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Polycentricity and metropolitan governance. A Swiss case study

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Polycentricity and metropolitan governance.

A Swiss case study

Lars Glanzmann, Nathalie Grillon, Christian Kruse, Alain Thierstein

ERSA 2004

1 Introduction

1.1 On polycentricity and urban landscapes

Switzerland, a country that is conceived and structured in small political and geographical units, is currently experiencing a phenomenon of international proportions: urban sprawl and hybrid landscapes. Bordering along historical urban cores, a patchwork of urban and rural areas has been forming, evolving into a new kind of urbanized landscape. This worldwide occurrence has modified itself to fit varying cultural landscapes: what would be referred to as a “suburban sprawl” in the USA, is a “*Zwischenstadt*” (city-in-between) in Europe (Sieverts 1997). These urbanized landscapes have grown rapidly in comparison to the traditional European city. They are markedly different from the core city structures, and above all have a very different development from the myth of the European city. A recent publication even refers to this syndrome as “Urbanscape Switzerland” (Eisinger, Schneider 2003). In examining Urbanscape Switzerland, the authors put forward the key question: “How do areas change?” This seems to be the true key to shaping contemporary settlement development: “Spatial reality is hence contingent on the normative act of planning” (Eisinger, Schneider 2003: 391). This positive as well as normative approach serves as a starting point for this paper. On the analytical side, we apply and test the concept of polycentricity in understanding the features of change in the large-scale metropolitan region of Greater Zurich. On the policy side, we use the approach of metropolitan governance for assessing the opportunities for sustainable spatial and territorial development.

Urbanized landscapes assume a key role in economic and societal development. These areas' systemic structures are becoming increasingly complex and more difficult to understand. Vertical and horizontal networks link together actor and action systems and thus form the predominant characteristic of urbanized landscapes, as found in metropolitan regions such as Greater Zurich. Swiss spatial planning guidelines still struggle to acknowledge the existence of a functional spatial level such as the European Metropolitan Region in Northern Switzerland – with the agglomeration of Zurich being its most potent node. In contrast, the European Union has set out to conceptualize these large-scale spaces that are key players in the international competition of places and locations. As early as 1994, the EU ministers responsible for spatial planning agreed on three policy guidelines for the spatial development of the EU10; the first guideline – reiterated in the European Spatial Development Perspective (ESDP) – calls for a “development of a polycentric and balanced urban system and strengthening of the partnership between urban and rural areas. This involves overcoming the outdated dualism between city and countryside. (CEC 1999: 19).

European policy-makers acknowledge the developmental potential of peripheral areas as well as the danger of hyper-concentration in the core, as reflected in the ESDP. The key concept here is polycentricity, as it bridges the different interests of the member states and encapsulates the three underlying objectives of the ESDP which are: economic and social cohesion; conservation of natural resources and cultural heritage; and more balanced competitiveness of the European territory. Polycentricity is seen as the strategic answer to the current undesirable division of the European space into core and periphery: "...the concept of polycentric development has to be pursued to ensure regionally balanced development because the EU is becoming fully integrated in the global economy. Pursuit of this concept will help to avoid further excessive economic and demographic concentration in the core area of the EU. The economic potential of all regions of the EU can only be utilized through the further development of a more polycentric European settlement structure. The greater competitiveness of the EU on a global scale demands a stronger integration of the European regions into the global economy" (CEC 1999: 20).

Two policy options put the concept of polycentric development into operation (CEC 1999: 21):

- Strengthening of several larger zones of global economic integration in the EU, equipped with high-quality, global functions and services, including the peripheral areas, through transnational spatial development strategies.
- Strengthening of a polycentric and more balanced system of metropolitan regions, city clusters and city networks, through closer cooperation between structural policy and the policy of the Trans-European Networks (TEN's) and improvement of the links between international/national and regional/local transport networks.

The key aim set by the polycentric approach is to demonstrate under which conditions competitiveness can be improved, thus integrating these territories within large-scale and cooperative spatial strategies. Polycentricity as a concept, like the concept of core-periphery, can be applied to different spatial scales. The polycentricity concept of the ESDP thus is basically a nested concept. The ESDP foresees a polycentric settlement structure cutting across the whole of the EU territory. At the same time, every center – the ESDP does not give an indication of the size of a 'center' – is in itself seen as a polycentric system on a smaller scale.

The underlying hypothesis of polycentrism is that economic and functional integration can be achieved without creating structurally territorial imbalances. Polycentricity has two complementary aspects (ESPON 2003: 3):

- Morphological, layed over? the distribution of urban areas in a given territory (hierarchy, distribution of locations, number of cities).
- Relational, based on the networks of flows and cooperation between urban areas at different scales. These flows are generally related to proximity, especially at the regional and national levels, but network relations can also be independent of distance.

Polycentricity forms out of the interrelational function of cities and urban areas. A polycentric situation occurs when two or more cities have functions that complement each other and have links to one another. To begin with, three prerequisites are needed to establish polycentricity: functions (often but not always depending on size), flows (often but not always depending on proximity) and cooperation (depending on mutual understanding, strategic interests and dependencies). The phenomenon of polycentricity, though, has at least two distinct viewpoints enabling two main processes to exist by which polycentric development can arise (ESPON 2003: 3):

- Structural (economic, functional), resulting from “spontaneous” spatial development.
- Institutional (political), based on voluntary cooperation.

This brief introduction to the approach of polycentricity makes clear that the proposed concept contains both an analytical as well as a policy side. Although the concept is not new, it has yet to be clearly explained. Perhaps the two sides of the same coin have been deliberately mistaken for one another. Or is it just a matter of lack of analytical rigor?

1.2 On metropolitan governance

From the policy viewpoint of polycentricity, a rapidly widening debate is growing over territorial governance in general and metropolitan governance in particular in urban or metropolitan regions. The Organization for Economic Cooperation and Development (OECD) in particular has produced pan-federal analysis and projections on such topics as “Governance in the 21st Century”, “Governance for Sustainable Development” and “Improving Metropolitan Governance”. The term “governance” originally referred only to the classical sense of government. Today, governance describes the organization and administration of regional authorities and institutions on various spatial levels, as well as the corresponding processes of decision-making, cooperation, and exertion of influence (OECD 2001). OECD (2001) maintains that improved metropolitan governance cannot come as a result of the reform of institutions and finances alone. It’s a matter of changing behavior and governance culture as well.

The governance debate intensified in the 1990s. Switzerland was not excluded from this general restructuring process, as is demonstrated by a glance at some of its major milestones during this period. The reorganization of financial equalization and of the respective functions of the Confederation and the cantons (“Neugestaltung des Finanzausgleichs und der Aufgaben” NFA) provides an opportunity to test the fundamental understanding of governance. The NFA allows for preparation toward reforming federalism, eventually enabling vertical cooperation at a partnership level, while allowing horizontal equalization of burdens to help ensure the chance for decentralized development. The socio-demographic equalization of burdens is important for agglomerations as it allows excessive burdens placed on the centers to be balanced out by the Confederation.

The principle of recognizing vertical and horizontal functions and competence distribution also characterizes the efforts towards spatial steering under way since the mid-1990s. The establishment of the “Grundzüge der Raumordnung Schweiz” (Swiss Planning Policy Guidelines) in 1996 helped to identify the significance of agglomerations in the social and economic development of Switzerland. The Confederal Constitution, revised in 1997, requires the Confederation to increasingly take into account the concerns of the agglomerations. To implement this, the Tripartite Agglomerationskonferenz (TAK) was founded in 2001 as a platform to promote vertical cooperation between the confederation, cantons, and communities. The confederation’s 2001 agglomeration policy reinforces these steps. Its aim is to support the cantons and communities in their activities and to improve horizontal cooperation within agglomerations. In its initial phase, the Confederation is supporting and encouraging innovative model projects. It promotes projects for cooperation within the agglomerations or between communities and agglomerations (Federal Council 2001; ARE 2002). What is still missing – especially when looked at in comparison with the EU debate in follow-up to the ESDP and the ESPON series of exercises – are the analytical and normative studies on the transborder spatial level of European metropolitan city-regions.

Metropolitan governance today can be seen as a composite function of overlapping institutions. Neither a centralist model with instruction and execution, nor the federal model with subsidiary delegation of functions is adequate in forming lasting solutions. Metropolitan governance therefore falls quite naturally into the debate on describing and understanding the functionality of polycentric development.

1.3 On describing and measuring

This paper does not launch into the question of how to measure the degree of polycentricity. In short, it is obvious that the degree of polycentricity depends on the chosen indicators, although the resulting outcome may reflect a very different result. For example, the population distribution of a large – or mega-city – urban region would presumably show a high degree of polycentricity. But when taking into consideration the distribution of the headquarters of internationally-operating, knowledge-intensive business services (KIBS), the result is a very high degree of monocentricity for the very same region. The resulting important question which arises is whether the

measuring or whether the describing of a polycentric mega-city region is more adequate in deriving effective policies and policy measures. Taking this into consideration, this paper proposes to adopt the following definition of polycentricity, postulated by the ESPON program:

A polycentric urban system is a spatial organization of cities characterized by a functional division of labor, economic and institutional integration, and political cooperation.

Our paper seeks in a more descriptive way to sketch the structural features and the relational aspects of polycentricity in our case study region, the European Metropolitan Region Northern Switzerland.

2 Case Study based on EU Interreg IIIB Northwestern Europe research project “Polynet”

The content of this paper is the outcome of the ongoing Swiss case study established as a part of the EU Interreg IIIB North-Western Europe research project „Polynet“ (<http://www.icstudies.ac.uk>). Polynet aims at being a structured study and comparison of polycentric patterns within and among eight mega-city regions: London-Southeast England, Randstad-Delta Metropolis, Paris-Ile-de-France, Rhein-Ruhr-Region, Frankfurt / Rhine-Main-Region, European Metropolitan Region North Switzerland, Dublin – Belfast and Brussels. The key aim of this project is to empirically investigate and compare the infrastructural, regional, economic as well as socio-economic analysis of these polycentric, interlinked, functional regions as well as develop political guidelines for handling these complex structures. To research these goals, the Polynet project has established the following key goals:

- “To investigate how contemporary processes of business decentralization and spatial concentration affect geographies of urban service network flows in seven NWE Global Mega-City-Regions.
- To plot movements of people and information within the eight regions. This will lead to a geographical representation of patterns of flow between urban centers within the regions and between those centers and their hub city.

- To create an inventory of finance and business service firms in each of the urban centers.
- To ascertain the geographical scope of the firms listed in each inventory.
- To measure the network connectivity of each urban center at the four different non-local geographical scopes.
- To examine the policy context within which these changes are occurring. This will lead to the identification of key issues arising from the empirical results that need to be taken forward in policy frameworks and to the formulation of specific policy recommendations

(<http://www.icstudies.ac.uk/intranet/home.asp>).”

2.1 Definition of the polycentric European Metropolitan Region Northern Switzerland:

In defining the polycentric region, the differing qualities of population, geographical size, economic and social structure, as well as infrastructure and the degree of internationalization of the regions represented in the Polynet project (mentioned above), were taken into consideration. As well, differing political systems and understanding of regions were noted. Obviously, there are different understandings in which one might think of London as a world city and Zurich as a quaint small town in the alps.

To achieve the major aim of the Polynet project – to make the selected European polycentric regions comparable —a framework is needed that refers to a common concept while at the same time allowing for these culturally determined regional distinctions.

A step-by-step approach was therefore used in order to condense the region to a coherent and functional cross-linked polycentric system on a quantitative scale. This is possible on the basis of a conceptual framework and indicators.

2.2 A step-by-step approach

(a) Our step-by-step approach refers to the concept of Blotevogels “European Metropolitan Regions” (Reference) which he derived from political developments in Germany and translated into a scientific language (Blotevogel 1998). A similar concept

was also used in the Urban 21 conference project “European Metropolitan Regions Project; Strategies for Sustainable Development of European Metropolitan Regions” (European Metropolitan Regions Project 1999).

Defining meta-functions

(b) We then slightly altered the concept by introducing three metafunctions of polycentric European regions, enabling us to develop indicators which describe the following functions:

Meta-functions of European Metropolitan Regions:
Innovation and technology development function
Gateway function - to be understood as a classical transport and physical infrastructure function, but also as a gateway of political and economical connections
Regulation function – powerhouses of political decisions and economic decisions through headquarter functions

Table 1: Meta-functions of European Metropolitan Regions. Source: Own illustration.

2.3 Adapting a criteria list

(c) Based on these meta-functions, we adapted a criteria list to be used as a checklist as well as to answer empirically whether our region refers to it and shows significant patterns:

Functional-qualitative criteria	Systemic-structural criteria
<ul style="list-style-type: none"> • European traffic nodal point • High population density • National, economical center with international economic relations • Center for political and economical decisions • Financial and/or service center 	<ul style="list-style-type: none"> • Polycentric regional networking with a metropolitan core and a metropolitan region • (mainly) not politically organized • Sub-political regulation through a political not institutionalized or elected system of different actors

<ul style="list-style-type: none"> • Center for international trade fairs • Center for (international) media • Cross-cultural region • Center for R&D, science and education • Internationally-oriented cultural attractiveness 	<ul style="list-style-type: none"> • Development of co-operations between economy and policy in form of privately structured initiatives executing metropolitan policy
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Table 2: Functional-qualitative and systemic-structural criteria. Source: Own illustration.

2.4 “Measurement” of criteria

(d) In another step, we measured the major bulk of the criteria, excluding a portion to be examined in future analysis:

1. We calculated 60 and 90 minute-radiuses of a car’s driving time, as well as that of public transportation vehicles, on the basis of defined defaults, starting from the core of Zurich. We then identified all communities within this radius.
2. We ran a series of quantitative analyses such as traffic, population development, infrastructure quality, etc, as well as economic macro analyses of main sectors of economy, employees within each sector, number of companies, number of the Swiss top 2000 companies within our regions, location quotient analysis, headquarter of international firms, financial center, service center, locations of media and several other indicators. This allowed us to check some of the above-mentioned criteria and to narrow down the polycentric patterns within our defined region.
3. We then identified within our region the development of axes as well as a set of eight core cities (Aarau, Baden-Brugg, Basle, Lucerne, St. Gallen, Winterthur, Zug and Zurich), which carry out specific economic or political functions.

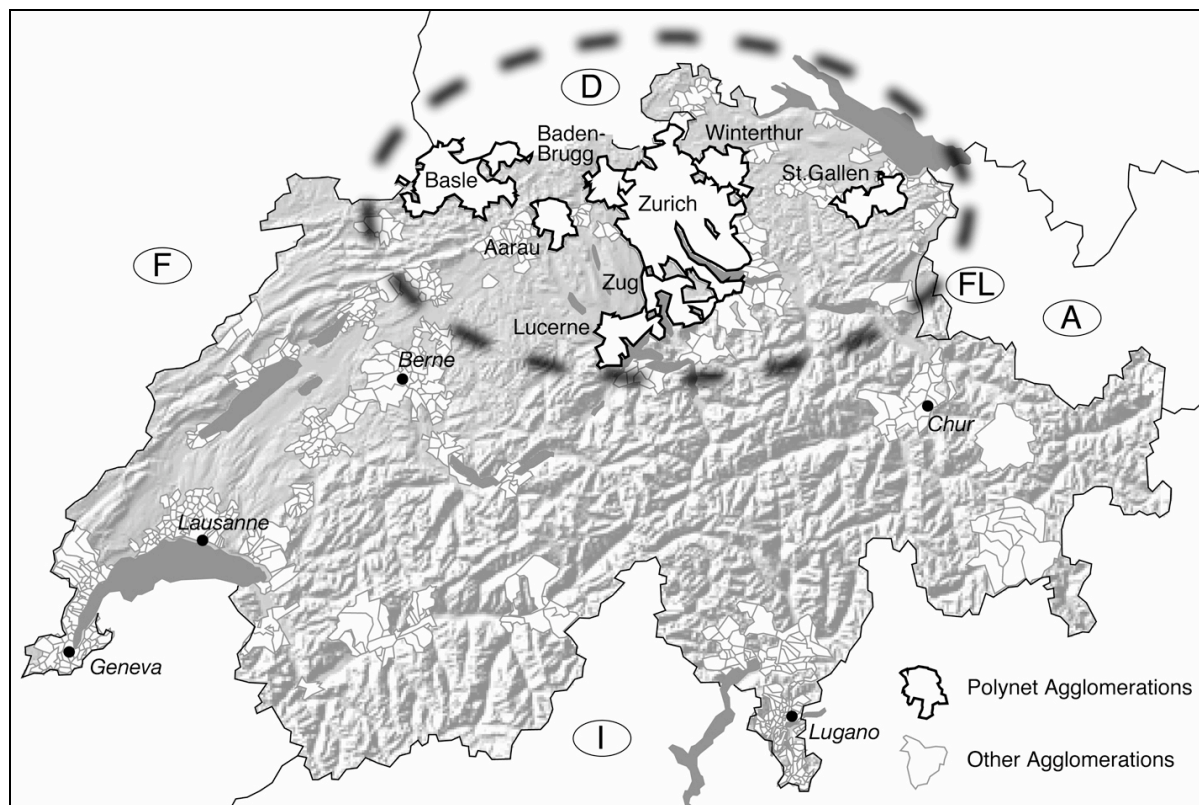


Figure 1: The European Metropolitan Region of Northern Switzerland (EMRNS).
Source: Own illustration.

Figure 1 shows the European Metropolitan Region of Northern Switzerland. This first definition serves as a framework for accomplishing the research steps indicated in the Polynet project as well as described below.

One of the major research actions of the Polynet project is to analyze commuting data within the European Metropolitan Region. Through a detailed investigation of the daily behavior of employees traveling from their homes to the workplace, we expected initial structural patterns of polycentric development in the EMRNS.

3 Commuting as an indicator for polycentricity?

Commuting is one of the first phenomenon to come to mind when referring to functional interrelations between cities. Unlike other indicators, commuting is rather obvious and observable. Most people are all too familiar with increasing traffic jams and overcrowded trains, and the respective problems are well-known, too. But what is the role of travel-to-work commuting in the development of a metropolitan region? Does

more commuting mean more polycentricity? And is commuting linked to polycentric development, or is it an independent phenomenon? This part of the paper takes a look at the situation in the Metropolitan Region Northern Switzerland. It shows that commuting alone is not a convenient indicator in expressing polycentric patterns in Northern Switzerland.

To begin with, what are the possible implications of increasing commuting patterns? If commuting interrelations imply the route between residence and workplace, then this says something about the decisions and the behavior of the individual commuter. Theoretically, everyone is more or less free to choose his or her residence and place of work. But when looking at the whole picture (the dynamics of a society), it is not chaos but instead some very homogenous development which takes hold. In the last few decades, the number of commuters and the distances between residence and workplace has increased remarkably. This indicates a change in social behavior which could be linked to the concept of polycentricity: Are these the same driving forces?

3.1 Commuting between agglomerations in Northern Switzerland

A first Polynet analysis examined the commuting interrelations between the eight chosen agglomerations (see section 2.4) in Northern Switzerland. The sample consisted of 80 municipalities (the ten largest of each agglomeration concerning the number of jobs and inhabitants). The focus was not placed on the interrelations within, but rather between the agglomerations. The premise of this study stated that these commuting patterns show clear movements toward a polycentric system of interrelations, not only within agglomerations but also between agglomerations. The idea proposes that there is not only an interrelated commuting system at the agglomeration level, but also a growing one at an inter-agglomeration level (the metropolitan region), which is gaining in importance.

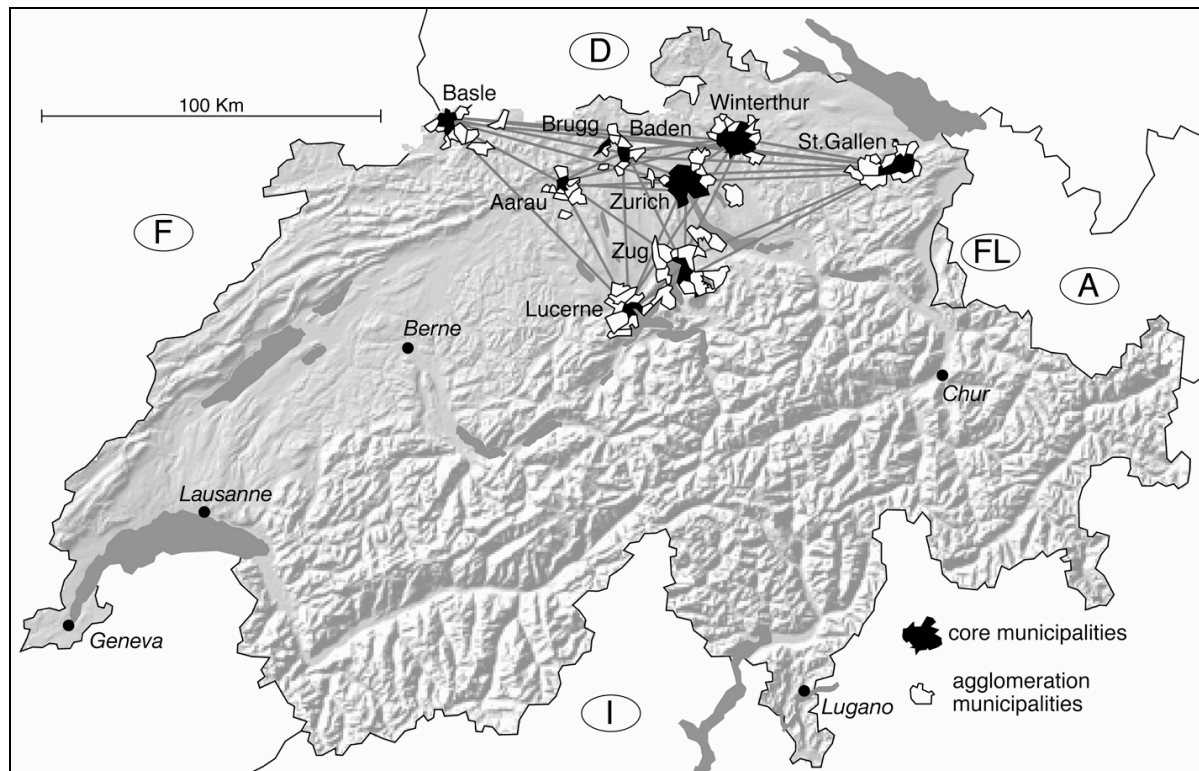


Figure 2: Examined commuting interrelations among eight agglomerations (the ten largest municipalities of each) in the EMRNS.

The resulting tables and maps show a very clear picture and yet they contradict the thesis. The system of commuting interrelations turns out to be more monocentric than polycentric, Zurich being the dominant core. While all other seven agglomerations send a remarkable number of commuters to Zurich, there is very little commuting taking place between these other seven agglomerations. There are exceptions for agglomerations that are immediate neighbors, but between non-proximate agglomerations, there are only a negligible number of commuters. The municipality of Aarau is one example (about 15'000 inhabitants and 23'000 Jobs, core of a small agglomeration between Basel and Zurich). In 2000, Aarau sent 648 commuters to the city of Zurich (340'000 Jobs), but only 79 commuters to Basel (150'000 jobs), although Basel is almost the same distance from Aarau as Zurich.

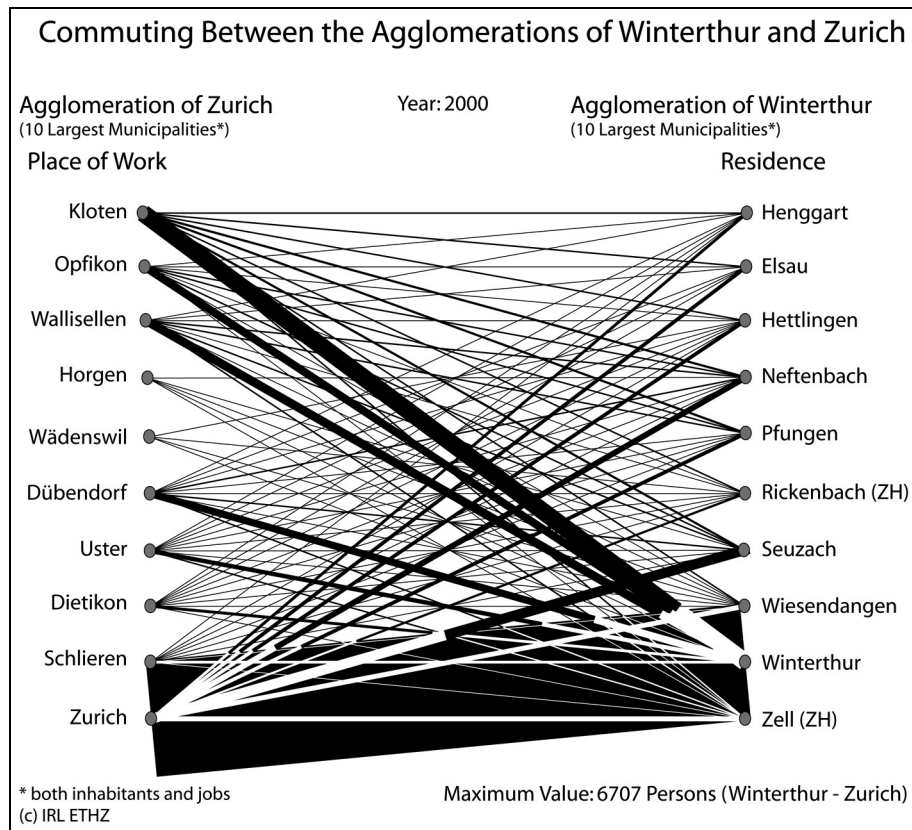


Figure 3: Commuting between the agglomerations of Winterthur and Zurich 2000.
Source: Own illustration.

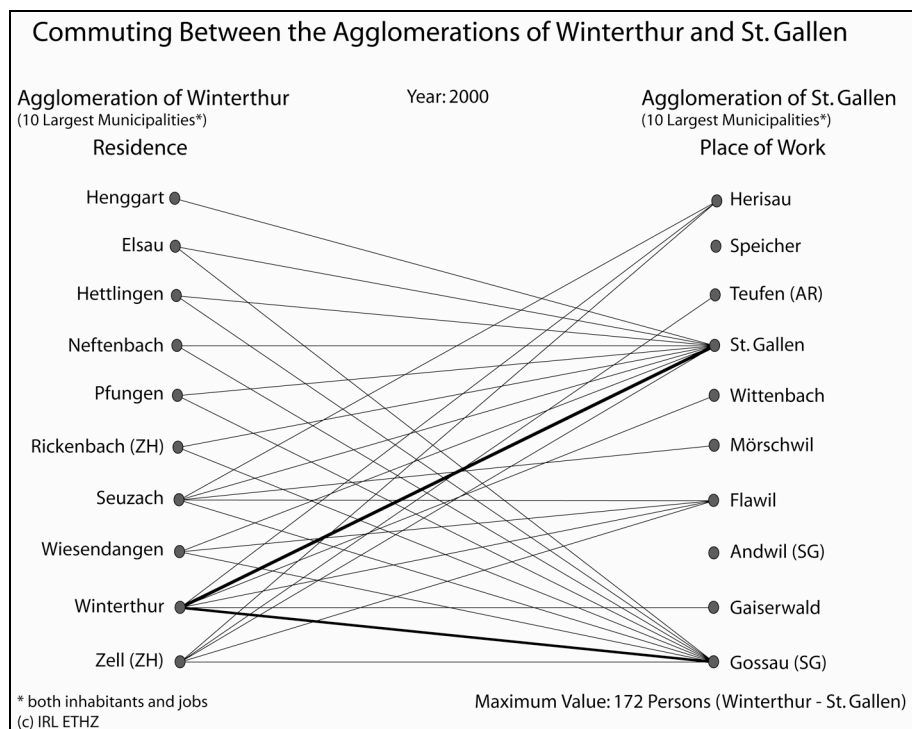


Figure 4: Commuting between the agglomerations of Winterthur and St. Gallen 2000.
Source: Own illustration.

However, looking at the changes between 1990 and 2000, there is some indication of growing polycentricity, as commuting interrelations between all agglomerations increased remarkably. Some figures of smaller agglomerations even multiplied, and commuting interrelations from central to more peripheral agglomerations increased as well, but the absolute figures are very low.

3.2 Open questions

What do these findings about commuting structures imply for polycentricity in Northern Switzerland? First of all, mere commuting data can't offer any final conclusions about the metropolitan region. Although there is a clear and area-wide trend toward more commuting, the absolute figures show a still rather monocentric picture, Zurich being the dominant core.

However, that doesn't disprove the thesis of a polycentric metropolitan region in Northern Switzerland. Though commuting figures say a lot about the common perception of a functional region, they don't reveal the whole truth. There are many more links between urban areas in a functional region that drive (or hinder) a polycentric development. Most of them are not physical and regular (like commuting), but virtual, rare and irregular, and yet much more momentous. One example would be diverse kinds of business linkages (see section 4). While polycentricity is an economy-based concept, commuting is a sociological rather than an economical phenomenon, as the decision to live far away from one's workplace doesn't necessarily have to be based on economic reasons (hard factors) alone, but also on individual "lifestyle" reasons (soft factors).

Commuting patterns, therefore, must be integrated into a wider context of functional links and interrelations in a metropolitan region. It is misleading to look at mere commuting patterns, although it can be helpful to combine them with other patterns and locations of further metropolitan functions. The result could be an integrated map of a "metropolitan landscape" that shows a system of physical links and virtual interdependencies.

This integrated map could be an instrument for political decision-makers, enabling them to learn more about the growing importance of virtual interdependencies and the resulting spatial consequence. It would reveal the need for better cross-border cooperation, and more integrated spatial planning.

4 Using economic connectivity as key indicator of relational polycentricity

The previous section makes clear that commuting data alone in the case of the European Metropolitan Region Northern Switzerland provide no solid basis for argumentation in discussing polycentricity as well as the functional spatial organization of city networks. In turn, the qualitative commuter analysis in terms of socio-cultural business categories already gives first clues to highly differentiated connectivity patterns. Therefore, this case study also takes into consideration further economic indicators to support the functional reorganization of business activities through city networks.

Following the approach of the Globalization and World Cities Study Group (GaWC), this case study investigates the positioning of the metropolitan region Northern Switzerland with Zurich as global financial driver of sophisticated producer services at its heart in the regional, national and European knowledge production environments. What set of roles in this global network of strategic places does the region play at the different scales?

The findings of the GaWC research indicate that on a global level (for an interlocking network of 100 global service firms covering six advanced service sectors, including accountancy, advertising, banking/finance, insurance, law and management consultancy), Zurich's selective positioning lies in occupying strategic niches which, according to Taylor (2003), are to be found in its favorable 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. Nonetheless, the overall connectivity analysis reveals the insurance and management consultancy as strongest business sectors, with banking/finance not as prominent as might be expected following at considerable distance and only slightly better positioned than accountancy and advertising. Zurich 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.

Taking the analysis to a smaller geographical scale allows for drawing an even more differentiated picture of the metropolitan business landscape in Northern Switzerland: while the national perception of metropolitan areas discerns/distinguishes five

«*Metropolitanräume*» in Switzerland (based on a cluster of functional urban areas that are characterized through more than 8.3% out-commuting to the core area; ARE 2004), this research introduces a new way of looking at things, selecting a multiple set of physical and virtual connectivity indicators to define the realm of the knowledge-intensive business service (KIBS) network. In contrast to the statistically created monitoring category of the Swiss Federal Office for Spatial Development, our approach focuses on the quantitative as well as qualitative interrelationships of functional urban areas (FUAs), taking into account the fact that different scales require differing interaction patterns and that value added production relies on overlapping service networks.

The initial results so far show that despite Zurich's predominance, the metropolitan region Northern Switzerland shows a more balanced KIBS-distribution for the eight service sectors under study than might be expected (see Figure 5 below for the overall distribution of advanced service sector employees for the whole region and Table 3 for detailed figures on the respective geographic allocation). The overall development in the regions main centers experienced an above average increase in the total number of people employed in the nine business sectors under investigation of 30% between 1995 and 2001 (versus 11 % increase for the whole third sector; minus 10% for the second sector). Although the finance sector still attracts the largest share of employees, other sectors like management consultancy and ICT logistics are quickly catching up (achieving overall shares of 17% and 16% respectively, showing by far the largest growth rates with 75% and 123%). Other sectors like the advertising, accounting or insurance industries gained employees but stagnated in terms of overall shares. The strongest labor force concentration occurred in the category of design consultancy with negative values both in the absolute and total shares.

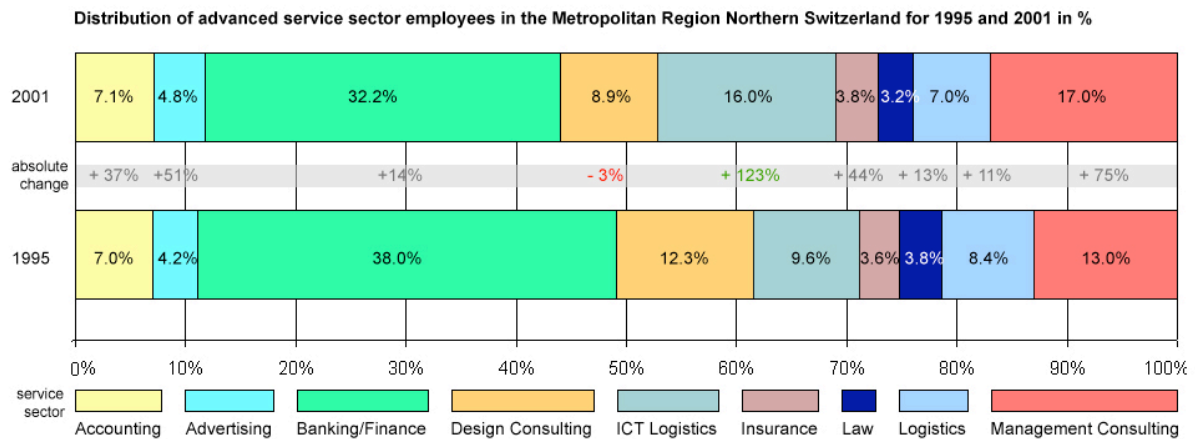


Figure 5: Business sector distribution for the overall region in 1995 and 2001. Source: BFS 2004.

General observations of the development of third sector employment in the last decade have experienced notable structural changes at the meso and micro level indicating the dawn of the traditional service society and the announcement of the arrival of information commodification and transformation into a knowledge-based society. In light of these fundamental changes underlying the restructuring of this new KIBS landscape, it is necessary to take a closer look at the economic service profiles of the eight business nodes being examined. The main development lines need to be pointed out and the more dynamic innovation centers need to be identified as drivers of rather unexpected functional relationships in order to better grasp the complex interrelationships that determine the regional business infrastructure.

At first glance, it might be deduced/derived from the preliminary GaWC results that a dominant financial sector located in Zurich is literally oppressing the surrounding regional centers in the main field of cash generating services. Yet again, the abstraction level reveals crucial to bringing up hidden market mechanisms: although, from an overall examination, it appears that cores have gained disproportionately high importance as KIBS-providers on the whole, it is quickly evident that the functional division of labor creates unique regional economic activity patterns. While Zurich is rather dominated by banking/finance (none of the other cities reached comparable shares of prime business concentrations), the subordinate services are rather under-represented in comparison to more balanced service profiles like the ones of Baden-Brugg or Winterthur (see Table 3 below for detailed figures). The most noteworthy

developments are a distinct shift of jobs from the financial to the management consulting sector in Basel, exceptional increase in rates in ICT logistics jobs in all areas except the core of Zurich (while the more classic, transport-oriented logistic services decreased steadily in all areas). In terms of specialization, two aspects seem worth mentioning: the insurance sector has increased its concentration around Zug and Winterthur (doubling its share in the city of Zug from 1995 through 2001); advertising has gained importance in Lucerne and St. Gallen (high concentrations in the core cities), while design consultancy appears to be more evenly spread over the smaller centers and their surroundings (Aarau, Baden-Brugg, Winterthur).

Sector	Accounting		Advertising		Banking		Design		ICT logistics		Insurance		Law		Logistics		Man.Consulting		Total	
	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001	1995	2001
FUA	367	439	218	163	1232	1234	616	621	421	655	161	218	149	158	87	84	322	445	3573	4018
Aarau	271	305	175	133	1008	1054	364	423	90	398	154	194	124	122	86	35	126	135	2398	2789
Core (AA)	311	392	184	249	1331	1408	1210	1198	849	1179	118	180	210	260	377	217	712	1011	5302	6095
Baden-Brugg	218	266	114	174	1088	1124	593	600	555	666	95	126	181	231	232	149	530	719	3606	4055
Core (BB)	2137	2656	1350	1433	10128	8486	3919	3735	2384	5908	786	916	939	1009	2510	2223	4110	8717	28261	35084
Basel	1494	1848	901	1122	8380	6890	2057	2090	1260	3847	455	515	754	797	2164	1582	2397	5093	19882	23784
Core (BS)	1001	1218	389	1140	2586	2453	1866	1598	872	1850	361	444	400	486	1371	864	1406	1513	10252	11566
Lucerne	690	771	263	1006	2000	1881	1095	869	381	795	324	394	288	342	1283	589	618	730	6942	7377
Core (LU)	986	1136	471	1843	3091	3704	1375	1242	683	2327	367	418	310	366	1260	954	1188	3351	9731	15341
St. Gallen	742	877	380	1730	2625	3299	888	764	567	1916	271	289	274	308	1244	695	1039	1217	8030	11075
Core (SG)	273	381	239	262	1362	897	1085	998	566	998	440	543	181	153	848	556	628	1015	5622	5803
Winterthur	217	313	219	245	1339	872	973	895	504	735	410	519	175	143	845	550	576	881	5258	5133
Core (WI)	961	1243	451	583	1228	1896	983	1000	849	3079	204	710	265	391	136	179	1870	3128	6947	12209
Zug	613	718	199	108	963	1243	487	499	143	1171	193	537	224	313	62	49	915	1337	3618	5975
Core (ZG)	5902	8928	3937	5261	43810	63768	10008	10060	9844	20766	3637	5330	4085	4576	7753	10891	12003	18626	101079	139404
Zurich	3958	6590	2368	2878	35956	43402	5473	5665	4705	8766	2897	4312	3393	3949	6520	7979	7194	10490	72464	94031
Core (ZH)																				

Table 3: Distribution of advanced service sector employees per sector and functional urban area for 1995 and 2001. Source: BFS 2004.

It will be interesting to see if the trends outlined above will continue and 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 labor with increased specializing economic value adding service systems.

4.1 Using the value chain approach for qualitative analysis of business linkages

The value chain approach has been used to provide a sound methodological framework for establishing a detailed, multi-level, qualitative analysis of advanced business service linkages in the metropolitan region Northern Switzerland. To begin with, the core business activities for each knowledge-based service sector of the GaWC approach have been identified and assigned to the key elements of the value chain: processing, production and distribution. These core activity packages form the basic elements for study. A basic raster is extended by adding service contributing actors

as well as service clients to the matrix. The final graphic illustration of this matrix takes the form of a relational service function map. Figure 6 below exemplifies the financial service sector.

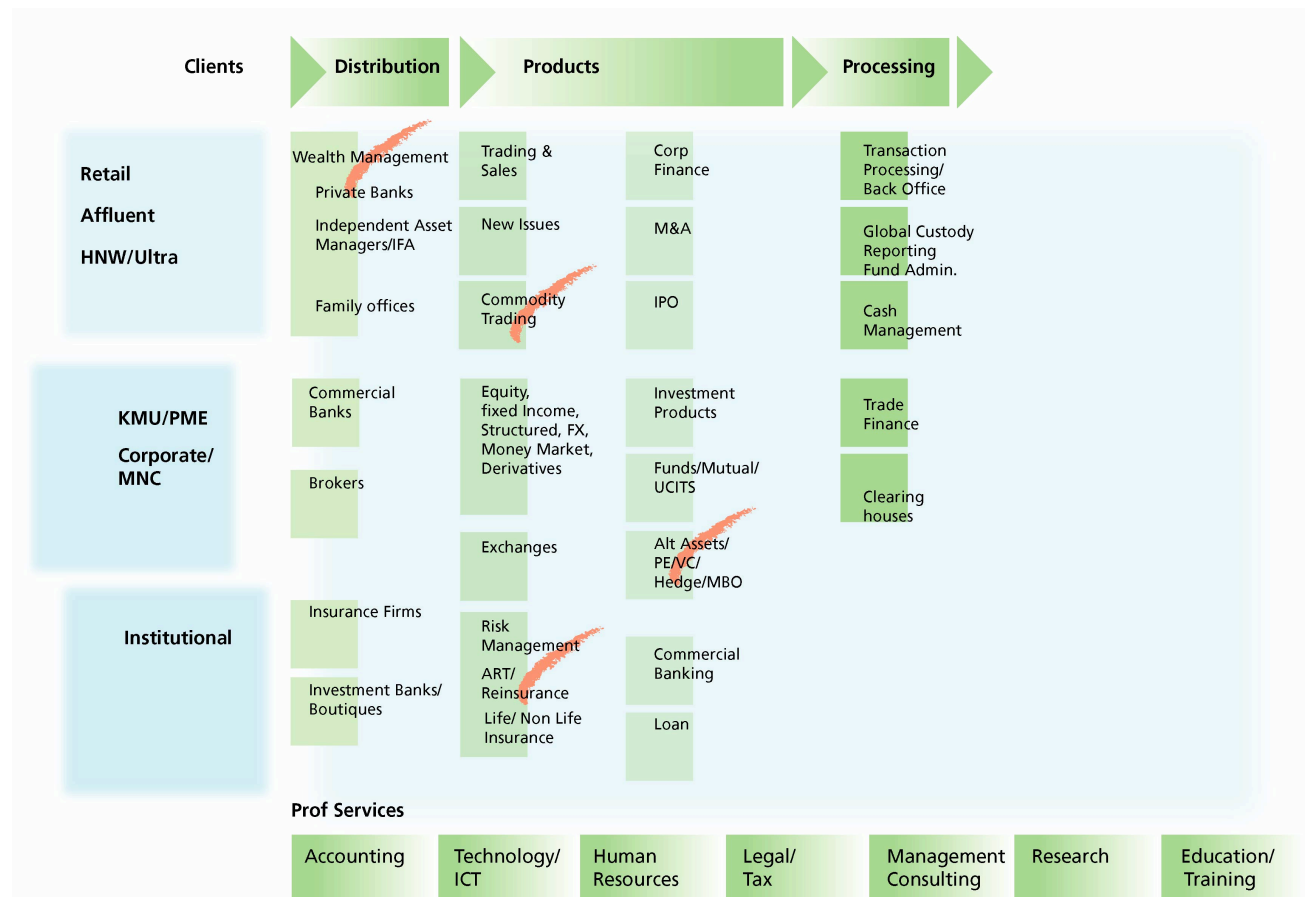


Figure 6: Service function map of the Zurich financial sector. Source: Kruse 2004.

Using these service function maps, core activities can easily be identified and localized. As well, it can be determined where the different functions are mainly anchored, and in which domains urban areas specialize within the polycentric region in terms of a regional division of labor. This tool can be used at different levels of abstraction while also facilitating to adapt the scale of study and look at the spatial division of labor within a national or even international context within their respective city networks. Thus, analysis can provide detailed pictures of the regions core activities and regional specialties at different levels, thereby pointing out the relevant connecting factors / fields of action for all involved policy levels respectively, in order to better target appropriate measures where action is needed.

Future follow-up work intends to focus on questioning the individual actors through

web-based surveys in order allow the qualitatively-derived results to rest on a quantitatively-sound foundation. In addition, there will be qualitative interviews with selected senior business representatives across all FUAs and sectors in the region. The survey will mainly serve to adequately cover questions concerning location factors, basic institutional information, connectivity of the firms (business activity and communication patterns) as well as obtain a comprehensive overview of the key issues concerning business strategies of as many firms in the business-to-business sector as possible.

The survey results will then in turn allow for a strategic focus on crucial issues during the interview phase, help in choosing the right interview partners as well as basically put the selection of interview partners into perspective – thus providing a useful basis for developing valuable suggestions to offer policy and decision makers alike.

5. Future prospects

What are the most important questions about polycentricity needing to be answered in the future? First, the two major processes of polycentricity should be defined: the economic process (market-driven) and the institutional process (political, strategic). This means that there are two different ways of perceiving polycentricity which raises complex questions about spatial development in a metropolitan region. For this reason, it is critical that new methods of analyzing and visualizing the polycentric development be established.

What could facilitate the beginnings of gaining a clearer picture of the Metropolitan Region of Northern Switzerland would be to compose maps combining several layers, such as the physical connections (e.g. commuting), market-driven spatial patterns (e.g. geographical locations of knowledge intensive business service firms, business linkages) and perimeters of political strategies (political cooperation, business development, spatial and institutional perimeters). These maps could offer a better understanding of the interactions and linkages between varying **XX?** to enable a balanced regional development. As well, patterns could be revealed of the “how” (value chains) and the “where” (clusters, districts, spatial division of labor) that the added value is created (and by whom). Are there sub-regions within the metropolitan

region that are losers or winners? How do local and national policy react in response? Are political decision-makers aware of the existing systems and patterns at the regional (super-cantonal) level? And are there measures that can be taken to lead to a more balanced development in the Metropolitan Region of Northern Switzerland? Do we need better political institutions to control that development?

Further analysis will then lead to an overall picture of the weaknesses and strengths of the existing spatial and economic system in the Metropolitan Region of Northern Switzerland. It will ultimately help in evaluating and improving spatial development policy in Switzerland. It will answer questions regarding the necessity of new policy instruments, about how they are shaped and the way they should be implemented.

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