

# Public Transport in Bielefeld (Germany) and Berne (Switzerland) since 1950: A comparative analysis of efficiency, effectiveness and political background

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*The case studies of Berne and Bielefeld show two cities, that are in many regards quite comparable but with enormous differences in their transport sector. In the agglomeration of Berne 26% of all trips are made by public transport compared with only 15% in Bielefeld. This questions some of the well-established results of international comparative research on urban transport policies. Without denying the importance of land-use patterns and other often used explanations such as gas prices, income or car ownership, it seems obvious that these factors cannot sufficiently explain why transport systems in Berne and Bielefeld differ so much. More attention should be paid to historical and institutional explanations. The case studies show that the most important decisions for the development and efficiency of the future transport sector were made in the mid 60s, years before the so-called “environmental turn” of 1970. External incentives to build costly and inefficient infrastructure were much stronger in Bielefeld, with the result that the uncovered costs per ride were several times higher than in Berne in 1995. These results underline the importance of comparative in-depth case studies of urban transport policy.*

**Keywords:** Transport policy, urban transport, history of transport, transport costs, transport efficiency, Switzerland, Germany, Berne, Bielefeld

## 1. Introduction

The relationship between the city and the automobile is anything but a love story. Congestion, safety problems, environmental damage and urban sprawl are caused by the automobile. All these unsolved problems remain a challenge to urban planners and politicians all over the world. Promoting public transport is one of the most obvious strategies for creating a sustainable transport system for urban areas. This seems to be a very difficult task

since there is a decline in public transport in most places (Kenworthy/Laube, 1999; Pucher/Lefébre, 1996). Nevertheless, a closer look at many aspects in quite similar cities often reveals huge differences in their transport systems with wide-reaching consequences for the effectiveness and efficiency of local transport policy.

The explanation of these differences could help to evaluate current strategies for strengthening public transport. This article is a plea for in-depth case studies of single cities that incorporate the whole era since World War II. As the examples of Berne (Switzerland) and Bielefeld (Germany) show, this could lead to a reformulation of commonly given explanations for the determinants of urban transport.

The focus of local case studies lies in the analysis of the annual reports from the urban transport operators and from the transport expenditure of urban budgets.

In the first part of this article reference is made to the differences that already exist between Bielefeld and Berne with regard to the outcome of urban transport policy. In connection with this it is also shown that the literature does not offer a satisfactory explanation for these differences. The next section will demonstrate that Berne and Bielefeld are not isolated cases within their own national contexts and therefore the question of generalising the case study results should receive careful consideration. This points to a need for a more intensive historical analysis of these case studies and the second part of this article will deal with this. The third part will look at the question of the effectiveness and efficiency of local transport policy with a view to the development of local transport operations. The fourth and fifth parts will formulate a summary of the results as well as those questions requiring further research.<sup>1</sup>

## **2. Similar cities - different transport**

Since the total number of trips per person does not differ considerably in the cities compared - at least where data are available - modal split share is a good indicator for the outcomes of urban transport policies (Apel 1992, Pucher 1988a, Pucher 1988b). Figure 1 shows this data for the agglomeration of Berne and the city of Bielefeld.<sup>2</sup> Most striking is the huge difference in the use of public transport: 26% of all trips in the agglomeration of Berne are made by public transport compared with only 15% in Bielefeld.

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<sup>1</sup> This contribution was supported by the Swiss National Science Foundation.

<sup>2</sup> Urban areas often include several communities. The conceptual level of the agglomeration is seen here as the appropriate level of analysis. In Germany data for agglomerations are normally not available, so the data for Bielefeld and the other cities include only one community. But since the community reform of 1973 greatly enlarged the size of the central community, most of the German agglomerations lie within the boundaries of the central community. For this problem see also: Kenworthy/Laube (1999, 26ff.).

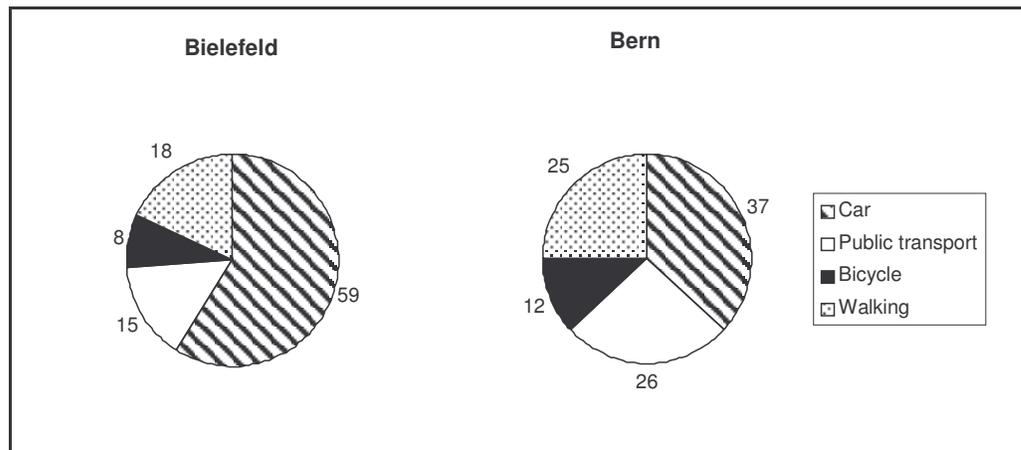


Figure 1. Modal Split in Berne and Bielefeld (1994). All trips of the local population, workday.

Sources: Kaufmann (2000, 107) and Ingenieurgruppe IVV Aachen (1996)

Since the use of the “slow” modes, biking and walking, is slightly higher in Berne as well, car use is much higher in Bielefeld. This fact is more pronounced when only the central areas of the cities are considered. There the modal share of the car in Bielefeld is twice that of Berne (53% versus 27%)!

How can these enormous differences be explained? In the literature the following factors are considered to be the most important: the size of and the economic role of the cities, land use, car ownership, average income, financing and taxation of the transport modes, prices of fuel and of public transport tickets, parking policies and the way the funding of transport is organised (Pucher/Lefèvre, 1996). So let us take a closer look at these issues.

The size of the two urban regions is comparable; the agglomeration of Berne has 319,000 (1999) inhabitants compared to 323,000 (1998) in Bielefeld. Cities of comparable or larger size and importance (Munster and Hanover in Germany or Zurich and Basle in Switzerland) show the same difference. Both cities have universities and other educational institutions of similar size. Average incomes in Switzerland are slightly higher than in Germany.<sup>3</sup> According to earlier research, a strong correlation between income and higher car ownership is to be expected (Pucher/Lefèvre, 1996, 11). However, car ownership is considerably lower in Berne (see tables 1 and 2). The same counter-intuitive facts exist for fuel prices: Although there has never been much difference between fuel prices in Switzerland and Germany, car use per capita is more than 10% higher in Germany than in Switzerland (1992: 5,824 km/year compared to 5,184).<sup>4</sup> The prices for public transport trips are more or less the same in both cities.<sup>5</sup> So far these factors cannot explain the differences in the transport systems of the two cities.<sup>6</sup>

<sup>3</sup> GNP/per capita: 25'512 US\$ in Switzerland and 22'169 in Germany (1999). Source: Spiegel-Almanach 2001. without the „Neue Bundesländer“ the income per capita in Germany is probably more or less the same as in Switzerland.

<sup>4</sup> Pucher/Lefèvre 1996 13, no data available for the local level. See also Pucher 1988, 396.

<sup>5</sup> One normal trip: Bielefeld 3.20 DM, Bern 2.40 CHF (2000).

<sup>6</sup> Concerning parking policies, no comparable data were available since the total number of parking places is not a sufficient indicator considering that restrictions to use these places can greatly vary from city to city.

For many authors land use is the key factor and there can be no doubt that, for example, the huge differences between the cities considered in this article and the cities of the USA are tightly connected with patterns of land use. Nevertheless land use cannot explain why transport in Berne differs so much from that in Bielefeld since there is no big difference in density of settlement between the two cities: 40 persons/ha in Berne compared with 32 in Bielefeld (see tables 1 and 2). Compared to the high density of cities like Tokyo (1990: 71 persons/ha) at the one extreme or the low density of cities like Phoenix (1990: 10 persons /ha) on the other, the contrasts between Berne and Bielefeld seem almost negligible (Kenworthy and Laube, 1999: 289 and 361). Of course this does not mean that there are no important differences in land use between the two cities. More sophisticated methods of land-use analysis, which cannot be introduced here, would probably reveal interesting new aspects. Yet one argument should not be underestimated: land-use is not an independent variable but is primarily to be understood as the outcome of long-term policy and therefore it seems indispensable to take a closer look at the underlying factors which shaped this policy.

To sum up: quite surprisingly, the commonly mentioned factors fail to deliver a satisfactory explanation for the differences between the transport system of the two cities. One could now argue that Berne and Bielefeld are exceptional cases that do not reflect the average city of this size in their countries. However this is not true since both cities are quite typical, at least for their region, as the following data show. Table 1 gives information about the key factors of car ownership, modal share of private motorised transport and density in the five Swiss agglomerations of Basle, Berne, Geneva, Lausanne and Zurich. Obviously, the three cities in the German part of Switzerland - Basle, Berne and Zurich - do not differ significantly regarding these key factors (besides the considerably larger population in Zurich) whereas in the two French-speaking cities car-dependency is clearly higher. Thus Berne can be considered as typical only for agglomerations in the German part of Switzerland.

In table 2 Bielefeld is compared to the German Cities of Aachen, Dortmund, Wuppertal and Münster. For obvious historical reasons Bielefeld should not be compared with cities of the former German Democratic Republic, such as Dresden. Compared with other cities in the western part of Germany, the dominance of the car seems to be a little greater in Bielefeld. Several distorting effects – e.g. nearby large agglomerations (Ruhr: Wuppertal, Dortmund), proportion of students (Munster) – could explain these differences. Thus Bielefeld can be regarded as typical for agglomerations of this size in the western part of Germany, although car dependency may be overemphasised in some way.

**Table 1. Key factors for urban transport in five Swiss agglomerations.**

	<b>Inhabitants (31.12.1999)</b>	<b>cars/1000 inhabitants (1999) [inner city]*</b>	<b>modal share of private motorised transport.** (1994)</b>	<b>density (persons/ha in urbanised area)***</b>
Basle	402,000	377 [312]	35	51
Berne	319,000	419 [356]	37	40
Geneva	458,000	525 [445]	53	42
Lausanne	288,000	516 [420]	59	37
Zurich	943,000	488 [368]	35	39

Sources: Bundesamt für Statistik, Kaufmann (2000, 96), Amt für Kantons- und Stadtplanung des Kantons Basel-Stadt (1991), Verkehrsbefragung Nordwestschweiz 1991, Basel., Tiefbauamt Stadt Zürich, Verkehrsplanung (Grundlage: Mikrozensus 1994, Erhebung Zürich).

\* Within the borders of the core community.

\*\* inhabitants, all trips, all purposes

\*\*\* only surfaces for settlement and transport, data 1990-2.

\*\*\*\* 1991, only Canton Basle-town and the communities in the counties of Arlesheim, Pratteln, Augst, Dornach.

**Table 2. Key factors for urban transport in five German cities.**

	<b>Inhabitants 1.1.1997</b>	<b>Cars/1000 inhabitants 1.7.1997</b>	<b>Trips/person with p. t.* [modal share of private motorised t.]***</b>	<b>Density 1997 (persons/ha)**</b>
Bielefeld	324,000	490	168 [59%] (1994)	32
Aachen	246,000	507	[58%] (1994)	41
Dortmund	594,000	455	175 (1998) [56%] (1990)	37
Dresden	459,000	427	290 (1998) [43%] (1990)	40
Wuppertal	380,000	457	[48%] (1999)	45
Münster	265,000	478	[49%] (1994)	31

Sources: Statistik regional 2000; Jahrbuch der Deutschen Gemeinden, Ingenieurgruppe IVV Aachen (1997), Münster, Nahverkehrsplan Dortmund, Pucher/Lefèvre (1996), www-sites of the cities, Seewer 2000, 158

\* inhabitants and trips with the main local agency only

\*\* only surfaces for settlement and transport

\*\*\* all trips, all purposes.

All in all an adequate explanation of the differences in the transport system of the two cities is still missing. Therefore, an approach with more emphasis on historical and institutional aspects is suggested. For this purpose an in-depth analysis of the two cities' transport policy history is crucial.

### 3. Transportation history

#### 3.1 Discourses on urban transportation since 1950<sup>7</sup>

On the whole Swiss and German urban transport discourses were almost the same in the 50s. In addition, the mutual transparency of the discourse was very high, at least with regard to the players on the expert side. Not only did a lot of German specialists work for Swiss cities, even Germany followed developments in Switzerland very closely. A conspicuous characteristic in both countries is that urban transport was not able to push through its interests as opposed to inter-city transport. In both areas the fight for a share of the money took place more between the area authorities than between the transport institutions and the towns always came away with the short straw. This also meant that in Germany as well as in Switzerland expert knowledge was ultimately unable to prevail against the basic social consensus, which threatened to accelerate mass car ownership by ignoring its effects on the structure of the towns. As a result of this basic consensus, the discourses relating to transport that took place in the 50s in both countries could be said to be depoliticised. If anything, differences arose with regard to the relationship between expert knowledge and political participation. Here the Swiss showed themselves to be more critical in their treatment of expert statements. In the 60s there appeared ever more doubt regarding a basic reconciliation between town and car in society. Differences between developments in Germany and

<sup>7</sup> See for this section: Haefeli (in print)

Switzerland became evident. In Germany, the Federal Government tried to solve the problem in the sense of an expert-oriented top-down approach. As the measures relating to controlling transport requirements suggested by the experts could not be applied (because of a lack of political acceptance), and also because the public transport representatives saw their rescue in a new infrastructure, German urban transport policy culminated in an unprecedented infrastructure offensive. Thanks to a healthy economy and the financing automation achieved at the end of the 50s, realisation of a considerable part of these transport facilities could be implemented. In Switzerland, however, the institutional regulation of the financing for communal roads prevented the financial automation that was designed for long-distance traffic also being applied to urban transport. Moreover the mechanism of direct democracy made the planning of big transport infrastructure such as urban expressways and underground public transport much more difficult. As a result the construction of traffic facilities was lagging behind the construction of transport facilities in Germany.

A new orientation of transport policy was created by the “environmental turn” around 1970. Environmental protection as a social guiding principle became established incredibly quickly in both countries around 1970. No change in mood in any other area became more quickly or more clearly established, as is shown by referenda concerning urban transport plans in Switzerland. Had such plans – mostly they concerned the extension of infrastructure – appeared before the voters in the 1960s they would generally have received approval without any problems. Therefore the surprise of the urban executives was that much greater when, after 1970, similar plans were rejected one after the other, in all towns; this caused damage to the wide-ranging plans of the 60s (Blanc, 1993; Steiner, 1998; Zeller, 1992). Also in Germany, after 1970 large projects relating to transport infrastructure in towns became scarce. (Schmucki, 2001; Horn, 1992; Bundesministerium für Verkehr, 2000; Forschungsgesellschaft für Strassen- und Verkehrswesen, 1996; Klenke, 1995; Bratzel, 1999). However, the large projects that had been passed in the 1960s were generally built to completion, albeit more moderately than originally planned. It was therefore grass-roots pressure which led to this so far little researched change of transport policy paradigm. The idea of opening up the town primarily to the car was now abandoned. In its place the official emphasis now lay in promoting public transport. What in fact happened was, however, better described as a “dual promotion”, as car traffic was and would be promoted by a number of further measures, for example, the management of cost-covering car parking or the internalisation of external environmental costs were ignored - and this is still happening today. Even this trick – prioritising public transport on paper while, at the same time promoting the car – met with public approval, however, time and again referenda demonstrated public approval for measures promoting public transport but did not approve of far-reaching restrictions to personal car transport. The volume of motorised transport in urban areas has also increased dramatically since 1970. In the eighties social-political considerations concerning urban transport came to a head in both countries. This was triggered by the radicalisation of the environmental movement in the course of the debate about dying forests and events such as the nuclear accident at Chernobyl or the chemical industry’s disastrous fire at Schweizerhalle, near Basle. As always the car occupied centre stage in ecologically motivated criticism. The conflict ignited mainly on account of two questions: firstly there was again the question of speed limits on non-urban roads, which had very little effect on the urban transport discourse, and secondly there was the demand for area-wise traffic calming in towns. In addition to intense emotionalisation there also appeared other long-term, possibly more important, changes to the discourse. The trigger for this was

the continuing poor state of public finances in Germany in the eighties. As a result of this, more and more transport experts and transport politicians came to the opinion that normal infrastructure planning with its focus on underground transport systems would not achieve its aims. This led to the value of trams being rediscovered, which had suffered a continual demise since their introduction in the twenties (Frenz, 1987; Holzapfel, 1986).

### 3.2 Institutional aspects

Bielefeld is located within the Federal Land of North Rhine Westphalia where, after World War II, the British system of a community constitution was introduced and has partly survived until today. In an international comparison the communities in North Rhine Westphalia are quite strong, but in a rather technocratic manner (Haefeli, 1998: 21-24). The direct participation of citizens is small but since 1970 grass-roots movements have become important actors in transport policy (Haefeli, 1999). The financial autonomy of the German communities is generally rather small. In 1992 57% of public receipts in Bielefeld came from the superior institutions, most of them earmarked for given purposes (Haefeli, 1998: 6). The dependency of German cities like Bielefeld on the federal government and the states is even higher in the transport sector than for most other purposes: During the last five decades the cities themselves have had to pay not more than 10-20% of their investments in transport infrastructure which means road building *and* public transport. On the other hand, local governments have borne virtually all operating deficits of bus, tram and metro (Pucher and Lefèvre, 1996; Klenke, 1995). These costs were normally covered by cross subsidies from the gas, electric and water utilities. As everywhere in the Federal Republic, the suburban communities and the central core were merged into a new Bielefeld in 1973, with now twice as many inhabitants. This made a more coherent transport policy possible.

Switzerland is famous for its so-called (half) direct democracy, that is the most important decisions are made by referendum. Communities are even stronger than in Germany but for several reasons the influence of urban areas on political decisions is rather small (Pucher and Lefèvre, 1996). The financial autonomy of Swiss communities is considerably higher than that of German ones. In Berne only 23% of public receipts were earmarked for subsidies from superior institutions in 1994. As in Germany, there is an earmarking of fuel taxes for road building and maintenance but in Switzerland this earmarking does not involve local public transport and roads that come under the responsibility of the local governments. Therefore the problems of Swiss communities in financing investments in transport infrastructure are obvious but, on the other hand, the incentive to build expensive and inefficient infrastructure is much weaker than in cities such as Bielefeld. In most policy fields, the communities are more autonomous than German ones. But unlike Germany, there was no merging of all the communities in the suburban layer (1990: 38 communities), which sometimes made transportation policy quite complicated.

### 3.3 Transportation policy in Bielefeld and Berne

*Bielefeld* and especially its Central Business District were largely destroyed in World War II. Most of the medieval core was rebuilt in a traditional manner, which of course made it better suited for pedestrians than for cars and which many planners denoted as a missed chance in the 1960s (Diefendorf, 1993; Harlander, 1998). Nevertheless there was a great consensus about a policy of accommodating and facilitating car use until 1970 in the other parts of the city and the readiness to sacrifice attractive living areas to the car was certainly greater than

in Berne. Public transport was neglected during these decades, although unlike in many German and Swiss cities, two tramway-lines survived the campaign of the bus-lobbyists (Köstlin and Wollmann, 1987). In 1966 the decision for a short but very costly network of light rail, partly underground, was made to give the car room on the surface. Because of the lack of financial resources, the rest of the public transport network suffered from this decision. As a second infrastructure project, a big expressway was built right into the heart of the city ("Ostwestfalendamm"). The total direct cost of each of these two projects - for some politicians a matter of prestige - exceeded DM 500 billion. After 1970 there was a growing resistance against car-dominated planning. Consensus for new roads was now hard to get, as everywhere in the Federal Republic. The second part of the Ostwestfalendamm (from the railway station to the northeast) was never finished due to the violent protests of worried citizens. But the (few) measures to strengthen public transport taken by the government did not bring a real shift in official policy mainly due to the financial crisis of the community, but also because restrictions of car use were not accepted either. Many people moved to the suburbs where access without a car is restricted. So urban sprawl is quite obvious today.

*Berne* has preserved most of its quite large core as it was built before 1800, which is typical for Swiss cities. There were two important phases of development. The population grew from 30,000 to 90,000 between 1850 and 1914. Since the 1950s there has been a second phase of growth. In 1963 a maximum of 168,000 inhabitants was reached. Since then a considerable amount of suburbanisation in the outer layer of the urban area due to the automobile lifestyle can be noticed (Haefeli, 1997). Public transport in Berne is a mixture of tramways, buses and trolleys. (Seewer, 2000).

As in Bielefeld, plans also appeared in Berne – most of them financed by the Federal Government and the Cantons – to take an urban motorway straight through the town centre. The urban authorities and the political parties stood behind this project as they hoped it would solve urban transport problems without the input of urban finances. The opposition turned against this project with unusual vehemence, primarily from the point of view of those inhabitants who would be most affected. When on 28/29 May 1960 there was the chance to make an indirect contribution by way of a referendum, the verdict turned out to be negative, although very few people bothered to vote: 9,327 voted against and 8,004 voted in favour (Hehl, 1998: 75). Even though this vote would not legally have been able to stop the building of a motorway, the federal planners paid attention and eventually a version was realised that did not impinge on the town centre. Also, as in Bielefeld, plans were worked out for an underground tramway in the town centre, which enjoyed wide acceptance but in the end failed for want of financial means.

After 1970 there was a sharp turn in public opinion towards a more environmentally-friendly transport policy. Voters rejected a new infrastructure as a solution to transportation problems on several occasions (Haefeli, 2001). As a consequence the government was forced into a transport policy which favoured demand management. Many measures were taken to strengthen public transport, including a limited set of measures that restricted private car use (mainly in the field of parking policy). As in Bielefeld, only pedestrians are allowed in a substantial part of the central business district. The infrastructure itself has not changed much since the 1970s. In the second half of the 1990s more attention was paid to land-use planning, which favoured commuting by train.

### 3.4 Public expenditure on urban transport

Two major implications of this institutional and historical comparison cannot be overlooked. Firstly there were strong institutional incentives towards building an expensive infrastructure in Bielefeld and secondly, the most important differences in transport policy of the two cities were decisions made before 1970 (a time period excluded in most comparisons). Let us now look at the financial implications of these policies. Figure 2 and figure 3 show the expenditure of the two communities (and their major public transport agencies) for transport compared to the whole budget between 1950-70. In Berne expenditure on transport developed parallel to the budget (with the exception of the early 1960s, when investments for the new railway main-station led to a rise in transport investment). In sharp contrast to Berne, expenditure on transport in Bielefeld grew much faster than the budget as a whole. In both cities the vast majority of this expenditure was dedicated to road transport, which corresponded perfectly with the public opinion of this era.

#### Box 1. Methodological Aspects of Budget Analysis

An analysis of the urban budget relating to transport receipts and expenditure poses several methodologically problems (Pohlan 1997, Forschungsverbund CITY:mobil 1997). Firstly, transport receipts and expenditure have to be looked for in an entire range of budget accounts. Which areas are affected and by how much remains a topic for discussion, like the distribution of traced costs on the individual means of transport. Secondly, the systematic accounting in the two towns during the period under investigation varies, which creates problems when it comes to making a comparison.

Basically, both towns have a receipts and expenditure account which does not distinguish between investment and operating costs (because this would only be partially possible on account of the budgeting). This method of accounting must not be confused with the profit-and-loss account of commerce, as conducted by the German Institute for Economic Research in its travelling costs account.<sup>8</sup> The amounts referred to, due to the incomplete itemising of the budget analysis already mentioned and careful evaluations, must be seen as a low estimation of the actual costs. Not taken into account, because it is very difficult to prove, is the transport-related share of the receipts/expenditure of the police, in particular. Total costs are based on the prices of 1985.

For the following records the most important assumptions for both towns see appendix.

<sup>8</sup> Cost accounting, unlike traditional line-item budgeting of expenditures, distributes investment costs over the whole period of economic utilisation.. Cf. Enderlein/Kunert (1990, 14).

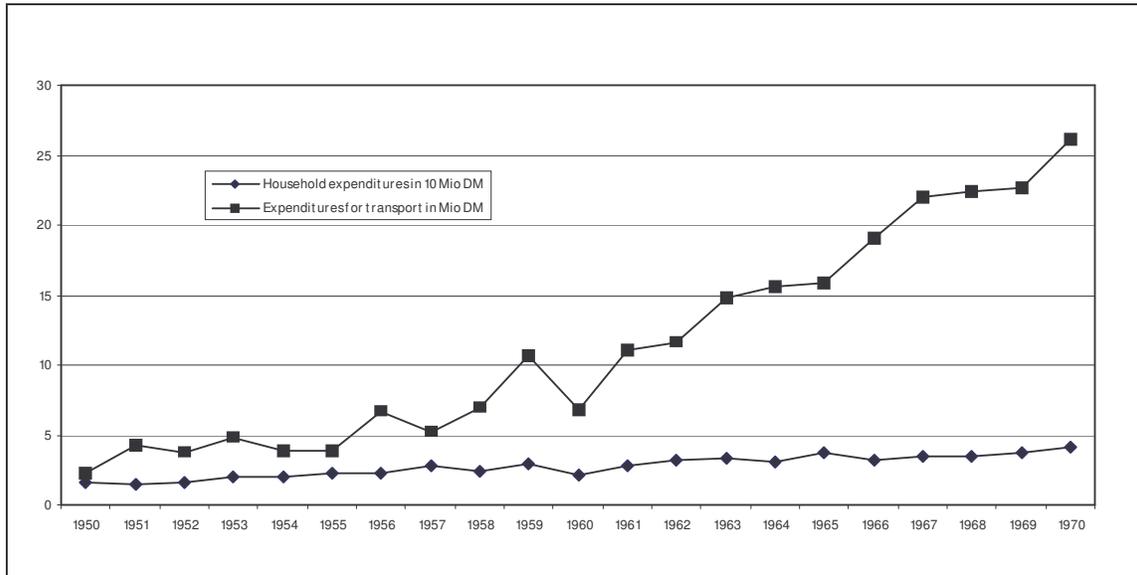


Figure 2. Expenditure on transport: City of Bielefeld and Stadtwerke Bielefeld 1950-70 (prices from 1985).

Source: Haefeli 1998.

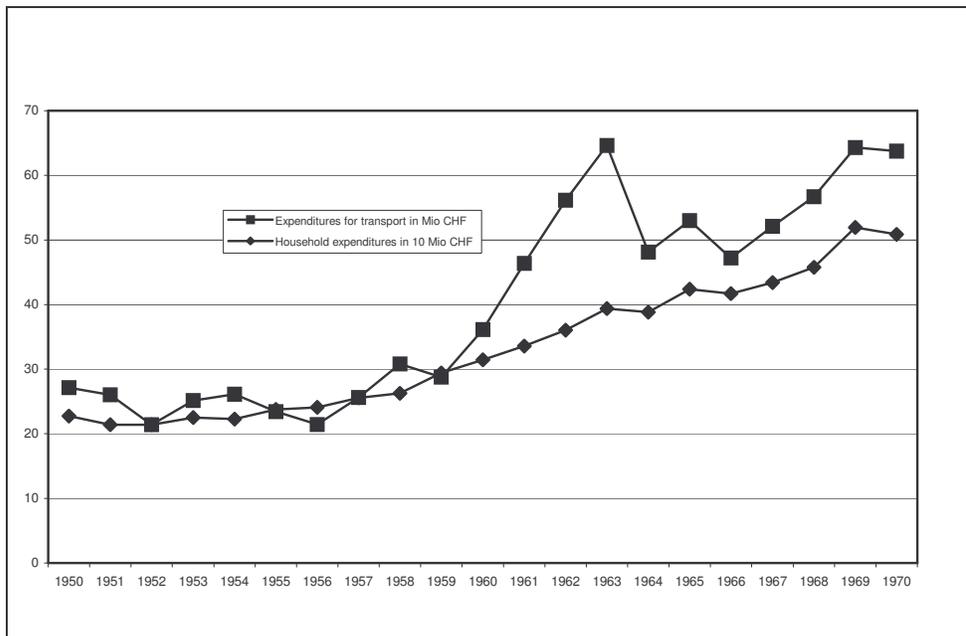


Figure 3. Expenditure on transport: City of Berne 1950-70 (prices from 1985)

Sources: Gemeinde-Rechnung der Stadt Bern, div. vol., own calculations.<sup>9</sup>

<sup>9</sup> I thank Andreas Stucki for his help in getting this data.

Figures 4 and 5 show the development of transportation expenditure in relation to the whole budget after 1970: both cities had to cut down their transportation investment due to the economic crisis in the middle of the 70s. Both cities were struggling with rising costs for social welfare and high budget deficits in the following decades. The peak of transport expenditure in Bielefeld in the late 80s was mainly due to the construction of the last part of the light rail tunnel and the *Ostwestfalendamm* and is therefore a consequence of one crucial decision of the 60s. The shadows of the 1960s are more visible yet if it is considered that the operating cost of 4.5 km of light rail tunnel exceeded DM 4 million per year.

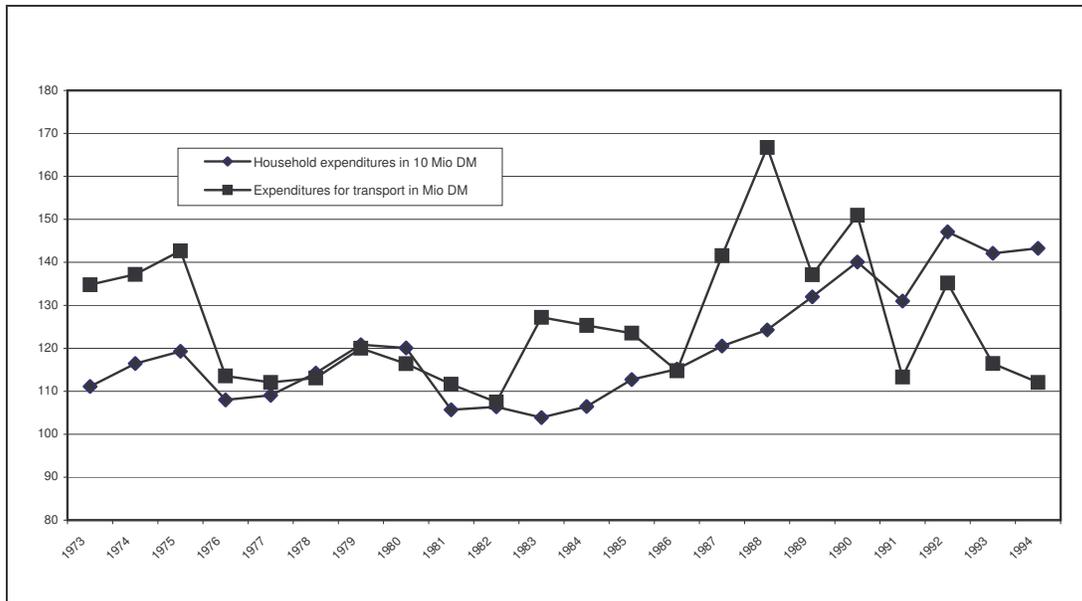


Figure 4. Expenditure on transport: City of Bielefeld and Stadtwerke Bielefeld 1973-96 (prices from 1985)  
Sources: Haefeli 1998.

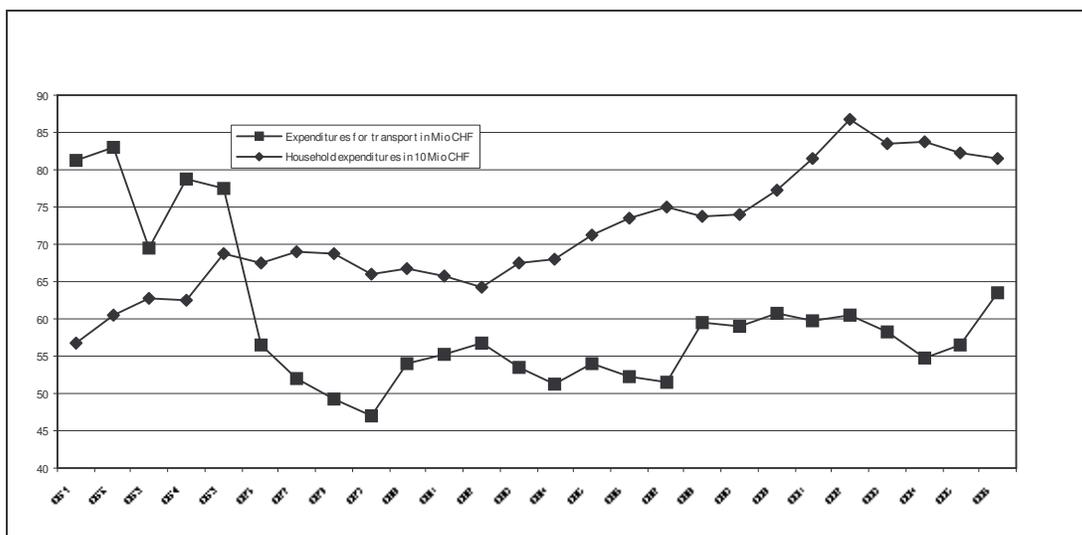
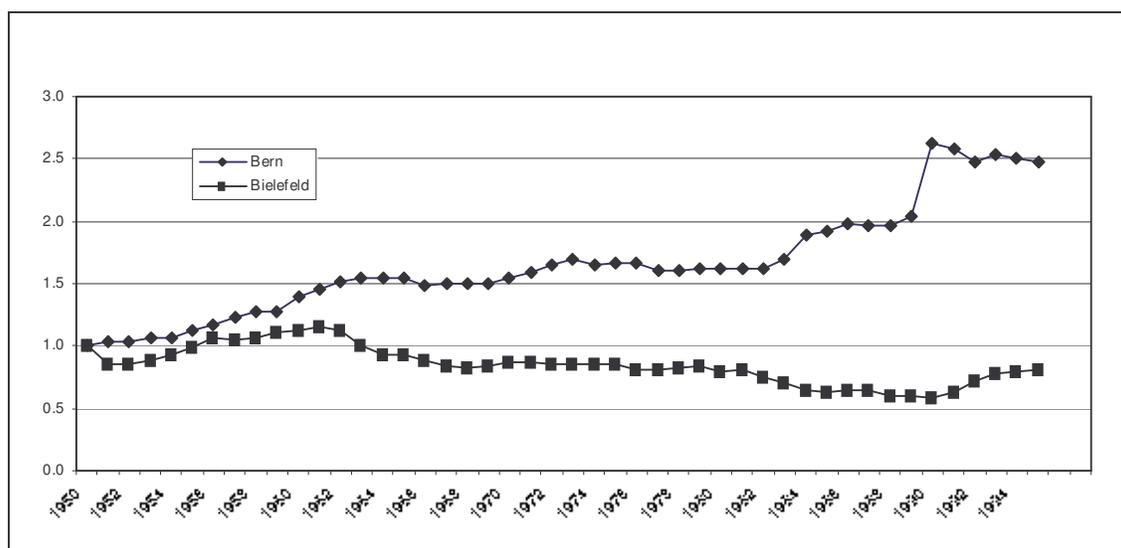


Figure 5. Expenditure on transport: City of Bern 1971-95 (prices from 1985)  
Sources: Gemeinde-Rechnung der Stadt Bern, div. vol., own calculations

#### 4. Effectiveness and efficiency

What about the effectiveness and efficiency of this transportation regime? It is of course not easy to evaluate a city's transport policy over five decades. When it comes to effectiveness, after 1970 both towns continuously declared their intention to strengthen public transportation. So the number of the trips on public transport can be used as an indicator for this target. Figure 6 shows how the gap between Bielefeld and Berne widened after 1960 and led to an impressive difference until the 1990s (compare also figure 1). Obviously, the outcome in Berne is much more consistent with the targets of its own transportation policy. But at what cost?



*Figure 6. Public transport: comparison Berne - Bielefeld: trips 1950-1995. 1950=100*

Sources: Jahresberichte der Verkehrsbetriebe Bern, div. vol., the big increase between 1990 and 1991 is a result of a changed method of calculating passengers and therefore an artifact.

The next two figures (7 and 8) show the overall deficits of the two transportation agencies and the deficits per trip. Again the result is clear and impressive: the deficits rose in both cities but much faster in Bielefeld than in Berne. In the mid-90s the deficit per ride in Bielefeld was many times higher than in Berne. Obviously, there is evidence that the transportation policy of Berne is not only more effective but also much more efficient.<sup>10</sup>

<sup>10</sup> See also: Pucher, (1988), here: 386 and 390. In this comparison of productivity of urban transport, Switzerland is in the first rank (Germany 7<sup>th</sup>) concerning passenger trips per employee and in the second rank (Germany 4<sup>th</sup>) concerning vehicle-km per employee (1982). Operating subsidies were the lowest in Switzerland in 1982 compared to the other Western Europe Countries as well as Canada and the United States.

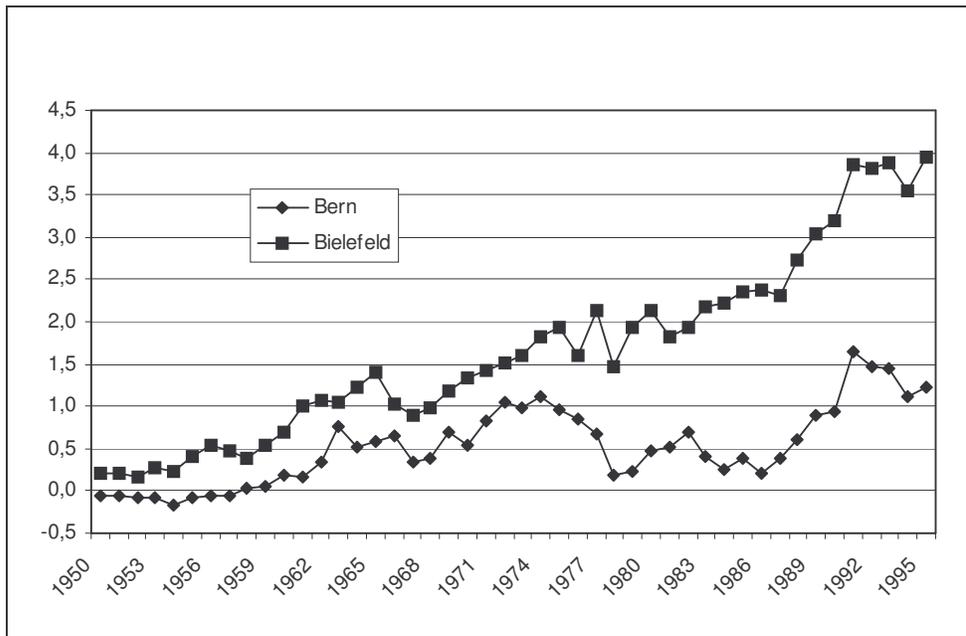


Figure 7. Public transport: comparison Berne - Bielefeld, deficits: in SFR/DM 10 million in prices from 1985)

Sources: Haefeli 1998, Jahresberichte der Verkehrsbetriebe Bern, div. vol.

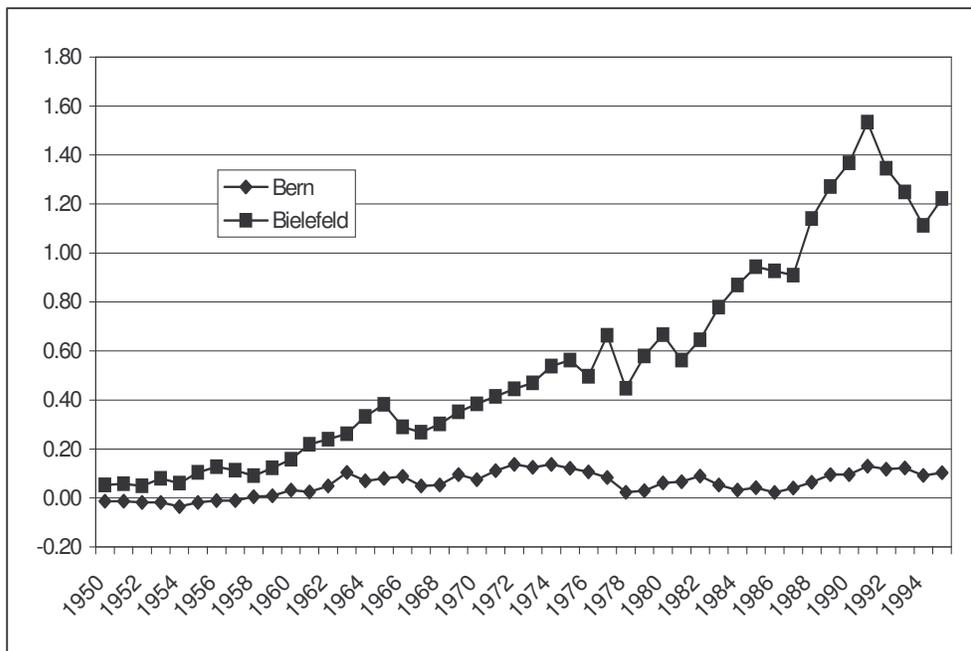


Figure 8. Public transport: comparison Berne – Bielefeld, deficit/trip in SFR/DM (prices of 1985)

Sources: Haefeli 1998, Jahresberichte der Verkehrsbetriebe Bern, div. vol.

## 5. Conclusion

The case studies of Berne and Bielefeld question some of the well-established results of international comparative research on urban transport policies. Without denying the importance of land-use patterns and other often-used explanations such as fuel prices, incomes or car ownership and so on, it seems obvious that these factors cannot sufficiently explain why transport systems in Berne and Bielefeld differ that much. More attention should be paid to historical and institutional explanations that have been underestimated up until now.

These findings are in principle consistent with trends in political science, where the importance of political institutions for policy outcomes was newly discovered and is discussed under the label "new institutionalism". This is the case even against the background of - despite globalisation tendencies - stable if not increasing differences among states (March and Olson, 1984; Thelen, 1999). As far as urban research is concerned, reference can be made to the concept of "urban regime", which understands local politics as network-type, informal yet stable cooperations among private and state actors. (Bahn, Potz and Rudolph, 2003).

The long-term effects of big new infrastructure projects on the financial scope of urban transport policy seem absolutely crucial. On the one hand, the Bielefeld case proves that institutional settings, which give incentives for building expensive infrastructure, were not very successful in fulfilling its policy targets in the long run (Klewe and Hartwig, 1995; Topp, 1994).

The institutional conditions in Bielefeld in the 1960s paved the way for a faster reaction to societal demands for additional road infrastructure than this was the case in Berne. Nevertheless, what went hand in hand with these developments was the tendency, disastrous in the long term, to oversteer as well as to overestimate the state's financial capacities. On the other hand, the institutions in Berne, where local people have to bear the financial consequences of their local transport policy directly, decisions seem better suited to reaching a development of local transport according to the long-term policy targets. In the context of Berne it was consequential that referenda had at least in the short term a delaying effect. However, this effect of the institutional arrangement was in general clearly not intended, nor does it always positively affect the long-term success of state activity.<sup>11</sup> Furthermore, the larger fragmentation of political structures in Berne did not restrain the planning of transport infrastructure in any major way, yet when it came to implementing the planning they constituted a large and often unsurmountable obstacle.<sup>12</sup>

These case studies also show that the most important decisions on building or not building new infrastructure were made in the mid-60s, years before the so-called "environmental turn" of 1970. Before World War II, the transport systems of the two cities were very similar but by 1970 public transport in Bielefeld had lost a great deal of its attractiveness. Therefore it seems justified to consider the 1960s as the crucial years for the future transport system of the two cities. It is important to realise that after the environmental turn of 1970, in both cities it was almost impossible to gain public acceptance for substantial new infrastructure projects. The policy targets of both cities now focused on strengthening public transport but since

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<sup>11</sup> Cf. Vatter (2002) on such unintended effects of institutional arrangements.

<sup>12</sup> Sager (2002) comes to the same conclusion and is one of the few studies doing international comparative analyses on regional and transport planning in urban areas.

Berne had a considerable advantage at the beginning, its efforts were much more effective and efficient. The best way to get a better transportation system is to have a good one to begin with.

It is precisely the lack of historical depth that turns out to be the most consequential shortcoming of current political science research on questions of policy outcomes in transport. Yet so far, historians have not studied these issues much either (Mom, 2003).

The results gained underline the importance of comparative in-depth case studies on urban transport policy. Further research is necessary, including other cities in the two countries as well as introducing new countries into the comparison. Moreover cultural aspects neglected in this article, as for example environmental awareness, anti-urban feelings or the attraction to the “American way of life”, may also play an important role in explaining the far-reaching differences between cities such as Bielefeld and Berne.<sup>13</sup>

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<sup>13</sup> Cf. Braun (2003) and Heinz (2000).

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## 7. Appendix : Budget Analysis: the most important assumptions

### Bielefeld

- From 1972 to 1973 the accounts system of the town of Bielefeld changed considerably. In addition to a doubling of the population due to the urban area reforms, the new budgeting system was conducted with separate administration and internal balance sheet accounts. In total the expenditure of the town almost tripled, which is why a direct comparison is not possible. 1971 and 1972 cannot be included because of the respective insecurities in the budget during the phase of merging the communities. This created a gap in the data exactly in those early years of the 70s which are of such great importance.
- Budget year 1960 included a change to the account day because of only 9 months.
- Public transport comes, to a great extent, under the area of responsibility of Stadtwerke GmbH. Stadtwerke (Urban Utilities) are, up to the present day, the property of the town; however they do their own accounts and, in particular, are in a position to offset deficits in the transport area by surpluses in other, hitherto monopolistically-operated areas.
- During the period from 1950 onwards, Bielefeld municipal undertakings were only able to make the deficits of the transport area available, but not the level of expenditure. Therefore everywhere where expenditure of the municipal undertakings are included, only expenditure relating to subsidy requirements can be included and not that relating to the cost recovery ratio.
- Motorways in urban areas as well as the German federal railway were left out of consideration on account of the actor-oriented perspective as long as the town was responsible for construction (as for the largest part of the Ostwestfalendamm).
- For the period up to 1970 the following accounts were included (in brackets the %-share of the costs, which were accounted to transport):

21 Strassenverkehrsamt und Kfz-Zulassungsstelle  
 611 Städtebau und -planung (50% bzw. 25%)  
 65 Strassen, Wege, Brücken und sonstiger Tiefbau  
 652 Verkehrsplanung (ab 1958)  
 701 Strassenbeleuchtung (80%)  
 702 Stadtentwässerung (10%)  
 703 Strassenreinigung (80%)  
 752 Parkplatz Kesselbrink

- Account 611 Municipal Building and Planning was debited for the period up to 1957 for 50% of transport expenditure, because transport planning made use of this department for a large part of its

work. After transport planning's own department had been founded in 1958, 25% of receipts/expenditure were still calculated. The transport-related share of the street lighting and road cleaning accounts was set at 80% and that of municipal drainage was set at 10%.

- As from 1973 the following accounts were included:

1110	Strassenverkehrsamt und Kfz-Zulassungsstelle	6600	Bundes- und Landesstrassen
		6700	Strassenbeleuchtung (80%)
6020	Tiefbauverwaltung	6750	Strassenreinigung (80%)
6021	Verkehrsplanung	6800	Parkeinrichtungen, Parkuhren
6100	Stadtplanung (25%)	7000	Stadtentwässerung (10%)
6300	Gemeindestrassen	8200	Stadtbahn
6500	Kreisstrassen		

### Berne

In the city of Berne the accounting system changed slightly more than once during the period under consideration and 1976 and 1993 it changed more considerably. The following accounts were included:

*until 1975*

#### **Administrative accounts:**

505: Tiefbauamt (ab 1961)  
 510: Strassen- und Brückenunterhalt  
 512: Schneeräumen und Sanden  
 514: Strassensignalisation  
 520: Unterhalt Kanalisation (10%)  
 560: Stadtplanungsamt (25%)  
 61.07: Verkehrsbetriebe (Zinsen);  
 43.40.03: Flugwesen;  
 776: Stadtbeleuchtung (80%)  
 840: Verkehrsbetriebe  
 5: Nachkredite

#### **Internal balance sheet accounts:**

9.00: Strassen- und Brückenbau und Korrekturen  
 9.01: Kanalisationen  
 9.09: Wettbewerbe und Projektierungsarbeiten für Tiefbauten  
 9.1: Verschiedene Tiefbauarbeiten  
 9.31: Subventionierung von Privatstrassen  
 9.4: Verschiedene Subventionen und Aufwendungen à fonds perdu (1961-64)  
 9.5: Expressstrassen (ab 1963)

*from 1976*

#### **Administrative accounts:**

510: Stadtplanungsamt (25%)  
 606: Stadtwerkhof II (80%)  
 620: Tiefbauamt  
 630: Strasseninspektorat;  
 632: Winterdienst  
 34: Strassensignalisation (80%)  
 640: Unterhalt Kanalisation (ab 1978:  
 625: Abwassertransportanlagen) (80%)  
 61.07: Verkehrsbetriebe (Zinsen);  
 43.40.03: Flugwesen;  
 776: Stadtbeleuchtung (80%)

940: Verkehrsbetriebe;  
 6: Nachkredite Baudirektion abzüglich  
 Kanalisation und Kehrrichtabfuhr

#### **Internal balance sheet accounts:**

9.00: Strassen- und Brückenbau und Korrekturen  
 9.01: Kanalisation (10%)  
 9.09: Wettbewerbe und Projektierungsarbeiten für Tiefbauten  
 9.50: Express-Strassen

*1986-92:*

#### **Administrative accounts:**

510: Stadtplanungsamt (25%)  
 530: Tiefbauamt  
 533: Kanalnetz-Betrieb (10%)  
 542: Stadtwerkhof II (80%)  
 642: Stadtbeleuchtung (80%)  
 61.07: Verkehrsbetriebe (Zinsen)  
 750: Verkehrsbetriebe  
 760: Strasseninspektorat  
 762: Winterdienst  
 764: Strassensignalisation

#### **Internal balance sheet accounts: no change since 1993:**

220: Verkehrsinspektorat;  
 510: Stadtplanungsamt;  
 540: Tiefbauamt;  
 550: Amt für Abwasserentsorgung (ab 1994: 850);  
 561: Werkhof II;  
 631: Stadtbeleuchtung;  
 730: Verkehrsbetriebe;  
 741: Strasseninspektorat;  
 742: Winterdienst;  
 744: Strassensignalisation