

ON POLES AND CENTERS: CITIES IN THE FRENCH STYLE

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1 INTRODUCTION

At the turn of the century, even in the highly urbanized countries, cities, especially large cities, continue to grow. In France, the concentration of population in large cities is increasing. Eleven urban areas making up 34% of the French population in 1990 accounted for one half of French population growth from 1990 to 1999 (Julien, 2001).

But growing cities are also changing cities. The most visible change is urban sprawl: cities expand, with population and employment increasing more in the periphery than in the center of the city.

Indeed, employment sprawl is far from uniform. A large proportion of employment growth in the periphery is becoming agglomerated in a small number of “secondary centers” or “peripheral centers”, giving rise to “multicentric” urban structures. This phenomenon is quasi-universal (Anas et al., 1998) and is reshaping noticeably urban economic space. It is a prominent feature in the United States and has led to the well known model of the edge cities which “contain all the functions a city ever has” (Garreau, 1991), as if these secondary centers would replicate the main center.

However this is clearly an oversimplified model of the contemporary city. Even in the United States, urban structures are differentiated, and peripheral concentrations do not ever exactly replicate the central one. In France, peripheral poles can hardly compete with the central city in terms of size as well as of economic functions. The multiplication of

employment clusters is not only a spatial restructuring, it goes with a significant reorganization of the economy of cities and an economic differentiation of clusters. City cores concentrate more and more services and high-order activities while more common (standardized) activities are going to be pushed away. Thus, the term “center” is not sufficiently precise, and even may be confusing, because it covers a multiple facets reality. A center is not only a concentration of activities. The concept of center tends to be associated with the ideas of domination, of power, of creation, of interaction (Huriot and Perreur, 1997). Defining and distinguishing the “pole” as a concentration of activities and the “center” as a dominant pole in terms of high-order and strategic activities seems to be more accurate to interpret present urban restructuring in France.

At the light of this distinction, the hypothesis can be supported that French cities are both monocentric and multipolar: they generally have only one center but many poles. Moreover, the multiple clusters are more or less specialized, and the poles differ from one another. Thus Cities in the French Style are “*Monocentric Specialized Multipolar*” (*MSM*) (Huriot, 2004; see also the “multimonocentric” model suggested by Aguiléra-Bélanger, 2001, in the case of Lyon).

Consequently, even if the central functions have changed with the emergence of the post-industrial economy, the monocentric nature which has characterized cities for centuries can still be a relevant hypothesis, if correctly stated, *i.e.* if the nature of the center is correctly defined.

The next sections are organized as follows. Section 2 gives the conceptual backgrounds of the analysis by defining and differentiating the concepts of center and pole. Then this distinction is illustrated by the multipolar dimension and the monocentric character of French cities in section 3.

2 POLES OR CENTERS

Huriot and Perreur (1997) have pointed out that the meaning of the term “center” is nothing but simple. It is sometimes used ambiguously and even misused. This polysemy may be confusing and it implies that any centrality analysis must be handled with care (2.1). A relevant description of the city structure requires specific and meaningful terms. After a theoretical detour via the foundations of economics of agglomeration (2.2), two concepts are

defined, the pole, which is a concentration of any activities, and the center, which is a concentration of the most strategic activities (2.3).

2.1 The center in question

The city structure is called monocentric or multicentric, depending on its spatial organization. However, urban reality is not such a dichotomy. The literature claims that contemporary cities tend to be multicentric, but this simple property hides so many meanings that it can even have no meaning at all. Two series of features limit the significance of the term multicentric. They refer to the definition of the center and to the empirical method used for identifying one or several centers.

Multiple definitions

The center and the center-based terminology are both too vague and too rich. In spatial economics, the center is defined in terms of location, or of contents, or both. It is closely connected with the idea of interaction.

The center has at first a purely topological sense. As in a geometrical figure, the center is the point that has the best position in terms of distances from the other points. Then it depends on the choice of a particular form of distance (Huriot and Perreur, 1998), on the definition of the set of points and on the spatial distribution of these points. More generally, the center is the best location in terms of an index of overall accessibility which can itself be defined in many ways. For example, the center of a given set of points can be defined as the point which minimizes the sum of the distances from the other points. Then it depends on the choice of a particular form of distance (Huriot and Perreur, 1998), on the definition of the set of points and on the spatial distribution of these points. (Huriot and Perreur, 1994). But such a privileged location may well be empty and have no economic meaning at all.

This means that topology is not sufficient to define a center, and especially an economic center. The center is also a point of concentration of people and of activities. It can be defined as the point of maximum concentration in a reference space. Thus, the identification of a center depends on *what* is concentrated and *how* it is measured. Leisure centers, shopping centers, administrative centers, business center are all places of concentration of a specific activity, or of a given set of activities. In each place, economic activity can be measured, for example, by the level of employment, the number of economic units, or the value added in this activity.

Concentration is closely linked with the idea of interaction. It is both the result and the source of human interactions. On the one hand, concentration favors any form of direct interactions, encounters, face-to-face contacts, material or immaterial exchanges. The center is the privileged arena of proximity externalities, in the realm of social life as well as of business organization, and the best place for market interactions. On the other hand, concentration attracts and diffuses, all the more so as specialized activities are concerned, and it generates external interactions with more or less distant human establishments. Thus the formation and configuration of centers depend on how difficult interactions are, and noticeably on interaction costs. Concentrations arise in order to save the highest interaction costs. That is why high costs of direct information exchange are probably the main cause of the formation of urban centers. Concentrations are possible because other interaction costs, with the rest of the world, are sufficiently low. That is why low transport and/or long distance communication costs favor agglomeration. This is one of the main arguments of the economic theory of agglomeration (Fujita and Thisse, 2002).

How many centers?

Once a precise definition of the center and of its contents is adopted and an empirical measure of this contents is chosen, the monocentric or multicentric nature of the city must be established. How many areas of concentration of a given set of activities can be identified? The result may depend on the spatial scale of analysis and on the statistical methods used for identifying such centers.

Identifying centers requires adapted data. The level of spatial decomposition of these data largely affects the number of centers that can be detected. Moreover, the size of the area under study is not neutral. There are several statistical definitions of the city, differing from one country to the other, and even in the same country. The analysis can retain the city proper, usually defined by the continuity of housing (the French “urban unit” –see appendix 1) or the city plus a more or less large area around it (in France, the “urban area” or the even larger “urban space” –appendix 1). With the same method, the number of centers will be larger in the second case than in the first.

Finally, for a given definition of the center, a given reference space and a given spatial decomposition, several methods of identification are available (*e.g.* Giuliano et Small, 1991; Coffey et Shearmur, 2001; Baumont and Le Gallo, 2000). They generally combine criteria based on employment thresholds (*e.g.* in terms of absolute number, of density, of ratio employment/population or of location quotient). The choice of a particular combination of

criteria, as well as the level of the associated thresholds, affect seriously the number and the size of the resulting centers.

It follows that the center, and therefore the monocentric and the multicentric city, are relative concepts. The center is an economic and statistical construction, an interpretation tool which can not be taken as given but which must be conceived and adapted to the aim of the analysis.

2.2 The center in formation: economics of agglomeration

The center is a place of concentration. It results from agglomeration of people and economic activities in a limited area. How does such an agglomeration emerge? This is the primary questions posed by economics of agglomeration (Huriot and Thisse, 2000; Fujita and Thisse, 2002). In this context, the center is conceived as the outcome of an endogenous agglomeration process. Agglomeration results from the whole system of interactions between individuals, which are divided into producers (firms) and workers-consumers (households). The process is driven by the combination between two kinds of antagonistic forces. On the one hand, centripetal forces are produced by the search for agglomeration economies led by proximity between households and/or firms or to specific infrastructures and they favour agglomeration. On the other hand, centrifugal forces result from the harmful effects of proximity (*e.g.* in terms of competition) and of concentration (*e.g.* in terms of location costs, transport costs or pollution) and they favour dispersion. The interplay of these forces gives rise to cumulative effects such that agglomeration reinforces agglomeration forces until dispersion forces become prominent.

In the standard models of city formation *à la* Fujita (Fujita and Ogawa, 1982; Fujita and Thisse, 2002), the centripetal force results from proximity externalities between firms generated by information exchanges, while the centrifugal force is produced by the increasing land prices and commuting costs caused by increasing agglomeration of firms. In such a theoretical framework, an urban center results of the interactions of firms and households and is defined as a place of concentration of firms, eventually mixed with households. A monocentric structure is sustained if the firms' need for proximity dominates the negative effect of workers' commuting costs. A multicentric structure emerges in the opposite case. Therefore, the fall in communication costs between firms because of new technologies, as well as the increase in commuting costs led by urban growth, can result in the formation of multiple centers.

However, in most models, only one production sector is present and it is assumed that all firms are identical, so that a multicentric structure is necessarily a set of centers identical in terms of economic functions. An extension of this analysis supposes that each firm is divided into a front office and a back office (Ota and Fujita, 1993). It can then be shown that if the costs of interaction are lower inside the firms than between firms, the multiple centers can be differentiated so that the main center concentrates front offices, while back offices are rejected in peripheral centers.

What lessons can be drawn from this theoretical detour? First, except in some more elaborated models, a center is simply a concentration of economic activities, whatever these activities. Second, the center is the result of a process of agglomeration and its formation is at least implicitly related to agglomeration economies and to internal and external interactions. Third, the existence of a center, or of multiple centers, or even of multiple differentiated centers, depends on cost parameters which are highly variable in space and in time. This reinforces the relative character of the center.

2.3 Redefining poles and centers

In the light of the two preceding series of remarks, a distinction can be suggested between poles and centers, which seems well adapted to the interpretation of the French pattern of urban restructuring. As in the economics of city formation, the focus is on places where economic activities are concentrated. The terms pole and center will be used depending on what kind of activities occupies those places.

Poles as concentrations of economic activities

Applying the term center to any spatial concentration of economic activity seems irrelevant because it reduces the center to a spatial form, ignoring the process of its formation and growth, its content and its role in the city. For these reasons such spatial concentrations of activities are called “poles”, independently of their specific characteristics and functions. This term is also used in the various publications produced by the INRS-UCS in Montréal. Thus the common phrase “multicentric city” can be replaced by the phrase “multipolar city”.

Centers as concentration of high order activities

Most large cities are multipolar city, and their poles are generally differentiated in terms of economic contents and role. This phenomenon must be put back in the context of the technical, economic and institutional changes accompanying the emergence of the post-industrial economy. Multipolarization do not only reveal changes in spatial forms, but also,

and above all, significant transformations in production structures, including the emergence of a new spatial division of urban labor. Post-industrial economy is first characterized economically by the primacy of information in all domains of economic activities (Castells, 1996) and technically by the informational revolution which changes dramatically the conditions of economic interactions. Second, and largely in interaction with the preceding fact, the thirty last years have witnessed the rise and frequently the externalization of high-order activities (producer services, financial services, headquarters of large firms, ...) devoted to economic design, decision and control, or more generally to economic coordination (Bourdeau-Lepage and Huriot, 2004). These activities use intensively high-skilled workers, human capital and complex information, the exchange of which requires face to face contacts. They are mostly located in cities, especially in large cities, and inside the cities, they are concentrated in some specific poles. These “high-order” poles are places of intense inner interactions. They interact asymmetrically with other poles which do not have the same specialization, so that the system of poles is interconnected by complementarity relations, or even hierarchical interactions. Only such places can be called “centers”, in the richest meaning of the term, *i.e.* that of places which have the best economic position, which concentrate the most important activities, the principal resources for economic action, and which maximize both inner and outer interactions. In other words, an urban center is defined as a pole which concentrates the highest level of economic activities in the city, that is to say, coordination activities. This is akin to the idea that high-order services are central by nature (Coffey and Shearmur, 2001).

Consequently, a multipolar structure is not necessarily a multicentric structure. It is not equivalent to a diffusion of central functions. Then, any analysis of an urban structure must pay particular attention to the location of high-order activities such as producer services or headquarters.

2.4. Inquiring into French cities

In order to identify the *Monocentric Specialized Multipolar* pattern, the next section conducts an inquiry into the employment structure of the largest French cities. Two series of studies are questioned. The first one concerns the set of the largest cities, *e.g.* the cities exceeding 100 000 inhabitants (Gaschet, 2001) or the 20 largest urban areas (Peguy, 2000). They give a general idea on the multipolarization pattern. The second one investigates three significant cases: the Paris urban region (the Ile-de-France), and the urban areas of Lyon and Bordeaux.

Paris is one of the two dominant global cities in Europe. The region regrouped 11 million inhabitants and 5.1 million jobs in 1999. It is slightly different from the Paris urban area which accounted 11.2 million inhabitants in 1999. The Ile-de-France region makes up 19% of the French population, accounts for 22% of the French workforce, and produces 29% of French GDP. It regroups one quarter of France's students and more than 40% of the French researchers and engineers (Gollain, 2003). Despite an important loss of industrial employment, the Ile-de-France region remains France's leading industrial region. These features justify that a large place is reserved to this urban region in the analysis of the French cities. The analysis is based on the Regional Employment Survey (INSEE) relative to the years 1978 and 1997 for 1300 spatial units: communes and districts (*arrondissements*).

With 1,650,000 inhabitants in 1999, Lyon was the second French urban area after that of Paris. It regrouped 716,000 jobs, of which 76,000 (10.6%) were high-order metropolitan jobs (Julien, 2001). The data consist of the SIRENE list of establishments based on the 239 communes of the urban area in its 1999 extension.

The Bordeaux urban area had a population of 925,000 in 1999. Its total employment amounts to 380,000 and 33,000 (8.7%) persons were working in high-order metropolitan jobs. The database is for salaried employment in 211 zones of the agglomeration and communes in the urban fringe (INSEE, IRIS 5000, 1990).

A large part of the data used in this paper are established in terms of "urban areas", the definition of which is based on the polarization of commuting. The urban area includes the "city center", the "suburb" and the "urban fringes". The city center and the suburb are continuously built and together form the "urban agglomeration". The urban area regroups all the communes from which commuting towards the urban agglomeration is sufficiently important (see appendix 1). In 1999, 77% of the total population lived in urban areas.

3 THE MSM HYPOTHESIS: THE FRENCH CASE

The *Monocentric Specialized Multipolar* hypothesis will be corroborated in the French case by examining the structure of cities in terms of employment location. The first part of the section highlights the multipolar dimension of French cities. The second one emphasizes their monocentric character.

3.1 The multipolar urban space

The multipolar dimension can be associated to three observations which are not restricted to the French case: employment is more and more suburbanized, multiple employment poles are observed in all large cities and the location of peripheral poles is all but random.

Employment sprawl

Estimates of employment density gradients in the 20 largest urban areas for 1975, 1982 and 1990 give significantly greater absolute values than for population, which confirms the general feature that employment is less dispersed than population (Péguy, 2000). However, a movement of deconcentration is clearly observed.

If each urban area is decomposed into three zones, from the center to the periphery: the city center, the suburb and the urban fringe (appendix 1), it can be shown that, for the French cities in general, 1/ from 1962 to 1990, employment grew faster in the suburbs than in the city centers (Le Jeannic, 1997), 2/ from 1990 to 1999, employment grew at a much higher rate in the urban fringe (16%) than in the two other zones (2.4%) (Schmitt *et al.*, 2002).

A look at the deconcentration of employment in the Ile-de-France region reinforces the preceding observations. Table 1 examines the changing pattern of employment among Paris, the inner ring and the outer ring.

Table 1: Spatial distribution of employment in the Ile-de-France region, 1978–1997

	Paris	Inner ring	Outer ring	Total
Total employment change	(−18%)	(+5%)	(+40%)	(+4%)
Percentage employment 1978	41.14	35.54	23.32	100.00
Percentage employment 1997	32.40	36.13	31.47	100.00

Sources: INSEE; Boiteux-Orain and Guillain, 2002.

Between 1978 and 1997, Paris lost 336,400 workers, while the inner ring gained 86,300 and the outer ring 415,000.

A similar trend is observed in the Lyon urban area (SIRENE data base, in terms of establishments). The change in the general pattern is reported in Table 2.

Table 2: The distribution of establishments in Lyon, 1982-1999

	City center	Suburbs	Urban fringe	Total
Change 1982–99 (%)	-7.6	21.4	51.6	9.4
Percentage 1982	54.2	34.4	11.4	100.0
Percentage 1999	46.1	38.2	15.7	100.0

Source: Aguilera-Bélanger, 2001.

However, these figures give a somewhat inaccurate view of the location of employment, especially outside of the city center, inasmuch as economic activity is highly concentrated in a few employment poles.

Employment poles

Identifying employment poles requires applying relevant statistical methods to employment data by economic sectors and by spatial units as small as possible. Several criteria are combined and applied at the level of each spatial unit. They are expressed in terms of minimum levels for total employment, for the ratio of employment to population or to working population, for employment density or for employment location quotients. Some analyses combine with these simple criteria other data about firms or establishments and use in addition some techniques of data analysis such as classification analysis. The technical details of the specific methods used in the different case studies reported here are presented in appendix 2.

Although their methods differ, all studies point to a clear identification of multipolar structures in French urban areas. The suburbanization of economic activities not only follows a deconcentration process by which activities seek more space, lower land prices, less congestion and better buildings, but it obeys the logic of agglomeration economies and forms peripheral employment poles.

This has been illustrated by the identification of peripheral poles in terms of private employment in suburbs of all agglomerations exceeding 100,000 inhabitants in 1990 (Gaschet, 2001; see appendix 2). 117 peripheral poles were identified in 50 urban areas. The Ile-de-France region, and at a lesser extent Lyon and Bordeaux confirm this general observation.

In the analysis of the *Ile-de-France region* (Boiteux-Orain and Huriot, 2001; Boiteux-Orain and Guillain, 2002), the spatial units which respect the employment criteria (see appendix 2) are arranged in clusters of contiguous units. They form three categories of poles (as in Coffey and Shearmur, 2001) depending on additional size criteria, *i.e.* “dominant

poles”ⁱ (with at least one commune of more than 50,000 workers), “primary poles” (at least one commune of over 15,000 workers), and “isolated poles” (a single commune of more than 7,000 workers). This method results in the identification of 34 poles comprising almost 70% of the region’s employment: 8 dominant poles, 14 primary poles and 12 isolated poles (Table 3).

Table 3: Distribution of employment among poles, Ile-de-France region, 1978–1997

	Dominant poles	Primary poles	Isolated poles	Total poles	Other
1978 (%)	50.23	20.18	2.72	73.12	26.88
1997 (%)	42.86	23.43	3.06	69.35	30.65

Source: INSEE (Regional Employment Survey 1997); Boiteux-Orain and Guillain, 2002.

Note that Gaschet (2001), with a different method, found 26 peripheral poles in the Paris urban area. Even if the results depend on the statistical method used, the extent of the multipolar phenomenon remains similar.

In *Lyon*, four peripheral poles are identified. They are small relative to the city center, although they include 22.8% of the peripheral establishments in 1999 (as opposed to 18.3% in 1982). They represent clusters of population as well as of jobs (Aguiléra-Bélangier, 2001). As for the establishments of leading sectorsⁱⁱ, their dispersion is especially marked between the first ring and a distance of 25 km, and concentrated in a few poles (Mignot, 1999).

In *Bordeaux*, with different criteria, 15 employment poles have been identified, accounting for 55% of total employment in the agglomeration.

These results confirm the general character of urban multipolarization and suggest a possible correlation between the size of the city and the extension of the phenomenon.

The size and the location of poles

The size of the peripheral poles and their distance from the city center are correlated to the size of the city.

Among the 50 French urban areas containing peripheral poles, only 10 had more than two peripheral poles. The highest number of poles identified, were in Paris (26), Lyon (5), Lille (5) and Toulouse (4).

The characteristics of the poles are related to the size of the urban areas: (i) there is a positive correlation between the size of the city and the average size of peripheral poles; (ii) the ratio of employment in the peripheral poles to employment in the city center increases

with city size; and (iii) peripheral poles are more distant from the city center in larger urban areas (Gaschet, 2002).

The size of the *Ile de France region* and the number of its spatial units allow more detailed results. The location of the different kinds of poles is spatially organized. Dominant poles are exclusively localized in Paris and in the very nearby western and south-western vicinity. Most primary poles are in the inner ring or very close to it. Isolated poles are all in the outer ring and make up a very small share of regional employment, even if they have the highest overall growth rate. Thus, the size of the poles clearly depends on their proximity to Paris. Moreover, most of the greatest increases in employment between 1978 and 1997 took place in poles close to Paris in the west and southwest *i.e.* in dominant poles (*e.g.* La Défense) or nearby primary poles. This suggests that employment deconcentration mostly affects communes close to Paris and already containing many jobs, *i.e.* where agglomeration economies are strong. Employment attracts employment, but agglomeration economies have a significant effect only above a threshold size of employment concentration (Boiteux-Orain and Huriot, 2001). Peripheral poles are not independent of the dominant central poles and benefit from the agglomeration economies they generate. This is preliminary evidence for the MSM hypothesis formulated in the introduction.

The rise of the peripheral poles results from the combination of two types of agglomeration economies: the first one is active at very short distances and explains the poles themselves; the second one works at greater distances and explains the position of the poles relative to Paris. This intuition is reinforced in the next section, after examining the economic composition of the different poles.

Finally, the poles are located along the main communication routes, confirming a universal observation (Anas *et al.*, 1998) while emphasizing the importance of the accessibility to the Parisian pole and the dependence upon Paris.

These tendencies admit exceptions. For example in *Bordeaux*, the size of poles is not clearly related to distance from the center, but the spatial scale (the agglomeration) is not comparable to the *Ile-de-France region*. Nevertheless, most poles are located near the ring road and are close to each other, which seems to reinforce the role of agglomeration economies.

3.2 The monocentric dimension

The second stage of the demonstration consists in underlying the monocentric dimension of French cities. This new dimension appears with the analysis of pole's specializations.

The following results converge on our hypothesis. First, poles are differently specialized, so that they are complementary rather than in competition. Second, their specializations are spatially organized, principally in terms of distance from the center. Third, the most central pole, *i.e.* the city center, remains clearly dominant. It concentrates high-order services which have a strong preference for the center (Benard, Jayet and Rajaonarison, 1999; Léo and Philippe, 1998). The apparent decline of city centers in terms of employment or establishments masks a new specialization in terms of high-order strategic activities. However, French centers do not look like American CBDs because they also have a significant resident population and a lot of associated activities.

Poles: the geography of specialization

An overview is provided by the functional typology of the 117 peripheral poles identified in urban areas with more than 100,000 inhabitants (Gaschet, 2001). The analysis suggests a substantial diversity among the poles and their differentiation from the city center. It is based on the location quotients of 9 economic sectors (private salaried employment alone). The poles were classified under five types by their economic specialization: industry, mixed industry and producer services, high-order services, diversified services, and personal services. The classes and the corresponding location quotients are shown in table 4.

Table 4: Location quotients in 5 classes of French peripheral poles, 1997

Classes and specializations	1. Industry	2. Industry & producer services	3. High-order services	4. Diversified services	5. Household services
Number of poles	29	37	13	20	17
Location quotients					
Industry	1.43	1.03	0.80	0.71	0.74
Transport	1.16	1.10	0.68	0.78	0.85
Construction	1.04	1.27	0.67	0.77	0.87
Commerce	0.71	0.74	0.85	1.22	1.87
Personal services	0.66	0.71	0.91	1.05	1.27
Public services	0.56	0.66	0.63	1.24	0.83
Consultancy	0.61	1.05	2.00	1.62	0.58
Operational serv.	0.73	1.46	1.56	1.04	0.80
Finance, real estate	0.50	0.60	1.67	1.62	0.79

Source: Gaschet (2001).

This analysis leads to the following conclusions.

Many poles are clearly specialized in industry or services, and among services, in high-order services or in household services. Only one class mixes all categories of services and another one combines industry and producer services.

Specialization is geographically organized. The specialization of peripheral poles depends on the size of the city. The first class (industrial specialization) is better represented in smaller cities (less than 400,000 inhabitants), while classes 3 and 4 (specialized in high-order services or combining industry and high-order services), are more common in larger cities.

Moreover, the specialization of the peripheral poles is closely correlated with their distance from the center. The industrial poles are more distant from the center, while poles specialized in high-order services appear closer to the center. The former are less sensitive to the agglomeration economies generated by the center, while the latter have a strong need for centrality because they involve more complex and personal interactions with activities located in the center.

In the Ile-de-France region, specializations are well marked and depend on distance from the center. The economic and spatial organization of poles in the Ile-de-France region confirms, details, and strengthens the preceding results (Boiteux-Orain and Huriot, 2001; Boiteux-Orain and Guillain, 2002). A synthesis of specializations is shown in Table 5, using the classification of poles discussed above.

Table 5: Specialization of employment poles in the Ile-de-France region, 1997

	Dominant poles	Primary poles	Isolated poles
Industry	0,77	2,31	2,24
High Tech	0,63	0,78	1,08
Construction	0,56	0,59	0,84
Transp., com.	0,95	0,94	0,56
Whole. Trade	0,77	0,54	0,48
Person. serv.	1,11	0,91	1,16
FIRE	1,64	0,49	0,78
Prod. serv.	1,31	0,53	0,56
Pub. Serv.	0,86	1,29	1,32

Source: Boiteux-Orain and Guillain, 2002.

The dominant poles, located in Paris or nearby, are clearly specialized in personal services, FIRE (finance, insurance, real estate) and producer services. Personal services are

associated with the large population of these poles, while FIRE and producer services benefit from strong agglomeration economies. The primary poles, mostly located in the inner ring, are more specialized in high technology, transport and wholesale trade, which need both space and accessibility. The isolated poles, in the outer ring, are highly specialized in industry (excluding high tech), which requires space rather than proximity, and at a lesser extent in personal and public services that follow population. Only three primary poles and one isolated pole, located in the south of Paris, are specialized in producer services (Boiteux-Orain and Huriot, 2001).

Poles are more or less differentiated in terms of economic activities. One of them, the center, gains a dominant position thanks to its specialization in high-order services.

The domination of the city center

The city center is going to specialize in the highest-order functions. Since 1976, the location quotients in centers show a decline in the relative share of industry and an increase in the relative share of personal services, public services, finance and real estate. Thus, the centers display a process of functional specialization in specific activities and especially in high-order functions.

Despite the observed tendency toward the deconcentration of certain producer services, the domination of the city center is not altered. Moreover, the specialization of the city centers in servicesⁱⁱⁱ seems to have significantly influenced the general dynamics of employment sprawl from 1976 to 1997 (Gaschet, 2002). Highly specialized city centers at the beginning of the period recorded lower deconcentration rates, independently of the economic composition of the existing poles. Moreover, the dynamics of city centers depends on their specialization in services, which indicates an endogenous process of central development.

Lyon and Bordeaux follow this pattern. The center is generally specialized in high-order functions (finance) and in personal services including hotels and restaurants.

In *Bordeaux*, law services are highly concentrated: they account for 30% of the establishments in the center and only 4% in the periphery. On the contrary, 17.5% of the establishments are devoted to computer activities in the periphery and only 4.7% in the center. In peripheral poles, producer services are associated with industrial and transportation activities rather than with other services. They are mainly technical services such as maintenance or engineering.

In the *Lyon* urban area, more than 90% of producer services establishments are located in the urban agglomeration, *i.e.* in the center and its suburb. These services look to either the city

center or the “new spaces” in nearby West Lyon (Aguiléra-Belanger, 2001), but as everywhere, law services prefer the center. Industry, personal and collective services tend to locate in large communes far from the center.

The center of the Paris urban region concentrates the most strategic high-order services, global coordination functions. From table 5, it can be stated that Paris and its vicinity maintain their supremacy in services, especially in FIRE and producer services. Indeed, high-order services have deconcentrated from Paris toward other dominant poles or to primary poles very close to the center. This suggests that there is really no decline of the center, but a redistribution of employment and especially of high-order services within Paris and its immediate surroundings. The attractiveness of Paris has generated a saturation of the Parisian space and resulted in central activities overflowing toward a few poles. This corresponds to an enlargement of business space rather than to deconcentration proper. Moreover, the location of industrial activities close to Paris is easily misunderstood. It largely refers to the headquarters of industrial firms, *i.e.* high-order functions rather than industrial establishments.

At a more detailed level, high-order services have different location behaviors (Boiteux-Orain and Guillain, 2002). Two categories can be distinguished. The first includes finance, insurance, financial and insurance auxiliaries, accounting, law services and advertising, that remain markedly concentrated in Paris and rarely present outside the dominant poles. These activities are mostly strategic functions of decision-making or decision support, and more generally functions of global coordination (Bourdeau-Lepage and Huriot, 2004). The other one primarily involves technical services that are more mobile and can disperse to several, more distant peripheral poles.

These observations strengthen the idea of the complementarity of the employment poles and of the specificity of the center. The location and the specialization of the poles show that they are still strongly dependent on the center, where most strategic managerial and coordination functions are located. French cities clearly have a *Monocentric Specialized Multipolar* (MSM) structure.

Amenities certainly play a major role in the preference of high-order functions for the center. Amenities result from the topography, the landscape, the historic infrastructures, and from the economic and social environment. They are closely related to the prestige and symbolism of places as well as to public and personal safety. High-order activities are very sensitive to amenities such as the prestige of the place. Now, the level of amenities is very high in the center of Paris and declines quickly with distance. This reinforces the

specialization of the center. Amenities combine with interaction factors to create a cumulative agglomeration of high-income individuals and of high-order activities. French city centers, especially Paris, concentrate a diversity of prestigious functions, combine strategic economic activities with creative cultural activities, and contain the most famous universities and schools. With a few exceptions, amenities are less important in the centers of North American cities. These disparities may explain the different location patterns in the two countries (Brueckner, Thisse and Zenou, 1999). American city centers are frequently more specialized, less prestigious and less safe. These are important factors behind the deconcentration of high-order activities in North America.

The preceding analysis provides evidence that in general, the concentrations of employment in the periphery of French cities do not give rise to new centers according to the definition of section 2. The structure of specialization is such that each urban area remains dominated by one center, the traditional city center, the first or even the sole place of strategic economic functions.

5 CONCLUSION

If an urban pole is simply a place of significant concentration of economic activities, then most large French cities are multipolar. However, poles are more or less specialized. If the definition of an urban center is restrained to a concentration of the most strategic activities in the city, then most French cities are monocentric. Then French cities follow a *Monocentric Specialized Multipolar* pattern.

This calls into question some received ideas about the multiplication of urban centers and the decline of the traditional center. This distinguishes the French pattern from that of a number of North American cities. Finally, even if this pattern is generally observed in France, it is reflected differently from one city to the other.

1/ The so-called universal tendency to the multiplication of urban centers must be strongly qualified. The urban literature uses generously phrases such as “the diffusion of centrality”, “the rise of new centralities”, “the emergence of new centers”, and so on. The French case confirms the statement of fact already made in some other countries, that present urban change is far less simple. On the one hand, the tendency to the concentration of activities in multiple poles outside the central pole is well observed, which means that agglomeration forces strongly shape the suburbanization of activities. On the other hand, the multiple poles

are clearly differentiated in terms of economic specialization, which means that all economic activities do not have the same propensity to leave the initial center and to concentrate in peripheral poles. This results from the differentiation of the agglomeration economies that govern the behaviour of the different economic activities.

2/ The decline of the traditional city-center must be questioned. The center remains dominant from two points of views. First, it has an influence on the whole urban structure, for the spatial distribution of activities over the urban area is strongly dependant on distance from this center. Second, the center is the place of concentration of high-order services, and among them of the most strategic ones, all the more so since the city is larger. These services are the most sensitive to proximity economies which have a very short spatial range. The historical and cultural prestige of the center combined with these proximity externalities lead to a sort of central lock-in of the most strategic activities. When they deconcentrate, it is generally toward the immediate vicinity of the center.

The decline of the center is an optical illusion. Maybe the center is losing certain of its traditional functions to the benefit of peripheral poles, but this is compensated by a new specialization.

3/ Urban pattern in France seems different from urban pattern in United States, at least in reference to the edge city model of Garreau (1991) and cities such as Los Angeles or other western cities. Even if the existence of a uniform American model of city structure is doubtful, urban change in France differs from urban change in United States. French cities remain more clearly monocentric and the deconcentration of employment seems more selective. It can hardly be found something like an edge city in France.

4/ Despite the Monocentric Specialized Multipolar pattern of most large cities, urban change is significantly differentiated. There is a great variety among French cities, mainly because of size. Recall that the number of peripheral poles, as well as their specializations, depend closely on the city size and that it is much more important in the Paris area than anywhere else. Let us add that, if all large cities concentrate their high-order services in the center, the most strategic and the most internationally influent high-order services are located in the largest cities and first of all in Paris. This city is probably the unique French global city in the sense that it coordinates complex and global activities. So the Monocentric Specialized Multipolar pattern is particularly well developed in the French global city.

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APPENDIX 1: FRENCH STATISTICAL DEFINITIONS OF CITIES

French urban territories are defined at different spatial levels and involve two statistical approaches. The first approach relates to an unbroken pattern of housing. “Urban units” (*unités urbaines*) are sets of one or more communes covered by continuous housing, no more than 200 meters apart, and totalling at least 2000 inhabitants. All such communes are urban; others are rural. Urban units with more than one commune can be divided into a “city center” (*ville centre*) and “suburbs” (*banlieue*). The city center is formed by the commune whose population makes up more than 50% of the unit’s population, or by the main commune and all the communes whose population is more than one-half of that of the main commune. The other communes form the suburbs.

The second approach considers employment. An “urban agglomeration” (*pole urbain*) is an urban unit with at least 5000 jobs and which is not on the “urban fringe” of another urban agglomeration. The “urban fringe” (*couronne périurbaine*) of an agglomeration is the set of the urban or rural communes where at least 40% of the working population has a job in the pole. The “multipolarized communes” (*communes multipolarisées*) are urban or rural communes not belonging to the urban fringe but where at least 40% of the employed population has a job in one of several urban agglomerations. Finally, an “urban area” (*aire urbaine*) is composed of one agglomeration and its urban fringe. “Urban space” (*espace urbain*) is composed of contiguous urban areas and their related multipolarized communes (*communes multipolarisées*).

This paper focuses on the urban area approach and deals with the five concepts of city center, suburbs, urban agglomeration, urban fringe and urban area:

City center		
+ Suburbs	=	Urban agglomeration (more than 5000 jobs)
		+ Urban fringe = Urban area

APPENDIX 2: CRITERIA FOR THE DETERMINATION OF EMPLOYMENT POLES

Peripheral poles in French urban areas (Gaschet, 2001). The study looked at districts with more than 1500 workers and a 1995 employment/resident workers ratio exceeding 1.3 times the average ratio in the corresponding suburb.

The Ile-de-France region (Boiteux-Orain and Huriot, 2001; Boiteux-Orain and Guillain, 2002). An employment pole is defined as a commune or a set of contiguous communes, each with more than 7000 workers, and with a location quotient of employment greater than 1. This quotient is defined for each commune as the ratio of employment to population of the commune divided by the corresponding ratio for the department where this commune is located.

The urban area of Lyon (Aguiléra-Bélanger, 2001). The method for determining poles (clusters) differs from that used for the Ile-de-France. It is based on three criteria: above average density by zone, more than 150 establishments, and an above average increase in the number of establishments by zone.

The urban area of Bordeaux (Gaschet, 2000 and 2001). A zone is defined as a pole if its ratio of salaried employment to resident workers is greater than unity and if the zone contains more than 2000 jobs. Contiguous zones are grouped together only if no zone is larger in area than the city center.

ⁱ Coffey and Shearmur (2001) and Boiteux-Orain and Guillain use the phrase “central pole”. Because their definition does not presuppose their central location, we prefer the phrase “dominant pole”.

ⁱⁱ Manufacturing and high-order services, excluding personal services and the wholesale trade which follow population.

ⁱⁱⁱ Producer, operational and personal services.