

**How to Create a New Holiday Destination?**  
An Evaluation of Local Public Investment  
for Supporting Tourism Industry  
in Regions Lagging Behind

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by

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***Abstract:***

*The paper reports on an empirical study for the East-German state of Saxony. In many Saxonian regions, following the German re-unification, a strong de-industrialization has taken place. Since the 1990s, in Saxony, the field of tourism had been one major sector for creating new local infrastructure. The econometric estimations and a survey of businesses in the field of tourism make clear that the new touristic infrastructure really had positive effects on local employment – but not everywhere and not in any case. Infrastructure in the field of tourism will only have major positive effects on regional development if a municipality is well-equipped with relevant complementary factors, e. g. with a service-oriented mentality within the population. This indicates that a local tradition in the field of tourism is one major “driver” of economic success – an example for path-dependency in local economic development.*

## **I. Introduction**

In many European cities and regions, globalization and the increased degree of interregional competition have resulted in a collapse of old traditional industries and strong economic development problems. Policymakers in some of these cities and regions are trying to change their path of development in the direction to attract businesses from the field of tourism industry (hospitality industry), in many cases with the help of money (grants in aid) from the national government or the EU-level. The general question is whether this strategy could be successful and which local factors may support or impede the economic impact of public measures in order to stimulate touristic activities.

One major advantage of tourism, as compared to other sectors of industry, is the fact that a high share of the total value added is generated within the municipality (or: within its neighbouring local units) where tourism businesses are located. As the relevant inputs have mainly the character of services, the share of inputs from other locations or regions is – quite different to other industries – relatively small. In addition, tourism may lead for a municipality to important by-products or externalities. Tourists may change the social composition of the local population, although tourists are staying only for a limited time within a certain municipality; this may positively affect the general local social climate. Tourists may be positively impressed by local amenities. By communicating their impressions to their friends and relatives, they may contribute to improving the general image of a city or region. And some tourists may even come back as investors to a holiday destination after they have learned, during their holiday, about the advantages of a certain location. The longer the tourists are staying within a certain municipality, the higher the economic effects will be; therefore, local policy is always trying to stimulate (by different measures) tourists to prolong their visits.

The paper reports on an empirical study for the German state of Saxony, one of the states situated east of the former “Iron Curtain”. In many Saxonian regions, following the German re-unification, a strong de-industrialization has taken place. Unemployment rates are rather high in most regions. Since the 1990s, in Saxony, the field of tourism has been one major sector for the creation of new local infrastructure. New touristic infrastructure was aimed to support touristic activities even in regions and municipalities which had never been, in the

past, touristic areas. E. g. in areas with exhausted opencast workings, where the mining industry had formerly been the main source of income, local policymakers have begun to change the region into a new lake district and to build infrastructure like waterways, landing stages etc. Millions of Euros have been spent to build new bike paths throughout the state or to construct completely new local tourist attractions. Had this money been able to change the path of economic development?

The following section II of this paper has the task to identify specific location factors (e. g. infrastructure) which are relevant for tourism industry. The third section gives an overview on tourism industry in Saxony and on public investment in infrastructure for supporting this sector. Section IV is evaluating the impact of public investments for supporting tourism industry in different parts of Saxony; this is based on quantitative data, on a telephone-based survey and on interviews with local businesses, administrations and experts from the field of touristic development. Finally, there will be some conclusions (Section V).

## **II. The Economic Theory of Tourism Industry and Relevant Location Factors for Local Tourism Industry**

### II.1 What is Local Tourism Industry?

Local tourism industry (or: local hospitality industry) includes all private firms within a local unit which are involved in providing goods and services for tourists (people visiting a local unit for a short period of time). Of course, such goods and services may be provided by several categories of industry. Therefore, for our empirical investigation, we had to concentrate on those businesses which may be regarded as “core” local tourism businesses (and: on the corresponding categories of statistical data). These “core” local tourism businesses include hotels, restaurants, bars, taverns etc. – although many of them may also profit from the residents of a municipality. Supraregional touristic firms from fields like transportation and travel organizers are not parts of the group of “core” local tourism businesses; their connection to local touristic infrastructure is only weak. Also firms providing goods and services which are mainly directed on local residents are not regarded as belonging to the “core” local tourism industry, although they may profit directly from tourists, e. g. retail industry or local transport industry.

From another point of view, two fields of tourism may be distinguished, business travels and private travels (which comprise the categories of “recreational tourism” [for more than one day] and “day-trip tourism”). Although in practice (and: with regard to the existing statistical data) it is not easy to separate between these fields, in the following we will concentrate our arguments on private travelling. The majority of touristic infrastructure like artificial lakes or bike paths is used for leisure, although people on a business trip will always have some time for leisure and then may use such infrastructure, too. Some other categories of infrastructure like the signposting within a municipality may have the same direct effects for private travellers as well as for business travellers.

In the following, as far as data from German national statistics are used, only hotels with more than nine beds are included into the empirical research. With regard to the employment statistics of the German Federal Employment Agency (“Bundesagentur für Arbeit”), the data encompasses all employees from the branch “Accommodation and Food Service Activities”.<sup>1</sup>

There are several local and regional public authorities that have the task to supporting private tourism industry, e. g. with marketing activities for regions or cities. These activities are necessary ingredients for economic success in the field of tourism and could be classified as belonging to tourism industry. But in the context of this paper, the public activities are regarded as belonging to the category of location factors for explaining the rise of private tourism industry.

## II.2 Relevant Location Factors for Local Tourism Businesses

A lot of location factors which are relevant for all categories of industry are also important for the economic success of local tourism businesses, e. g. the level of local taxation or the general accessibility of a local unit by car, train or plane from outside. Other commonly discussed location factors like the existence of local public research units, which are often regarded as relevant “motors” for technical innovation processes in local industries, have no important role for local tourism businesses.

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<sup>1</sup> The German so-called “WZ-Number” for this branch is “55”.

Probably more important for tourism than for other industries are the following categories of location factors:<sup>2</sup>

- Climatic factors, the general beauty of nature and an existing beautiful townscape with a wealth of variety,
- the general image of a local unit or region and the “historical story” behind them,
- outstanding attractions in fields like nature, recreation\* (e. g. lakes, seashores, beaches), sports\* (e. g. hiking, biking, sailing) or culture\* (e. g. museums, opera houses, theatres, historical buildings or monuments),
- public parks and green areas,\*
- public swimming pools, water parks and sports facilities,\*
- specific local infrastructure for accessibility: Whereas the discussion on accessibility in general is focussing on modern infrastructure for motor vehicles, trains or planes, in the field of tourism, also other categories of access to a location are important, like bike paths, hiking paths, skiing routes, landing stages,\*
- specific technical equipment for the maintenance of local touristic infrastructure, e. g. machines for preparing the ski trails,\*
- guidance and advisory services by a central local agency and / or by local signposting systems,\*
- the cleanness of streets and buildings,
- interlocal cooperation between adjacent localities in cases where the attractions of a single local unit are too small,
- the existing size and quality of local tourism industry (e. g. the number of beds in local hotels, the qualification and the number of employees),
- hospitality and service-orientation of workers in the local tourism industry,
- synergetic effects in regard to complementary products from adjacent local tourism businesses.

Some of these location factors may be influenced by local decision makers, while other (e. g. the climate) are determined by external factors. This paper is focusing on the investment for

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<sup>2</sup> For the economic discussion on the attractiveness of tourist destinations see e. g. Cracolici and Nijkamp (2008). For the impact of local infrastructure cf. e. g. Metzler (2007) and – with regard to the impact of federal and state grants to the local level – Riedel and Scharr (1999).

local public infrastructure as a measure to improve the touristic location quality; adequate types of infrastructure are those from above which are earmarked with a “\*” symbol.

From the view of tourism activities, one may distinguish two “polar cases” of municipalities, (1.) those which are traditional resorts and have developed, over years and years, all skills and necessary ingredients to cope with the demand of tourists, and (2.) a second group of municipalities which had in the past no major activities in the field of tourism. We may call the first group the “*skilled touristic localities (with an affinity for tourism)*”, the second one the “*newcomer localities (with a low affinity for tourism, so far)*”. In some regions, one of all these groups is dominating, in other regions, we find both types, and there are, if course, several types of crosses between the two types. With regard to the state of Saxony, like in all parts of Eastern Germany and Eastern Europe, also for localities with an affinity for tourism, there had historically been (up to the fall of the “Iron Curtain”) a significant lag in the field of touristic infrastructure in comparison with skilled touristic localities in Western Germany (or in Western Europe, respectively).

### **III. The Present State of Tourism Industry in Saxony: A Cluster Analysis of Local Units with / without a Special Affinity for Tourism**

One could expect that a locality’s affinity for tourism plays an important role for the impact of additional local investment in the field of touristic infrastructure. The hypothesis is that additional infrastructure will, in most cases, be more productive in a skilled touristic locality, as compared to a newcomer locality. Therefore, we tried to categorize the existing local units in Saxony according to their affinity for tourism.

#### III.1 Overview on the Empirical Set of Data for the Cluster Analysis

For empirically identifying the two “polar cases” of local units – as described above – and those localities which are situated somewhere between the two poles, an operationalization of the two cases is necessary. For regions with a high percentage of skilled touristic localities (i. e. with a strong affinity for tourism), one could expect that the mean size, the residence time and the capacity utilisation of businesses providing accommodation will be above the average of regions, and the density of hotels and guesthouses, of beds in hotels and guesthouses, of tourists’ arrivals and of guest-nights (number per 1,000 inhabitants) will be comparatively

high. The Saxonian State Statistical Office is offering data on tourism in Saxony that can be used for distinguishing between groups of regions with a different affinity for tourism. The regional level of these data is that of counties and Free Towns<sup>3</sup>. The data are available in almost constant regional delineation, yearly from 1998 to 2007. The county level is rather high, but, so far, data for the municipality level were not disposable for our analysis. The Saxonian State Statistical Office is publishing data on

- the number of accommodating businesses (hotels and guesthouses), which are open in July of each year,
- the number of guest beds at the end of July of each year,
- the number of accommodations per year,
- the number of overnight stays per year.

Related on the number of a county's inhabitants, these figures can be used for the construction of densities or stocks. The mean size of businesses is the ratio of the number of guest beds and the number of accommodating businesses. Likewise, the mean residence time of guests may be computed as the ratio of number of overnight stays and the number of accommodations, and the mean capacity utilisation may be computed as the ration of overnight stays per guest bed. We have computed all these ratios for the beginning and the end of the period between 2000 and 2007. To limit the effects of outliers, averages for three years (1998–2000 and 2005–2007) were used. The results were seven attributes of all 26 counties and three Free Towns in Saxony. With these attributes and the help of a cluster analysis, we have classified the counties and Free Towns according to their existing affinity for tourism; Table 1 gives an overview of the data vectors we have used.

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<sup>3</sup> In Germany, Free Towns („Kreisfreie Städte“) are cities which are independent from the county level and have all the competencies of a municipality plus those of a county, too.

**Table 1: Data included into the cluster analysis of tourism in Saxonian regions (unweighted means for the counties and Free Towns).**

	1998–2000		2005–2007	
	mean value	Coef. of variation	mean value	Coef. of variation
Accommodating businesses per 1,000 inhabitants	0,51	0,62	0,54	0,61
Guest beds per 1,000 inhabitants	24,3	0,60	25,3	0,61
Accommodations per inhabitant	0,92	0,63	1,10	0,65
Overnight stays per inhabitant	2,81	0,82	3,23	0,81
Mean size of busisnesses	52,2	0,43	51,3	0,42
Mean resident time	2,89	0,34	2,78	0,33
Mean overnight stays per guest bed	105	0,24	117	0,28

Data source: Saxonian State Statistical Office (2009a), calculations by the authors.

A comparison of the two periods makes clear: The strongest changes have taken place for the mean overnight stays per guest bed; this ratio can be interpreted as mean utilisation of the guest bed capacity. This ratio has risen significantly, together with its coefficient of variation. The mean size of establishment has been nearly constant over time (slight decrease), but these figures are the consequence of divergent developments in different counties. The growth of overnight stays per inhabitant could be regarded as a positive development from the viewpoint of the Saxonian hospitality industry. But this development is the result of the decreasing population in almost all counties and major cities of Saxony (only the Free Towns of Dresden and Leipzig are slightly growing). Moreover, we have to consider that the figures in Table 1 are (unweighted) means of the attributes included into cluster analysis. They don't equal the mean values for Saxony! For example, in Saxony the number of overnight stays has risen by 13.6 % between the periods of consideration, the population has shrunk by 4.7 %, and the number of guest overnight stays per inhabitant has risen by 19.2 %.

### III.2 The Results: Four Clusters with Different Degrees of Affinity towards Tourism

By means of an agglomerating partitioning method with Euclidean distance measure, four clusters of regions with similar affinity for tourism could be detected.<sup>4</sup> Due to their position in

<sup>4</sup> See e.g. *Fahrmeier/Hamerle* (1984), Kap. 9, *Struyf et al.* (1996), and *Pison et al.* (1999).



space spanned by the first two principal components<sup>5</sup> the four groups (categories) can be identified as

- large cities with (an average of) large accommodating businesses, high utilisation of capacities and short resident time,
- counties<sup>6</sup> with small to medium sized accommodating businesses, short resident time and lower capacity utilisation; they are referred to as “*regions with weak recreational tourism*”,
- counties with small to medium sized accommodating businesses, longer resident time and lower or medium capacity utilization; they are referred to as “*regions with ordinary recreational tourism*”, and
- counties with small to large sized accommodating businesses, long resident time and medium to strong capacity utilisation (“*regions with strong recreational tourism*”).

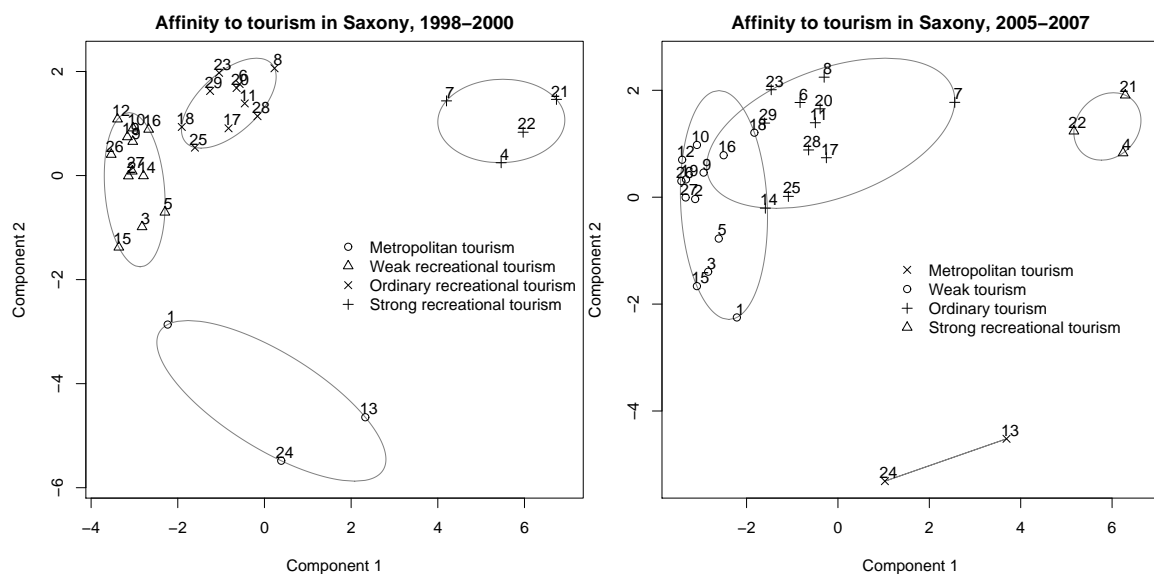


Fig. 1: Affinity of Saxonian Counties and Free Towns for Tourism, 1998–2000, and 2005–2007: Clusters displayed in the diagram of principal components.

Source: Saxonian State Statistical Office (2009a), calculations by the authors.

<sup>5</sup> The correlation between standardised data vectors and principal components (p.c.) is significantly different for the periods 1998–2000 and 2005–2007. 1998–2000 the second p.c. is only correlated with the mean size of establishment; the first p.c. is correlated with all other attributes. 2005–2007 the first p.c. is correlated primarily with the attributes „Overnight stays per inhabitant“, „Accommodations per inhabitant“, „Guest beds per inhabitant“ and „Establishments per inhabitant“, while the second p.c. represents more strongly the spread of the attributes „Mean size of establishment“, „Mean resident time“ and „Mean overnight stays per guest bed“.

<sup>6</sup> Additionally, the following groups can also contain Free Towns.

Fig. 1 shows the clusters detected for both periods, pictured in the diagram of the first two principal components. The counties and the smaller Free Towns differ primarily in respect of their attributes of tourism density, while the special position of large Free Towns is more the result of the size of their accommodation businesses.

**Table 2: Counties and Free Towns in Saxony and their Affinity for Recreational Tourism, 1998–2000, and 2005–2007<sup>a</sup>.**

	Cluster 1 „Metropolitan tourism“	Cluster 2 „Weak recreational tourism“	Cluster 3 „Ordinary recreational tourism“	Cluster 4 „Strong recreational tourism“
1998–2000	1 City of Chemnitz 13 City of Dresden 24 City of Leipzig	2 City of Plauen (Vogtl.) 3 City of Zwickau 5 Chemnitz County 9 Mittweida 10 Stollberg 12 Zwickauer Land 14 City of Görlitz 15 City of Hoyerswerda 16 Bautzen 19 Riesa-Großenhain 26 Döbeln 27 Leipziger Land	6 Freiberg 8 Mittlerer Erzgebirgskreis 11 Aue-Schwarzenberg 17 Meißen 18 Niederschl. Oberlausitzkr. 20 Zittau-Löbau 23 Kamenz 25 Delitzsch 28 Muldentalkreis 29 Torgau-Oschatz	4 Annaberg 7 Vogtlandkreis 21 Sächs. Schweiz 22 Weißeritzkreis
2005–2007	13 City of Dresden 24 City of Leipzig	1 City of Chemnitz 2 City of Plauen (Vogtl.) 3 City of Zwickau 5 Chemnitz County 9 Mittweida 10 Stollberg 12 Zwickauer Land 15 City of Hoyerswerda 16 Bautzen 18 Niederschlesischer Oberlausitzkreis 19 Riesa-Großenhain 26 Döbeln 27 Leipziger Land	6 Freiberg 7 Vogtlandkreis 8 Mittlerer Erzgebirgskreis 11 Aue-Schwarzenberg 14 City of Görlitz 17 Meißen 20 Zittau-Löbau 23 Kamenz 25 Delitzsch 28 Muldentalkreis 29 Torgau-Oschatz	4 Annaberg 21 Sächs. Schweiz 22 Weißeritzkreis

<sup>a</sup> = Free Towns. All other regional units are counties.

Source: see fig. 1.

Table 2 shows the names of regional units belonging to each of the four categories. With regard to its interpretation it has to be emphasised that all attributes included to the cluster analysis are average values for each region (for example: of all municipalities and towns of a

county). In all Saxonian counties, we may find some attractive touristic local units with good touristic services. Additionally, our analysis, so far, is restricted to data representing supply, demand and size structure of accommodating establishments. Apart from the large cities, the remaining three categories represent only the affinity for *recreational tourism*, while day-trip tourism is not taken into account. Thus, medium sized cities like Görlitz<sup>7</sup> or Zwickau<sup>8</sup> that have a lot of attractions fall into the category of regions with weak recreational tourism.

#### **IV. Empirical Findings on the Impact of Local Public Investment on Employment in the Local Tourism Industry**

##### IV.1 The Structure of Local Public Investment for Tourism Infrastructure

This paper is concentrating on local touristic infrastructure investments that were supported by grants in aid from the federal government and the Saxonian state government within the framework of the “Intergovernmental Program for the Improvement of Regional Economic Structures” (“Gemeinschaftsaufgabe zur Verbesserung der Regionalen Wirtschaftsstruktur”, “GRW”) in the time from 1990 to 2007. Of course, many local investments in touristic infrastructure were supported by grants from other programs, e. g. grants from the program “Integrierte Ländliche Entwicklungskonzepte – ILEK”) (= “Conceptions for Integrated Rural Development”). The restoration of landscapes after mining was publicly funded in accordance to the § 4 of the German “Second Supplementary Administrative Agreement” (“Zweites Ergänzendes Verwaltungsabkommen”) for Lignite Remediation. However, a big part of local investment with relevance to touristic infrastructure was supported within the GRW-program: From 1990 to 2007, 1382 local investment projects in the field of touristic infrastructure were supported by grants in aid.

The Saxonian State Strategic Plan for the GRW-program is supporting different categories of touristic infrastructure. Table 3 shows the number of investment projects for each category of infrastructure for the periods 1990–1999, and 2000–2007 separately. A comparison of the two periods shows considerable differences. The most striking change took place for the investment in public swimming pools and water parks; such projects were supported in a lot

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<sup>7</sup> An old clothworker town with a famous historic city center.

<sup>8</sup> The birth place of the composer Robert Schumann and a traditional center of car production.

of cases during the 1990s, but only in a few cases after 1999. The strong decrease in the number (but not in the volume) of development of sites for tourism is the consequence of the dominance of some single large-scale projects. This also applies to supported projects in the category of other public facilities of tourism like the “Gondwanaland-World of Tropical Experience” in the Leipzig Zoo. Investments in health resorts that were very large scale projects in the first period have decreased in volume (but not in number). The investments in other kinds of touristic infrastructure have decreased in the second period to one fourth to one fifth of the first period by number and by volume.

Because of the heavy lack of investment in the Eastern part of Germany during the period of socialist planning, a massive investment in touristic infrastructure in skilled touristic localities was probably necessary, in the first years after the German unification, in order to stabilize these localities against their competitors from the West. The high tendency for investment in public swimming pools and water parks had perhaps not only the task to create new attractions for tourists, but also the task to improve the general conditions of life (for the inhabitants) in the East, as compared to the Western part of Germany. However, that many municipalities would suffer from the follow-up costs from these investments was apparent already in the end of the 1990s.

**Table 3: Number and Volume (in Million Euros) of Investment within the GRW-program in Different Categories of Touristic Infrastructure in Saxony, 1990–1999, and 2000–2007.**

Category of Infrastructure	1990–1999		2000–2007		1990–2007	
	Number	Volume	Number	Volume	Number	Volume
A: Development of site for tourism	137	64,0	43	54,8	180	118,7
B: Bike paths and hiking trails	426	127,4	99	24,9	525	152,3
C: Guest houses , tourist offices,, touristic information systems	128	103,3	26	5,3	154	108,6
D: Museums, museum mines and manufactories	30	24,6	8	3,8	38	28,3
E: Sports and leisure facilities (without swimming pools)	66	86,4	46	15,5	112	102
F: Construction and extension of swimming pools	157	502,5	12	5,8	169	508,3
G: Health resorts	8	71,5	8	8,7	16	80,2
H: Other public facilities of tourism	145	98,5	43	76,7	188	175,2

Source: Saxonian State Ministry for Economy and Labour.

The annual number of investment projects in touristic infrastructure supported by grants from the GRW-program in Saxony, its volume and the volume of grants, are included in Table 3. Starting cautiously 1990–1992, there was a boom of investment in touristic infrastructure in the years 1993–1994. As already has been explained, public swimming pools and water parks had a great share in grants and hence in public investment. In this time also a substantial part of the Saxonian supra-regional bike path program was realised, supported by grants from the GRW. In 1995, the number and the volume of investments dropped considerably. The decline of grants for infrastructure investment funded by means from the GRW-program after 1994 was a common trend in all East German states.<sup>9</sup> After 1998, the annual volume of investment in touristic infrastructure was unsteady, but showed a declining trend. Altogether, investment specific to touristic infrastructure was more than five times higher in the first period of consideration than in the second period.

#### IV.2 The Regional Pattern of Local Public Investment: Allocation to counties with an affinity for tourism?

The regional pattern of public investment in touristic infrastructure also displays strong differences between the periods 1990–1999 and 2000–2007. In Figure 2 such investments per capita are diagrammed for both periods as bubbles (scaled by the fourth root of investments per capita), while the belonging of regions in categories of affinity for (recreational) tourism detected for the period 1998–2000 is plotted as a background.

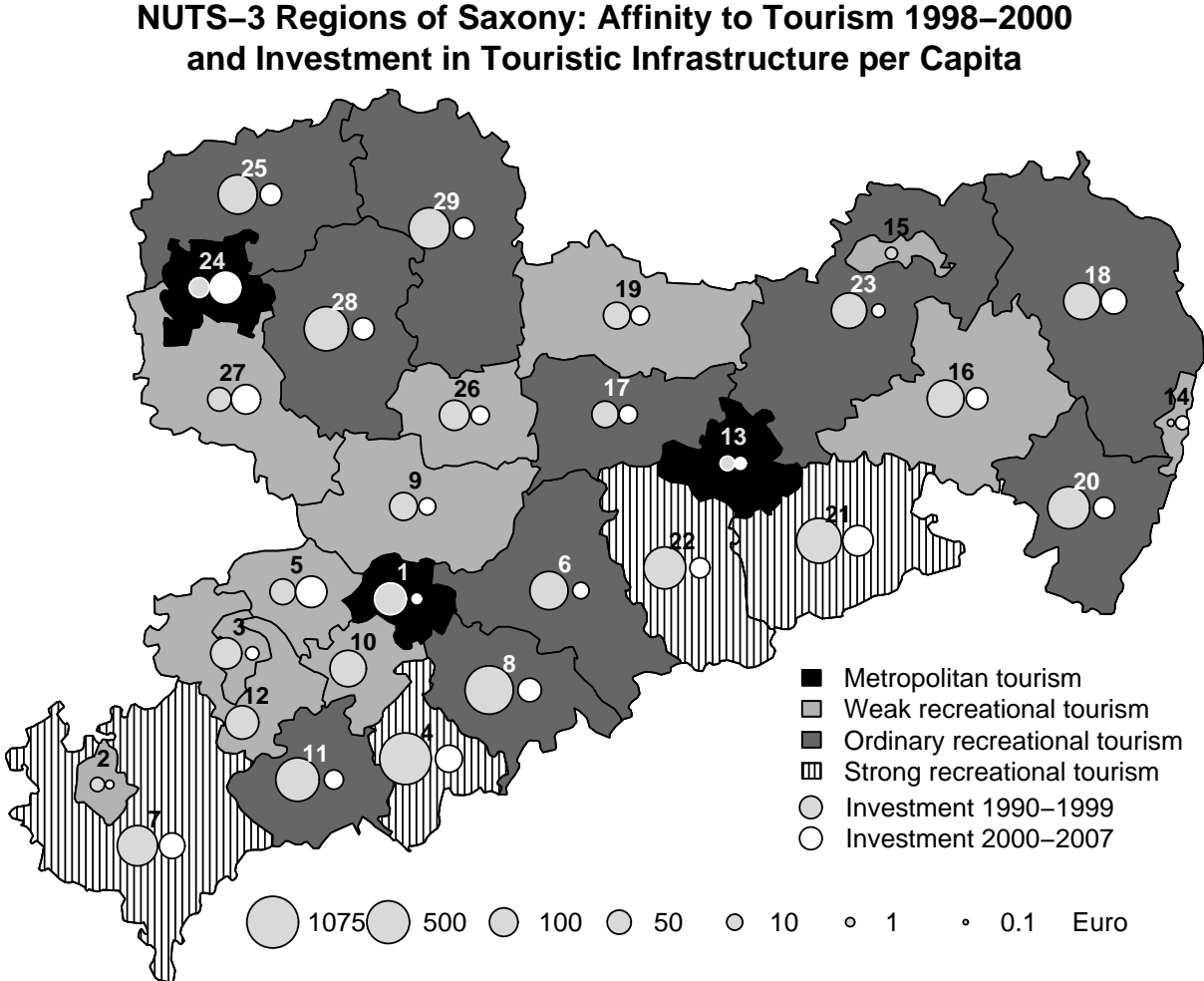
In the first period, the regional centres of investment were the counties in the south of Saxony (4, 7, 21, 22)<sup>10</sup>, where the traditional centres of tourism are located. The metropolises Dresden and Leipzig and the middle sized Free Towns had only few and small investments which were supported by the GRW-program. Likewise, the municipalities belonging to counties in the north of Saxony made (on average) only small investments in touristic infrastructure related to the regions in the south. In the second period, investments declined in almost all counties and Free Towns. The only exceptions were the regions of Chemnitz and Leipzig, where large scaled projects with an “event character” have been implemented. In Chemnitz this was the new “Sachsenring” (“Ring of Saxony”, a famous race-track with centre for road safety), in

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<sup>9</sup> See Bundesamt für Wirtschaft und Außenkontrolle (2010) p. 3.

<sup>10</sup> See the assignment of numbers to regions in Table 2.

Leipzig the already mentioned “Gondwanaland”. Furthermore, in the second period, investments into touristic infrastructure took place both in the north and in the south of Saxony, without regarding to the affinity of a locality for tourism (on this rough regional structure).



Data Source: EuroGeographics, Statistical Office of the Free State of Saxony, Ministry for Economy, Technology and Transportation of the Free State of Saxony, computations of the IWH.

Fig. 2: Regional distribution of investment in touristic Infrastructure 1990–1999 and 2000–2007, and Affinity for Tourism, 1998–2000.

IV.3 Econometric Analysis

What was the impact of local public investment on the local economy? The data on employment in accommodation and food service activities (= economic activity number “55” from the Classifications of Economic Activities [“WZ 1993” and “WZ 2003”] by the German

Federal Statistical Office), which are available at level of municipalities, may be used as be an easily measurable indicator of the local economic activity in tourism, because (as had been explained in section II.1) these branches will primarily take advantage from local tourism.<sup>11</sup> Theoretically, we assume that the demand for services in accommodation and food service activities is determined by local income, by the income in the region to which the municipality belongs, by the local touristic attractions and by the regional affinity for tourism. Of course, it would be desirable to have categories of affinity for tourism on the level of municipalities, but the data required for building them were not available, so far. The local income determines the demand of the local population for food service activities. The mean available income of the region controls for demand of accommodation and food services from the population in the same region. The touristic attractiveness has a local and a regional component, too. The category of affinity for tourism serves as a proxy for this regional component. As local component of touristic attractiveness we regard the investment in touristic infrastructure which is supported by the GRW-program.

The number of employees (subject to social security deductions) in accommodation and food service activities 2002 or 2008 and its change between the two periods (named:  $L_{02}^S$ ,  $L_{08}^S$ ,  $\Delta L^S$ ) are endogen variables in the following one-equation regression models. The data is collected by the German Federal Employment Agency. Because data of local income are not available, the number of employees (which are subject to social security deductions) that have their working place in the municipality ( $L_{02}$ ,  $L_{08}$ ,  $\Delta L$ ) is used as a proxy for local income.<sup>12</sup> The available income of the region ( $Y_{02}$ ,  $Y_{08}$ ,  $\Delta Y$ ) stems from the SNA data published by the German Federal Statistical Office. Other variables are the vectors  $\mathbf{I}_0$  and  $\mathbf{I}_1$  for the investment in touristic infrastructure 1990–1999 and 2000–2007, for all kind of infrastructure (e.g.  $I_{0,all}$ ), and for special categories of infrastructure (e.g.  $I_{1,A}$  for development of sites for tourism 2000–2007, see table 1), and the vectors  $\mathbf{A}_0$  and  $\mathbf{A}_1$  for the category of affinity for tourism of the region. Because the large cities Dresden, Leipzig and Chemnitz are not included into the regression (their data would be strong outliers), we can only include two dummy variables of regional affinity for tourism (because of the strong linear dependence of the remaining three):

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<sup>11</sup> This also applies to other economic activities (e.g. production and sale of souvenirs or of food), but they cannot be identified by the first two numbers of the “WZ” classification.

<sup>12</sup> The number of employees residing within a municipality are unfortunately not available.

$A_{2,0}$  for belonging to the category of weak recreational tourism detected by data for 1998–2000,  $A_{4,0}$  for belonging to the category of strong recreational tourism detected by data for the same period, and likewise  $A_{2,1}$  and  $A_{4,1}$  detected by data for the period 2005–2007.

The regression equations to be estimated are

$$L_{02}^S = \beta_0 + \beta_1 L_{02} + \beta_2 Y_{02} + \gamma_0 I_0 + \delta A_0 + \varepsilon, \quad (1)$$

$$L_{08}^S = \beta_0 + \beta_1 L_{08} + \beta_2 Y_{08} + \gamma_0 I_0 + \gamma_1 I_1 + \delta A_1 + \varepsilon, \quad (2)$$

$$\Delta L^S = \beta_0 + \beta_1 \Delta L + \beta_2 \Delta Y + \gamma_0 I_0 + \gamma_1 I_1 + \delta A_1 + \varepsilon \quad (3)$$

The regression models are estimated by the OLS method. The results for the regression on the employment in accommodation and food services in municipalities in Saxony 2002 corresponding to eq. (1) are summarized for three specifications (1-1 to 1-3) in table 5.

**Table 5: OLS Estimation Results of Eq. (1).**

	1-1		1-2		1-3	
Constant	159,9*	(1.97)	140,2	(1.80)	102,0	(1,38)
$L_{02}$	0,025*	(36.26)	0,025*	(36.1)	0,024*	(37.34)
$Y_{02}$	-0,012*	(-2.06)	-0,011	(-1.95)	-0,0085	(-1.57)
$A_{2,0}$	-7,32	(-1.50)	-3,80	(-0.81)	-2,90	(-0.65)
$A_{4,0}$	24,3*	(4.28)	21.6*	(3.96)	17,0*	(3.26)
$I_{0, \text{insges}}$			2.54e-06*	(6.62)		
$I_{0,A}^a$					1,20e-06	(0.37)
$I_{0,B}$					1,01e-05*	(3.38)
$I_{0,C}$					1,62e-05*	(5.64)
$I_{0,D}$					1,79e-06*	(2.42)
$I_{0,E}$					6,94e-06*	(3.68)
$I_{0,F}$					-4,9e-08	(-0.08)
$I_{0,G}$					4,24e-06*	(3.02)
$I_{0,H}$					1,83e-06	(0.71)
$R^2$	0.730		0,753		0.785	

<sup>a</sup> Categories of infrastructure see table 3.

*t*-values in parentheses, \* Significance level 95%.

Source: German Federal Employment Agency (2009), Saxonian State Statistical Office (2009a), Saxonian State Ministry of Economy and Labour; calculation by the authors.

In specification (1-1), infrastructure variables are omitted. The sign of estimated coefficients appears accordingly to our expectations: The restaurant service industry benefits from local employment in all sectors. The negative sign of the coefficient of  $Y$  may be caused by the



high incomes in municipalities near by the large cities that locate within the administrative borders of adjacent counties. These incomes partially flow to restaurants and other food service suppliers residing in the metropolis that not belongs to the counties aside it. The coefficients of  $A_{2,0}$  and  $A_{4,0}$  display the expected signs, too.

The signs of these coefficients remain stable in all regressions estimated, also for the second period, corresponding to eq. 2. In regression (1-2) (see table 5), the sum of investment volume of all kinds of infrastructure is introduced as an exogenous variable. The positive sign indicates that the investments were located (on average) in municipalities with higher touristic activity. In specification (1-3), investments of specific categories of infrastructure are introduced. For the majority of these categories of infrastructure, the sign of coefficient is positive. One exception is the case of swimming pools that do not display any relation to the employment in the accommodation or food service sector. This is not surprising, because swimming pools are often locally oriented and include, ordinarily, their own food services (that is not recorded as food service, statistically). The regression coefficients of investments in touristic site development and in other touristic facilities are insignificant in regression (1-3), however, single included they have a significant positive sign. Apparently, there are multicollinearities, causing unexpected results of estimation.

**Table 6: OLS Estimation Results of Eq. (2).**

	2-1		2-2		2-3	
Constant	122,8	(1,49)	81,9	(1,06)	40,5	(0,56)
L <sub>08</sub>	0,026*	(32,0)	0,025*	(37,74)	0,026*	(34,86)
Y <sub>07</sub>	-0,0087	(-1,58)	-0,0063	(-1,21)	-0,0037	(-0,75)
A <sub>2,1</sub>	-9,80	(-2,14)	-7,17	(-1,64)	-5,21	(-1,29)
A <sub>4,1</sub>	30,5*	(4,40)	23,6*	(3,56)	15,1*	(2,40)
I <sub>0, insges</sub>			2,34e-06*	(5,64)		
I <sub>1, insges</sub>			6,54e-06*	(4,34)		
I <sub>0,A</sub>					-3,40e-06	(-0,98)
I <sub>0,B</sub>					6,41e-06*	(2,02)
I <sub>0,C</sub>					1,30e-05*	(4,28)
I <sub>0,D</sub>					1,13e-06	(1,45)
I <sub>0,E</sub>					4,44e-06*	(2,23)
I <sub>0,F</sub>					-2,88e-07	(-0,44)
I <sub>0,G</sub>					5,46e-06*	(2,98)
I <sub>0,H</sub>					2,07e-06	(0,75)
I <sub>1,A</sub>					1,47e-06	(0,81)
I <sub>1,B</sub>					-8,55e-06	(-0,82)
I <sub>1,C</sub>					2,37e-05	(1,22)
I <sub>1,D</sub>					-9,21e-06	(-0,39)
I <sub>1,E</sub>					3,49e-08*	(5,81)
I <sub>1,F</sub>					-4,85e-05*	(-2,51)
I <sub>1,G</sub>					3,55e-05*	(2,80)
I <sub>1,H</sub>					3,51e-05*	(3,20)
R <sup>2</sup>	0,684		0,719		0,773	

*t*-values in parentheses, \* Significance level 95%.

Source: German Federal Employment Agency (2009), Saxonian State Statistical Office (2009a), Saxonian State Ministry of Economy and Labour; calculation by the authors.

Table 6 shows the estimation results for the regression on the employment in accommodation and food services in 2008. In regression (2-2), investments into touristic infrastructure are introduced for both periods. Both times, their coefficients are significantly positive. This is interesting, as we saw in fig. 2 the mismatch of investment and affinity for tourism *on the regional level of counties*. However, the regression on employment in hotels and restaurants on the *regional level of municipalities* exhibits that, on average, investment in tourism took place at locations with strong touristic activities after 1999, too. There have been implemented investment projects in “newcomer localities”, among them some large scaled projects, but the mass of projects was located in skilled touristic municipalities with high employment in accommodating and food services. Differences between the results displayed in tables 6 to 5 regard particularly the investment in bike paths (B) and in museums, museum mines and museum manufactories.

As to bike paths, one reason could be that the largest part of bike paths networks in Saxony was built before 2000. The investments in the second period in consideration were often intended as gap closures; from them, all municipalities can benefit, but not especially the municipality that has applied the investment funding. In all discussions with experts on-site, the discussion partners emphasized the importance of bike paths for tourism. However, in some cases, problems in the sense of a lack of cooperation between adjacent municipalities regarding the routing of bike paths were mentioned. With regard to museum-like investments, we must consider that these establishments, ordinarily, supply their own food service (like swimming pools). Additionally, public funding of such projects may be aimed to the survival of the establishment, even though some touristic demand cannot be expected, in the short run.

Common in both periods is the significant positive relation between investment in health resorts (G) and employment in accommodation and food services. Because the localities, where these investments have taken place, have in most cases a long tradition of tourism, a strong effect of these investments on employment has to be expected.

The results of estimated regressions on the change of employment in accommodating and food services 2002 to 2008 are summarized in table 7. As in regressions (1-1) and (2-1), in regression (3-1) investments in touristic infrastructure are not introduced yet. The significant positive effect of change in local employment as a whole underlines the meaning of local demand particularly for food services (but, that has to be put into perspective of the very small coefficient of determination). Relevant is the change of signs of coefficients of the dummies for categories of affinity for tourism: This implies that the employment in accommodation and food services has (on average) increased in municipalities that locate in regions with weak recreational tourism, at the same time employment in this sector decreased (on average) in locations in regions with strong recreational tourism. This can be the result of a statistical artefact, caused by the delineation of regions by counties that are too large. For example, in the city of Görlitz employment in accommodation and food service has strongly increased. Another reason for the change of sign of  $A_{2,1}$  and  $A_{4,1}$  could be that a weak process of harmonisation of employment in the accommodation and food service between regions with weak and with strong recreational tourism has taken place in Saxony. Indeed, the variance of

employment in this sector in municipalities of Saxony has decreased slightly from 2002 to 2008.

The positive sign of the change of income  $\Delta Y$  in regression (3-1) indicates that employment in accommodation and food services is positively related to the mean income of the region.

Striking in estimation (3-2) is the insignificant effect of investments in touristic infrastructure 1990-1999, while the effect of such investments that have been done 2000–2007 is significantly positive. This is no result of multicollinearity. One reason for the absence of effects of investments of the former period may be that these investments have had effects that have become manifest already before 2002. The significant positive effect of investments from 2000 onwards indicates, at least, an increase of employment in accommodation and food services in municipalities where investments in touristic infrastructure has been conducted.

Looking at estimation (3-3), only investments in health resorts display significant positive coefficients in both periods. Of course, one cannot say whether the increase of employment in accommodation and food services in localities that contain health resorts would have appeared without these public investments, nor we can say anything about the possible effects of these funds if they were applied for other projects in other sectors or locations. However, this result clearly indicates that investments into touristic infrastructure will fall on good soil if they are made in localities where tourism has already a long tradition, because they meet the complementary factors that are required to produce the touristic service.

As well significant positively appear the effects of new developed sites for tourism after 1999. Among these investments were some projects with event character that attracted a large audience and have a huge geographical reach, e.g. the “Lausitzer Findlingspark Nochten” (a geological outdoor museum) and the already mentioned new “Sachsenring”. This could be an explanation for the positive regression coefficient.

**Table 7: OLS Estimation Results of Eq. (3).**

	3-1		3-2		3-3	
Constant	-7,56	(-0,95)	-6,90	(-0,89)	-4,61	(-0,60)
$\Delta L$	0,0064*	(3,96)	0,0068*	(4,30)	0,0055*	(3,52)
$\Delta Y$	0,0080	(0,83)	0,0064	(0,68)	0,0054	(0,58)
$A_{2,1}$	1,91	(0,82)	1,34	(0,58)	0,25	(0,11)
$A_{4,1}$	-0,37	(-0,10)	-1,75	(-0,51)	-1,51	(-0,44)
$I_{0, \text{insges}}$			-5,31e-09	(-0,02)		
$I_{1, \text{insges}}$			4,29e-06*	(5,47)		
$I_{0,A}$					-1,43e-06	(-0,74)
$I_{0,B}$					-1,58e-06	(-0,91)
$I_{0,C}$					-1,94e-06	(-1,17)
$I_{0,D}$					-7,43e-06	(-1,73)
$I_{0,E}$					-4,20e-07	(-0,38)
$I_{0,F}$					-1,55e-07	(-0,43)
$I_{0,G}$					2,37e-06*	(2,33)
$I_{0,H}$					-2,83e-07	(-0,18)
$I_{1,A}$					4,85e-06*	(4,89)
$I_{1,B}$					-7,51e-07	(-0,13)
$I_{1,C}$					1,29e-05	(1,20)
$I_{1,D}$					-1,23e-05	(-0,95)
$I_{1,E}$					1,04e-06	(0,31)
$I_{1,F}$					-2,30e-05*	(-2,15)
$I_{1,G}$					1,70e-05*	(2,42)
$I_{1,H}$					3,86e-06	(0,64)
$R^2$	0,033		0,090		0,175	

*t*-values in parentheses, \* Significance level 95%.

Source: German Federal Employment Agency (2009), Saxonian State Statistical Office (2009a), Saxonian State Ministry of Economy and Labour; calculations by the authors.

#### IV.4 Results from a Telephone-based Survey on Private Businesses and Interviews with Local Officials

New infrastructure projects in the field of tourism will primarily result in positive effects for those firms from the tourism industry (especially: hotels, restaurants) which are located nearby a certain infrastructure project. Following this idea, we started a telephone-based survey of 44 touristic businesses in municipalities where touristic infrastructure projects have been implemented in the period of 2000-2007. The firms were directly asked for the impact of a certain infrastructure project that had been build in their neighbourhood, in the period 2000-2007.

Interestingly, and to a certain extent in opposite to our econometric results, the majority of the firms from the survey reported that there have been only slight positive effects for them from the newly-built infrastructure:

**Table 8: Percentages of firms from local tourism Industry which stated that the nearby located, new local infrastructure project (build in the years 2000-2007) ...**

	Answer: „yes“	Answer: „no“
... is at least sufficiently considered within municipal sales promotion activities in the field of tourism	60.6	39.4
... has led for our hotel / restaurant to more guests	38.2	47.1
... has led to an extension of our firm (private investment, more employees)	11.8	82.4

Source: IWH-survey on tourism firms in Saxony 2009; calculations by the authors.

For the majority of firms from tourism industry, the sales promotion activities of their municipality have taken at least „sufficiently“ (or more than „sufficiently“) notice from the newly build infrastructure within their neighbourhood (60.6 percent). The presence of a certain infrastructure project within the sales promotion activities of a local unit may be interpreted as a positive impact of the project that could be able to stimulate local activities in the field of tourism. But less than 40 percent of the firms stated that there had also been positive effects from the new infrastructure on the number of visitors. And for only 11.8 percent of the firms, the new infrastructure has led to a new private investment or to more employment. Interpreting these results, one could assume that – as we had expected – the economic impact of local infrastructure in the field of tourism depends on several situational factors and on the characteristics of the newly build infrastructure.

With regard to the newcomer localities, several interviews with officials at the local level made clear that newly created attractions, e.g. the “Lausitzer Findlingspark Nochten” (a geological outdoor museum) or the new “Sachsenring”, are really able to attract large numbers of visitors from other regions. But this does not automatically lead to positive impacts on local employment. Newcomer localities are often suffering from a lack of complementary factors which are necessary “ingredients” for economic success in tourism. One relevant factor is human capital. As Table 9 indicates, in skilled touristic localities, the

supply with qualified workers is much higher valued than in the newcomer localities.<sup>13</sup> Probably, a region with firms with a high valuation of qualified workers will be more successful in the field of tourism than other regions.

**Table 9: The Valuation of the Importance of “Supply with Qualified Workers” by Businesses from Local Tourism Industry in Different Categories of Municipalities, in Percent.**

	Very Important	Important	Not so Important	Totally Unimportant
Skilled touristic localities	35.5	29.0	19.4	16.1
Newcomer localities	16.7	0.0	33.3	50.0

Source: IWH-survey on tourism firms in Saxony 2009; calculations by the authors.

## V. Conclusions

In skilled touristic localities, there are other needs for investments in touristic infrastructure than in newcomer localities. With regard to the attraction of tourists, one could suspect that in some of the newcomer localities, the grants from the national and state levels to the local level have been spent for infrastructure which is mainly used by the local population, not by tourists.

Infrastructure in the field of tourism will only have major positive effects on regional development if a region is well-equipped with relevant complementary factors, e. g. with a service-oriented mentality within the population. This indicates that a local tradition in the field of tourism is one major “driver” of economic success – an example for path-dependency in local economic development. But also traditional touristic locations had begun, some day, to develop their skills. Therefore, with regard to (local) economic policies, policymakers should try to invest, in future, more in the local service mentality and not only in physical infrastructure.

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<sup>13</sup> As no data for the municipal level was available, all municipalities which are located in counties which belong to the clusters 3, 4 and 6 were interpreted as „skilled touristic localities“.

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