizontal equalisation among states (Länderfinanzausgleich) and the vertical intergovernmental relations between a state and its municipalities (kommunaler Finanzausgleich). Local finance and municipal fiscal autonomy is thus influenced by all three systems.

When considering the assignment of tasks among the levels of government and the related financial coverage, the prevailing constitutional competencies should ideally be related to the connection principle, which suggests that public tasks should only be shifted or newly introduced to a local level if federal and state governments provide municipalities with sufficient financial means to execute these additional functions. In the framework of vertical intergovernmental resource allocation system conditional grants may serve to prevent fiscal autonomy of municipalities. Many experts argue for a clearer separation of tax resources and fiscal autonomy among the tiers of government, in particular between states and municipalities.

Fiscal autonomy of municipalities is also indirectly touched by changes in the horizontal fiscal equalisation from the states with above-average to those with below-average fiscal capacity and by changes in vertical fiscal relations between federal and state governments. Local finance is more directly related to the vertical fiscal equalisation between states and respective municipalities. Therefore, fiscal autonomy is strongly influenced by the rules concerning the grant systems that prevail in European countries and by the extent to which public expenditures can be shifted from higher level jurisdictions to municipalities without providing sufficient financial means. We mainly analyse the following questions:

(1) How is public finance differently developed in selected European countries?

---

[1] In Germany, for example, municipalities are confronted with numerous problems: deficient system of intergovernmental fiscal relations, policies of the EU regarding the local economic and social activities, federal policies in the course of European integration, inappropriate privatisation policy, transformation process from socialist to market economy and weak economic growth as well as unfavourable population development.

(2) How can fiscal autonomy of municipalities be protected?
(3) Is the principle of connection applicable for protecting municipal fiscal autonomy?
(4) How can fiscal municipal autonomy be improved within the system of conditional grants?
(5) To what extent does the application of the principle of parallelism in the framework of unconditional grants affect municipal autonomy?

2. Development of Local Public Finance in European Countries

2.1. An Overview on Local Finance in Germany, Poland, Switzerland and the United Kingdom

Four European countries were chosen to survey the development of municipal finance: the UK, Germany, Poland and Switzerland. Germany and the UK are EU members; Germany is also in the euro zone. Poland is an EU candidate. Regarding the national constitution the UK is centrally structured, while Switzerland and Germany are federal states. Poland also guarantees a substantial degree of municipal autonomy but which is limited compared to that of Germany and Switzerland. Moreover, Poland and (the eastern part of) Germany are transition economies. Among the selected EU nations and candidates, Germany is the only country currently suffering from the difficulties of satisfying the Maastricht convergence criteria. Switzerland would probably be at the Maastricht limits if it were a member. The UK and Poland presently belong to those European countries with an above-average GDP growth rate, whereas Switzerland and Germany have recently experienced a rather moderate or low growth. The number of native inhabitants of European origin is gradually shrinking in countries like Germany and the UK. On the other hand, the size of the Swiss population has remained rather stable, whereas this problem is not an important issue in Poland at present.

The relative importance of municipal activities can be expressed by municipal expenditure related to total government expenditures or to GDP shown in Table 1. For a given year of the 1990s these figures for federal countries like Germany and Switzerland do not largely differ from those for the unitary nations such as Poland and the UK. The size of financial transfers indicates the extent of the dependency of municipalities in relation to the higher tiers of government. Its share has recently grown up to over 75% of all British municipal revenues. The comparable share amounts to 60% in Poland. In Germany this kind of dependency is less significant. In Switzerland financial transfers from the cantons cover less than 20% of the municipal expenditures. To a large extent Swiss municipalities cover their expenditures by fees and charges. This source is also significant in Germany but for Poland and the UK its share (of total municipal

revenues) is much lower. The share of tax receipts of total municipal finance is high in Switzerland at about 45%, followed by Poland and Germany at ca. 20%. For the category of municipal borrowings the share for Poland, Switzerland and the UK is negligible. This fact correlates well with the intensity of municipal investment.[2]

2.2. Comparison of the Local Finance Development of the Four European Countries

2.2.1. Comparing Municipal Finance in England and Poland[3]

For both Poland and England, total revenues of municipalities increased greatly over the 10-year periods studied (England: 1990-1999, Poland: 1992/3-2001). In England, total revenues for local authorities increased over 35% in this period (see Table a5 in Annex). Poland achieved a five-fold expansion (Table a6 in Annex). Similar trends for both countries during this time period were: (1) declines in revenues from local taxes, (2) tapering of non-tax revenues, and (3) increase in intergovernmental grants.

In England, the largest categories of expenditures included education, personal social services, protective services and the social housing grant (Table a7 in Annex). In Poland, expenditures on education, transport and telecommunication services, welfare, and public administration increased the most (Table a8 in Annex).[4] On the contrary, a severe decrease in spending was observed for the communal and dwelling economy.

While the central governments in both England and Poland claim that municipalities enjoy ample local governance, constrained fiscal powers through the central government targeting systems or specific grants, for example, create financial bottlenecks for

---

[2] The share of investment outlays to total municipal expenditures has recently amounted to ca. 20% in Germany, 32% in Switzerland and approximately 23% in Poland, whereas the same figure reached only 10% in the UK. The major share of public investments is carried out by municipalities in Germany, whereas the Polish share is also remarkable at over 50%. Although Swiss municipalities have actively invested, their share has reached a relatively low level of under 20%. In the UK local authorities account for app. 40% of general government investment expenditures (Table 1). Access to capital market for municipalities is free in countries like Germany and Switzerland, but this can only be possible with the approval of central governments in the UK and Poland. Borrowings in foreign currency are possible with consent in Germany but quite rare in the UK, Switzerland, and Poland. Rules over terms of loans exist in Germany with regard to asset life, possibility of serving credit through cash flow, etc., while only few rules are found in Switzerland, the UK and Poland (King and Jequier, 2003, p. 20).

[3] England and Poland, two countries with different histories and economic developments, are considerably similar with regards to the structure and development of local government.

[4] In Poland, municipalities only recently were handed over the responsibility of local education at the kindergarten, primary school, and grammar school level. They were not, however, given additional financing for this duty. Similarly, transportation and infrastructure in Poland is often financed through specific grants from the central government.

municipalities. In addition, limitations placed on sources of taxation, rates of taxation, and credit approvals further restrict financial independence.[5]

Access to credit has also been a continual problem for municipalities in England and Poland. In England, the Local Government and Housing Act passed by Parliament in 1989 issued a complicated procedure of credit approvals for all classes of borrowing. Even after the later abolishment of stipulations requiring all local authorities to retain capital receipts in the case of debt, the strict regulations on credit approvals remained intact. Thus, credit remains a small source of income for municipalities in England. In Poland, according to Nam and Parsche (2001), income generated from municipal bonds and commercial/preferential loans amounted to an average of 3% of total income for the time period 1994-98. This minute contribution to yearly income reflects the central government reluctance in allowing municipalities to incur excessive debt, and a desire by central authorities to manage the country's overall debt level.

The development of local finance in Poland was primarily affected by:

- Tax reforms and the ongoing fiscal decentralisation
- Transformation including the privatisation process
- Relatively large sum of intergovernmental transfers
- Increasing financial burden caused by the rapid expansion of expenditure needs
- Rather stable development of investment expenditure of local government
- Strong increase in education expenditure.

The development of local finance in England was primarily affected by:

- Dominant role of the central government for local finance matters
- Decreases in local tax and fee revenues but increases in the size of down-flow grants to municipalities
- Strict standards and guidelines set by the central government for local services and restriction of municipal borrowing
- Gradually decreasing local capital expenditures
- Dominance of education expenditure gradually loses significance but the expenditure share for social services experiences a rapid growth

[5] In 1990 the rating of revenues for non-domestic properties (revenues collected mainly on commercial and industrial properties) for local authorities in England was altered. Prior to this, non-domestic rates (NDRs), which make up a sizeable portion of revenues collected by local governments, were set according to each individual municipality. In April 1990, a single poundage was set forth by the central government as the national non-domestic rate (NNDR). In Poland, while political independence was heralded, statutes limiting the independence of municipality finance were promulgated. Legal statutes specified not only permissible sources for municipal tax revenues but also placed limits on tax levying. For example, maximum tax rates for immovable goods, rural immovable goods, transportation means, and forest taxes are all clearly delineated.

- EU liberalisation, competition and subsidy policies also affect municipalities and municipal firms
- Budget consolidation policy in general.

Table 1

Significance of Municipal Finance in Selected Member Countries of the Council of Europe

	Municipal Expenditure in relation to GDP and General Government Expenditure (GGE)		Municipal Investment Expenditure in relation to Total Municipal Expenditure (TME), to General Government Investment Expenditure (GGIE) and to Gross Domestic Product (GDP)			Sources of Municipal Funding in relation to Total Municipal Revenue (%)				
	% GDP	% GGE	% TME	% GGIE	% GDP	Exclusive local taxes	Fees & charges	Transfers	Borrowings	Other
Albania (1995)	7.7	25.4	14.4	3.1	1.1	2.5	3.0	94.0	0.0	0.5
Austria (1993)	12.7	20.2	16.8	70.3	2.1	15.0	19.0	35.0	8.0	23.0
Belgium (1993)	4.9	10.9	17.8	29.8	0.9	32.0	5.0	40.0	13.0	10.0
Bulgaria (1994)	9.0	20.0	8.9	54.2	0.8	1.0	10.0	78.0	2.0	9.0
Cyprus (1993)	1.4	4.1	17.1	6.7	0.2	25.0	33.0	30.0	12.0	0.0
Czech Rep. (1994)	9.3	20.9	40.0	55.9	3.7	16.0	12.0	45.0	11.0	16.0
Denmark (1994)	19.9	31.3	5.7	51.4	1.3	51.0	22.0	24.0	2.0	1.0
Estonia (1994)	7.1	17.6				0.1	0.9	91.0	2.0	6.0
Finland (1993)	18.0	29.5	7.0	47.7	1.3	34.0	11.0	31.0	3.0	21.0
France (1992)	5.5	27.2				36.0	2.0	28.0	10.0	26.0
Germany (1993)	8.1	28.7	19.4	63.3	1.6	19.0	16.0	45.0	9.0	11.0
Greece (1989)	3.3	5.6	27.9	3.9	0.9	2.0	22.0	58.0	6.0	12.0
Hungary (1994)	17.0	53.0	13.8	42.2	2.4	4.0	8.0	66.0	4.0	15.0

Iceland (1994)	9.1	22.3	25.3	25.1	2.2	12.0	16.0	53.0	5.0	14.0
Ireland (1994)	4.9	13.8	32.0	25.0	1.6	18.0	10.0	57.0	2.0	13.0
Italy (1993)	7.0	13.0	3.3	26.2	0.2	18.0	11.0	38.0	9.0	24.0
Latvia (1994)	12.5	24.0	0.6	7.8	0.1	6.0	1.0	68.0	0.0	25.0
Lithuania (1993)	13.1	58.8								
Luxembourg (1993)	9.9	32.3	28.1	75.2	2.8	31.0	29.0	37.0	3.0	0.0
Malta (1995)	0.3	0.6	6.8	0.2	0.0	0.0	0.0	98.0	0.0	2.0
Netherlands (1994)	13.3	23.1	17.5	80.1	2.3	5.0	13.0	50.0	19.0	3.0
Norway (1994)	18.9	60.0	9.4	60.0	1.8	42.0	16.0	33.0	7.0	2.0
Poland (1994)	7.0	21.6	22.5	52.0	1.6	21.0	7.0	60.0	0.0	12.0
Portugal (1993)	4.6	9.7	41.4	41.5	1.9	20.0	19.0	38.0	6.0	17.0
Romania (1993)	3.5	16.9				5.0	16.0	79.0	0.0	0.0
San Marino (1993)	0.1	0.2				0.0	0.0	31.0	69.0	0.0
Slovakia (1994)	4.8	11.8	31.2	38.8		10.0	9.0	39.0	5.0	37.0
Slovenia (1995)	4.4	10.1	43.0	11.2	1.9	5.0	9.0	67.0	1.0	18.0
Spain (1994)	4.9	12.2	24.4	29.4	1.2	31.0	16.0	37.0	10.0	6.0
Sweden (1994)	27.5	38.0	5.6	49.8	1.5	61.0	9.0	19.0	1.0	11.0
Switzerland (1993)	10.8	27.9	31.7	15.8	3.4	46.0	24.0	18.0	3.0	9.0
Turkey (1992)	2.4	12.3	22.0	16.0	5.5	7.0	1.0	56.0	0.0	36.0
UK (1994)	11.0	27.0	10.0	38.0	1.1	11.0	6.0	77.0	0.0	6.0

Source: King and Jaquer (2000), p. 19, 23 and 27

2.2.2. Comparison of Germany and Switzerland[6]

After unification, local revenues in Germany increased from € 114 billion in 1990 to € 166 billion in 1996 but decreased to € 146 billion in 1999 (Table a1 in Annex). This fact reflects partly the unification boom in the municipalities of the former GDR. Local revenues also gradually increased in Switzerland, which suffered, however, from a severe drop to Sfr. 38 billion in1997 due mainly to the reduction of tax receipts (Table a3 in Annex).

Tax revenues for German municipalities increased gradually until 1999, with slight business cycle fluctuations. This is more or less directly led by the participation of (west German) municipalities in income taxation and to the local business tax, i.e. a tax on profit.[7] Moreover, German municipalities have increased the property and business tax rates. Taxes are also a main source of revenues for municipalities in Switzerland. However, the share of this item to total revenues has been reduced over the years due to the shrinking consumption taxes and the stable development of revenues from income and property taxes. With the exception of 1997, tax revenues continued to rise until 1999.

Intergovernmental grants constitute a significant portion of municipality revenues in Germany. Unconditional grants, which primarily serve to finance current expenditures in the fields of education, culture, social welfare, health, municipal public facilities and municipal firms, also partly assist in debt servicing and investment financing for local infrastructure projects. Investments grants remained relatively stable although the relation between current and investment grants has changed continuously in favour of the former type.[8] After 1996, when grants had reached a peak, expenses in social welfare were reduced.[9] This occurred particularly in the western municipalities. In Switzerland,

---

[6] In Germany the central government (Federal Government, Bund), the 16 state governments (Länder), and local governments consisting of 13837 municipalities (Gemeinden, towns) and 440 cities (117 kreisfreie Städte) and counties (323 Kreise) make up the existing government bodies. In Switzerland government entities consist of the central government (Federal Government or Bund), the 26 state governments (cantons), and local governments of which 2880 are municipalities (Gemeinden, towns). Furthermore, the cantons are divided by 176 districts, although some cantons like Uri, Zug and Appenzell have no districts. In contrast to the case in Germany the existence of Swiss municipalities is not guaranteed in the constitutions of the federal government and the cantons. Nonetheless, there is an unwritten law regarding their autonomy, although they legally function as an enforcement agency for the cantons. Thus, the administrative and fiscal activities of cantons and municipalities are closely interwoven and the terms 'joint execution' and 'joint responsibility' are often used.

[7] In east Germany tax revenues maintained a share of only 5% of total municipal revenues, whereas this figure amounted to nearly 30% for municipalities in the West.

[8] In the eastern part of Germany, over 50% of all local revenues were based on grants due to lagging tax revenues. During the transformation process investment grants continually played an important role. Due to the reduction of expenses for services and the respective number of staff, outsourcing of services, privatisation, etc., current grants did not grow strongly in general.

[9] This is the consequence of new regulations related to asylum seekers, health care for the elderly people, further outsourcing and service reductions, changes in legal forms of public facility activities and reduction in local investments.

grants from the central government and the respective cantons to municipalities grew gradually between 1990 and 1999. The conditional grants have served to cover current expenses associated with schools, hospitals, roads, culture, and the environment such as water protection, cleaning etc. Conditional grants for infrastructure investments were, however, gradually reduced. Unconditional grants have traditionally been less significant compared to the conditional grants.

During the investigated period municipal revenues from fees increased in Germany until 1995 but decreased thereafter. The reduction in personnel costs, the outsourcing of local activities, the establishment of municipal firms as well as the closing down of institutions and privatisation all contributed to the fee decrease. Mainly, this development took place under budget consolidation of western and eastern German municipalities. During the investigated period of 1990-99, revenues from municipal fees increased considerably in Switzerland. The main reason for this has been the difficulties encountered in raising tax rates. Since current costs such as staff costs, material costs, interests or depreciation allowances increased, municipalities were forced to charge higher prices.

Revenues from the business performance of municipal firms also increased in Germany. This was partly due to the transfer of legally dependent local facilities to public firms and policies aimed at consolidating municipal firms. In the new states municipal firms were newly established and losses have been reduced. On the other hand, there was an active privatisation process of firms making not only profits but also losses there.[10] Privatisation and budget consolidation policies in Germany also influenced local revenues from the sale of municipal property, which peaked in 1996. However, the sale of stock share of public or mixed firms was highest in 1998 as a result of competition and market liberalisation policies of the EU in the energy sector. Also difficulties in publicly-provided local housing in the new states as well as the introduction of public-private-partnership in the provision of infrastructure including water supply etc., led to the higher sale of shares. In Switzerland revenues from municipal firms' performance and the sale of municipal property also increased in the 1990s. To a lesser extent than the German case, this is partly due to the transfer of legally dependent public facilities to public firms and increasing prices for public services to consolidate municipal firms. Yet the sale of municipal property contributed to a lesser extent to the increase in local revenues.

Net crediting of German municipalities increased only slightly cumulating in 1993 but dissipating afterwards as a consequence of budget consolidation policies and trans-

[10] European competition policies have gradually reduced the profits of municipal firms, especially in the energy sector where charges for concessions to use the municipal territories by energy firms came under pressure.

ferring public debt to municipal firms.[11] During this time, municipalities in both parts of Germany borrowed from capital markets and other public institutions. Rather strict regulations on municipal debt has linked local investment with the fiscal capacities of municipalities. An important determinant of municipal debt has been a mixed funding of public programmes in which municipalities share the financial burden with the federal and state governments. The amount of net credits of Swiss municipalities increased from 1990 to 1996 due mainly to the fluctuation of the business cycle. The consequent negative trend has turned positive again since 1999 as a consequence of budget consolidation policies. Clear municipal debt regulations have existed as in Germany.[12] The municipality may also enforce a municipal merger in the case of extreme high debts. Important financial sources have been the so-called mixed programmes for which municipalities share the financial burden with the central government and the cantons.

Total expenditures in Germany increased until the mid-1990s, afterwards stagnating at a high level (Table a2 in Annex). In western municipalities staff expenses peaked in 1995 but declined slightly in the following years, whereas east German municipalities were further forced to finance a large scale public employment.[13] Current expenditures grew steadily, in particular expenses for goods and services of former West German states, while this item capped in 1995 and diminished afterwards. Current local expenses for social aid increased continuously in both parts of Germany until 1995. Thereafter new federal laws were promulgated directing insurance agencies to care for the elderly and placing limits on social aid and reduced nursing fees. Municipal investments were highest in 1992, dropping continuously until 1999, which is also led by urgent budget consolidation efforts. Outsourcing and privatisation of public utilities also reduced municipality investment expenses.[14] Municipal interest payments cumulated in 1996 but decreased thereafter. In the West, municipalities attempted to use debt conversions and thus benefited from low interest rates. East German municipalities increased their debt and had fewer opportunities for using debt conversions. Municipalities in west Germany applied new instruments of cash and debt management.[15]

---

[11] East German municipalities were particularly forced to take a large scale credits between 1991 and 1993.

[12] Moreover, special agreements among the parliamentary counsel or inhabitants of the municipality are required to keep credit balances in check.

[13] These personnel expenses, however, dropped gradually: in 1992 eastern municipalities maintained a ratio of 143% staff expenses per capita compared to western cities. In the east German states, many local services (such as nursery schools) have been provided by public administration which have been, on the other hand, partly offered by religious institutions in west Germany. Outsourcing and spin-offs of public utilities and services also contributed to staff reductions.

[14] Population development is likely to further increase investment needs in metropolitan areas in the western German states, but lower needs in the municipalities of the new states.

[15] These include inter-municipal clearing and derivatives trade, such as interest swaps, forward rate agreements, cap, floor and collar businesses, etc. Moreover, municipalities have made themselves accessible to the European credit and capital markets (Rehm and Matern-Rehm, 2003).

Total expenditures of Swiss municipalities increased in the investigated period. Only in 1997 was there a slight reduction of expenditures due to an unusual drop in current personnel expenses (Table a4 in Annex). Staff expenditures also increased gradually, amounting to ca 35% of total expenditures in 1999.[16] Additionally, expenses for materials, components and services also grew steadily, reaching around 17% of total municipal expenses in 1999. Current expenses for municipal social welfare also expanded as well, corresponding to nearly one third of all current expenses in 1999. Investment expenses for construction, new equipment, etc. were highest in 1997 but dropped consecutively afterwards. Municipal interest payments cumulated until 1996 but decreased during the course of budget consolidation.

Expenditures concerning municipal organisation and management[17] have remained stable in Germany after a strong increase in years following unification. Expenditures for sports, health and leisure reached a peak in 1992 and gradually descended afterwards. A similar development took place for housing and traffic expenditures. After 1992 expenses for public facilities and business promotion were reduced considerably. Expenditures related to municipal firms show a similar development. In the 1990s a gradual increase in expenditure took place in social welfare and general finance.

The expenditures concerning municipal organisation and management have also slowly increased in Switzerland. A comparable development was also observed with regard to the spending for housing and traffic. Defence expenditures were, however, reduced**.** A steady annual growth was identified for the items like the augmented social transfers and general finance of municipalities. For social welfare a transfer of tasks from the central government and the cantons to municipalities appears to continue without the corresponding, sufficient provision of financial means.

The development of local finance in Germany was particularly influenced by:

- Tax reforms weakening the fiscal autonomy of municipalities, and partially reducing tax revenues
- Huge sum of grants from other tiers of government
- Shift of financial burdens to localities
- Increase of expenditures for social aid and welfare services
- Reduction of local investments, especially in western municipalities
- Transformation process in the eastern part also regarding the municipal activities, their organisation, functional and territorial reforms, provision of facilities and local investments

---

[16] Salary developments, shorter working hours, implementation of stringent regulations and an integrated administrative enforcement formed by the three tiers of government have led to the rapid cost increase in health care, environmental protection, education and internal security.

[17] These include, for example, expenses for security, education, science, research and cultural affairs.

- EU liberalisation, competition and subsidisation policies with respect to municipalities and enterprises
- Budget consolidation policies to fulfil the Maastricht criteria.

The development of local finance in Switzerland was particularly affected by:

- Highly interwoven administrative and fiscal system between the tiers of government
- Strong reliance on income and property taxation
- Large grants from other tiers of government
- Shift of financial burdens to localities
- Increase of expenditures for social services
- Reduction of local investments
- Higher European and global competition
- Budget consolidation policies.

2.3. Dangers for Fiscal Autonomy from Problems of Local Finance in the Four Countries

All four countries underwent tax reforms; their municipalities depend heavily on vertical grants and were subject to municipal restructuring policies (Table 2). Municipalities in western Europe have all been faced with increased regional and global competition as well as EU-policies. They have reduced local infrastructure investment and have had to increase expenditures for social aid. With the exception of England, where the fiscal autonomy is quite low on the local level, the financial situation of municipalities has deteriorated. Additional problems have emerged in Poland and Germany because of transformation necessities. In all the selected countries there is an urgent need to protect municipalities financially and to ensure their fiscal autonomy from the intervention of the higher government level to enable the self-governing of local activities.

There appear to be several ways to improve the financial situation of municipalities (Fisher, 1996; Pola, 1996; Drennan and Netzer, 1997; Blankart and Borck, 2000; Castellucci, 2000, Hedtkamp, 2000, Dafflon, 2002).However, only some of them lead to a higher fiscal autonomy. Weaker legal requirements to increase local debt can enhance municipal autonomy in the short run. On the other hand, credits have to be paid back and interest payments reduce the scope of financing expenditures.

The sale of municipal real estate, firms, assets and other forms of property may lead to a short-term liquidity effect. If these revenues are used to pay back local debts the financial situation may become healthy. However, if this local property is necessary for public production, the situation can be even worsened, especially if expensive, profit-oriented private services are procured to provide the public services. A decrease of fu-

ture autonomy can also be a consequence, because of lacking revenues from the property and higher dependencies on private production and markets as well as the lack of own know-how in the production of some local services.

In all four countries municipal fees have been increased considerably, which led to an increase in revenues from this item. As long as profits were yielded, municipal fiscal autonomy was widened. However, higher fee revenues that stem from higher sales on the basis of given fees require higher production, thus neutralising the higher turnover by the higher total costs. In some countries there are laws that stipulate cost coverage of local firms but do not allow profit making. Therefore, an increase in fees only temporarily eases fiscal stress. More benefits may result from transferring municipalities' rights to private economic units against concession payments. Such rights include rights to provide energy, to organise passenger traffic, to use the municipal territory for storage, to organise markets, to use urban land for manufacturing, housing, gas lines, electricity and communication lines.

Municipal fiscal autonomy can be enhanced if municipalities are able to apply (and expand) own local taxes and rates leading to higher tax revenues. In all four countries there is an ongoing debate concerning tax reforms to provide them sufficient tax receipts. As the tax systems in the four countries are different, the recommendations to change municipal taxation will differ extensively from one to another. Yet the popular taxation principles that could be applied universally include (1) the non-business cycle sensitive tax basis, (2) the broad tax basis aimed at encompassing many citizens in taxation, (3) the taxes levied on those economic units that receive infrastructure services from the municipality, (4) the taxing of non-migrating tax objects, etc.

Generally, municipal autonomy is widened by a higher scope of self-government, e.g. decision making on a variety of tasks. There is an improved chance of maximising municipal welfare, given the financial and fiscal restrictions. The more tasks the municipalities are obliged to fulfil without receiving funds, the more restricted their autonomy will be. A farther-reaching increase in municipal autonomy requires that the revenues are also expanded. This can be arranged through an expansion of grants. In all four countries conditional and unconditional grants exist. The conditional grants can be provided according to the principle of connection between the assignment of local activities and their finance (see chapter 3). In this sense the unconditional grants do not enhance autonomy much. The system of unconditional grants should be changed in favour of higher autonomy of the municipalities by introducing particular rules of allocation of funds to grants addressed to municipalities.

Therefore, we concentrate on the grant systems with respect to application of the connection principle, the shaping of conditional grants and introducing a principle of parallelism into the allocation process of unconditional intergovernmental transfers.

Also relevant to all four countries we refer to Germany as an example that shows a rather sophisticated and legally regulated grant system.

Table 2

Major Determinants of Local Finance Development in the Investigated European Countries in the 1990s

	Tax reform	Large intergov-ernmental grants on the local level	Increase in fi-nancial burden of municipalities	Increase in social expen-ditures	Decrease in local in-vestment	Transformation	EU-policy and competition	Maastricht budget consoli-dation	Restructuring of localities
Germany	X	X	X	X	X	X	X	X	X
Switzerland	X	X	X	X	X		X	X	X
England	X	X		X	X		X	X	X
Poland	X	X	X			X			X

3. Fiscal Equalisation to Protect Municipalities by Conditional Grants

3.1. Some Fiscal Issues Surrounding the Principle of Connection in Germany

Due mainly to the critical fiscal stress of local governments, the issue of protecting municipalities against the downward shift of tasks from higher levels of governments while leaving the fiscal burden to municipalities has become increasingly popular (Henneke, 2003).[18] The German federal constitution (Article 28, Paragraph 2) assign a number of tasks to local authorities as well as the responsibility to execute certain functions. These tasks comprise activities of self-government where local authorities are free to choose as well as obligatory self-government where they can freely perform the respective tasks. With other public tasks they are mainly executing functions of other government levels. Within these fields of actions the scope of decision-making of local authorities is not totally protected by the constitution (Klein, 2003).

In the state constitutions the connection principle is stipulated. A state should reallocate public activities to municipalities only if it offers sufficient financial resources to them required to execute these new local functions (Trapp, 1997, p. 185; Henneke 2003, p. 142). In Germany there are debates on the extent of legal obligations to provide the appropriate financial means according to the connection principle (Schneider, 1998, p. 3759, Kirchhof, 2002; Klein, 2003). As there are three tiers of government, the question is whether the federal government is able to transfer tasks to municipalities leaving the financial burden to them. Article 104a of the constitution does not protect municipalities from the transfer of tasks that creates additional financial burdens for them (Trapp, 1997, p. 217). Examples are social assistance for adults, youth and children (Bull and Welti, 1998; Henneke, 2002). Although local governments are safeguarded by Article 28 of the constitution, and municipalities can apply to a state constitutional court, they are legally unprotected if the respective state constitutional court does not bring the case to the Federal Constitutional Court (Klein, 2003, p. 4). Therefore, the federal government can give municipalities unfunded mandates. An open problem is how to treat these mandates in laws on intergovernmental fiscal relations (Grundlach, 2000).

A simple solution appears to be forcing the higher-level government to cover the costs of administering public functions, as stipulated in Article 104 of the constitution. Although the states are responsible for executing most of the EU and federal laws, they

[18] In Germany the finance of public activities and performance of tasks does not follow the power to formulate laws but primarily the obligation to execute laws (Article 104 a, Paragraph 1 of the cosntitution). Finance is connected with the power of administration. Therefore, financial obligations are mostly with the states, which are to administer public functions. In cases of the federal administration (Article 84 Paragraph 1 of the constitution) the central government must finance the carrying out of a task and not the states or the municipalities.

can only claim that part of costs that results from the administrative activities of the states. The difficulty arises in determining the amount of relevant costs (Trapp, 1997, p. 244, Schoch, 2000). Are municipalities free to influence the amount of costs because they have the autonomy to perform tasks, or should higher levels of government be able to determine an amount they are willing to pay, such as standard costs? The first possibility may lead to higher administrative costs, since local management can determine costs such as to maximise its own welfare or utility. The realisation of the second alternative may cause low payments, as higher tiers of governments maximise their utility by leaving the political and financial difficulties to the municipalities. A debate on fair costs to be met can be expected in this context. Appropriate rules must be formulated to obtain acceptable solutions. Some kind of bargaining Nash solutions may also emerge. If the higher rank of government is powerful, the principal-agent approaches can serve to fix the amount of cost covering. A municipality may execute the task according to a minimum utility constraint, and the task performance by the municipality will lead to different levels of utility of the higher-level government. The payment to cover costs reduces the utility of the higher rank of government. The transfer to municipalities is to maximise higher government net utility while ensuring efficient performance of the municipalities. In a deterministic case the optimal amount of payment must equalise the marginal net benefit of the higher-level government with the marginal utility of the low-level government. Special solutions result if risk is involved. According to the kind of risks, constant payments or payments that vary with the level of performance are optimal. To identify cost and its coverage, the incentive contract theory may also be applied. There may be an appropriate split of possible cost savings that causes the effective performance by the municipality and relatively low financial transfers by the higher rank municipality.

A further approach may be to compensate municipalities by stipulating a larger scope for taxation (Blankart and Borck, 2000). In this framework questions arise as to which kinds of taxes are appropriate for this purpose. Should municipalities be able to enlarge the tax base of business taxes or should their contribution from the business tax paid to higher-level governments be reduced? Should the restrictions on rates of land and business taxes be simpler? If a new tax is allowed, should it be an addition to income taxation or a further turnover tax (Bull and Welti, 1996; Zimmermann 1999)? Can new municipal taxes be introduced on packages, animals other than dogs, or on electronic communication? Severe problems of conformity with the general system of taxation may arise. If the states formulate requirements for local taxation, these problems can be reduced. On the one hand, this policy may give incentives for minimising costs for public functions transferred, but the tax receipts may not be large enough to cover the costs for fulfilling the task.

Another possibility to ensure cost-saving task performance can be the coverage of expenditures in terms of fees collected for respective services. This guarantees that services related to the transferred task are delivered to economic units that are able to pay. Increases of already existing fees may conflict with existing state laws that stipulate the principles of public fee determination, such as average cost pricing. Moreover, a non-lump sum treatment of services, etc. can be introduced.

Compensation by shifting federal or state property located in the respective municipality or fungible assets such as bonds, etc., to the municipalities carrying out additional tasks can be considered. The incidence of performing new tasks can be compensated by lowering the conditions required for borrowings by easing the cash flow requirements for raising municipal credits that can be done by the state's municipal budget control office. State banks can provide credit to municipalities in a more easy way. This solution appears inadequate as the states or the central government will reallocate the debt burden to municipalities. This policy is similar to the local policy of switching their future borrowings to their municipal firms.

Another principle related to the connection principle is that of participation in political decision-making when public tasks are reallocated or new activities are shifted to municipalities (Henneke, 2003). Therefore, municipalities should also be involved in the state or federal legislation process[19]. Yet, it appears to be difficult to expand the participation of municipalities. Law-making has become more complicated in parliaments, and new bureaucratic routines, planning and participation schemes are required for government actions.

Furthermore, compensation for financial burdens related to new tasks may be considered in the framework of fiscal equalisation in terms of intergovernmental grants. Conditional grants may be adapted to meet additional municipal financial requirements, encouraging reforms of the vertical fiscal equalisation system between a state and its municipalities.

3.2. Conditional Grants

In Poland vertical fiscal relations exist between the central government and the municipalities. Vertical fiscal equalisation is partly achieved by conditional and unconditional grants. The latter type is provided with reference to population, schools and a grant serving to substitute losses caused by shifting the car tax to the central government (Borodo, 2003). Moreover, counties and woiwodships receive a general unconditional

[19] This type of approach supporting the application of the connection principle seems to be important because of the EU and federal policies on competencies, autonomy and financial flexibility of municipalities.

grant for roads. The amount of unconditional grants is fixed in the central government budget annually.

In the UK there is a dominating two tier system with the central government and municipalities within different levels of local authorities.[20] Unconditional central government grants — one of the major revenues for municipalities — have been rather volatile, thus making in some cases amendments in the local taxation necessary (see also Bennett and Krebs, 1988).

Switzerland has a vertical fiscal equalisation system between the central government and the cantons, on the one hand, and that between a canton and its municipalities on the other. It uses conditional and unconditional grants. A horizontal fiscal equalisation among the cantons comparable to that in Germany among the states does not exist but is going to be introduced through a contract system among the cantons to pay for benefits from spill-overs (Frey and Schaltegger, 2003). This new system will also be considered within the vertical equalisation between the central government and the cantons since the sub-national fiscal capacity should match the sub-national expenditure needs. The cantons and the central government finance the equalisation of fiscal capacities, whereas the need equalisation comprises a split of federal grants to the cantons with mountainous areas and those with population agglomerations (Frey and Schaltegger, 2003).

Germany has a fiscal equalisation between the central government and the states that is made primarily by determining the shares of joint tax revenues through conditional, federal grants to the states and through splitting the financial burden of expenditures between these two government levels for common tasks. There is a horizontal equalisation among the states as well. However, the expanded vertical equalisation occurs between a state and its municipalities through conditional and unconditional grants.

There are several types of conditional grants in the four investigated countries. We considered conditional grants provided to execute a local activity, which is originally a function of a central state or a sub-state but transmitted to municipalities.Other conditional grants are to support specified municipal tasks (Arnold and Geske, 1988; Smith, 2003). For their specification no general theory for optimal conditional grants exists. A normative approach relates to the consumer's net-benefit maximisation in the framework of a principle-agent relation. A higher level jurisdiction — the "principal"— maximises net-benefits, considering that a part of the net-benefits must be allocated to the "agent" municipality to ensure local efforts to achieve the best performance of activities. Under the certainty condition, the marginal net-benefit of higher level jurisdictions must equal the marginal net-benefit allocated to the assigned municipality in anal-

[20] These levels include, for example, England, Wales and Scotland, upper tier authorities (metropolitan counties, non-metropolitan counties, regions), lower tiers authorities (London boroughs, metropolitan districts, non-metropolitan districts, districts), special purpose and unitary authorities (education authority, metropolitan police, islands councils), and towns.

ogy to Gravelle and Rees (1992). If no necessities for participation of the agent in net-benefit exist, the optimal conditional grant is to maximise the sum of both net-benefits. Conditional grants designed in accordance with a more general support scheme cannot be adapted to individual municipalities to shape an optimal one. Therefore, when the conditions of optimal grants are considered, including the reaction of municipalities within a principal-agent relation, one may assume a representative municipality to fix the rules.[21] In such schemes risk can also be introduced. If the risk is associated with difficulties in detecting the output level, it makes sense to offer municipalities the same level of goal realisation. If grant provision to the municipality depends on an upper-level decision-maker who is not able to identify non-observable different efforts of the municipality, then an increasing participation should be allowed to the municipality. Therefore, different sizes of conditional grants result from this principle-agent situation (Coutry and Marschke, 2003; Grout and Stevens, 2003), when the different municipal activity levels are to be achieved. If the high-level government is able to provide different and individual amounts of support or if it has the power to decide individually on the size of conditional grants, the usual principal-agent relation changes to a game between principal and agent as shown below.[22]

---

[21] Other goals like welfare maximisation may also be applied for the jurisdictions. If both the state and the municipality attempt to maximise employment, then total employment may be better maximised by the higher rank jurisdiction. However, a minimum employment level must be guaranteed to the municipality to ensure its efforts to perform policies which allow overall high employment within the state. The minimal employment has to be then gradually increased according to higher efforts made (or to be made). Again marginal total employment must equal to marginal minimal municipal employment.

[22] Negotiation of Conditional Grant:

Utility of state:

$$\text{Max!}\, U_L = g_{XL} \cdot X - g_{FL} \cdot F \tag{1}$$

g_{XL}: value of activity or investment unit X to the state

g_{FL}: value of 1 unit of grant F to the state

Utility of municipality:

$$\text{Max!}\, U_G = (a - b \cdot X) \cdot X + g_{FG} \cdot F \tag{2}$$

a,b: parameters of evaluation of activities X

g_{FG}: value of 1 unit of grant F to the municipality

For both actors exists a set of indifference curves. Solutions of negotiations are related to a sequence of tangency points of indifference curves of the state and municipality.

For an indifference curve of the state holds:

$$dU_L = \frac{\partial U_L}{\partial X} \cdot dX + \frac{\partial U_L}{\partial F} \cdot dF = g_{XL} \cdot dX - g_{FL} \cdot dF \overset{!}{=} 0 \tag{3}$$

and for that of the municipality analogously:

$$dU_G = \frac{\partial U_G}{\partial X} \cdot dX + \frac{\partial U_G}{\partial F} \cdot dF = (a - 2b \cdot X) \cdot dX + g_{FG} \cdot dF \overset{!}{=} 0 \tag{4}$$

Die Conditions (3) and (4) denote the identity of the Pareto- solution:

The state government may have an utility function, which depends on the output X of a municipal project and on the size of a conditional grant F, e.g. - g_{FL*} F + g_{XL*} X where

---

$$\frac{dF}{dX} = \frac{g_{XL}}{g_{FL}} = -\frac{a - 2b \cdot X}{g_{FG}}, \qquad \text{or} \qquad X_{Pareto} = \frac{g_{XL} \cdot \frac{g_{FG}}{g_{FL}} + a}{2b} \tag{5}$$

The utilities along the identity of the pareto-solution are given by (6):

$$\begin{aligned} U_L &= g_{XL} \cdot X_{Pareto} - g_{FL} \cdot F \\ U_G &= (a - b \cdot X_{Pareto}) \cdot X_{Pareto} + g_{FG} \cdot F \end{aligned}, \qquad \text{while} \quad X_{Pareto} = \frac{g_{XL} \cdot \frac{g_{FG}}{g_{FL}} + a}{2b} = \text{constant} \cdot \tag{6}$$

After the substitution the grant F in (6), we have the following frontier of the utility distribution between the state and the municipality:

$$U_L = -\frac{g_{FL}}{g_{FG}} \cdot U_G + [g_{XL} + \frac{g_{FL}}{g_{FG}} \cdot (a - b \cdot X_{Pareto})] \cdot X_{Pareto} = -\frac{g_{FL}}{g_{FG}} \cdot U_G + \Phi \quad \text{while} \quad \Phi = \frac{g_{FL}}{g_{FG}} \cdot \frac{(g_{XL} \cdot \frac{g_{FG}}{g_{FL}} + a)^2}{4b} \cdot \tag{7}$$

To derive the negotiation solution we maximise the Nash product NP under the constraint of the utility frontier (7):

$$Max! NP = (U_L - U_{LMin}) \cdot (U_G - U_{G\,min}) \qquad \text{s.t.} \qquad U_L = -\frac{g_{FL}}{g_{FG}} \cdot U_G + \Phi$$

U_{LMin}: minimal utility level of the state

U_{GMin}: minimal utility level of the state

Using the Lagrange method, we obtain the Nash solution (8):

$$L = (U_L - U_{LMin}) \cdot (U_G - U_{G\,min}) + \lambda \cdot (\Phi - U_L - \frac{g_{FL}}{g_{FG}} \cdot U_G)$$

L: Lagrange function

λ: Lagrange multiplier

$$\frac{\partial L}{\partial U_L} = U_G - U_{G\,min} - \lambda = 0\,, \qquad \lambda = U_G - U_{GMin}\,,$$

$$\frac{\partial L}{\partial U_G} = U_L - U_{LMin} - \lambda \cdot \frac{g_{FL}}{g_{FG}} = 0\,, \qquad \lambda = \frac{g_{FG}}{g_{FL}} \cdot (U_L - U_{LMin})\,,$$

$$\frac{\partial L}{\partial \lambda} = \Phi - U_L - \frac{g_{FL}}{g_{FG}} \cdot U_G = 0\,,$$

$$\begin{aligned} U_{LNash} &= \frac{U_{LMin} - \frac{g_{FL}}{g_{FG}} \cdot U_{GMin} + \Phi}{2} \\ U_{GNash} &= \frac{U_{GMin} - \frac{g_{FG}}{g_{FL}} \cdot U_{LMin} + \frac{g_{FG}}{g_{FL}} \cdot \Phi}{2} \end{aligned}, \qquad \text{while} \quad \Phi = \frac{g_{FL}}{g_{FG}} \cdot \frac{(g_{XL} \cdot \frac{g_{FG}}{g_{FL}} + a)^2}{4b} \cdot \tag{8}$$

In the interval $-g_{XL} \cdot \frac{g_{FG}}{g_{FL}} < a < 3 \cdot g_{XL} \cdot \frac{g_{FG}}{g_{FL}}$, the last part of (9) is positive. If the parameter b rises, the grant F decreases. The maximum of F will be reached at $a = g_{XL} \cdot \frac{g_{FG}}{g_{FL}}$. Therefore, the grant increases in case of $a < g_{XL} \cdot \frac{g_{FG}}{g_{FL}}$, and it descends, when the parameter of evaluation of X a decreases beyond $g_{XL} \cdot \frac{g_{FG}}{g_{FL}}$ In regard to a price–demand function as a-b·X, when the municipal activities X expand, the state is willing to support these, as along as the net advantage $g_{XL} \cdot U_L - g_{FL} \cdot F$ increases. If the willingness of payment for the municipal activities is sufficiently large, then the financial situation of the municipality is stable without or with the state grant. In this case the grant F will be lower.

g_{FL} and g_{XL} form utility weights. The utility function U_L is depicted in equation (1). Figure 1 shows a set of indifference curves, which shift to the north-east with growing X. As F becomes larger the utility level of the indifference curve obtained by the state will be lower. The municipal utility U_G measured in terms of project size X and the amount F of the conditional grant. The utility function U_G is shown by equation (2) and its shape in Figure 1. On the one hand, it increases with a higher output, reaches the top and decreases afterwards. On the other hand it grows with the size of the conditional grant. Therefore, there is a set of indifference curves with different utility levels positively correlated to the conditional grant. This is also depicted in Figure 1. If the state and the municipality start the negotiation on the size of the conditional grants, pareto-optimal points exist at the points of tangency of the indifference curves of the state and the municipality. There is a range of Pareto-optimal possible solutions related to the utility levels of the state and municipality. They symbolise a set of possible negotiation solutions. They are depicted in Figure 2 and its minimum utility is multiplied by the utility change of the municipality minus municipal minimum utility. This expression is maximised considering the Pareto-optimal condition mentioned, as in equations (5), (6), (7) and (8). The derivative to the conditional grant F delivers optimality conditions from which the Nash conditional grant F_{nash} and the utilities U_{Lnash} and U_{Gnash} are gained (equations (8)) The output X of the municipal project is determined through equation (5).

With respect to conditional grants there are four policies to protect municipalities from losing autonomy in self-government and finance in the framework of conditional grants. Apart from relating conditional grants more strongly to the connection principle as a first approach, the power structure and the resource allocation between the state and municipalities could be altered. Instead of principle-agent situations where the high power of the state is expressed through simple principal-agent model formulations, the state should be forced to negotiate conditional grants in a second attempt, thus increasing municipalities' financial autonomy. More decision power could be given to municipalities in regional and urban planning and/or by municipal participation in formulating public utility functions with respect to conditional grants and the activities and investments concerned, e.g. through participation in decision making of municipalities on the state level. The third approach would be to establish rules for co-operative decision-making between the state and municipalities on some projects and public activities.

Figure 1: Possible Negotiation Solutions

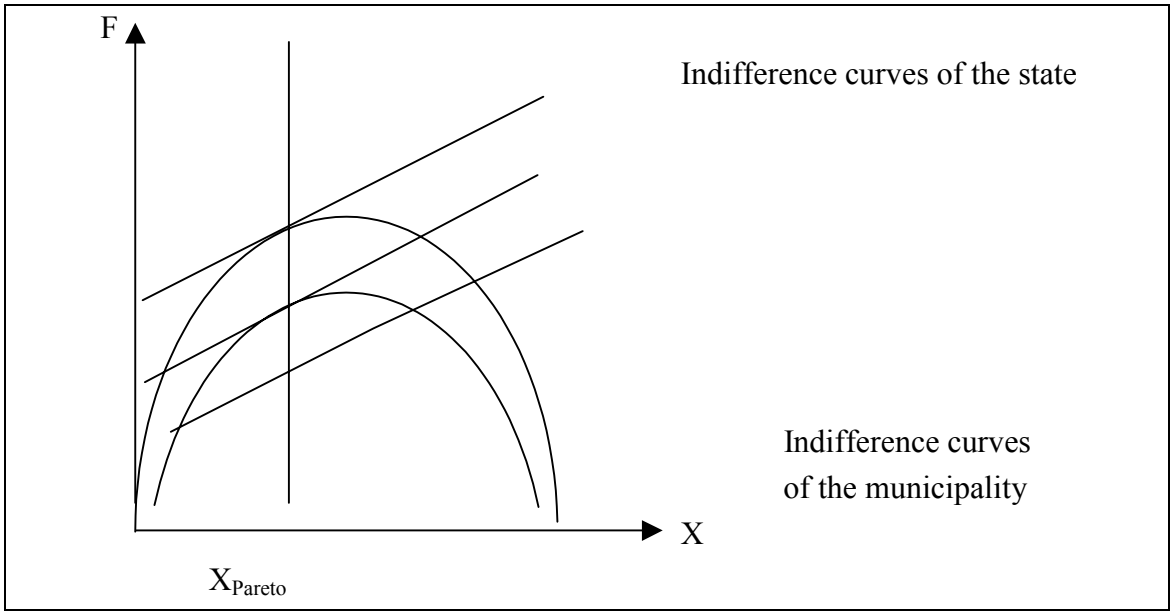
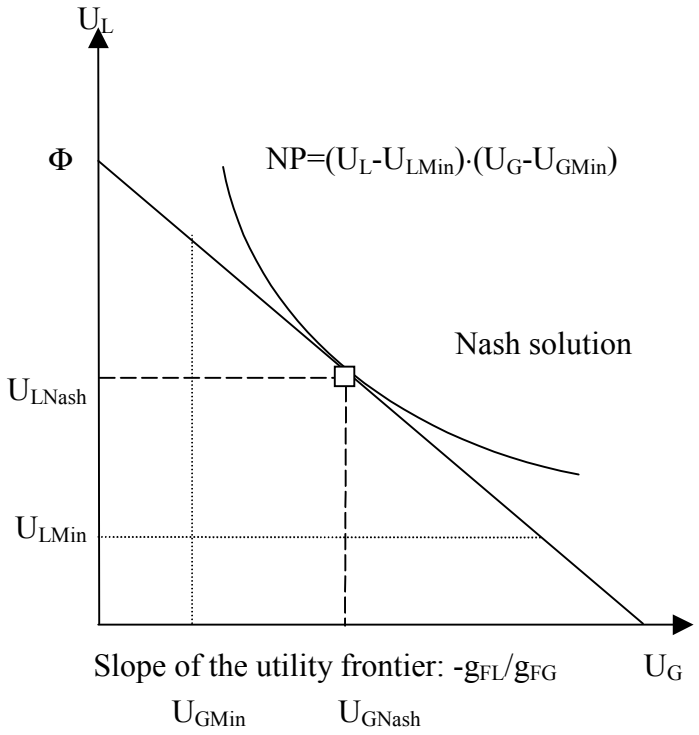


Figure 2: Nash Solution



There are some similar cases in Switzerland. A fourth policy would be to apply a general rule of parallel development of fiscal capacities between the state and municipalities for determining the amounts of unconditional grants in fiscal vertical equalisation.

4. Principle of Parallelism to Prevent Fiscal Autonomy through Unconditional Grants

4.1. Definition of the Principle of Parallelism

The principle of parallel development of fiscal capacity between a state and its municipalities comprises a guideline to determine unconditional grants from the state to the municipalities (Nam, Parsche and Steinherr, 2001). In Germany, it is legally implemented in the Free State of Saxony (§2 SächsFAG, law of fiscal equalisation). The state of Brandenburg tries to follow this principle as well (Grundlach, 2000, p. 10). According to this principle, the total amount of the state grants to municipalities is annually fixed, however, in a far limited way. There should be a parallel development of the municipalities' disposable income from local taxes plus the provided intergovernmental transfers by the state and the disposable income from the tax income of the state and the grants from the federal government minus the above-mentioned grants from the state to the municipalities (Nam and Parsche, 2001, p. 11). Essential for the delineation of this principle is the term parallelism. Does the parallelism require a one-to-one relation or can another relation serve as well?

The one-to-one relation implies that the public tasks financed related to the fiscal capacities are of same importance regardless of the state and the municipalities manifested in an utility function concerning the state tasks and the municipal tasks. A parallel equal development of utility changes, however, does not necessarily lead to a one-to-one relation in changes of expenditures and revenues. Such utility functions do not yet exist. In reality, there are no binding political statements or juridical rules stipulating, in federal or state constitutions, that state tasks are of the same importance as municipal ones, although there is a responsibility of a state to finance and influence the local tasks and a

guarantee of self-administration of municipalities (Kirchhof, 2002) — to some extent, suggesting the priority of state tasks against municipality tasks.[23]

Moreover, a one to one relation implies that the size of tasks of both levels of government is the same. In terms of expenditures this obviously does not hold, as already mentioned above, with respect to investment outlays. If future-oriented investments are of high priority they should also be considered as tasks. Then we might end up with another kind of parallelism. The relation may be three- or two-to-one favouring municipalities. A priori, one cannot be explicit on the size of this relation. A public body, which has the power to determine such a relation according to constitution, must make decisions on this matter.

In Germany state governments and state parliaments create equalisation funds to be distributed to municipalities. The fund is collected from the state share of joint taxes, grants from the central government, revenues from state taxes, contributions from municipalities as well as from the finances from the horizontal fiscal relations between the states. These sources are fixed within a state law concerning the intergovernmental fiscal relations between a state and its municipalities. As long as the sources and the law do not change, there is a relation between the fiscal capacity of the state and the volume of the equalisation funds. However, no direct link to the total fiscal capacities of the municipalities exists. The fiscal capacity of municipalities is considered with respect to the distribution of the equalisation funds, but not when determining the size of the equalisation funds. Normally, state decision makers do not consider a parallel development of fiscal capacity.[24] The kind of parallelism chosen will depend on the aims of state politicians and municipality-oriented party members in parliament.

---

[23] The connection principle mentioned above is to protect the local government tasks against crowding-out by state tasks and federal and EU tasks assigned to the state (Henneke and Vorholz, 2002). There are also delineation and assignment of public tasks to the government level according to the subsidiarity principle to determine what public tasks should be performed by which level of government. However, there is no strict evaluation in the sense that given the stock of public tasks, state tasks are more important than municipal ones (Arnold and Geske, 1988, p. 11; Zimmermann, 1999, p. 73), although some tasks seem to be more important defined as the so-called common public tasks (Article 91a and b GG (Gemeinschaftsaufgaben)) and jointly financed programs (Article 104a GG) developed. These activities are planned, financed, and in part executed jointly by federal, state and municipal administrations. A high value and importance of local tasks signal the sole competency of local government for local affairs (Article 28 Paragraph 2 GG). In contrast, stipulations referring to intergovernmental fiscal relation to taxation show the powerful positions of the federation and states over the municipalities (Kirchhof, 2002), although local authorities spend most of the public investment expenditures. With some tasks, a mix of competencies of federation, states and municipalities exists. If considering the fundamental split of tasks laid down in the federal constitution there is no clear-cut allocation of tasks to the federation and states (Hohrmann, 1967, p. 180) and tasks are not all assigned (Trapp, 1997, p. 129), with respect to the legal ranking federal law (indirectly also European law) enjoys a higher priority than a state law and the latter over municipal law.

[24] There is a principle-agent problem between the state and the municipalities involved which is solved and negotiated in formulating the state law of intergovernmental fiscal equalisation.

Other difficulties stem from the definitions of fiscal capacities on the state and municipal level. The definition should express disposable income of the state and that of municipalities. Disposable income may include the cash flow that is at the disposal of state government.[25] Therefore, the question is whether disposable state income should be defined as all revenues minus inevitable expenditures, as is the case with cash flow. One related problem is whether grants to the municipalities are parts of these inevitable expenditures. As states must allow municipalities to participate in their tax receipts, there must be some inevitable grants to the municipalities. However, the share of these grants is not fixed by the constitution and are therefore variable.

What revenues should be included in disposable income? A state receives financial revenues from shared taxes, from purpose-oriented, conditional federal grants, unconditional grants through vertical fiscal equalisation between the federation and states, grants received through the horizontal equalisation among the states and contributions from municipalities.[26] Additionally a state has revenues from fees, sanctions, borrowings, sales of state property, profits of state enterprises, etc. What part of these revenues is disposable income? In the literature on intergovernmental fiscal relations, authors tend to refer to fiscal capacity considering only with regard to tax revenues instead of disposable income, including the items suggested above.[27]

Does a constant relation between the two indicators imply an appropriate form of parallel relationship? In case of an agreement achieved about the size of parallelism (see chapter 4.2.1.), the self-administrative tasks of the state government and municipal gov-

---

[25] Because many of the revenues are already blocked by expenditures that cannot be changed because there are juridical obligations, unchangeable in the short run, or invariable, expenditures are necessary to execute federal (and EU) laws. For governments in Germany such a measure is called 'free top' (freie Spitze, freie Spanne in Bavaria).

[26] For example, municipalities have to transfer part of the business tax receipts to the state.

[27] As both levels of government can raise public credits and should be responsible for their own projects and tasks of self-administration, an exclusion of public debt makes sense. Fees are considered primarily as payment for services according to the benefit principles of the users or the cost covering principle. Therefore, they are not at the government's disposal and should be deducted. Profits from public state enterprises reflect the willingness to pay of clients for services and should be not considered, either. The sale of property increases the disposable revenues within the period of sale. Only if the receipts are used to decrease public debt in terms of lowering interest payments and capital service does the disposable income increase. Conditional grants refer to special services or projects related to task performance of high priority to the central state. It reflects again a willingness to pay and cost covering. Unconditional grants from other governments increase the municipal financial scope of action, thus increasing available fiscal means. Sanctions from the EU for non-fulfilment of the Maastricht criteria have to be deducted insofar the state is responsible. Therefore, it makes a sense to restrict fiscal capacity to those revenues that are without any equivalent value related to task performance. This reasoning calls for the deduction of grants to municipalities to finance municipal tasks. Therefore, disposable income means fiscal capacity from sources without services in exchange, etc. One solution to define financial municipal disposability is again to refer to the cash flow (free top, freie Spitze, freie Spanne) of the municipalities, including all the revenues mentioned above minus inevitable existing expenditure needs.

ernments may not develop in the same way.[28] According to the game between the state or the municipalities, and to our empirical findings a higher priority should be given to municipal self-administrative tasks to compensate private, European, national or state policy failures. Municipalities are also confronted with effects of natural disasters, war, population developments as well as economic developments induced by external trade, currency exchange rates, EU regulations etc., which call for changing the size of parallelism. In general the principle of equal fiscal development may conflict with the goal achievements of the state, individual municipalities and/or all municipalities.[29] Hopefully the application of the parallel development principle will allow a satisfactory goal fulfilment of the state and municipal decision-makers.

In some states the equalisation funds are split between unconditional grants and investment grants. The finances dedicated to investments, i.e. conditional grants, have to be separated from the equalisation funds. A stable form of parallelism implies that some necessary variations of grants have to take place through conditional grants. This can lead to an additional loss of autonomy of municipalities. If the principle of connection is applied when shifting tasks between different levels of government, conditional grants should be used for compensations to avoid impacts on the application of the principle of parallel fiscal development. The protagonists of the parallelism principle assume implicitly that the competition among municipalities is not influenced in an undesired way.

The specification of the principle of parallelism can be interpreted as a result of contract negotiations according to the Nash solution between the state and all municipalities if the municipalities as a whole act as one player. A parallelism of relation one results out of a Nash-solution if the minimum utility restrictions of the players do not exist and a symmetric utility distribution of the negotiators prevails with respect to disposable fiscal capacity. At least an approximate solution should be found. In the case of the minimum utilities as guaranteed by the constitution or other utility distributions, the game may lead to another parallelism relation.

For a constant relation of parallelism, the selection of the starting relation is rather difficult. One attempt is to find a new split-solution through negotiations and the other one is to select a base year in which the redistribution is considered to be fair and satisfactory. As politicians disagree on the adequate allocation of financial means on state and municipalities (Karrenberg and Münstermann, 1999, p. 207), no ideal solution will be identified. However, a relation might be chosen comprising a year where the fiscal stress of municipalities and the state was relatively low. When choosing the parallelism, the effects of parallelism should be taken into account.

---

[28] According to development of the economy and social conditions the tasks of state, e.g. of science, education or internal security, achieve more importance than those of municipalities, such as fair grounds convention sites or historical monument conservation.

[29] Regional, urban and environmental planning should not be restricted.

4.2. Analysis of the Principle of Parallelism

4.2.1. Basic Model for One Type of Municipalities

To analyse the effects of the principle of fiscal development we refer to a simplified vertical fiscal equalisation system between a German state and its municipalities. A first type of parallelism, named vertical parallelism, deals with the parallel fiscal development between a state and its municipalities. A second type tackles the horizontal parallelism between municipalities or categories of municipalities through vertical unconditioned grants.

We turn first to the vertical parallelism. An expenditure need indicator is defined as $VE_i \cdot b_i \cdot GB$. It refers primarily to the weighted size of population VE_i of a municipality.[30] An amount per capita GB[31] is multiplied by the adjusted size of population and weighted again with a factor b_i, which shows the importance of different towns i.[32] Moreover, a tax capacity indicator $SK_{i,t}$ is taken into account.[33] The unconditional grant $SZ_{i,t}$ is calculated by multiplying the difference between the indicators mentioned above by an equalisation ratio AS. This is shown in equation (10).

The total sum of grants paid by the state to municipalities amounts to SZ_t as suggested in equation (11). This equation is also used to determine the basic need per capita GB as shown by solving equation (11) for GB, which leads to equation (12). Inserting the result concerning GB into equation (10) delivers the amount of unconditional grants paid to municipality i in period t (see equation (13)).

$$SZ_{i,t} = AS \cdot (VE_i \cdot b_i \cdot GB - SK_{i,t}) \qquad (10)^{34}$$

---

[30] There is a major and additional weighting system (Haupt- und Nebenansatz) to determine a need indicator related to population. With the major weighting the number of inhabitants are multiplied by a factor larger than one, which increases with the population size of cities. The additional weighting adds changes to this population indicator depending on the number of pupils, central place functions, etc. An adjusted number of inhabitants (veredelte Einwohnerzahl) results.

[31] GB shows the basic needs per inhabitant, which is the same state-wide. GB is fixed by the state through simulation so as to distribute an amount fixed by the state in such a way that municipalities where needs indicator are higher than tax indicators receive grants and the fixed amount (Schlüsselmasse) becomes exhausted.

[32] This matters in the concept of horizontal parallelism through vertical unconditional grant allocation. The factor b_i is related to groups of municipalities. In most German states b_i ,(i= *1,...,n*) turns out to be 1. To abstract from problems of horizontal competition we assume $b_i = 1$ for $i = 1, \ldots, n$ in our analysis of the vertical parallelism.

[33] The tax capacity index refers to individual tax capacity indices of local taxes (e.g. business tax, real estate tax, municipal share of income tax). These tax capacities are calculated by using state-wide normative tax rates.

[34] $SZ_{i,t}$ = transfers from the state to a municipality i ($_{i \in (1 \quad n)}$) for a given year t (*Schlüsselzuweisungen*); AS = the equalisation ratio (*Ausgleichsatz*); VE_i = the weighted number of inhabitant of the municipality i (*Gesamtansatz*); GB = the basic need per capita (*Grundbetrag*); $SK_{i,t}$ = tax capacity of

$$SZ_{i,t} = AS \cdot (VE_i \cdot b_i \cdot \frac{\frac{SZ_t}{AS} + \sum_j SK_{j,t}}{\sum_j (VE_j \cdot b_j)} - SK_{i,t}) \qquad (13)^{35}$$

Parallel development concerns municipalities' revenues from local taxes EG_t and the provided intergovernmental transfers (by the state) SZ_t, on the one hand, and the state revenues from the (exclusive and shared) taxes and the grants from the federal government (to the state) EL_t minus the grants from the state to municipalities SZ_t, on the other. The size of the intergovernmental transfers is fixed in the period of 0 ($t = 0$) at a certain percentage share of the income of the state.

$$\frac{EG_t + SZ_t}{EG_{t-1} + SZ_{t-1}} = \frac{EL_t - SZ_t}{EL_{t-1} - SZ_{t-1}} \qquad (14)^{36} \Rightarrow \qquad \frac{EG_t + SZ_t}{EL_t - SZ_t} = \frac{EG_{t-1} + SZ_{t-1}}{EL_{t-1} - SZ_{t-1}} = \ldots = \frac{EG_0 + SZ_0}{EL_0 - SZ_0} \qquad (15)$$

Therefore, the parallelism is expressed by $(EG_0 + SZ_0)/(EL_0 - SZ_0)$, which is termed the size of parallelism. By considering equation (14)[37] one finds:

$$SZ_t = EL_t \cdot (\frac{EG_0 + SZ_0}{EL_0 + EG_0}) - EG_t \cdot (\frac{EL_0 - SZ_0}{EL_0 + EG_0}) \qquad (17)$$

---

the municipality i at the year t (*Steuerkraftmesszahl*); b_i = the factor of horizontal parallelism related to groups of municipalities

[35] $$SZ_t := \sum_j SZ_{j,t} = AS \cdot (\sum_j (VE_j \cdot b_j) \cdot GB - \sum_j SK_{j,t}) \qquad (j = 1, \ldots, n) \qquad (11)$$

$$GB = \frac{\frac{SZ_t}{AS} + \sum_j SK_{j,t}}{\sum_j (VE_j \cdot b_j)} \qquad (12)$$

[36] SZ_t = total sum of down-flow grants from the state to municipalities; EG_t = tax income of municipalities; EL_t = tax income of the state and intergovernmental transfers (from other states and the federal government) to the state at the fiscal year t).

[37] Re-arranging equation (14) yields:

$$SZ_t = EL_t \cdot (\frac{EG_{t-1} + SZ_{t-1}}{EG_{t-1} + EL_{t-1}}) - EG_t \cdot (\frac{EL_{t-1} - SZ_{t-1}}{EG_{t-1} + EL_{t-1}}) \qquad (16)$$

According to the principle of parallel development of fiscal capacity between state and municipalities one finds for period *t*

$$EG_t + SZ_t = (EG_{t-1} + SZ_{t-1}) \cdot (\frac{EL_t + EG_t}{EL_{t-1} + EG_{t-1}}) = \ldots = (EG_0 + SZ_0) \cdot (\frac{EL_t + EG_t}{EL_0 + EG_0}), \qquad (18)$$

$$EL_t - SZ_t = (EL_{t-1} - SZ_{t-1}) \cdot (\frac{EL_t + EG_t}{EL_{t-1} + EG_{t-1}}) = \ldots = (EL_0 - SZ_0) \cdot (\frac{EL_t + EG_t}{EL_0 + EG_0}). \qquad (19)$$

We re-arrange equations (18) and (19) for the period $t - 1$:

$$EG_{t-1} + SZ_{t-1} = (EG_0 + SZ_0) \cdot (\frac{EL_{t-1} + EG_{t-1}}{EL_0 + EG_0}), \qquad EL_{t-1} - SZ_{t-1} = (EL_0 - SZ_0) \cdot (\frac{EL_{t-1} + EG_{t-1}}{EL_0 + EG_0})$$

and insert these expressions into equation (16), thus obtaining (17).

Turning to the unconditional grants of one municipality, inserting equation (19) into equation (13) yields

$$SZ_{i,t} = AS \cdot (VE_i \cdot b_i \cdot \frac{\frac{(EL_t \cdot (\frac{EG_0 + SZ_0}{EL_0 - SZ_0}) - EG_t) \cdot \frac{EL_0 - SZ_0}{EL_0 + EG_0}}{AS} + \sum_j SK_{j,t}}{\sum_j (VE_j \cdot b_j)} - SK_{i,t}) \tag{20}$$

Equation (20) shows the way in which the principle of parallelism is introduced into the model of vertical fiscal equalisation between the state and municipalities - here with one municipality.

4.2.2. Consideration of Income and Population Changes

How would changes of tax revenues alter the provision of unconditional grants to that municipality? This question is tackled under the following assumptions. An income change $YG_{i,t}$ in municipality *i* in period *t* changes local tax revenues of municipality *i* in period *t* by $EG_{i,t}(YG_{i,t})$. This leads to a variation of the tax capacity indicator of that community $SK_{i,t}(EG_{i,t}(YG_{i,t}))$. However, the income change in municipality *i* may lead to income variations $\sum_j YG_{j,t}$ in j other communities as well. This causes a change in revenues of the state $EL_t(\sum_j YG_{j,t})$ and a *j* change in the tax capacities of all respective municipalities $\sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}))$. Moreover we assume that that incomes vary with the population change $EG_{i,t} := EG_{i,t}(YG_{i,t}(VE_{i,t}))$ and $EL_t := EL_t(\sum_j YG_{j,t}(VE_{j,t}))$. Local revenues depend on income achieved in this community. Moreover, the state revenues are related to incomes in all municipalities, which are functions of population size.

The formula of unconditional grants of one municipality *i* (20) turns out to be as follows:

$$SZ_{i,t} = (\frac{EG_0 + SZ_0}{EL_0 - SZ_0} \cdot \frac{VE_{i,t} \cdot EL_t(\sum_j YG_{j,t}(VE_{j,t}))}{\sum_j VE_{j,t}} - \frac{VE_{i,t} \cdot \sum_j EG_{j,t}(YG_{j,t}(VE_{j,t}))}{\sum_j VE_{j,t}}) \cdot \frac{EL_0 - SZ_0}{EG_0 + EL_0} + \tag{21}$$
$$+ AS \cdot \frac{VE_{i,t} \cdot \sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}(VE_{j,t})))}{\sum_j VE_{j,t}} - AS \cdot SK_{i,t}(EG_{i,t}(YG_{i,t}(VE_{i,t})))$$

Differentiating equation (21) with respect to the weighted population size $VE_{i,t}$ of the i^{th} municipality leads to the following first order condition:

$$\frac{\partial SZ_{i,t}}{\partial VE_{i,t}} = \underbrace{\left(\frac{EG_0 + SZ_0}{EL_0 - SZ_0}\right)}_{\text{Constant of parallelism}} \cdot \frac{(1 \cdot EL_1(\sum_j YG_{j,t}(VE_{j,t})) + VE_{i,t} \cdot \frac{\partial EL_1}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}) \cdot \sum_j VE_{j,t} - (VE_{i,t} \cdot EL_1(\sum_j YG_{j,t}(VE_{j,t}))) \cdot 1}{(\sum_j VE_{j,t})^2} +$$

$$- \frac{(1 \cdot \sum_j EG_{j,t}(YG_{j,t}(VE_{j,t})) + VE_{i,t} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}) \cdot \sum_j VE_{j,t} - (VE_{i,t} \cdot \sum_j EG_{j,t}(YG_{j,t}(VE_{j,t}))) \cdot 1}{(\sum_j VE_{j,t})^2}) \cdot \frac{EL_0 - SZ_0}{EG_0 + EL_0} + \tag{22}$$

$$+ AS \cdot \frac{(1 \cdot \sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}(VE_{j,t}))) + VE_{i,t} \cdot \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}) \cdot \sum_j VE_{j,t} - (VE_{i,t} \cdot \sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}(VE_{j,t})))) \cdot 1}{(\sum_j VE_{j,t})^2} +$$

$$- AS \cdot \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}$$

An increase in the weighted number of inhabitants of a municipality leads to a reduction of unconditional grants only if the condition stated below related to the parallelism size is fulfilled:

$$\frac{\partial SZ_{i,t}}{\partial VE_{i,t}} < 0 \Leftrightarrow$$

$$0 < \underbrace{\frac{EG_0 + SZ_0}{EL_0 - SZ_0}}_{\text{Constant of parallelism}} < \underbrace{\frac{(\sum_j EG_{j,t}(YG_{j,t}(VE_{j,t})) + VE_{i,t} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}) \cdot \sum_j VE_{j,t} - VE_{i,t} \cdot \sum_j EG_{j,t}(YG_{j,t}(VE_{j,t})))}{(EL_1(\sum_j YG_{j,t}(VE_{j,t})) + VE_{i,t} \cdot \frac{\partial EL_1}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}) \cdot \sum_j VE_{j,t} - VE_{i,t} \cdot EL_1(\sum_j YG_{j,t}(VE_{j,t}))}}_{>0} +$$

$$- AS \cdot \frac{EG_0 + EL_0}{EL_0 - SZ_0} \cdot \underbrace{\left(\frac{\sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}(VE_{j,t}))) \cdot \sum_j VE_{j,t} - VE_{i,t} \cdot \sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}(VE_{j,t})))}{(EL_1(\sum_j YG_{j,t}(VE_{j,t})) + VE_{i,t} \cdot \frac{\partial EL_1}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}) \cdot \sum_j VE_{j,t} - VE_{i,t} \cdot EL_1(\sum_j YG_{j,t}(VE_{j,t}))}\right.}_{>0} +$$

$$\underbrace{\left. + \frac{VE_{i,t} \cdot \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}} \cdot \sum_j VE_{j,t} - \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}} \cdot (\sum_j VE_{j,t})^2}{(EL_1(\sum_j YG_{j,t}(VE_{j,t})) + VE_{i,t} \cdot \frac{\partial EL_1}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial VE_{i,t}}) \cdot \sum_j VE_{j,t} - VE_{i,t} \cdot EL_1(\sum_j YG_{j,t}(VE_{j,t}))}\right)}_{<0} \tag{23}$$

This condition depicts two effects. On the one hand an increase of the weighted number of inhabitants leads to higher unconditional grants. On the other hand, income increases caused by the expansion of population size lead to income growth of firms and households. Consequently tax capacity grows thus reducing the payments of unconditional grants. The larger one of the two effects determines whether the amount of unconditional grants grows or shrinks, and whether fiscal autonomy is expanded or not.

This general case comprises special cases.[38] If only income in one municipality varies the condition (23) reduces to:

$$\frac{\partial SZ_{i,t}}{\partial YG_{i,t}} < 0 \Leftrightarrow 0 < \underbrace{\frac{EG_0 + SZ_0}{EL_0 - SZ_0}}_{\text{Constant of parallelism}} < \underbrace{\frac{\frac{\partial EG_{i,t}}{\partial YG_{i,t}}}{\frac{\partial EL_t}{\partial YG_{i,t}}}}_{>0} + \underbrace{\frac{-AS \cdot \left(\frac{VE_i}{\sum_j VE_j} \cdot \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} - \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}}\right)}{\frac{VE_i}{\sum_j VE_j} \cdot \frac{EL_0 - SZ_0}{EL_0 + EG_0} \cdot \frac{\partial EL_t}{\partial YG_{i,t}}}}_{>0} \tag{26}$$

---

[38] A more complicated case occurs when a change of income in one municipality also causes changes in income in other municipalities, which depend on the original income variation of municipality *k*. This is expressed by conditions $EG_{i,t} := EG_{i,t}(YG_{i,t}(YG_{k,t}))$ and $EL_t := EL_t(\sum_j YG_{j,t}(YG_{k,t}))$. Again the unconditional grants are differentiated in terms of the income change $YG_{k,t}$. An expanded derivation is made and re-arranged as shown in equation (24).

$$\frac{\partial SZ_{i,t}}{\partial YG_{k,t}} = \frac{VE_i}{\sum_j VE_j} \cdot \left(\sum_j \frac{\partial EL_t}{\partial YG_{j,t}} \cdot \frac{\partial YG_{j,t}}{\partial YG_{k,t}} \cdot \frac{EG_0 + SZ_0}{EL_0 - SZ_0} - \sum_j \frac{\partial EG_{j,t}}{\partial YG_{j,t}} \cdot \frac{\partial YG_{j,t}}{\partial YG_{k,t}}\right) \cdot \frac{EL_0 - SZ_0}{EL_0 + EG_0} + \\ + AS \cdot \left(\frac{VE_i}{\sum_j VE_j} \cdot \sum_j \frac{\partial SK_{j,t}}{\partial EG_{j,t}} \cdot \frac{\partial EG_{j,t}}{\partial YG_{j,t}} \cdot \frac{\partial YG_{j,t}}{\partial YG_{k,t}} - \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \frac{\partial YG_{i,t}}{\partial YG_{k,t}}\right) \tag{24}$$

We obtain a similar condition as before. The interpretation is also similar to that above. However, the sums of revenue changes of state and municipalities play a role in this case. A further expansion considers that with some developments the population varies due to income changes, e.g. through migration etc. The basic relation for the unconditional grants now becomes more complicated. After differentiation and re-arrangement of terms one obtain equation (25):

$$0 < \frac{EG_0 + SZ_0}{EL_0 - SZ_0} < \underbrace{\frac{\left(\frac{\partial VE_{i,t}}{\partial YG_{i,t}} \cdot \sum_j EG_{j,t}(YG_{j,t}) + VE_{i,t}(YG_{i,t}) \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}}\right) \cdot \sum_j VE_{j,t}(YG_{j,t}) - \left(VE_{i,t}(YG_{i,t}) \cdot \sum_j EG_{j,t}(YG_{j,t})\right) \cdot \frac{\partial VE_{i,t}}{\partial YG_{i,t}}}{\left(\frac{\partial VE_{i,t}}{\partial YG_{i,t}} \cdot EL_t(\sum_j YG_{j,t}) + VE_{i,t}(YG_{i,t}) \cdot \frac{\partial EL_t}{\partial YG_{i,t}}\right) \cdot \sum_j VE_{j,t}(YG_{j,t}) - \left(VE_{i,t}(YG_{i,t}) \cdot EL_t(\sum_j YG_{j,t})\right) \cdot \frac{\partial VE_{i,t}}{\partial YG_{i,t}}}}_{>0} + \\ - AS \cdot \frac{E_0}{EL_{0,v}} \cdot \underbrace{\frac{\left(\frac{\partial VE_{i,t}}{\partial YG_{i,t}} \cdot \sum_j SK_{j,t}(EG_{j,t}(YG_{j,t})) \cdot \sum_j VE_{j,t}(YG_{j,t}) - \left(VE_{i,t}(YG_{i,t}) \cdot \sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}))\right) \cdot \frac{\partial VE_{i,t}}{\partial YG_{i,t}}\right)}{\left(\frac{\partial VE_{i,t}}{\partial YG_{i,t}} \cdot EL_t(\sum_j YG_{j,t}) + VE_{i,t}(YG_{i,t}) \cdot \frac{\partial EL_t}{\partial YG_{i,t}}\right) \cdot \sum_j VE_{j,t}(YG_{j,t}) - \left(VE_{i,t}(YG_{i,t}) \cdot EL_t(\sum_j YG_{j,t})\right) \cdot \frac{\partial VE_{i,t}}{\partial YG_{i,t}}}}_{>0} + \\ + \underbrace{\frac{VE_{i,t}(YG_{i,t}) \cdot \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot \sum_j VE_{j,t}(YG_{j,t}) - \frac{\partial SK_{i,t}}{\partial EG_{i,t}} \cdot \frac{\partial EG_{i,t}}{\partial YG_{i,t}} \cdot (\sum_j VE_{j,t}(YG_{j,t}))^2}{\left(\frac{\partial VE_{i,t}}{\partial YG_{i,t}} \cdot EL_t(\sum_j YG_{j,t}) + VE_{i,t}(YG_{i,t}) \cdot \frac{\partial EL_t}{\partial YG_{i,t}}\right) \cdot \sum_j VE_{j,t}(YG_{j,t}) - \left(VE_{i,t}(YG_{i,t}) \cdot EL_t(\sum_j YG_{j,t})\right) \cdot \frac{\partial VE_{i,t}}{\partial YG_{i,t}}}}_{<0} \tag{25}$$

This indicates two effects. The expressions, which have to be larger than the parallelism size, comprise three terms. The first two terms are positive but the last one is negative. However the second one is to be subtracted from the first term. Therefore two terms decrease the expression, which in total has to be larger than the parallelism size if the municipality is going to lose unconditional grants from an income change. A higher income can lead to an increase in population size (e.g. more jobs, more pupils and families). This fact will again lead to an increase of the needs indicator and the growth of unconditional grants; however, the increase in income raises tax capacities of municipalities, which has a counter effect on unconditional grants. Which of the terms determines the fiscal autonomy depends on the sizes and distributions of the effects.

In order to avoid a reduction in unconditional grants, which means lowering fiscal autonomy, a high degree of parallelism and a high positive reaction of state revenues would be necessary if the first term on the right hand side is positive.

The change of unconditional grants refers only to one municipality, although the size of population for other municipalities varies as well. Normally, as a consequence of changing numbers of inhabitants the total state population undergoes changes and the total amount of unconditional grants does too. This is expressed in equation (27) where the individual population changes and their effects on the total amount of unconditional grants are depicted.

$$dSZ_{i,t} = \frac{\partial SZ_{1,t}}{\partial VE_{1,t}} \cdot dVE_{1,t} + \ldots + \frac{\partial SZ_{n,t}}{\partial VE_{n,t}} \cdot dVE_{n,t} \tag{27}$$

Equation (28) shows how the unconditional grants vary if the total population changes.

$$\frac{dSZ_{i,t}}{dVE_t} = \frac{\partial SZ_{1,t}}{\partial VE_{1,t}} \cdot \frac{dVE_{1,t}}{dVE_t} + \ldots + \frac{\partial SZ_{n,t}}{\partial VE_{n,t}} \cdot \frac{dVE_{n,t}}{dVE_t}, \qquad VE_t = \sum_j VE_{j,t} \tag{28}$$

The effects are greatly influenced by the share of population change in the individual municipalities. Again the derivatives found above play a role. According to the degree of parallelism some of the derivatives show negative or positive values. Thus the degree of parallelism is decisive for the distribution and absolute change of total unconditional grants.

4.2.3. Effects of Changing Parallelism

The effects of varying the parallelism can be considered by introducing a variable α. It shows the level of unconditional grants in the basic year, thus determining the degree of parallelism. The relation (12) for the unconditional grants changes to (29).

$$SZ_{i,t} = AS \cdot (VE_{i,t}(YG_{i,t}) \cdot \frac{(EL_t(\sum_j YG_{j,t}) \cdot \frac{EG_0 + \alpha \cdot SZ_0}{EL_0 - \alpha \cdot SZ_0} - \sum_j EG_{j,t}(YG_{j,t})) \cdot \frac{EL_0 - \alpha \cdot SZ_0}{EL_0 + EG_0}}{AS} + \sum_j SK_{j,t}(EG_{j,t}(YG_{j,t}))}{\sum_j VE_{j,t}(YG_{j,t})} + \\ - SK_{i,t}(EG_{i,t}(YG_{i,t}))) \tag{29}$$

What happens to the unconditional grants if α is increased? Differentiation with respect to α yields equation (29):

$$\frac{\partial SZ_{i,t}}{\partial \alpha} = \frac{VE_{i,t}(YG_{i,t})}{\sum_j VE_{j,t}(YG_{j,t})} \cdot (EL_t(\sum_j YG_{j,t}) + \sum_j EG_{j,t}(YG_{j,t})) \cdot \frac{SZ_0}{EL_0 + EG_0} > 0 \qquad (30)$$

As the first order condition is positive, the unconditional grants grow if the parallelism size is changed in favour of municipalities and decreases if the state takes a bigger share of revenues by lowering α.

4.2.4. Model Considering Two Types of Municipalities

We express horizontal parallelism[39] by a constant b_i not equal to one and a number of inhabitants not normalised. The size of the different b_i determines how the unconditional grants are allocated to different types of municipalities. For the sake of simplicity we consider two types of municipalities: (1) district-free town authorities (*kreisfreie Städte*) such as large cities and counties, differ from (2) municipalities that belong to districts (*kreisangehörige Gemeinden*).

The horizontal parallel development through vertical unconditioned grants between the group of district-free towns (group 1) and the group of municipalities belonging to districts (group 2) requires that the following relation holds:

$$\frac{\frac{SK_{1,t}}{VE_{1,t}} + \frac{SZ_{1,t}}{VE_{1,t}}}{\frac{SK_{1,0}}{VE_{1,0}} + \frac{SZ_{1,0}}{VE_{1,0}}} = \frac{\frac{SK_{2,t}}{VE_{2,t}} + \frac{SZ_{2,t}}{VE_{2,t}}}{\frac{SK_{2,0}}{VE_{2,0}} + \frac{SZ_{2,0}}{VE_{2,0}}} \qquad (31)^{40}$$

When the conditions (10) and (31) are satisfied and b_1/b_2 is constant, then the term:

---

[39] When considering the horizontal parallelism through vertical unconditioned grants, we can take into account this principle in several ways. One is to keep b_i at value 1, but to consider different categories of municipalities within VE_i. This is the usual way that the German states tackle this problem.[39] Through formula (3) a normalised *GB*, which is equal for all municipalities, is found, which depends in its size on the weighting system and the kind of vertical parallelism**.** This approach comprises horizontal parallelism, as mentioned. The relations of importance of municipalities among each other are fixed through the artificial number of inhabitants. From $SZ_{i,t} = AS \cdot (VE_i \cdot b_i \cdot GB - SK_{i,t})$ follows *(*SZ_{it} + SK_{it}*)/* VE_i = *GB* if b_i and *AS* equal 1. As *GB* is the same for all municipalities, the relation of unconditional grants and tax capacity per normalised inhabitant is the same for all municipalities. Therefore also the relation shown in equation (31) holds and becomes value 1.

[40] $SK_{1,t}$ shows the current (exogenous) tax capacity of municipalities belonging to districts at year t. $SZ_{1,t}$ expresses the current down-flow unconditional grants to the group of municipalities belonging to districts, which is determined according to their administrative rank, $SK_{2,t}$ symbolises the current (exogenous) tax capacity of district-free towns at year t, and $SZ_{1,t}$ the current down-flow of uncondi-

$$\frac{\frac{SK_{1,t}}{VE_{1,t}}+\frac{SZ_{1,t}}{VE_{1,t}}}{\frac{SK_{2,t}}{VE_{2,t}}+\frac{SZ_{2,t}}{VE_{2,t}}}=\frac{b_1}{b_2} \tag{32}$$

expresses the relation of horizontal parallelism between the municipality groups 1 and 2. The additional condition

$$SZ_{1,t}+SZ_{2,t}=SZ_t \tag{33}$$

should also be satisfied for all periods, where SZ_t means the total sum of inter-governmental unconditional grants from the state to municipalities at t, as before. This condition ensures that the vertical parallelism is considered together with the horizontal parallelism.

Integrating equation (32) into equation (33) we can endogenously determine the size of down-flow unconditional grants to the individual municipality groups (or in the case of one municipality of type 1 and one of type 2) at t:

$$SZ_{1,t}=\frac{\frac{b_1}{b_2}\cdot VE_{1,t}\cdot SZ_t-(VE_{2,t}\cdot SK_{1,t}-\frac{b_1}{b_2}\cdot VE_{1,t}\cdot SK_{2,t})}{\frac{b_1}{b_2}\cdot VE_{1,t}+VE_{2,t}},\quad SZ_{2,t}=\frac{VE_{2,t}\cdot SZ_t+(VE_{2,t}\cdot SK_{1,t}-\frac{b_1}{b_2}\cdot VE_{1,t}\cdot SK_{2,t})}{\frac{b_1}{b_2}\cdot VE_{1,t}+VE_{2,t}} \tag{34}$$

What happens to the unconditioned grants if b_1/b_2 is increased? Differentiation with respect to b_1/b_2 yields equation (35):

$$\frac{\partial SZ_{1,t}}{\partial(\frac{b_1}{b_2})}=\frac{(VE_{1,t}\cdot SZ_t+VE_{1,t}\cdot SK_{2,t})\cdot(\frac{b_1}{b_2}\cdot VE_{1,t}+VE_{2,t})-(\frac{b_1}{b_2}\cdot VE_{1,t}\cdot SZ_t-VE_{2,t}\cdot SK_{1,t}+\frac{b_1}{b_2}\cdot VE_{1,t}\cdot SK_{2,t})\cdot VE_{1,t}}{(\frac{b_1}{b_2}\cdot VE_{1,t}+VE_{2,t})^2}= \tag{35}$$
$$=\frac{VE_{1,t}\cdot VE_{2,t}\cdot(SZ_t+SK_{1,t}+SK_{2,t})}{(\frac{b_1}{b_2}\cdot VE_{1,t}+VE_{2,t})^2}>0$$

tional grants to the district-free group of district-free towns. ( ) depicts the number of inhabitants at year t in the group of municipalities belonging to district-free towns.

$$\frac{\partial SZ_{2,t}}{\partial(\frac{b_1}{b_2})} = \frac{(-VE_{1,t} \cdot SK_{2,t}) \cdot (\frac{b_1}{b_2} \cdot VE_{1,t} + VE_{2,t}) - (VE_{2,t} \cdot SZ_t + VE_{2,t} \cdot SK_{1,t} - \frac{b_1}{b_2} \cdot VE_{1,t} \cdot SK_{2,t}) \cdot VE_{1,t}}{(\frac{b_1}{b_2} \cdot VE_{1,t} + VE_{2,t})^2} = \\ = \frac{-VE_{1,t} \cdot VE_{2,t} \cdot (SZ_t + SK_{1,t} + SK_{2,t})}{(\frac{b_1}{b_2} \cdot VE_{1,t} + VE_{2,t})^2} < 0 \tag{36}$$

The unconditional grants vary in favour of type of municipality that benefits from a high consideration in parallelism through its factor *b*. If we analyse the effects of vertical and horizontal parallelism on fiscal autonomy (the amount of unconditional grants), all relevant equations are expanded by an expression $b_i / \sum b_j$ considering horizontal parallelism as well. The conclusions about changes vary in size but the direction of changes remains same. The parallelism affects municipal fiscal autonomy differently.

5. Conclusions

For Germany, Switzerland Poland and the UK the relation of municipal expenditures to GPD does not differ essentially although Germany and Switzerland have federal system. Municipal investment is an important expenditure item in all four countries. Municipalities of Poland and the UK rely more strongly on fiscal transfers.

The development of public finance during the last decade demonstrates that (1) central government interventions with fiscal consequences have intensified, (2) territorial and administrative reforms caused financial restructuring burdens, (3) tax reforms disturbed municipal finance, (4) western European countries rapidly increased local expenditures for social tasks, (5) municipalities tried budget consolidation, (6) financial losses caused by EU regulations occurred, and (7) municipalities experienced a reduction in fiscal autonomy. In addition, transformation played a role in Poland and Germany.

In order to ensure fiscal autonomy some serious attempts appear to be necessary to protect local governments within intergovernmental fiscal relations in addition to the tax reforms favouring municipalities. In this context the connection principle is examined which aims at preventing municipalities from shifting tasks from higher to lower-level governments without providing sufficient financial means. Although the fiscal compensation can be made in terms of new taxes, fees, transfer of property, simplifying the credit restrictions, etc., the most appropriate one seems to be conditional grants.

In all the investigated countries conditional current and investment grants are important, as mentioned above. Therefore the fiscal autonomy of municipalities can be effectively protected through the specification of conditional grants, although higher-level

governments control the grant conditions. Goals of higher government levels are achieved in a principal-agent situation where the higher government functions as the principal and the municipal government as the agent. The usual principal-agent solutions will be found as long as the higher government level can keep the municipality at its minimum utility level (e.g. the minimum level of goal realisation). From a negotiation model between a higher-level government and a municipality as players, a Nash solution can also be found that demonstrates the size and conditions of the conditional grants. Thus political recommendations are formulated to increase municipal power with respect to conditional grants, when planning and co-operative decision-making.

The implementation of the principle of fiscal parallelism between higher-level governments and municipalities with respect to unconditional grants appears to be another option to safeguard local fiscal autonomy. Yet, it seems to be rather problematic to find the optimal relation between the development of fiscal capacity of a state and that of the municipalities. Further weaknesses concern the size, constancy and determination of the parallelism relation in the case of unforeseen developments, etc. The effects of such kind of parallelism on the fiscal autonomy of a municipality have not yet been discovered. Therefore, a model of intergovernmental fiscal relation through unconditional grants is extended under the consideration of parallelism. For example, it must be determined whether local fiscal autonomy is enhanced if tax revenues vary under the condition of a parallelism change. With a large size of parallelism and a considerably high increase in state revenues, the amount of unconditional grants and fiscal autonomy increase. In a similar context, various additional conditions are also elaborated for the cases of changing population size, income and the parallelism relation itself. The kinds and size of considering the parallelism depend on the interplay between population, income tax revenue movements on the municipality and state level and on the size of the parallelism. This is true for unconditional grants adopted for the vertical fiscal equalisation as well as for the horizontal one through the vertically provided unconditional grants made under the consideration of priorities for some groups of municipalities.

References

Arnold, V. and O.-E. Geske, (1988), Öffentliche Finanzwirtschaft, Vahlen, Munich.

Bennet, R.J. and G.K. Krebs (1988), Local Business Taxes in Britain and Germany, Nomos, Baden-Baden.

Blankart, C. B. and R. Borck (2000), Local Public Finance: A Survey, Discussion Paper, Wirtschaftswissenschaftliche Fakultät der Humboldt-Universität Berlin, Economic Series, No. 154.

Borodo, A. (2003), Aktuelle Probleme der Kommunalfinanzen Polens angesichts der Reformen von 1990 und 1999, in: P. Friedrich and J.W. Tkaczyński (Eds.), Business Promotion Activities in Poland and Germany - Wirtschaftsförderung in Polen und Deutschland, TNOiK, Toruń.

Bull, H.P. and F. Welti (1996), Schwachstellen der geltenden Finanzverfassung, Neue verwaltungswissenschaftliche Zeitschrift, Vol. 16: 836 – 846.

Bundesamt für Statistik (2002), Statistisches Jahrbuch der Schweiz 2002, Neue Zürcher Zeitung, Zürich.

Castellucci, L. (2000), Effects on the Financial Autonomy of Local and Regional Authorities Resulting from the Limits Set at European Level on National Public Debt, Report by the Steering Committee on Local and Regional Democracy (CDLR), Local and Regional Authorities in Europe, No. 71, Council of Europe Publishing, Strasbourg.

Coutry, P. and G. Marschk (2003), Dynamics of Performance Measurement Systems, Oxford Review of Economic Policy, Vol. 19: 268-284.

Dafflon, B. (ed., 2000), Local Public Finance in Europe, Balancing the Budget and Controlling Debt, Elgar, Cheltenham.

Döring, T. and D. Stahl (1999), Räumliche Aspekte der föderalen Aufgabenverteilung, der Finanzverfassung und der Subventionspolitik in der Bundesrepublik Deutschland, Akademie für Raumforschung und Landesplanung, Hannover.

Drennan, M.P. and D. Netzer (eds., 1997), Readings in State and Local Public Fnance, Blackwell, Oxford.

Fisher, R.C. (1996), State and Local Public Finance, Irwin, Chicago.

Frey, R.L. and A. Schaltegger (2003), Finanzausgleich und Föderalismus: Zur Neugestaltung der föderalen Ausgleichsbeziehungen am Beispiel der Schweiz, Perspektiven der Wirtschaftspolitik, Vol. 4: 239-258.

Gravelle, H. and R. Rees (1992), Microeconomics, Longman, London and New York.

Grout, P.A. and M. Stevens (2003), The Assessment: Financing and Managing Public Services, Oxford Review of Economic Policy, Vol. 19, 215-234.

Grundlach, U. (2000), Die Kommunen im Steuer- und Abgabenstaat, Landes- und Kommunalverwaltung, Vol. 10: 7-13.

Hedtkamp, G. (2000), Report by the Congress of Local and Regional Authorities (CLRAE) in Europe on Local Finance in Europe, Council of Europe Publishing, Strasbourg.

Henneke, H.-G. (2003), Darf der Bund bestellen, wenn er bezahlt, oder soll der Bund bezahlen müssen, wenn er bestellen darf?, Der Landkreis, Vol. 73: 137-148.

Henneke, H.-G. and I. Vorholz (2002), Anwendungsrelevanz des strikten Konnexitätsprinzip am Beispiel des AG-BSHG Bbg, Landes- und Kommunalverwaltung, Vol. 12: 297-304.

Hohrmann, F. (1967), Bundesgesetzliche Organisation landesunmittelbarer Selbstverwaltungskörperschaften, Duncker & Humblot, Berlin.

Karrenberg, H. and E. Münstermann (1999), Gemeindefinanzbericht, Der Städtetag, Kohlhammer, Stuttgart.

Kazakov, A. (2003), Kostenbelastung durch gesamtstaatliche Aufgaben (Konnexitätsprinzip), Universität Marburg, Marburg (mimeo).

King, D. and R. Jequier (2000), Report by the Steering Committee on Local and Regional Authorities (CLRAE) on Local Finance in Europe, Council of Europe Publishing, Strasbourg.

Kirchhof, P. (2002), Die Reform der kommunalen Finanzausstattung, Neue juristische Wochenzeitschrift, Vol. 55: 1549-1553.

Klein, O. (2003), Das verfassungsrechtliche Konnexitätsprinzip, Kommunalwissenschaftliches Institut der Universität Potsdam, Potsdam.

Matinez-Vazquez, J. and J. Alm (eds., 2003), Public Finance in Developing and Transitional Countries: Essays in Honour of Richard Bird, Elgar, Cheltenham.

Myers, G. M. (2000), The Economics of Fiscal Federalism and Local Finance, Regional Science and Urban Economics, Vol. 30: 725-730.

Nam, C. W. and R. Parsche (2001), Municipal Finance in Poland, the Slovak Republic, the Czech Republic and Hungary: Institutional Framework and Recent Development, MOCT-MOST Economic Policy in Transitional Economies, Vol. 11: 113-134.

Nam, C. W., R. Parsche and M. Steinherr (2001), The Principles of Parallel Development of State and Municipalities as Useful Benchmarks for the Determination of Intergovernmental Grants in Germany, European Planning Studies, Vol. 9: 525-537.

Pola, G. (ed., 1996), Development in Local Government Finance: Theory and Policy, Elgar, Cheltenham.

Rehm, H. and S. Matern-Rehm (2003), Kommunale Finanzwirtschaft, Lang, Frankfurt/Main.

Schneider, H. P. (1998), Nehmen ist seliger als Geben. Oder: Wieviel Föderalismus verträgt der Bundesstaat, Neue juristische Wochenzeitschrift, Vol. 51: 3757-3759.

Schoch, F. (2000), Die Dogmatik zum finanzverfassungsrechtlichen Schutz der kommunalen Selbstverwaltung, Archiv für Kommunalwissenschaften, Vol. 39: 225-242.

Smith, P. (2003), Formula Funding of Public Services: An Economic Analysis, Oxford Review of Economic Policy, Vol. 19: 301-322.

Statistisches Bundesamt (2002), Finanzen und Steuern, Rechnungsergebnisse der kommunalen Haushalte 1999, Fachserie 14, Reihe 3.3, Poeschel, Stuttgart.

Statistisches Bundesamt (2002a), Statistisches Jahrbuch für die Bundesrepublik Deutschland 2002, Poeschel, Stuttgart, and other statistical yearbooks from 1991 on.

Trapp, G. (1997), Das Veranlassungsprinzip in der Finanzverfassung der Bundesrepublik Deutschland, Duncker & Humblot, Berlin.

UK Office of the Deputy prime Minister (2000), Local Government Financial Statistics, No. 11, London.

Zimmermann, H. (1999), Kommunalfinanzen, Nomos, Baden-Baden.

Annex

Table a1

Yearly Classification of Municipal Revenues in Germany (Absolute in million € and Share)

	1991		1992		1993		1994		1995		1996		1997		1998		1999	
	actual	%	actual	%	actual	%	actual	%	Actual	%	actual	%	actual	%	actual	%	actual	%
Taxes and similar revenues	38709	34.0	43790	28.7	44577	27.6	44836	27.1	44078	26.4	44066	26.5	44805	27.6	48613	33.6	50970	34.9
Revenues from enterprise and fees	4718	4.1	6270	4.1	6644	4.1	6987	4.2	7036	4.2	7308	4.4	7445	4.6	7697	5.3	7899	5.4
Received interests	1223	1.1	1576	1.0	1429	0.9	1216	0.7	1144	0.7	1052	0.6	998	0.6	1106	0.8	1041	0.7
Current grants	46587	40.9	65627	4.3	72347	4.5	75638	45.7	78458	47.0	77265	46.5	72677	44.7	71763	49.6	72830	49.9
Other current receipts	27713	24.3	36158	23.7	39119	24.2	41167	24.9	42343	25.3	41201	24.8	40709	25.0	20380	14.1	20005	13.7
Less those from other towns	18633	16.4	22093	14.5	25513	15.8	27434	16.6	28645	17.1	28357	17.1	27196	16.7	26870	18.6	27464	18.8
Sale of real estates	3267	2.9	4562	3.0	5459	3.4	6527	3.9	6402	3.8	6833	4.1	6743	4.1	6637	4.6	6391	4.4
Property transfer	10276	9.0	16609	10.9	17174	10.6	15986	9.7	15850	9.5	15773	9.5	15177	9.3	13112	9.1	12599	8.6
Obtain. Capital service	332	0.3	400	0.3	535	0.3	639	0.4	656	0.4	815	0.5	829	0.5	719	0.5	806	0.6
Participation on sale	235	0.2	215	0.1	271	0.2	720	0.4	367	0.2	614	0.4	836	0.5	1724	1.2	1090	0.7

Net new debts	370	0.3	773	0.5	363	0.4	549	0.3	575	0.3	751	0.5	603	0.4	472	0.3	394	0.3
Less borrows from municipalities	840	0.7	1114	0.7	1221	0.8	1182	0.7	1174	0.7	1151	0.7	1104	0.7	696	0.5	636	0.4
Total consolidated receipts	113957	100.0	152772	100.0	161458	100.0	165649	100.0	167090	100.0	166171	100.0	162522	100.0	144657	100.0	145925	100.0

Source: Statistisches Bundesamt (2002a), p. 503 , and statistical yearbooks from 1991 on.

Table a2

Yearly Classification of Municipal Expenditures of Germany (Absolute in million € and Share)

	1991		1992		1993		1994		1995		1996		1997		1998		1999	
	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%
Organisation and Management	12121	9.0	13016	8.5	13083	8.1	13039	8.0	13370	8.1	13365	8.2	13191	8.2	13420	8.3	13873	8.5
Security	4952	3.7	5792	3.8	6258	3.9	6358	3.9	6696	4.0	6757	4.1	6849	4.3	6980	4.3	7188	4.4
Schools	12349	9.2	12825	8.4	13167	8.2	13123	8.0	13528	8.1	13376	8.2	13307	8.3	13340	8.3	13343	8.1
Science and Research	5117	3.8	5812	3.8	5859	3.6	5641	3.5	5733	3.5	5692	3.5	5668	3.5	5782	3.6	5945	3.6
Social Welfare	33043	24.6	38850	25.5	43396	27.0	46481	28.4	48337	29.1	46618	28.6	43285	27.1	42954	26.6	43230	26.4
Health, Sports. Leisure	6220	4.6	8362	5.5	8195	5.1	8051	4.9	7876	4.7	7540	4.6	7309	4.6	7212	4.5	7253	4.4
Construction. Housing and Traffic	18976	14.1	20277	13.3	20081	12.5	19836	12.1	19405	11.7	18971	11.6	18619	11.6	18511	11.5	19240	11.7
Public Facilities. Business Pro-motion	16992	12.6	20100	13.2	19778	12.3	19341	11.8	19249	11.6	18423	11.3	17940	11.2	16846	10.4	16428	10.0
Municipal Firms. Real Estate Funds	8747	6.5	9852	6.5	9871	6.1	9685	5.9	9339	5.6	8646	5.3	8603	5.4	8568	5.3	8865	5.4
Finance	15942	11.9	17424	11.4	20914	13.0	21898	13.4	22506	13.6	23515	14.4	25181	15.7	27730	17.2	28408	17.3
Total	134457	100.0	152309	100.0	160603	100.0	163456	100.0	166038	100.0	162902	100.0	15995	100.0	16134	100.0	163774	100.0

All figures include special financial operations.
Source: Statistisches Bundesamt (2002), p. 12.

Table a3

Yearly Classification of Revenues of Swiss Municipalities (Share in %)

	1990	1994	1995	1996	1997	1998	1999
Income and property taxes	49.0	46.6	46.7	45.8	45.7	45.7	46.0
Consumption taxes		0.2	0.2	0.2	0.1	0.2	0.1
Profits and concessions	0.2	0.3	0.3	0.3	0.3	0.4	0.3
Revenues from property	6.3	6.7	6.7	6.3	6.7	6.5	6.3
Fees	21.8	25.2	25.6	25.7	25.9	25.9	25.3
Development contributions refunding	3.61	3.0	2.9	2.8	2.8	2.9	2.9
Grant and unconditioned contributions	13.6	13.2	13.0	14.2	14.4	14.4	14.9
Receipts for investments	5.5	4.8	4.6	4.7	4.1	4.1	4.1
Total (in million Sfr)	30115	37828	38506	39459	39232	40212	42055

Source: Bundesamt für Statistik (2002), p. 820.

Table a4

Yearly Classification of Expenditures of Swiss Municipalities (Absolute in million Sfr and Share)

	1990		1994		1995		1996		1997		1998		1999	
	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%
Organisation and management	2873	9.5	3351	8.8	3373	8.8	3282	8.5	3335	8.7	3395	8.6	3361	8.5
Justice. police. fire protection	1360	4.5	1768	4.7	1799	4.7	1789	4.6	1792	4.7	1809	4.6	1783	4.5
Defence	560	1.9	429	1.1	380	1.0	353	0.9	302	0.8	281	0.7	260	0.7
Education	6673	22.1	8497	22.4	8769	22.8	8886	23.0	8924	23.2	9043	23.0	9028	22.7
Culture and leisure	1988	6.6	2072	5.5	2038	5.3	2045	5.3	1994	5.2	2094	5.3	2062	5.2
Health	4826	16.0	6772	17.9	6903	18.0	6923	17.9	6922	18.0	7035	17.9	7260	18.3
Social welfare	3365	11.1	4776	12.6	4989	13.0	5206	13.5	5346	13.9	5592	14.2	5878	14.8
Traffic	2642	8.7	2980	7.9	2945	7.7	2940	7.6	2873	7.5	2787	7.1	2921	7.4
Environment and regional planning	2782	9.2	3345	8.8	3288	8.6	3406	8.8	3378	8.8	3529	9.0	3485	8.8
Economics	1022	3.4	907	2.4	837	2.2	800	2.1	621	1.6	700	1.8	707	1.8
Finance and taxation	2154	7.1	2976	7.9	3107	8.1	3066	7.9	2982	7.8	3062	7.8	2969	7.5
Total	30245	100.0	37873	100.0	38428	100.0	38696	100.0	38469	100.0	39327	100.0	39714	100.0

Source: Bundesamt für Statistik (2002), p. 827

Table A5

Yearly Classification of Local Authority Income In England*(Absolute in million GBP and Share)

	1990/1		1991/2		1992/3		1993/4		1994/5		1995/6		1996/7		1997/8		1998/9	
	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%
Revenues from local taxes (a)	22530	37.6	20912	32.0	21756	31.4	20392	29.5	19844	27.7	21042	28.6	23102	30.6	23170	30.0	24759	30.4
Local fees and charges (b)	12340	20.6	13514	20.7	13983	20.2	13191	19.1	13934	19.4	13611	18.5	14180	18.8	14923	19.3	16245	20.0
Non-tax Revenues (c)	4588	7.7	3397	5.2	3114	4.5	4086	5.9	3291	4.6	3018	4.1	3184	4.2	3531	4.6	4137	5.1
Intergovernmental transfers & grants and Revenues from Tax Sharing (d)	21437	35.8	28868	44.1	32585	47.0	34575	50.0	37012	51.6	36919	50.2	35897	47.5	36712	47.6	37234	45.7
Bank credits & municipal bonds (e)	-507	-0.9	529	0.8	557	0.8	1160	1.7	155	0.2	1115	1.5	1570	2.1	931	1.2	931	1.1
less (f)	-1703	-2.8	-2243	-3.1	-2644	-3.8	-4302	-6.2	-2529	-3.5	-2137	-2.9	-2337	-3.1	-2057	-2.7	-1875	-2.3
Total Amount of Total Revenues	57468	100.0	65449	100.0	69351	100.0	69102	100.0	71707	100.0	73568	100.0	75596	100.0	77210	100.0	81431	100.0

*All figures in British Pounds (Millions). According to Table 2.1. Local Government Financial Statistics England 2000. These figures incorporate Total Revenue Income as well as Total Capital Income

a) Includes council taxes, national non-domestic rates, council tax benefit grant and council tax transitional reduction scheme grant.

b) Includes fees, charges and other income from General Fund Account, rents and other income from Housing Revenue Account as well as fees. charges and other income from the External Trading Services Revenue Accounts.

c) Includes all external interest receipts as well as non-governmental grants, contributions and capital receipts from Capital Account. Note: Grants, contributions and capital receipts from disposals of fixed assets, leasing disposals, repayments. etc. have a one-time only revenue character.

d) Includes revenue support grants to Local Authorities, Community charge grant, SSA reduction grant, specific and special government grants, government subsidies and grants from Housing Revenue Account and grants used for debt redemption. Tax sharing also included.

e) Includes external income, notional borrowing, increase in borrowing, commutation of specific loan charges, net change in capital creditors and accruals adjustment to reflect the correct year. Note: Accruals adjustment for 1990/1 was negative, hence the negative value of Bank Credits and municipal bonds.

f) Less indicates recharges to other accounts, receipts to local authorities, housing benefit transfers from other revenue account.

Source: UK Office of the Deputy Prime Minister (2000).

Table a6

Yearly Classification of Municipal Income in Poland (Absolute in million Zlotys and Share)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Revenues from local taxes (a)	25.3	24.7	20.6	21.3	15.3	15.0	14.9	15.8	16.2	18.5
Local fees and charges (b)	4.6	4.4	3.6	3.8	6.8	7.0	4.7	5.7	5.1	9.6
Non-tax revenues (c)	n/a	n/a	n/a	n/a	6.3	6.8	7.2	8.8	9.0	5.3
Intergovernmental transfers. specific grants and Revenues from Tax Sharing (d)	70.1	70.9	75.8	74.9	71.6	71.2	73.3	69.7	69.7	66.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total amount of revenues in million Zlotys*	6440	9649	14808	19993	30956	39518	46119	32354	34584	37287

*Note: Years 1990 to 1991 not included due to the lack of proper data.

a) Includes Tax on real estate and agricultural tax

b) Includes Transportation charges and treasury fees collected.

c) Includes revenue form sale of property i.e. one time revenue character. 1992-1995: data on non-tax revenues not available.

d) Includes shares in income taxes to State budget revenue, allocations and general subsidies from State budget revenue.

Source: Polish Official Statistics, Regional Data Bank, http://www.stat.gov.pl.

Table a7

Yearly Classification of Total Local Authority Expenditure in England (Absolute in million GBP and Share)*

	1990/1		1991/2		1992/3		1993/4		1994/5		1995/6		1996/7		1997/8		1998/9	
	actual	%	actual	%	actual	%	actual	%	actual	%	actual	%	Actual	%	actual	%	actual	%
Housing	3037	7.2	2694	5.8	2413	4.8	2647	5.3	2387	4.6	2344	4.4	2109	3.8	2032	3.6	2321	4.9
Transport	1510	3.6	1672	3.6	1860	3.7	1986	4.0	2141	4.1	2023	3.8	1802	3.3	1745	3.1	1689	3.5
Education	18182	42.9	20379	43.9	21692	43.5	19507	39.2	19568	37.6	19449	36.3	19738	35.9	20022	35.7	10295	21.5
Personal Social Services	4381	10.4	4782	10.3	5130	10.3	5836	11.7	6811	13.1	7522	14.0	8134	14.8	8602	15.4	9194	19.2
Fire Services	1008	2.4	1096	2.4	1174	2.4	1182	2.4	1267	2.4	1293	2.4	1330	2.4	1388	2.5	1450	3.0
Agriculture and Fisheries	54	0.1	51	0.1	32	0.1	34	0.1	33	0.1	53	0.1	55	0.1	51	0.1	52	0.1
Sport. Recreation	1325	3.1	1308	2.8	690	1.4	681	1.4	706	1.4	730	1.4	740	1.4	731	1.3	779	1.6
Protective Services (a)	5219	12.3	5772	12.4	6272	12.6	6281	12.6	6907	13.3	7110	13.3	7398	13.5	7634	13.6	7848	16.4
Urban and Regeneration Programmes	440	1.0	540	1.2	693	1.4	761	1.5	653	1.3	564	1.1	725	1.3	649	1.2	628	1.3
Other Services (b)	5.093	12.0	5429	11.7	6284	12.6	6348	12.8	6502	12.5	6821	12.7	6942	12.6	7314	13.1	7733	16.2
Social Housing Grant	5089	4.9	2676	5.8	3585	7.2	4553	9.1	5121	9.8	5679	10.6	5963	10.9	5861	10.5	5848	12.2
Total	42338	100.0	46399	100.0	49825	100.0	49816	100.0	52096	100.0	53588	100.0	54936	100.0	56029	100.0	47837	100.0

*NOTE: Total expenditures include capital and operational expenditures.
a) Includes police, probation and aftercare, civil defence and magistrates' courts.
b) Includes environmental services, consumer protection, careers and sheltered employment and museums, galleries and libraries.
Source: UK Office of the Deputy Prime Minister (2000).

Table a8
Total Municipal Expenditures by Year in Poland (Absolute in million Zlotys and Share)

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Agriculture and Hunting	2.9	2.4	2.6	2.4	2.5	2.1	2.4	2.0	2.3
Transport and telecommunication services	2.4	2.0	1.9	1.9	2.2	2.3	6.2	6.5	12.2
Communal Economy	30.9	27.7	29.7	23.0	22.6	22.9	17.0	16.0	9.6
Dwelling Economy	8.1	6.9	5.3	4.3	4.7	4.8	4.5	3.9	3.2
Education	20.9	26.4	26.0	38.7	37.7	37.2	40.6	42.7	41.0
Culture. etc.	3.7	3.5	3.3	2.8	2.8	2.9	3.0	3.0	3.2
Healthcare**	17.9	19.2	18.9	6.3	6.3	6.3	1.4	1.2	1.1
Welfare				9.5	9.7	9.8	10.7	10.6	11.9
Sport. Physical Education	1.3	1.3	1.3	1.2	1.6	1.8	2.0	1.8	2.0
Public Administration	11.9	10.7	11.1	10.0	9.9	9.9	12.4	12.4	13.5
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Expenditures*	9583	14904	19828	31499	40504	47495	32835	36211	38568

Note: Data starts with 1993 due to lack of complete data for 1990 - 1992.
* Total Expenditures include operating costs and investments.
** For the data sets in years 1993, 1994 and 1995 Healthcare and Welfare were classified together under the same category.
Source: Polish Official Statistics, Regional Data Bank, http://www.stat.gov.pl.

CESifo Working Paper Series

(for full list see www.cesifo.de)

1044 Thomas Stratmann, Tainted Money? Contribution Limits and the Effectiveness of Campaign Spending, September 2003

1045 Marianna Grimaldi and Paul De Grauwe, Bubbling and Crashing Exchange Rates, September 2003

1046 Assar Lindbeck and Dennis J. Snower, The Firm as a Pool of Factor Complementarities, September 2003

1047 Volker Grossmann, Firm Size and Diversification: Asymmetric Multiproduct Firms under Cournot Competition, September 2003

1048 Dan Anderberg, Insiders, Outsiders, and the Underground Economy, October 2003

1049 Jose Apesteguia, Steffen Huck and Jörg Oechssler, Imitation – Theory and Experimental Evidence, October 2003

1050 G. Abío, G. Mahieu and C. Patxot, On the Optimality of PAYG Pension Systems in an Endogenous Fertility Setting, October 2003

1051 Carlos Fonseca Marinheiro, Output Smoothing in EMU and OECD: Can We Forego Government Contribution? A Risk Sharing Approach, October 2003

1052 Olivier Bargain and Nicolas Moreau, Is the Collective Model of Labor Supply Useful for Tax Policy Analysis? A Simulation Exercise, October 2003

1053 Michael Artis, Is there a European Business Cycle?, October 2003

1054 Martin R. West and Ludger Wößmann, Which School Systems Sort Weaker Students into Smaller Classes? International Evidence, October 2003

1055 Annette Alstadsaeter, Income Tax, Consumption Value of Education, and the Choice of Educational Type, October 2003

1056 Ansgar Belke and Ralph Setzer, Exchange Rate Volatility and Employment Growth: Empirical Evidence from the CEE Economies, October 2003

1057 Carsten Hefeker, Structural Reforms and the Enlargement of Monetary Union, October 2003

1058 Henning Bohn and Charles Stuart, Voting and Nonlinear Taxes in a Stylized Representative Democracy, October 2003

1059 Philippe Choné, David le Blanc and Isabelle Robert-Bobée, Female Labor Supply and Child Care in France, October 2003

1060 V. Anton Muscatelli, Patrizio Tirelli and Carmine Trecroci, Fiscal and Monetary Policy Interactions: Empirical Evidence and Optimal Policy Using a Structural New Keynesian Model, October 2003

1061 Helmuth Cremer and Pierre Pestieau, Wealth Transfer Taxation: A Survey, October 2003

1062 Henning Bohn, Will Social Security and Medicare Remain Viable as the U.S. Population is Aging? An Update, October 2003

1063 James M. Malcomson , Health Service Gatekeepers, October 2003

1064 Jakob von Weizsäcker, The Hayek Pension: An efficient minimum pension to complement the welfare state, October 2003

1065 Joerg Baten, Creating Firms for a New Century: Determinants of Firm Creation around 1900, October 2003

1066 Christian Keuschnigg, Public Policy and Venture Capital Backed Innovation, October 2003

1067 Thomas von Ungern-Sternberg, State Intervention on the Market for Natural Damage Insurance in Europe, October 2003

1068 Mark V. Pauly, Time, Risk, Precommitment, and Adverse Selection in Competitive Insurance Markets, October 2003

1069 Wolfgang Ochel, Decentralising Wage Bargaining in Germany – A Way to Increase Employment?, November 2003

1070 Jay Pil Choi, Patent Pools and Cross-Licensing in the Shadow of Patent Litigation, November 2003

1071 Martin Peitz and Patrick Waelbroeck, Piracy of Digital Products: A Critical Review of the Economics Literature, November 2003

1072 George Economides, Jim Malley, Apostolis Philippopoulos, and Ulrich Woitek, Electoral Uncertainty, Fiscal Policies & Growth: Theory and Evidence from Germany, the UK and the US, November 2003

1073 Robert S. Chirinko and Julie Ann Elston, Finance, Control, and Profitability: The Influence of German Banks, November 2003

1074 Wolfgang Eggert and Martin Kolmar, The Taxation of Financial Capital under Asymmetric Information and the Tax-Competition Paradox, November 2003

1075 Amihai Glazer, Vesa Kanniainen, and Panu Poutvaara, Income Taxes, Property Values, and Migration, November 2003

1076 Jonas Agell, Why are Small Firms Different? Managers' Views, November 2003

1077 Rafael Lalive, Social Interactions in Unemployment, November 2003

1078 Jean Pisani-Ferry, The Surprising French Employment Performance: What Lessons?, November 2003

1079 Josef Falkinger, Attention, Economies, November 2003

1080 Andreas Haufler and Michael Pflüger, Market Structure and the Taxation of International Trade, November 2003

1081 Jonas Agell and Helge Bennmarker, Endogenous Wage Rigidity, November 2003

1082 Fwu-Ranq Chang, On the Elasticities of Harvesting Rules, November 2003

1083 Lars P. Feld and Gebhard Kirchgässner, The Role of Direct Democracy in the European Union, November 2003

1084 Helge Berger, Jakob de Haan and Robert Inklaar, Restructuring the ECB, November 2003

1085 Lorenzo Forni and Raffaela Giordano, Employment in the Public Sector, November 2003

1086 Ann-Sofie Kolm and Birthe Larsen, Wages, Unemployment, and the Underground Economy, November 2003

1087 Lars P. Feld, Gebhard Kirchgässner, and Christoph A. Schaltegger, Decentralized Taxation and the Size of Government: Evidence from Swiss State and Local Governments, November 2003

1088 Arno Riedl and Frans van Winden, Input Versus Output Taxation in an Experimental International Economy, November 2003

1089 Nikolas Müller-Plantenberg, Japan's Imbalance of Payments, November 2003

1090 Jan K. Brueckner, Transport Subsidies, System Choice, and Urban Sprawl, November 2003

1091 Herwig Immervoll and Cathal O'Donoghue, Employment Transitions in 13 European Countries. Levels, Distributions and Determining Factors of Net Replacement Rates, November 2003

1092 Nabil I. Al-Najjar, Luca Anderlini & Leonardo Felli, Undescribable Events, November 2003

1093 Jakob de Haan, Helge Berger and David-Jan Jansen, The End of the Stability and Growth Pact?, December 2003

1094 Christian Keuschnigg and Soren Bo Nielsen, Taxes and Venture Capital Support, December 2003

1095 Josse Delfgaauw and Robert Dur, From Public Monopsony to Competitive Market. More Efficiency but Higher Prices, December 2003

1096 Clemens Fuest and Thomas Hemmelgarn, Corporate Tax Policy, Foreign Firm Ownership and Thin Capitalization, December 2003

1097 Laszlo Goerke, Tax Progressivity and Tax Evasion, December 2003

1098 Luis H. B. Braido, Insurance and Incentives in Sharecropping, December 2003

1099 Josse Delfgaauw and Robert Dur, Signaling and Screening of Workers' Motivation, December 2003

1100 Ilko Naaborg,, Bert Scholtens, Jakob de Haan, Hanneke Bol and Ralph de Haas, How Important are Foreign Banks in the Financial Development of European Transition Countries?, December 2003

1101 Lawrence M. Kahn, Sports League Expansion and Economic Efficiency: Monopoly Can Enhance Consumer Welfare, December 2003

1102 Laszlo Goerke and Wolfgang Eggert, Fiscal Policy, Economic Integration and Unemployment, December 2003

1103 Nzinga Broussard, Ralph Chami and Gregory D. Hess, (Why) Do Self-Employed Parents Have More Children?, December 2003

1104 Christian Schultz, Information, Polarization and Delegation in Democracy, December 2003

1105 Daniel Haile, Abdolkarim Sadrieh and Harrie A. A. Verbon, Self-Serving Dictators and Economic Growth, December 2003

1106 Panu Poutvaara and Tuomas Takalo, Candidate Quality, December 2003

1107 Peter Friedrich, Joanna Gwiazda and Chang Woon Nam, Development of Local Public Finance in Europe, December 2003