POLYNET Action 1.2
Quantitative analysis of service business connections

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Northern Switzerland

Quantitative Analysis of Service Business Connections

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A. Introduction

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Development of Business Services in the European Metropolitan Region Northern Switzerland (EMNS)

As the hub of the Zürich Metropolitan Region Northern Switzerland and with around 22% of the country's net domestic product, the canton of Zürich alone makes a key contribution to the perception of this business location as the "engine that drives Switzerland" (Carnazzi and Golay 2004). This impression is further reinforced when we broaden the perspective: with a total of 25 FURs 1, the economic complex around the cities of Zürich and Basel accounts for almost 50% of all employees in the most high-yielding sectors in terms of value added of the eight categories of business services in Switzerland examined and generates over 40% of Switzerland's net domestic product (BfS, 2003). Locations with strong economic structures in terms of value added are increasingly concentrated in the urban centres, whereby in addition to the tax take and accessibility, human capital plays an increasingly important role in the development of valuable service regions as part of the shift towards a knowledge-based society.

Sector Specialisations

The change in framework conditions has had a critical influence on the sectoral structure of the EMNS since the 1990s and contributed to the emergence of distinct sectoral profiles in the eight FURs studied (cf. Fig. 9 in the report on Action 1.1). Overall, as compared with the rest of Switzerland, the advertising, banking and management consultancy sectors enjoy an above-average presence (Table 1). Whereas the design, law and logistics sectors have only undergone minor changes both throughout Switzerland and in the EMNS, in the case of the accountancy and insurance sectors varying and – in the case of the latter – even contrary trends were observed between 1995 and 2001 (decline in the specialisation coefficient from 1.10 to 0.76 2).

Other specialisation effects can also be observed at regional and local level for the individual FURs and urban centres. With the exception of the design and insurance sectors, all sectors have an above-average presence in Zürich, whereas Aarau, for example, generally emerges as only slightly above the Swiss comparative value and the logistics/management consultancy sectors are even strongly underrepresented (more detailed information follows in section B).

The distribution patterns for the individual sectors paint a highly differentiated picture of the EMNS economic area. Significant spatial concentrations can be observed in all sectors except design and logistics. The most striking level of specialisation (coefficient >2) is found in advertising (Lucerne, St Gallen), banking (Zürich's monopoly position) and in the exceptional status of Zug which registers above-average rates for accountancy, insurance, law and management consultancy. Apart from a few exceptions, the distribution patterns have only undergone minor changes since 1995. The most significant shifts occurred in the accountancy sector (growth in Zürich at the expense of Zug) and management consultancy (growth in Basel, St Gallen and Zug at the expense of Zürich and Baden). Significant local growth spurts were observed in advertising (Lucerne, St Gallen), design (Aarau, Baden) and especially in the modern information and communications technologies (ICT) in Aarau and Zürich. In several cases, the development in the EMNS followed the national trend. Initial indications of a more fundamental restructuring can be observed in three sectors:

(1) a shift in focus towards locations outside the EMNS appears to be occurring in the insurance sector (consistently downward trend in the number of employees in the EMNS outside of Zug, while Fig.s for all of Switzerland doubled in the period from 1995 to 2001); (2) continuing concentration of banking in Zürich/Zug (growth rates continue to exceed the increase in jobs nationally); (3) concentration of superior logistics services in central locations (greater losses among peripheral FURs and smaller urban centres).

Data Sources & Collection Methods

Business census data from the official statistics for the years 1995 and 2001, which were sufficiently detailed to enable the differentiated analysis of the eight POLYNET sectors (five NACE places 3), provided a basis for the additional analyses.

Swissguide's commercial online database was also used in the development of the inventory of firms and selection of the FURs. This data pool is based on all of the entries in the official commercial register and can be structured in accordance with a comprehensive catalogue of criteria (location, number of employees, NACE code, keywords for the core business).

Table 1: Business Sector Specialisation in the EMNS FURs in 1995 and 2001 (Specialisation Coefficient, Based on Employment)

	Accounting		Advertising		Banking		Design		Insurance		Law		Logistics		Management	
FUR	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001
Aarau	1.32	1.18	1.65	0.98	1.13	1.17	0.92	1.18	1.52	0.89	1.04	0.93	0.34	0.13	0.48	0.58
Aarau Core	1.00	0.96	1.15	0.68	0.77	0.78	0.87	0.98	0.89	0.60	0.70	0.69	0.19	0.18	0.92	0.68
Baden-Brugg	0.99	0.99	1.01	1.24	1.15	1.21	1.41	1.61	0.88	0.59	1.42	1.71	0.85	0.53	2.25	1.46
Baden Core	0.75	0.77	0.86	0.94	0.74	0.80	1.52	1.70	0.57	0.44	0.87	1.02	0.73	0.41	1.71	1.22
Basel	1.15	1.19	1.35	1.38	1.49	1.27	0.83	0.96	0.71	0.41	1.00	1.01	1.34	0.97	1.28	1.62
Basel Core	0.96	0.96	1.18	0.99	1.06	0.88	0.92	0.97	0.72	0.41	0.73	0.72	0.91	0.76	1.33	1.49
Lucerne	1.27	1.17	0.94	2.93	0.85	0.82	1.06	0.95	1.21	0.75	0.92	1.03	1.90	0.85	0.84	0.66
Lucerne Core	1.11	1.09	0.84	1.95	0.67	0.63	1.08	1.03	0.81	0.50	0.77	0.86	1.22	0.73	1.15	0.85
St. Gallen	1.46	1.34	1.45	5.05	1.19	1.44	0.91	0.84	1.08	0.51	0.93	0.93	1.96	1.01	1.43	1.35
St. Gallen Core	1.40	1.24	1.29	3.85	1.01	1.16	1.02	0.97	1.06	0.57	0.76	0.79	1.43	0.99	1.21	1.75
Winterthur	0.51	0.56	0.99	0.85	0.72	0.45	1.18	1.16	1.93	1.17	0.70	0.51	1.58	0.95	1.14	0.81
Winterthur Core	0.57	0.62	0.96	0.81	0.66	0.42	1.18	1.16	1.86	1.10	0.65	0.49	1.42	0.86	1.13	0.92
Zug	3.05	2.48	1.62	0.72	1.11	1.24	1.21	1.24	1.65	2.32	1.93	2.14	0.25	0.16	2.17	2.45
Zug Core	2.20	1.96	2.00	1.76	0.65	0.86	1.17	1.14	0.95	1.40	1.05	1.22	0.25	0.27	2.83	2.77
Zurich	1.27	1.62	1.47	1.35	2.66	3.06	0.92	1.00	1.88	1.32	1.88	1.92	1.68	1.87	1.73	1.34
Zurich Core	1.05	1.20	1.35	1.35	1.80	2.08	0.93	0.97	1.31	0.89	1.25	1.22	1.10	1.39	1.76	1.54
FURs TOTAL	1.07	1.13	1.26	1.45	1.34	1.47	0.98	1.02	1.10	0.76	1.01	1.01	1.03	1.05	1.58	1.48
Switzerland	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Source: Bundesamt für Statistik (BfS), Betriebszählung; own calculations

B. Functional Geography of the Mega-City Region

General Distribution of Business Services

The business services studied show that a fairly balanced distribution pattern exists in the EMNS. Overall, it is only possible to identify a few centres of specialisation. As compared with the national average, it is mainly banking and the associated legal and management consultancy services that enjoy an above-average presence in the region.

Of the total of 25 urban agglomerations in the EMNS, only six cores achieved a share of business services exceeding 20% of the total number of employees in the tertiary sector; only St Gallen, Zug and Zürich also displayed

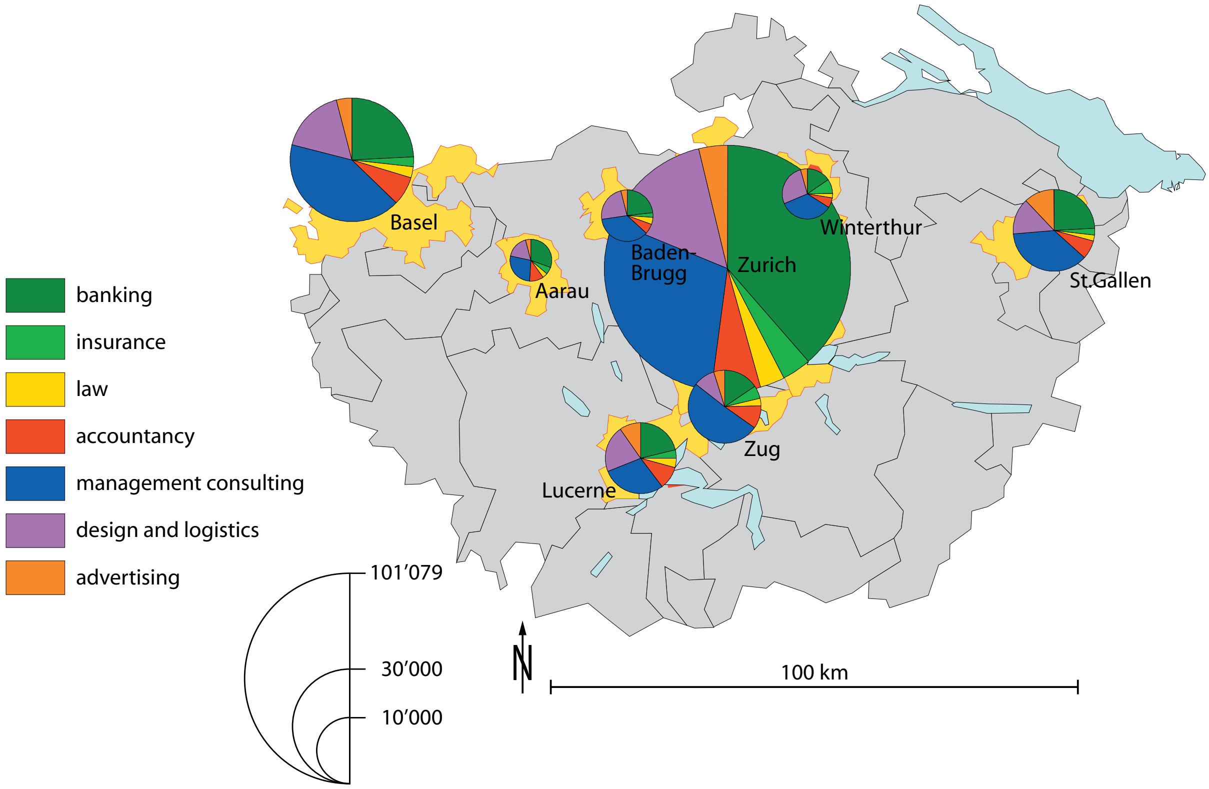

Figure 1: Northern Switzerland - Polynet sectors based on firms inventory

Table 2: «Ranking» of the 25 EMNS FURs (Based on Employees in the 8 Polynet Business Sectors)

FUR	Rank Points	Total Employees	Sector 3 Share	ACC	ADV	BFS	DCS	INS	LAW	LOG	MCS	ac	ad	bf	dc	in	la	lo	mc
												Rankpoints							
Zurich	200	139404	32%	8926	5261	53768	10060	5330	4576	10891	40592	25	25	25	25	25	25	25	25
Basel	191	35084	21%	2656	1433	8486	3735	916	1009	2223	14626	24	23	24	24	24	24	24	24
St. Gallen	175	15341	23%	1136	1843	3704	1242	418	366	954	5678	21	24	23	22	20	21	22	22
Lucerne	175	11566	15%	1218	1140	2453	1598	444	486	864	3363	22	22	22	23	21	23	21	21
Zug	170	12209	28%	1243	583	1896	1000	710	391	179	6207	23	21	21	20	23	22	17	23
Baden-Brugg	153	6095	21%	392	249	1408	1199	180	260	217	2190	18	19	20	21	17	20	18	20
Winterthur	153	5803	13%	381	262	897	998	543	153	556	2013	17	20	17	20	22	18	20	19
Aarau	142	4018	15%	439	163	1234	621	218	159	84	1100	20	17	19	17	18	19	14	18
Olten	140	4218	17%	296	177	970	656	152	124	1003	842	16	18	18	18	16	16	23	15
Solothurn	133	3236	18%	400	157	807	581	220	131	90	848	19	16	16	16	19	17	15	15
Schaffhausen	116	2586	13%	229	72	638	384	99	73	179	912	15	11	15	14	13	14	17	17
Wil (SG)	107	1988	12%	176	118	327	376	119	79	30	763	14	14	12	13	14	15	12	13
Rapperswil	94	1917	19%	148	37	256	412	46	43	378	597	13	7	11	15	7	10	19	12
Arbon	89	1823	10%	128	116	210	335	49	60	13	912	10	13	7	12	8	13	9	17
Frauenfeld	84	1299	12%	96	100	173	220	120	51	63	476	7	12	6	8	15	12	13	11
Au (SG)	72	1418	13%	130	45	403	281	36	38	11	474	11	9	14	10	4	6	7	11
Schwyz	68	1052	13%	115	13	396	203	84	44	27	170	8	2	13	7	12	11	11	4
Kreuzlingen	62	974	13%	118	66	246	169	78	42	2	253	9	10	9	6	11	9	2	6
Wetzikon	61	1161	10%	147	43	249	288	50	29	2	358	12	8	8	11	9	3	2	8
Lachen	61	906	21%	95	157	137	230	41	31	21	194	7	16	4	9	6	4	10	5
Lenzburg	54	1025	16%	84	33	250	151	40	39	10	418	5	6	10	5	5	7	7	9
Wohlen	43	739	16%	59	25	166	147	33	40	12	257	2	5	5	3	3	8	9	7
Buchs	30	581	10%	70	21	99	138	72	16	4	161	4	4	2	2	10	1	4	3
Romanshorn	23	466	9%	67	17	103	152	7	29	4	87	3	3	3	5	1	3	4	1
Grenchen	20	440	10%	46	10	93	114	24	32	11	110	1	1	1	1	2	5	7	2

Source: Bundesamt für Statistic (BfS), Betriebszählung; own calculations above average shares for the entire FURs. In general, it may be observed that there is a stronger orientation towards the POLYNET sectors in the urban centres than in the peripheral areas and that a significant growth in business services can be observed since 1995, especially in the larger FURs, while in many cases the growth in the smaller to medium-sized agglomerations (1,000 to 3,000 employees in business services) in Eastern and Central Switzerland, in particular, was often more strongly focussed on the FUR rings.

From a sector-specific perspective, only a few centres achieved clearly dominant Fig.s that are significant in terms of the region as a whole and can be explained in terms of a central key function. As expected, Zürich clearly tops the list in banking, followed by St Gallen and Zug, which grew by over 20% and 11% respectively between 1995 and 2001. Due to the merger of Bankverein and UBS and the transfer of company headquarters and central administrative functions to Zürich, Basel lost 15% of its jobs in this sector. The urban centres show consistently higher concentrations of financial services than the peripheral areas and a concentration of financial service companies can also be observed among small and medium-sized centres as, with the exception of Schwyz, Lenzburg, Aarau and Baden, employment in this sector has decreased in all FURs whose values are barely notable (between 0.3 and 0.7).

In the insurance sector, Zug assumed the top ranking previously held by Winterthur (this may have something to do with the takeover of Winterthur Versicherungen by Crédit Suisse) and together with Lachen, Solothurn and Buchs has an above-average number of employees in this sector. Here too the excess capacities created in the 1980s have been adjusted and adapted to meet demand, in particular in small centres with less than 1000 employees in business services, such as Wohlen and Romanshorn, or in the medium-sized Eastern Swiss centres of Rapperswil and Frauenfeld where minor shifts have occurred among insurance providers.

Trends comparable to those in the insurance sector can also be observed in accountancy and law, where the distribution in the two sectors follows a similar pattern: Zug enjoys a clear lead followed by Zürich and Solothurn. In the case of legal services, a cluster of firms can be observed in the Baden-Lenzburg-Wohlen triangle and for trust consultancy on the St Gallen/Kreuzlingen axis. Otherwise, the other FURs provide slightly better cover than for insurance, although the national average is only achieved in the larger centres and values in the smaller centres range between 0.5 and 0.8.

A far clearer picture emerges in the area of management and logistics consultancy, albeit with reversed circumstances: increased concentrations of the consultancy services for modern data logistics (4PL) which developed out of the traditional haulage services can be found outside of the large centres at accessible junctions (Olten, Rapperswil). However, these locations have lost significant ground in recent years with the emergence of ICT service providers seeking greater proximity to their customers and hence urban centres – this also explains Zürich's top position among the larger FURs in the EMNS while Basel, St Gallen and Winterthur are barely at the level of the national average. On the other hand, these changes in the data logistics sector have resulted in the increasing presence of management consultancies working in the area of information management in the large service centres of Zug, Basel, Zürich and the hinterland of St Gallen.

The obvious centre of specialisation for advertising and design is in Lachen, thus the top position here does not go to one of the ten biggest FURs. While the other leading locations for advertising are limited to larger cities like St Gallen, Lucerne, Zürich, Basel, Baden and Solothurn, specialisation in the design sector is mainly found in the more peripheral, smaller centres. Overall, employment numbers remained stable, slight growth was observed in advertising, mainly in the larger centres.

C. Inventory of firms

Final Selection of FURs

A multi-layered structural process was implemented for the selection of the centres most suited to the study from the original set of 25: this process was mainly based on the employees of the eight POLYNET sectors, their proportion of the total number of employees in the tertiary sector and the specialisation coefficient. We started by compiling a ranking list of the 25 FURs on the basis of the employees and evaluating them on a scale of between 25 (first place) and 1 point(s). A second ranking based on degree of specialisation was then created for the FURs with either more than 5,000 employees in business services or at least a 15% share of entire tertiary sector employed in the POLYNET sectors; the points were allocated on a scale of 1 to 6 4.

This made it possible to eliminate FURs with one-sided specialisations (e.g. Lachen which only enjoys a top position in advertising/design) and to compare the remaining average centres more accurately. This second ranking list included all FURs with values of between 29 and 35 points, i.e. +/- 3 points above/below the average, and hence represented a good reflection of the overall Swiss average. Thus, the selection of the last two FURs had to be decided on the basis of the analysis of local business strategies in the individual locations and the interview with the political representatives. Aarau and Winterthur were selected together with those in the first six positions, i.e. Baden, Basel, Lucerne, St Gallen, Zug and Zürich: Aarau, because as the cantonal capital it has difficulties in positioning itself as a business services location alongside Baden-Brugg and Winterthur because there is a clear orientation towards Zürich and because, unlike Baden, despite this geographical proximity it has greater problems in generating positive development. Olten and Solothurn have been excluded because the firms there are more strongly focussed on the Berne metropolitan area.

Basic Results of the Regional Inventory

The inventory of firms compiled on the basis of the Swissguide database incorporates 134 firms which are distributed among the POLYNET sectors as follows: 10 each in the accountancy, insurance and law sectors; 15 financial services providers; 16 management consultancies; 17 design companies; 25 advertising agencies and 31 logistics consultancies. This distribution does not reflect 1:1 the pattern of the absolute employment Fig.s for the economic region, but is instead a reflection of the unique situation in Switzerland, which, due to excellent transport infrastructure and shorter distances between urban centres as compared with the other metropolitan regions, plays a key role in firms' planning of branch locations. Thus, very well networked companies do not often require more than two branches for all of Switzerland, generally one in the EMNS and another in the Geneva-Lausanne area. In the case of firms with a quasi-ubiquitous local presence, the extensive branch network can generally be explained by a relatively large share in the retail business and a strong emphasis on proximity to customers. Nevertheless, the selection made is a realistic reflection of the situation of business services in the EMNS. The different numbers of companies in the individual sector categories is intended to take the dynamics of the development into account and only the minimum 10 firms required were included in the case of sectors with stable employment Fig.s.

The selection of firms should be understood in terms of their exemplary function, i.e. providing the most representative possible picture of the current situation.

Service-specific business strategies and regional location preferences (potential for cluster formation) can only be partly derived from the individual distribution of the actual offices. In general, it is only firms in the accountancy and management consultancy sectors that are comparatively more focussed on customer proximity and the establishment of the most extensive branch network possible (two to four offices in the eight FURs). Firms in the rest of the sectors appear to structure their business areas more on the basis of private and corporate clients (subdivision into sub-companies). Concentration strategies can be observed mainly in the advertising, banking and law sectors, with many companies with an international focus serving their customers from one central location (mainly Zürich). Zürich's clearly magnetic effect is also instantly identifiable in Fig. 1. However, due to the merging of design and logistics in one category, this figure is somewhat inaccurate as in the inventory these account for almost one third of all firms or branches and are thus strongly over-represented in the comparison. Thus, the inventory merely provides a one-sided view of the reality, that of the physically perceptible firm networks.

Nonetheless it is possible to identify clear trends with respect to the business strategies: (1) at national level, firms show a preference for Zürich and Geneva as locations; two alternative locations, i.e. Basel and Berne, only managed to become established in the logistics sector; (2) with the exception of accountancy and logistics, the firms are concentrated exclusively in the eight selected FURs, while 30% to 70% of the inventory firms have no branches outside of the EMNS (except in the finance and trust sectors); (3) It is not possible to demonstrate an actual regional location policy for the business services through the branch networks as functional connection is also guaranteed through the short-distance transport infrastructure and high level of accessibility.

D. Classification of Firms & Data Matrix Creation

Identification of Purely Local Firms

The basic data set from the Swissguide database included all company entries for the eight FURs (296 municipalities) in the eight POLYNET business service sectors. The firms were allocated to the sectors using the NACE code. Computer services (hard-/software consultants, database developers) were classified as management consultants. Law, accountancy, advertising, financial and insurance services have their own NACE code and are therefore clearly defined. As opposed to this, design was composed of architecture, spatial planning and engineering. In the case of logistics consultancy (itself a sub-category of management consultancy), a conscious decision was made to eliminate the traditional haulage sector and internet providers and courier services were instead added to the entries. Records without websites and/or less than five employees were removed from the database prior to detailed data analysis. The result was a basic set of over 12,500 firm entries, which are distributed among the eight sectors and locations as shown in Table 3. At over 47%, management consultancy is the largest sector. This can be explained primarily by the greater internet presence of ICT service providers (around a quarter of all entries) as compared with other sectors.

The elimination of addresses was based on a multi-layer catalogue of criteria for filtering out firms that are active on a purely local basis. The first to be eliminated were firms that focus exclusively on private households through their customer circle. The geographical scope of the firm was then determined on the basis of the target group and listed reference objects. Companies whose action radius was almost exclusively focused on their one location and/or neighbouring municipalities were defined as being active on a purely local basis. Regional businesses were identified through close-knit, spatially limited branch networks or clearly defined action areas (economic region). Unlike nationally-oriented firms, they usually lack a balanced distribution of branches throughout the country and linguistic regions. Thus, a multilingual website is often a reflection of a supra-regional company strategy (at least German-French in the case of an overall Swiss orientation, or German-English as a compromise to cover both the national and international levels). For reasons of time and resources, firms whose internet presence was being developed or was merely at the level of domain reservation were not further studied.

The elimination of purely local firms from the data set resulted primarily in the reduction of around one third of the entries for each sector; whereby the peripheral areas of the FURs were primarily affected and, in general, the smaller more peripherally located FURs were more strongly affected than the larger ones. The reduction in the area of management consultancy was the most striking as many locally-oriented computer consultancy companies were removed from the set and the advantage arising from greater internet exposure was corrected. The smallest number of changes were observed in the area of insurance services as it was possible to exclude the providers

Figure 2: Listings of top national cities and regional centres used to define national and city-region servicing strategy

Regional Centres		National Cities	
Aarau	St Gallen*	Basel	Lucerne
Baden-Brugg	Winterthur*	Berne	Lugano
Basel*	Zug	Chur	St Gallen
Lucerne*	Zurich*	Geneva	Winterthur
* = Regional & National Centre		Lausanne	Zurich

Fig 3a: Regional Connectivity

ZURICH	441	1.00
BASEL	351	0.80
ST. GALLEN	233	0.53
ZUG	218	0.49
LUCERNE	159	0.36
AARAU	146	0.33
WINTERTHUR	97	0.22
BADEN-BRUGG	59	0.13

Fig 3b: National Connectivity

ZURICH	921	1.00
BASEL	631	0.69
ZUG	346	0.38
ST. GALLEN	316	0.34
AARAU	241	0.26
LUCERNE	238	0.26
WINTERTHUR	132	0.14
BADEN-BRUGG	92	0.10

Fig 3c: European Connectivity

ZURICH	5200	1.00
BASEL	2260	0.43
ZUG	711	0.14
ST. GALLEN	581	0.11
AARAU	536	0.10
LUCERNE	479	0.09
WINTERTHUR	329	0.06
BADEN-BRUGG	169	0.03

Fig 3d: Global Connectivity

ZURICH	6238	1.00
BASEL	2545	0.41
ZUG	785	0.13
ST. GALLEN	671	0.11
AARAU	593	0.10
LUCERNE	501	0.08
WINTERTHUR	343	0.05
BADEN-BRUGG	173	0.03

of life, health and pensions insurance in advance using the NACE code and thus to make a more accurate initial selection. Sectors with a strong focus on customer proximity, e.g. accountancy and design, display a more balanced distribution pattern than the traditional areas of management consultancy such as financial services and reinsurance which are more strongly concentrated in central locations (the proportion of firms in Zürich is correspondingly higher here as compared with other sectors). Overall, this picture corresponds to the results to be expected on the basis of the specialisation coefficients (cf. comments in Section B). Finally, the orientation of branches was also evaluated for the firms examined in the GaWC analysis, initially on the basis of presence and non-presence only (2 or 0 points), and later also in terms of the functional orientation and geographical scope of company activities to enable further differentiation of the simple location presence (see also Fig. 2). Due to Switzerland's compact geographical scale, business services rarely pursue an overtly regional business strategy in the strict sense (focus on one district). The short distances between centres make it possible to serve an economic area the size of the EMNS with only one office (even "peripheral areas" like Basel and St Gallen are only two hours' drive apart). Thus, in many cases the only question that arises for the firms is whether they should cover all of Switzerland or possibly operate a second office of equal status in Geneva or Lausanne. Thus locations with below-average functions (sub-office) are rare. Superior functions (superior office) were only allocated 3 points if they involved the company's main office or the main location for European business. As a majority of the inventory firms are active on a multi-national/international level, with the exception of the banking sector, the regional data set contains very few maximum values (>50% of firms with Swiss headquarters, otherwise the proportion ranged between 10% and 30%).

E. Geographical Scopes of Firms & Connectivities of Urban Centres

Results of the GaWC Analysis

The Zürich city region has one of the lowest numbers of firms selected. Logistics and advertising are best represented and accountancy and law least so. This situation reflects the overall position of the EMNS with respect to the other regions in terms of size (inhabitants, employees). The 134 firms fit the picture rather well in direct comparison to Amsterdam (176) and Dublin (193) or also the larger regions. As outlined in Section C the higher numbers take account of more dynamic employments situations and cross sector activities, while the lower numbers reflect the rather monocentric business strategies of highly specialised business service providers in the Swiss context.

At the regional and national scales all centres except Winterthur and Baden-Brugg score over 0.25. The most obvious reason for this probably lies in their geographic proximity to Zürich with its above-average services on offer.

At the European and global scales the connectivity scores are quite low except for Basel. This again is most likely due to the specific inner structure of the EMNS and the extraordinarily close-knit infrastructure network compared to other regions in absolute as well as relative terms, where multi-branch business strategies within the Zürich metropolitan region quite often become obsolete.

The overall regional interconnectivity is quite strong between Basel, St. Gallen, Zug and Zürich (scores over 0.5). The other regional cities have rather low connectivity links only to Zürich and two of these [Winterhur, Baden-Brugg] do not reach the threshold of 0.25. Quite surprisingly here is the number 3 position of St. Gallen before Zug on the intraregional level. This might be an indicator for strong links between St. Gallen's professional consulting and marketing services (corollary of the domicile of the well known University of St. Gallen for Business Administration, Economics and Law) that serve the Zürich financial centre.

The comparison of overall ratios in the eight mega-city regions also shows that the Zürich mega-city region ranks mostly in fourth to sixth place, which in view of its absolute extent additionally consolidates the special position that this small but all the more powerful economic region along the Basel-Zürich axis occupies in the orchestra of global players, straight after the top 3.

The regional connectivity pattern suggests that there is a medium degree of polycentricity in the Zürich mega-city

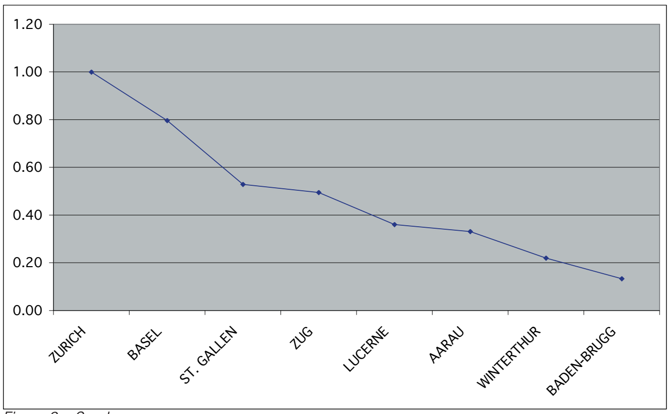

Figure 3a: Graph

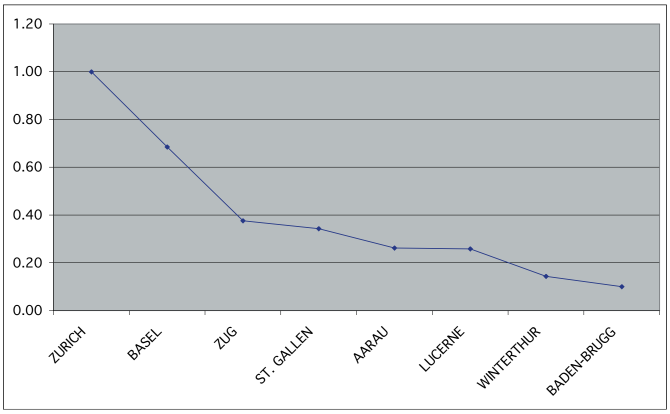

Figure 3b: Graph

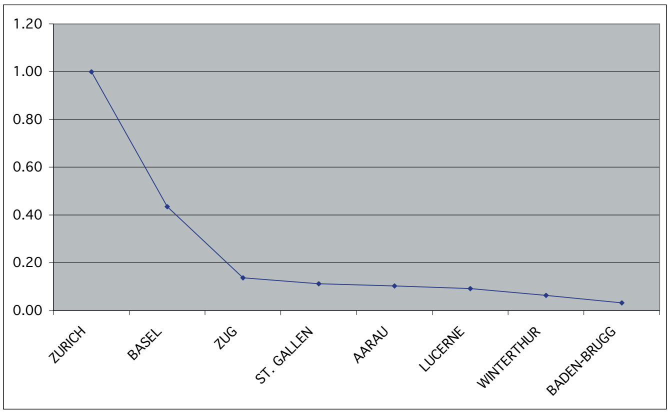

Figure 3c: Graph

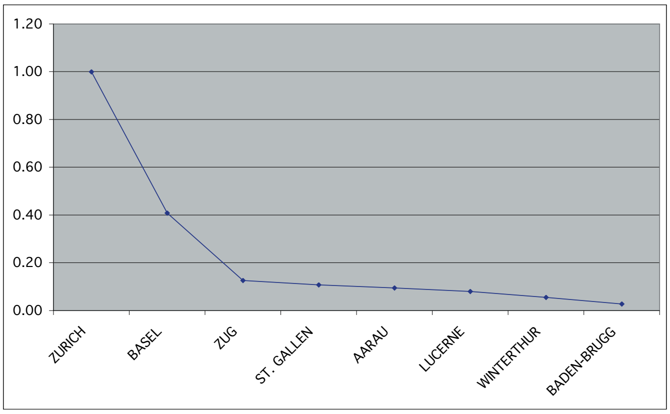

Figure 3d: Graph

region. This may be true in terms of physically expressed intra-firm networks. But this picture might well change in favour of a highly polycentric region in terms of virtual functional connections forming truly functional inter-firm networks.

Overall this mega-city region ranks about average in terms of connectivity. Again this measure does not adequately map the Swiss reality with in general high accessibility on all geographic scales and for all transport modes, which is so typical for local pattern of "short distances".

F. Considering polycentricity

The analytical findings of report 1.1 already showed that commuting data alone in the case of the EMNS provide no solid basis for argumentation in discussing polycentricity as well as the functional spatial organisation of city networks. In turn, this section of report 1.2 also takes into consideration economic indicators to support the functional reorganisation of business activities through inter-firm networks. The findings of the GaWC research indicate that on a global level Zürich's selective positioning lies in occupying strategic niches, which, according to Taylor (2003), are to be found in its favourable position as global hub for emerging third world markets. This asset is primarily a result of the historically strong private banking tradition with links to the third world. Zürich scores high in terms of power that is exercised through the city as network hub, but falls back considerably with regards to dominance for higher service values due to its over-dependence on home-based global service firms. The initial results so far show that despite Zürich's predominance, the EMNS has a more balanced distribution for the eight service sectors under study than might be expected (see section B).

At first glance, it might be deduced from the preliminary GaWC results that the over-dominant financial sector in Zürich is literally oppressing the surrounding regional centres in the main field of cash generating services. But again, a closer look at the intraregional level reveals new market mechanisms, formerly hidden by the abstraction level. Although, from an overall examination, it appears that cores have gained disproportionately high importance as providers of knowledge-intensive business services on the whole, it becomes quickly evident that the functional division of labour has begun to create unique regional economic activity patterns. It will be interesting to see if the metropolitan region of Northern Switzerland is truly moving toward the development of a more polycentric layout in terms of an increased functional division of labour with increased specializing economic value adding service systems.

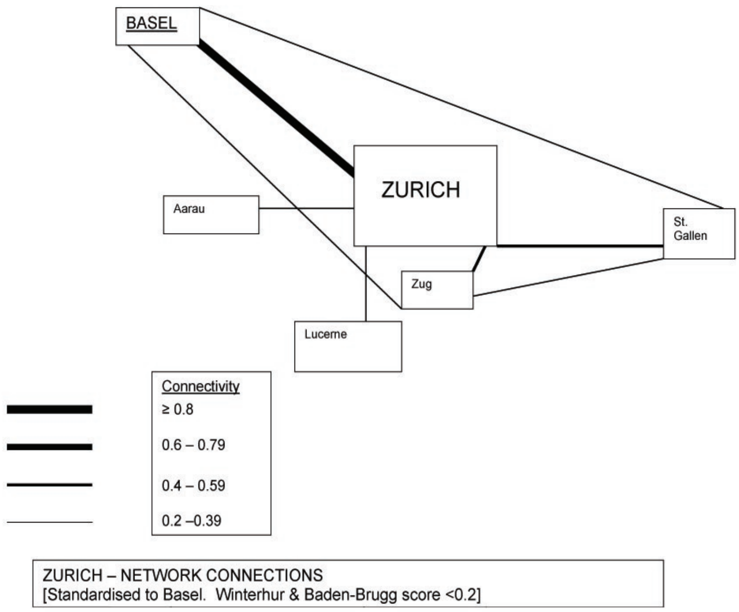

Figure 4: Zurich network connections standardised to Basel

Urbanized landscapes clearly assume a key role in economic and societal development and their systemic structures are becoming increasingly complex and more difficult to understand as vertical and horizontal networks link together actor and action systems into new urban activity patterns. While the European Union has set out to conceptualize these large-scale spaces that are key players in the international competition of places and locations, Swiss spatial planning guidelines still struggle to acknowledge the existence of a functional spatial level such as the European Metropolitan Region Northern Switzerland (cf. ARE 2004). Therefore this research should not only help to broaden the perception of local political decision makers, but also allow development of a new comprehension of regional spatial structure, functional economic development processes and polycentric interrelations.

Table 3: EMNS Business Inventory for the Eight Main FURs and their Cores

	Accounting		Advertising		Banking		Design		Insurance		Law		Logistics		Management		ICT	
FUR	all	non-local	all	non-local	all	non-local	all	non-local	all	non-local	all	non-local	all	non-local	all	non-local	all	non-local
Aarau	31	17	28	20	11	6	91	29	2	0	10	9	12	8	42	28	69	38
Aarau Core	20	10	16	11	8	4	57	21	2	0	10	9	6	4	24	16	32	18
Baden-Brugg	50	24	61	43	15	1	118	28	4	1	8	6	24	16	83	55	123	68
Baden Core	22	9	26	18	8	1	26	9	2	1	4	3	7	5	34	22	32	18
Basel	258	118	214	150	115	40	306	88	51	25	30	20	126	83	424	280	575	316
Basel Core	142	76	136	95	81	29	130	45	33	17	16	13	54	36	219	145	253	139
Lucerne	119	60	91	64	36	9	142	34	8	5	20	10	32	21	164	108	165	91
Lucerne Core	67	36	47	33	20	5	73	19	4	3	9	6	19	13	89	59	87	48
St. Gallen	98	36	84	59	24	9	110	38	9	4	9	6	18	12	144	95	156	86
St. Gallen Core	60	23	72	50	14	6	69	28	7	3	7	4	15	10	111	73	121	67
Winterthur	52	11	43	30	9	4	74	23	14	5	9	7	17	11	82	54	119	65
Winterthur Core	42	10	34	24	7	4	62	18	9	4	8	6	13	9	68	45	79	43
Zug	226	79	130	91	165	28	99	27	25	9	58	22	66	44	379	250	452	249
Zug Core	138	49	47	33	98	13	47	13	15	6	39	15	23	15	220	145	173	95
Zurich	754	213	879	615	522	194	713	243	138	116	164	98	289	191	1293	853	1796	988
Zurich Core	416	133	500	350	403	162	390	156	82	69	122	71	129	85	735	485	695	382
TOTAL	1588	558	1530	1071	897	291	1653	510	251	165	308	178	584	385	2611	1723	3455	1900

Source: Swissguide online registry (http://www.swissguide.ch), own classification

Polycentricity is seen as the strategic answer to the current undesirable division of the European space into core and periphery. Its key aim is to demonstrate under which conditions competitiveness can be improved, thus integrating city regions within large-scale and cooperative spatial strategies. Polycentricity forms out relational networks of flows and cooperation between urban areas at different scales. While flows are generally related to proximity, especially at the regional and national levels, network relations become more and more independent of distance as geographic scope increases. Sassen (2002) speaks even of a “de-nationalisation” of power relations.

Such structural polycentric development occurs rather spontaneously in the run of spatial development. Institutional polycentricity on the other hand grounds on voluntary cooperation. From the policy viewpoint an amplified debate over territorial governance in general and metropolitan governance is essential here.

Metropolitan governance today can be seen as a composite function of overlapping institutions for processes of decision-making, cooperation, and exertion of influence on various spatial levels (OECD 2001). So far neither the centralist model with instruction and execution, nor the federal model with subsidiary delegation of functions have proven to form lasting solutions. Therefore further research will use the value chain approach to identify and localise the core business activities and determine where the different functions are mainly anchored, and in which domains urban areas specialise within the polycentric region in terms of a regional division of labour. Analysis will provide detailed pictures of the regions core activities and regional specialties at different levels, thereby pointing out the relevant connecting factors and fields of action for all involved policy levels respectively, in order to better target appropriate measures where action is needed. Follow-up work will focus on questioning the individual actors through web-based surveys and interviews. The combined results will provide a useful basis for developing valuable suggestions to offer policy and decision makers alike.

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