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**Davoudi. S., 2003, Polycentricity in European Spatial Planning: From an analytical tool to a normative agenda, *European Planning Studies*, Vol. 11(8), pp. 979-999**

## **Abstract**

The notion of polycentricity is gaining widespread currency in both academic and professional debates. It has opened its way in the spatial policy documents of the European Union (EU) and member states alike, and has become one of the key components of the integrated spatial development strategy promoted by the European Spatial Development Perspective (ESDP). Whilst polycentricity is increasingly shaping the spatial policy discourses both in the Commission and in member states, the precise meaning of the term has remained elusive. The first two sections of this paper aim to unpack the concept of polycentricity, trace its origin and its development and clarify the confusion over its multiple interpretations at various spatial scales. The third section of the paper explains how the concept of polycentricity which has traditionally been used as an analytical tool to explain an existing or emerging reality is now increasingly being used to determine that reality. This is based on the analyses of the use of polycentricity within the European spatial planning framework and in particular the ESDP. Here, the paper raises a number of questions regarding the promotion of the polycentric urban regions as one of the ESDP's key policy options for a balanced territorial development across Europe.

## **Introduction**

The notion of polycentricity is not new. Indeed, different variations of the concept can be traced back in the literature of the early twentieth century on conceptualisation of urban spatial structure and particularly the work of urban sociologists in the Chicago School. What is new, however, is the growing popularity of the term amongst urban planners and policy-makers. The European spatial planning literature and policy documents are peppered with references to polycentricity (see for example, ESDP, 1999; CEMAT, 2000; NORVISION, 2000). However, despite its widespread currency, the concept is not supported by clear definition, robust theoretical framework and rigorous empirical analysis.

Hence, polycentricity means different things to different people. For example, urban planners use the concept as a strategic spatial planning tool; economic and human geographers use it to explain the changing spatial structure of cities; the EU Commissioners and their counter parts in member states often promote the concept as a socio-economic policy goal aimed at achieving a balanced regional development; and, civic leaders use the term for 'place-marketing', presenting the notion of polycentricity as synonymous with pluralism, multi-culturalism and dynamism, as well as a symbol of the 'post-modern' life style. It has become part of the new vocabularies of inclusive politics.

Furthermore, polycentricity means different things when applied to different spatial scales. With a few exceptions, the concept of polycentricity has traditionally been applied to the 'meso' level of urban agglomeration, focusing on intra-urban patterns of clustering of people and economic activity in places such as Los Angeles, Paris and London. More recently, the concept has also been used at the 'macro' level of inter-urban scale to denote the existence of multiple centres in one region. Examples from north west of Europe (Dieleman and Musterd, 1992; Camagni and Salone, 1993, Albrechts, 1998), west coast of America and Kansai area in Japan (Batten, 1995) are frequently mentioned as typical polycentric pattern of intra-regional structures. A third, 'mega', level of polycentricity has been added to the debate by the EU's latest spatial policy framework, the ESPD. This uses the concept at intra-European scale and promotes polycentricity as an alternative to the core-periphery conceptualisation of the European territory.

The resulting picture is one of complexity and confusion. As Kloosterman and Musterd (2001:623) argue, the existing diversity in interpretations of polycentricity is partly a reflection of the inherent complexity of cities which represent a "rich, multifaceted spatial phenomena encompass(ing) almost every aspect of social life".

This paper aims to unpack the concept of polycentricity, trace its origin and development, clarify the confusion over its multiple interpretations and analyse its use within the European spatial planning framework. The paper is structured around three main sections based on an ascending order of spatial scales, exploring the use and adaptation of the notion of polycentricity at: intra-urban, inter-urban and inter-regional scales, with the latter focusing in particular on the

ESDP's interpretation of polycentrism at the level of Europe. Sections one and two of the paper deal primarily with unravelling the evolving notion of polycentricity and its multiple interpretations. This historical and conceptual focus provides a basis for section three of the paper which is primarily a critical analysis of the use of the concept in European spatial planning debate and in particular the ESDP.

## **1. The intra-urban scale**

Throughout the last two centuries the most dominant characteristic of almost all contemporary cities has been their continued growth both upwards and most importantly outwards. This continuous spread of cities has, for many years, pre-occupied researchers who have sought to conceptualise urban development forms and to develop criteria for evaluating their desirability. Thus, a large number of academic research and literature has focused on explaining and analysing the intra-urban or internal structure of cities. Whilst numerous models have been formulated by scholars from different disciplinary backgrounds to conceptualise urban growth pattern, it is possible to distinguish between two general categories: models based on conceptualising cities as a monocentric spatial structure, and those based on explaining the polycentric pattern of urban change. The remaining part of this section attempts to highlight the main characteristics of these prevailing models and review some of the key contributions to their development.

### **1.1 The monocentric model**

Until the 1970s, the conceptualisation and evaluation of the internal structure of cities were based on monocentric city models tested largely on American case studies. One of the most influential approaches was the ecological analysis carried out by the Chicago School of Sociology which had a major influence on development of urban geographical thought. This analysis was pioneered in the study of Chicago's urban structure by Ernest Burgess, published in 1925 in his seminal essay on: *The Growth of City*. His famous diagram of a series of concentric circles, that divided the city into five zones, introduced the earliest classical model of city structure. It served many generations of urban sociologist, planners and geographers as a kind of "prolegomena" (LeGates and Stout, 1996:89).

Later, Harris and Ullman (1945) argued that the city grows around several, not a single, centres of economic activity which are proportionate, in number and specialisation, to the size of the city. They used the term 'multi nuclei' to depict

the evolving spatial structure of cities. Although this indicates a mid-1940s' reference to the notion of 'polycentricity', the use of polycentric model as an analytical tool for describing the patterns of urban growth did not gain any real currency until the 1960s (Kloosterman and Mustered, 2001).

The Chicago School's ecological analysis of monocentric urban structure gained further support from the economists' theories of urban land rent. This argued that the average density of development declines systematically with increasing distance from the centre. In its simplest form, this basic monocentric city model envisages the city as a circular residential area surrounding a central business district in which all jobs are located (Alonso, 1964).

Further supporting theories came from geographers and urban planners, some of whom, taking advantage of the quantitative revolution of the 1960s, adopted a 'spatial analysis' approach to description of urban form (Madanipour, 1996). Others drew on the pioneering work of Lynch and Rodwin (1958) and used three distinct physical elements of population density, size and grain (arrangement of land uses) to classify intra-urban structure and to predict the pattern of city's future growth. The most notable amongst these studies is Kevin Lynch's book: *The Future of Metropolis*. Here, he delineated five ideal urban forms of dispersed sheet, the urban galaxy, the core city, the urban star, and the urban ring and examined their desirability against three criteria of grain, focal organisation and accessibility (Lynch, 1961). Later, Catherine Bauer Wurster (1963:78) suggested a wide range of hypothetical choices for future urban form, amongst "the constellation of relatively diversified and integrated cities" came close to the notion of polycentricity at *inter-urban* scale. Apart from this exceptional attempt, the majority of other models focused on the scale of individual city structure. This, as Hamnett concluded, was largely due to the accelerating pace of urban growth and urban coalescence which was progressing at a faster rate than the ability of urban theorists to conceptualise it (Hamnett, 1973).

## **1.2 The polycentric model**

For at least two decades after the Second World War, the monocentric city model remained the most influential depiction of urban structure. It enabled a better understanding and explanation of the broad population decentralisation that had occurred in most cities of the world. But, in the face of rapid and complex urban change it became increasingly inadequate for describing the spatial structure of modern cities. However, the demise of monocentric model did not happen easily.

For many years, researchers tried in vain to adjust it to the polycentric configuration of many modern cities (Hall, 1997). By the 1970s, however, it had become clear that cities of the future would become less nodal and would move towards the development of a poly nucleus urban structure (Thomas, 1973). A number of factors made the monocentric model increasingly irrelevant to the reality of urban growth pattern. These included: the rapid decentralisation of economic activities; the increased mobility due to new transport technologies; the multiplicity of travel patterns; the fragmentation of spatial distribution of activities; the changes in household structure and lifestyle; and, the existence of complex cross-commuting.

An important source of change in urban structure was the shifting economic relationships between and within firms with increasing significance of "economies of agglomeration" and "clusters of activity" (Scott, 1988; Porter, 1990; Krugman, 1995) in the distribution of employment and population and, hence, the pattern of spatial development.

This has shifted the focus of attention towards the distributional pattern of employment and in particular the tendency of economic activity to cluster in several interacting centres. When firms choose where to locate, economists argue, centripetal and centrifugal forces are in opposition. The agglomerating forces are 'externalities' such as: the ability to tap into an established local market for appropriate labour; vertically disintegrated sources of supply for inputs; un-traded interdependencies with other producers; and effective governance relations. The dispersing forces are the costs of congestion and the bidding up of prices for land and labour. One feature of external economies is that they all involve spatial-cum- transactional relations. This means that the ability of firms to tap into them depends either on transactions cost being low over distance (if other units of activity are widely dispersed) or on units being close together (if spatial transactions costs are high) (Scott, 1996; Krugman, 1995). Whilst the former triggers a more regular dispersed pattern of activities, the latter leads to the clustering of activities in a polycentric pattern.

Drawing on theories of 'agglomeration economies', Anas et al (1998) focus on explaining urban spatial structure as a result of market forces and conclude that, whilst cities continue to spread out, as they have done over the past two centuries, their growth patterns have undergone a qualitative change in recent decades. They argue that, their continuing decentralisation represents a more

polycentric form, with a number of concentrated centres making their marks on both employment and population distributions. These concentrated centres are called sub-centres implying that they remain subsidiary to an old centre business district. Based on empirical findings from a number of case studies in America, Anas et al (1998) identify two types of sub-centres: the first group refers to older towns that have gradually become incorporated into an expanded but coherent urban area; and, the second group refers to newly spawned centres at nodes of a transportation network often so far from urban core, which earn the appellation of 'edge city'.

The growth of edge cities in the suburban and even the outmost reaches of large metropolitan areas is seen as the most recent phase in the evolution of urban spatial structure (Garreau, 1991). They are characterised by large concentrations of office and retail space often in conjunction with residential and other types of development at the nodes of major transport networks. Most are in locations where virtually no development, apart from a small town, existed prior to 1960. Although acknowledging the different pattern of urban growth in Western Europe, when compared with the United States, Anas et al (1998) argue that even in Europe there has been massive suburbanisation and the emergence of edge cities. If this statement is empirically substantiated, it will provide a strong counterargument to what Sacco suggested thirty years ago when comparing the European city growth patterns with the American ones. He argued that,

“[In Europe,] it is futile to look for the fragmentation of the urban community into sub-groups that clearly and openly tend to organise themselves into semi-autonomous and territorially separated communities. This is the most important difference between the American *urbanite* and the European *citizens*” (Sacco, 1972).

Other empirical studies, mostly based on American cases, have confirmed the sub-centring characteristic of polycentric development but at the same time shown some differentiation in the patterns of polycentricity.

### **1.3 Polycentricity versus dispersion**

Whilst it is now widely acknowledged that the contemporary urban systems present a complex and multi-nodal structure, research on the nature of this structure and the pattern of its growth has remained inconclusive. Many commentators distinguish between an organised system of sub centres and an apparently unorganised urban sprawl. In other words, they differentiate between

a polycentric city and a dispersed city. Such differentiation depends on a number of factors notably: the definition of sub-centres as job locations only or as activity centres; the cut-off points for employment scale and density; and, the significance given to the employment scales and densities compared with the level of interaction between the centres and sub centres measured in trip-generation rates.

Using the latter criteria, Gordon and Richardson (1996) point out that different activity centres with the same number of jobs may generate markedly different levels of traffic. They argue that, "if metropolitan spatial structure is largely the result of the interaction between transportation and land use, a sub-centre anchored on a suburban mall may have more significance than one based on an industrial park, even if the latter generates more jobs" (Gordon and Richardson, 1996: 290). Hence, using trip-generation density for Los Angeles metropolitan region, they conclude that this region may be more accurately described as a dispersed rather than a polycentric metropolis. This can be explained by the fact that the spatial range of agglomeration economies is increasing and will continue to do so as a result of development in electronic highways.

Gordon and Richardson's study shows that although polycentric models have provided a more sophisticated analytical tool for explaining patterns of urban growth, they may be facing a faith similar to monocentric models forty years ago. This is to say that they may become inadequate for describing the dynamics of spatial structure which seems to be displaying signs of generalised dispersion rather than clustering in a number of sub-centres. The irony is that, "just as urban researchers are beginning to devote considerable attention to the phenomenon of polycentricity, the world is perhaps moving beyond it" (op cit: 290).

#### **1.4 Halt in decentralisation**

Whilst the focus of the studies on polycentricity is placed on explaining trends in decentralisation, some commentators have added a completely different dimension to the discussion of urban growth. Based on the 1990 census data, Cheshire (1995) suggests that there is evidence of a substantial break up of the previous regular pattern of decentralisation which had been spreading from northern to southern European cities and from the large to the medium-sized cities. He argues that, during the 1980s there was a significant degree of re-centralisation in many northern European cities (with the exception of cities in the

UK) with nearly half of all core cities gaining population. Whilst this is not a complete reversal, there is now a greater variation in patterns. He suggests that there is a circular relationship between economic conditions and urban re-centralisation. Regions that can attract workers and residents are able to improve living conditions such that re-centralisation occurs. More economically disadvantaged regions may experience a continuing spiral of de-centralisation and decline (Cheshire, 1995).

Writing in 1969, when the balance of centripetal and centrifugal forces was clearly tilted towards the latter, particularly in American cities, Wolf who coined the concept of 'tidal wave'<sup>i</sup>, anticipated that,

"The 'hollow metropolis' rather than the 'exploding metropolis' is the characteristic metropolis of contemporary America. Extrapolated to the end of this century, the hollow metropolis of yesteryear will be bigger, more diffused, and more hollow in the future" (Wolf, 1969:153).

From that vantage point, Wolf, and possibly many other observers, could not see the prospect of a changing balance, "unless there occurred a definite pull towards the centre, based perhaps on some renewed feeling for urbanism" (Hamnett, 1973). Such renewed feeling for urbanism, however, was viewed as an unlikely event and the only possible factor which was considered as a culprit for altering the balance was the possible changing attitude towards commuting. Yet, as shown by Cheshire (1995), there is evidence of recentralisation processes in northern Europe and America, which may partly relate to the very factors which were seen unlikely thirty years ago, i.e. a changing attitude to commuting and a renaissance in urbanism. On the one hand, as concerns for global environmental issues and quality of life is gaining strength in public order of priorities, long distance commuting, particularly by car, is increasingly seen as unsustainable. On the other hand, the last few years have witnessed a growing interest for urbanism, partly as a response to the rising environmental concerns but also fuelled by pro-active, government-led urban policy aimed at bringing people and jobs, and particularly the more footloose and highly skilled service jobs, back to the cities in many European countries.

So, perhaps Sacco was right to say that it would be in vain to look in Europe for the phenomenon of disinterest in the old centre so characteristic of large American metropolis (Sacco, 1972). But, even large American metropolis have been witnessing a return to urban living many by young professional. According



to a 1999 study by Brookline Institute and Fannie Mae Foundation, some 26 American cities expect a major population growth in their down town; something that would have been inconceivable a decade ago. Amongst them is Philadelphia which has lost over half a million people since 1950, yet foresees a population rise of 13 percent by 2010 (*The Economist*, 1999).

## **2. The inter-urban scale**

One of the earliest references to the development of polycentricity at the inter-urban scale came from Fawcett in 1932. He argued that,

“One of the most important and striking developments in the growth of the urban population... has been the appearance of a number of vast urban aggregates, or conurbations... These have usually been formed by the simultaneous expansion of a number of neighbouring towns, which have grown out towards each other until they have reached a practical coalescence in one continuous urban area” (Fawcett, 1932:100-01).

Thirty years later, Wurster speculated that, constellation of relatively diversified and integrated cities are likely, “if the desire for private space and natural amenity is modified by greater concern for accessibility, diversity, and other traditional urban values” (Wurster, 1963: 99). She even suggested that with the exception of “extremes of scatteration, concentration, and specialisation, this pattern probably offers the greatest choice in life styles” (op cit: 100)

Both authors used the notion of polycentricity at the inter-urban scale. The main distinction between conceptualising polycentricity at this level as compared with the intra-urban scale is that the latter refers to a polycentric city characterised by the development of multiple sub-centres within one built up area (Gordon, et al, 1986), whilst the former refers to a polycentric urban region characterised by separate and distinct cities or smaller settlement which interact with each other to a significant extent (Dieleman and Faludi, 1998). The European examples which are frequently mentioned include: Randstad in the Netherlands (Priemus, 1998); Flemish Diamond in Belgium (Albrechts, 1998); Rhine-Ruhr in Germany (Blotevogel, 1998; Knapp, 1998); and, Padua–Treviso-Venice in northern Italy (Camagni and Salone, 1993). Outside Europe, the southern California in the USA and the Kanasai area in Japan have been quoted (Batten, 1995).

Conceptualisation of polycentricity at this macro scale is at an early stage of development and, hence, is characterised by a lack of clear definition of the

concept, unconsolidated literature and little agreement on criteria and thresholds for analysis (Kloosterman and Musterd, 2001). This is despite the fact that studies of functional urban regions can be traced back to the early 1970s when attentions began to move away from a concern with urban form per se towards a focus on social processes and urban functions. At the same time, the scale of observations and analyses began to focus away from individual cities towards the city region (or as Americans call it, metropolitan region).

## **2.1 Defining the city region**

The focus on the city-region was first promoted by Patrick Geddes, who coined the word *conurbation* (Geddes, 1915). He used the term to describe the transformation of geographical tradition of town and country. His conception of the conurbation was primarily that of a planning unit; suggesting that for sensible planning it would be crucial to take into account the resources of the region in which the historic but rapidly spreading cities are situated. Later in the 1930s, the term conurbation was given a different meaning by Fawcett who, as mentioned above, provided one of the earliest definitions of polycentric urban regions.

The next definition of conurbation came from the statisticians in the General Register Office (GRO) who, on the basis of the 1951 census, identified seven conurbations in Britain which more or less corresponded with the ones delineated by Fawcett. They suggested that, "the conurbation generally should be a continuous built up area" with some consideration being given to population density (GRO, 1956: xv). On the other side of the Atlantic, the term *metropolitan district* was used as early as 1910 to describe urban agglomerations with a population of more than 200,000. But, the concept found wider connotation through the writing of N.S.B. Gras, an economic historian, who used the notion of *metropolitan economy* to describe fourteen centres in North America, using economic rather than spatial criteria (Gras, 1922). The concept of metropolitan area was formally adopted by the United States' Bureau of the Census in 1950 as *the Standard Metropolitan Statistical Area*. SMSA defined aerial units of a much smaller population size (over 50000) than that of GRO's conurbation. This constituted the first key difference between them. The second major difference was the basis of their delineation. For SMSA functional integration played a key role in defining metropolitan areas, whilst for GRO such relationships played only a secondary role.

However, criteria similar to the ones used to define SMSA were later applied in Britain following a study of *Standard Metropolitan Labour Areas* (SMLA) in England and Wales (Hall et al, 1973). In practice, SMSA and SMLA consist of the historic city plus its commuting hinterland instead of being limited to the continuously built up area centred upon a particular city (Thomas, 1973).

The SMSA and the conurbation (as used by British GRO in 1956) were both designed partly to distinguish the predominantly urban areas from the predominantly rural ones. Yet, the concept of city region (which is consistent with Geddes' original definition of conurbation and Gras' concept of 'metropolitan economy') moves beyond such distinction and covers not only the commuting hinterland of the city but also the whole area which is economically, socially, and culturally dominated by the city.

## **2.2 Defining polycentric urban region**

This brief historical review points to the difficulties of setting out a commonly agreed and applied definition of functional urban regions. Today, the concept of polycentric urban regions (PUR) suffers from a similar quandary. A PUR is defined as a region with two or more historically and politically separate cities without a clear hierarchical ranking in a reasonable proximity and with functional interconnection (CEC, 1999). This definition is problematic on at least two accounts.

First is the ambiguity of the terms 'proximity' and what is considered to be a 'reasonable' commuting distance. For Blumenfeld, who introduced the concept of *modern metropolis*<sup>ii</sup>, the reasonable travelling time from the outskirts to the centre had to be no "more than forty minutes" (Blumenfeld, 1971:61-2). For Geddes, the rule of thumb for convenient commuting distance was an hour (Geddes, 1915). It appears that most commentators on PUR have used the latter as the maximum centre-to-centre distance with the exception of Batten (1995) who argues for the lower limit of half an hour, so that travel between any two points in each city takes no more than an hour. But, as Bailey and Turok (2001) argue, this tougher limit would disqualify most groups of major cities in north-west Europe which have been given the status of PUR. So, it is clear that there remains a multiplicity of views on what constitutes a 'comfortable commuting time'.

Furthermore, if distance between centres is measured by temporal dimension, the relevance of spatial or geographical dimension in defining PUR will become redundant as faster modes of transportation and better linkages are introduced. Thus, the faster people can travel, the farther they can commute within the 'one-hour rule'. This will lead to an outward expansion of the boundaries of PUR which in turn will demand an upward shift in the spatial scale of analysis, i.e. to a bird's eye view of regional structures at a mega level. Such a 'wide-angle' observation of north west Europe coupled with a desire to move the Randstad's constituent cities up the league tables have already invoked the Dutch National Planning Agency to promote the concept of a '*metropolitan macro region*' which consists of three PURs: the Central Netherlands Urban Ring (of which Randstad forms a part), the Flemish Diamond and the Rhine-Ruhr Area (Dieleman and Faludi, 1998).

The second question is the level of interaction' or 'interdependency' between the centres and the criteria and thresholds for its measurement. The most commonly used criterion is the labour market flows based on journey-to-work statistics. This is the criterion that has also been extensively used for identifying functional urban regions (OECD, 2002:11). However, the use of labour market flows as a sole indicator of functional interrelationships has been questioned by a number of researchers. They argue that, in order to capture the functional relationships of PUR, the non-work trip-generation activities and the flows of resources and information should also be incorporated in the analyses, despite the difficulty of measuring them (Gordon and Richardson, 1998; Coombes and Wymer, 2001).

Even when labour market flows are justified as an adequate measure of interdependencies, there seems to be a lack of strong evidence to support a high level of interaction in some of the most frequently cited examples of PUR such as the Randstad and the Flemish Diamond. The former, has been questioned by Lambooy who, based on "an analysis of commuter areas", argues that "as yet there is not strong evidence that the Randstad area may be considered as one city region" (Lambooy, 1998: 461) and the area is merely a "geographical image on the map" rather than a functional and economic reality (op cit: 457). Instead, he identifies a growing divide between the north wing (Amsterdam, Utrecht and Delft) and the south wing (Rotterdam, The Hague, Dordrecht) of Randstad in terms of economic structure and growth rates. These findings are confirmed by Kloosterman and Lambregts (2001). They looked at the changes in the sectoral composition of the business start-ups in the constituent cities of Randstad in

order to find out whether the area can be seen as a relevant scale for the formation of economic clusters. Their findings indicate that cluster formation is more pronounced at the supra-urban level than in the Randstad as a whole. As a result, the north wing is ahead of the south wing in terms of the formation of new firms in the dynamic sectors such as communication and media.

### **3. The inter-regional scale**

The desire to conceptualise the expanding scale of urban growth has led to several other concepts amongst which three have been particularly persistent. The first one is the concept of *megalopolis* coined by Gottman in 1957 to define 600 miles of a whole group of contiguous SMSAs in the east coast of America, running from Boston in the north to Washington in the South, taking in New York and Philadelphia. He stated that the origin of this megalopolis "resulted from the coalescence of a chain of metropolitan areas, each of which grew around a substantial urban nucleus" (Gottmann, 1957:189).

Gottmann's conceptualisation of megalopolis served to distinguish the difference between the distinct, separate and clearly bounded towns and cities of the earlier time and the far larger, more discontinuous and interrelated urban systems of the future. Many commentators criticised the concept. Friedmann and Miller (1965), for example, stated that the concept lacked precision and generality and was often misapplied. In their own attempt to incorporate metropolitan areas and inter-metropolitan peripheries into a unified schema, they invented a second concept, that of *urban field*, seen as "a mosaic of different forms and micro-environments which co-exist within a common communications framework" (Friedmann and Miller, 1965:317). They concluded that urban field represents "... A new scale of urban living that will extend far beyond existing metropolitan cores and penetrate deeply into the periphery" (op cit: 313).

In Europe, Doxiadis went even further in his prediction of the future urban expansion stating that by the middle of the 21<sup>st</sup> Century, we will be living in *Ecumenopolis*, or world city comprising of interconnected settlements across the world, forming a continuous system which covers the whole of inhabitable earth (Doxiadis, 1968: 217). Although this third concept has not been taken more seriously than a poetic vision, given the advances of the new telecommunication technologies and global economic market, the time-space dimension is indeed shrinking (Musterd and van Zelm, 2001).

Some thirty years on, these concepts are still being used to describe the sprawling urban areas in Europe. For instance, Dieleman and Faludi (1998:374) use the term "polynucleated urban field" to describe the growing decentralisation of activities in three PURs (Randstad, Flemish Diamond and Rhine-Ruhr) in north west Europe (and in particular at the fringes of the Randstad as documented by Priemus and Lambooy, 1998), and their development into one "metropolitan macro region".

However, the size of these European examples becomes dwarfed when compared with the urban growth patterns in East Asia. Here, the Beijing-Seoul-Tokyo (BESETO) 'urban corridor' transcends national boundaries encompassing five mega-cities (Beijing, Tianjin, Seoul, Tokyo- Yokohama and Osaka-Kobe) with a total population of 98 million inhabiting in 112 cities stretching, almost contiguously, along a 1500 kilometre strip of densely populated land within a maximum air travelling time of one and half hours (Choe, 1998). In the context of East Asia, the concept of urban corridors which has been used interchangeably with 'megalopolis' and 'extended metropolitan region' (Ginsburg et al, 1991) characterises large areas that are "absorbing an increasing proportion of their countries' population and economic growth" (Choe, 1998:159).

### **3.1 Polycentricity as a spatial planning strategy**

In Europe, this mega level of conceptualisation has been given a new salience following a series of studies by the European Commission in the 1990s beginning with *Europe 2000+* (CEC, 1994) which referred to the notion of socio-spatial polycentricity (Jensen and Richardson, 2001). The latest in the series is ESDP which introduced the concept of polycentricity at the level of Europe as a whole. In May 1999, after ten years of intensive discussions amongst what Faludi (1997) calls 'the roving band of planners' from various member states, the final version of the ESDP was published. This marked a new chapter in the attempts to provide an integrated spatial development strategy for the EU territory. A major concern of the ESDP is "to reconcile the social and economic claims for spatial development with the area's ecological and cultural functions and hence contribute to a sustainable, and balanced territorial development" (ESDP, 1999:10). One of the cornerstones of its 'policy options' for achieving this three-fold objective is the promotion of polycentric development. Despite this, the concept of polycentricity is one of the least clear concepts used in the ESDP. This lack of clarity is likely as result of the unique processes of inter-governmental

compromises, negotiations and consensus seeking through which the document has been produced (Faludi and Waterhout, 2002).

ESDP refers to patterns of spatial concentration and dispersal with reference to various cascading spatial scales ranging from European (inter-regional), through territorial (intra-regional) to individual urban agglomeration (intra-urban) scales.

Moreover, the ESDP uses the notion of polycentricity in such a way that is fundamentally different from what has, so far, been discussed in this paper, in that it moves away from the analytical utility of the concept towards its normative values. Reflecting on this shift, the remaining part of this section also moves away from a conceptual focus to an analytical one. It will firstly, elaborate the ESDP's interpretation of Polycentricity; and secondly, highlight a number of issues regarding the promotion of polycentricity as a 'policy option'.

### **3.2 Regional disparities**

Underlining the ESDP's promotion of a Europe-wide polycentric development is the EU's central aim of enhancing its economic competitiveness in the world market. Although the EU is one of the largest and economically strongest regions in the world, it still suffers from major regional disparities. 50% of the EU's GDP is produced in 20% of its area accommodating 40% of its population. This area, in the centre of Europe, is referred to in the ESDP as a "pentagon defined by the metropolises of London, Paris, Milan, Munich and Hamburg". It is considered as the only "zone of global economic integration" in Europe. The lack of other such zones is seen as a disadvantage for the future economic competitiveness of Europe when compared with other major trading blocks such as the USA. (ESDP, 1999, para.68). Creating new areas of economic strength capable of competing globally is therefore seen as a necessity for the future growth of the European economy. This is despite the increasing environmental and social problems that the core region of Europe is presently facing (Jensen and Richardson, 2001).

In addition to this underpinning economic agenda is the EU's growing concern for social cohesion. In the Southern border of the EU as well as in the new Lander in Germany, the GDP per capita stands at about 50-65% of the EU average. The northern periphery of the EU in places such as the Northern Finland and north of the UK show a similar situation (ESDP, 1999, para.10). Although the gap between the economic power of prosperous and poor regions of Europe is declining slightly<sup>iii</sup>, the regional disparities have remained persistently high. Measured in

GDP per capita, the disparities in the EU are twice as high as in the US, and measured in employment rate, they are three times higher than the US (Amin and Tomaney, 1995). Moreover, the gaps are set to grow even greater following the forthcoming enlargement of the EU.

These uneven developments have been captured by a multitude of imaginative metaphors. Although these metaphors are often underpinned by over-simplified assumptions (Dematteis, 2000), they provide a strong, long lasting and sometimes misleading effect on people's perception of reality. The most dominant metaphor is the representation of the European territory based on the core/periphery dichotomy where a prosperous, economically dynamic core zone stands in contrast to an under-developed, geographically remote periphery. The core has been variously defined as the 'European Megalopolis', the 'Blue Banana' (Brunet, 1989), the 'Golden Triangle' (Cheshire and Hay, 1989) and the 'pentagon' (ESDP, 1999). The core/periphery model has been criticised for its over-simplification of a complex and changing reality, and for failing to acknowledge that there are pockets of deprivation within the core and pockets of development within the periphery (DETR, 2000; Copus, 2001). It is this polarised image of the European territory and its associated economic and demographic reality that the ESDP aims to challenge by promoting a more balanced, and hence polycentric, development across Europe. Or in other words, by promoting a more pluralistic image of Europe which looks more like a 'bunch of grapes' (Kunzmann and Wegener, 1991). However, as Kratke (2001:110) argues, "developing additional world economic zones outside the core area of the EU would appear unrealistic in the light of the existing imbalances in the European urban and regional system".

At this level, the concept of polycentricity is used not to explain or analyse an existing or emerging phenomenon, but as a guiding principle for achieving two arguably conflicting goals of: on the one hand, making the EU's economy more competitive in the world market; and on the other hand, reshaping its map of regional growth and decline into a more socially and spatially cohesive form. Whilst this seems as an attractive response to regional disparities in Europe, as Copus (2001:548) points out, it is not without its "weaknesses and pitfalls". Indeed, this agenda can be challenged on a number of accounts as outlined below:

- Is a balanced regional development achievable within the framework of current EU policies?



- If not, what can cities and regions do to remain or to become competitive?
- Do PURs provide a better chance for cities in peripheral regions to become economically more competitive?
- If so, can policy intervention transform a number of neighbouring cities into a genuine PUR?

The remaining part of this section will further elaborate on these questions.

### **3.3 Is a win-win situation achievable?**

It is now widely acknowledged that the ways in which the geographies of uneven development is constructed on the world stage are increasingly shaped by the processes of globalisation as well as the growing significance of local differentiation. It is ironic that as capital is becoming ever more stretched out and mobile, it is the place-specific qualities that are becoming the defining factors in its search for profitable production sites. In Europe, the patterns of territorially uneven development have been further influenced by the activities of the EU that on the one hand encourage globalisation and on the other hand resist it. This dual role is clearly reflected in tensions between its industrial policy which promotes globally competitive companies and its regional policy which seeks social and spatial equity (Amin and Tomaney, 1995). For example, as Hudson (1997: 469) argues, "the opening up of eastern Europe to capital exacerbated social-spatial differentiation within the east, while doing little to narrow the gaps between east and west". Others point out that the dominant EU policy agenda of economic integration through Single European Market (SEM) and European Monetary Union (EMU) will in medium term exacerbate regional disparities, as growth tends to concentrate in already prosperous areas with no automatic 'trickle-down' of economic benefits to declining regions (Baddeley et al, 1998).

Some commentators have gone further to suggest that there is a fundamental incompatibility between the two policy objectives of economic and social cohesion in the way that progress towards economic competitiveness through market integration may lead to a slow down of progress towards or even divergence from social cohesion (Mayes, 1995; Perrons, 1999). The twin aims are even more difficult to reconcile in a period of low growth, economic restructuring and modernisation (Hudson, 1999). The following extract from the draft (Noordwijk) version of the ESDP warns against the potential casualties of European market integration process by stating that:

"The central common issue (here) is that circumstances call for towns and cities to adopt to a new dynamism for developing their potential, that

competition for mobile investment between cities is tougher; that not every town or city will find its new situation as advantageous as the old; and, that the European territory is not a level playing field" (ESDP, 1997: 21).

This suggests that the future territorial map of Europe is likely to remain one of uneven development rather than a balanced one aspired by the ESDP. Moreover, as Hudson (1997) points out, the core regions are likely to hold on to their position of economic domination at the cost of a 'grim future' for the periphery. Thus, there will remain to be 'winners' and 'losers' and, hence, a legitimate desire for policy makers to secure a position in the 'winning camp' for their constituency in a socially and spatially divided Europe. This leads to the second point raised above:

### **3.4 What kind of policy interventions can facilitate the positioning of cities and regions in the 'winning camp'?**

Traditionally, the commitment of national states to a geographically balanced growth was accompanied by a regional policy aimed at developing the industrial base of peripheral regions by providing them with financial assistance and appropriate infrastructure often through re-direction of resources from the prosperous areas. Policy measures such as these which formed part of the post war Keynesian and social democratic orthodoxy, have now been either abandoned or curtailed (Harding, 1997). The emphasis has shifted from subsidizing footloose industry to move around towards encouraging regional specialism that can help firms to compete in global markets (see Zonneveld, 2000, for detailed analysis of this shift in the Netherlands). The ESDP echoes this shift in policy direction by clearly rejecting the policy options which aim to deflect economic activities from the core to the periphery. It emphasises that the development of the poor periphery is not to be achieved through outflows of resources from the affluent core (Davoudi, 2000). Despite this change of emphasis in policy measures, the rhetoric of geographically 'balanced' development has remained dominant in both the ESDP and EU policy discourses. And, this is to be achieved by the use of spatial development strategies aimed at promoting polycentricity particularly at the inter-urban level, i.e. the promotion of polycentric urban regions across Europe. Here, the ESDP uses polycentricity as a guiding principle for strategic planning aimed at promoting multiple growth zones. It suggests that, "the economic potential of all regions of the EU can only be utilised through further development of a more polycentric European settlement structure". "A network of internationally accessible metropolitan regions and their linked hinterland", rather

than a single dominant urban centre, is seen as “an essential prerequisite for the balanced and sustainable development of the local entities and regions” (ESDP, 1999, para 67, 70 & 71).

It is clear that the ESDP takes a normative approach to the concept of polycentricity, advocating it as a preferred pattern of spatial structure and as a chief guiding principle for achieving regionally balanced development across the EU. It also calls for directing the Structural Funds, particularly in the current Objective 1 areas, towards the development of a polycentric development model (ESDP, 1999, 21). This leads to a third question. Is promoting PUR (understood as a specific spatial structure) an effective mechanism for increasing the chance of European regions to remain or to become competitive? In other words,

### **3.5 Is PUR a panacea for economic competitiveness?**

There is an implicit (and in the case of ESDP, explicit) assumption that the development of a PUR is the answer to regional disparities. For example, the regional government of the Basque Country has pursued the establishment of a ‘Basque polycentric system of capitals’ since 1990 as a way of reviving Bilbao’s position in Europe. However, this vigorous and systematic attempt to project a polycentric image of the area has not brought with it a considerable degree of functional integration. And, despite the relative economic success of the area’s major urban regions (such as Bilbao and San Sebastian), which has probably much to do with EU regional grants rather than the pursuit of a PUR image, the rest of the region has continued to suffer from industrial decline (van Houtum and Legendijk, 2001). Evidence from other existing PURs, as mentioned earlier, is also patchy and incoherent and lacks a robust empirical base that shows a direct relationship between economic competitiveness of an area and its specific spatial structure in the form of PUR. Furthermore, the often-quoted success stories, even when loosely defined, are invariably located in north west Europe and can hardly be considered as peripheral regions. For them the concept of PUR has offered a way of addressing their primary agenda which is the management of ‘too much’ growth. For most peripheral regions, however, the main challenge is to encourage growth (Bailey and Turok, 2001).

Notwithstanding these, even if it is taken for granted that PURs are generally performing more effectively than regions with other spatial structures (although alternatives are little discussed in the literature) and that they provide smaller cities and towns with a better chance to compete more effectively in the world

market, there remains another thorny issue -one related to the role of policy intervention-; is it possible to pick up any neighbouring cities and transform them into a genuine PUR, bearing in mind that central to the definition of PUR is functional interrelationships? In other words,

### **3.6 Can a PUR be planned for?**

It has already been established that physical proximity between cities does not necessarily lead to functional complementarity. Nor does the creation of a larger entity from a group of smaller cities leads to competitive advantage. This is illustrated in the case of the Basque Country where despite the relative proximity of its three constituent cities (Bilbao, San Sebastian and Vitoria), a strong cultural identity and even the existence of a regional government which proactively pursues a PUR image for the area, the functional interactions remain limited (van Houtum and Lagendijk, 2001). Another example of an area that displays the physical characteristics of polycentric urban regions but fails to show strong signs of economic integration and common cultural identity is Central Scotland. In their study of the area, Bailey and Turok (2001) conclude that the evidence for treating the area as a fully integrated single region is weak despite that fact that development has spread along an east-west corridor dominated by well-connected cities of Glasgow and Edinburgh<sup>iv</sup>. Thus, without the economic underpinning a PUR will simply represent a group of neighbouring cities of more or less similar size and economic weight, rather than a functionally integrated region. What then can be done to encourage functional integration in such neighbouring cities?

Using the discourse of business competition and the role of clustering and networking in the economic competitiveness of firms, the ESDP along with several other European, national and regional policy documents argue that cities and regions can become equally successful if only they develop associational structures in their social relationships. The ESDP states that, "in smaller towns in less densely settled and economically weaker regions, co-operation between urban centres to develop functional complementarity may be the only possibility for achieving viable markets and maintaining economic institutions and services" (ESDP, 1999: para: 76). It also emphasises that, " a pre-requisite [therefore] is the voluntary nature of the co-operation and the equal rights of the partners (op cit, para. 74). Other proponents of the PUR argue that by encouraging interaction between neighbouring cities and towns and by pooling together and sharing labour market and infrastructure facilities amongst them, economic innovation

will be enhanced and functional synergies will be created (Priemus, 1994; Albrechts, 1998, Batten, 1995). This is a plausible aspiration, yet the difficulties of implementing it should not be underestimated because:

Firstly, as many commentators have shown, such regions are economically weak precisely because of a lack of associational structures (Hudson, 1997). Hence, it is difficult to envisage how this vicious circle can be broken up without long term external assistance and investment in building up institutional capital and effective governance relations. Associational structures or 'institutional thickness', as Amin and Thrift (1995) call them, are the outcome of historical processes and constitute not only an established network of institutions but also informal conventions, routines and habits which are embedded in the locality and sustained over time. Building up such relations is particularly difficult in regions with historically and politically *separate* cities (according to the conventional definition of PURs) with no single administrative authority responsible for the whole of area and, perhaps more importantly, no shared place-based identity amongst the partners. Creating political harmonisation in the form of a PUR-wide authority has proved difficult even in areas such as Ruhr with a well-established tradition of institutional partnerships. As, van Houtum and Lagendijk (2001) show, "strong local attachment and inter city rivalry have reduced the potential to strengthen institutional capacity at the Ruhr level" (p.760).

Secondly, it is also difficult to see how socially regressive effects which are likely to arise during the process of building associational structure can be avoided. These include, for example, inter-regional zero-sum competitions or the dominance of powerful economic interests in setting out the regional economic trajectory and the exclusion of the weaker social partners (Hudson, 1997). Such tendencies have already been noted by a number of researchers. For example, in his account of Flemish Diamond, Albrechts (1998) points out that, in order to construct an identity for the PUR, the policy makers exaggerated the competition between Flemish Diamond ('us') and other regions ('them') as a way of creating solidarity amongst the social partners. Harding (1997) argues that contrary to the rhetoric of EU policy for creating a level playing field, some national governments have moved to policies which systematically favour some urban centres over others. For example, changes in Danish and Dutch national spatial planning policies in the early 1990s have led to singling out of Copenhagen and the Randstad as economic growth areas upon which the international competition of

the two countries depend. As a result, these areas have enjoyed increased level of resources through bending of certain expenditure decisions (op cit).

The points raised above do not intend to dismiss the EU's efforts in promoting cross-boundary co-operations, but to flag out that such co-operations, particularly in the regions with fragile economies and weak institutional structures, are unlikely to emerge voluntarily and without a considerable, long term external assistance.

As mentioned earlier, another policy intervention, with a prominent position in the ESDP, for the promotion of PUR is through the field of spatial planning. In fact, there seems to be an over-reliance on the role of spatial and physical planning in the development of functional interrelationships. However, as Priemus (1994) argues the significance of spatial planning in generating such interdependencies should not be overestimated and at best should be limited to a facilitating role. Focusing on the patterns of population distribution, an important dimension of a PUR, Bontje (2001) shows the limited impact of spatial planning, as compared with economic, demographic and socio-cultural processes, on combating urban sprawl. Such impact will be further curtailed if the scope of planning remains limited to land use and physical matters. Whilst the introduction of the ESDP has been welcomed as a move away from a narrow, land-use base definition of planning toward a more integrative and spatially oriented definition, it is still possible to trace the reminiscence of a physical approach to planning in the ESDP's, when it comes to promotion of the PURs. The legacy of the EU's traditional policies of 'road-building' shows through, for example, when the ESDP suggests that, "the future expansion of Trans-European Networks should be based on a polycentric development model... Spatial differences in the EU cannot be reduced without a fundamental improvement of transport infrastructure" (ESDP, 1999, para. 111). Similar emphasis on the role of 'trunk roads', 'corridors' and 'axes' can be found in other policy documents which are either promoting or depicting an image of PUR (van Houtum and Lagendijk, 2001). This raises doubts about whether the ESDP's aspiration for polycentricity is embedded in an understanding of, and addressing, what Copus (2001) calls 'aspatial peripherality', or in the traditional notion of 'peripherality' based on geographical remoteness from the core. Similar doubts are raised by Bailey and Turok (2001:700) who suggest that, "an uncharitable interpretation of the PUR concept might be that it is a means of justifying traditional policies and spending priorities using new language". Hence, if planning is to play a role in facilitating functional

interrelationships between neighbouring cities, it is vital that the ESDP's general call for *spatial planning* is not crowded out by the noises coming from the traditional focus on *land use zoning*. Furthermore, such a spatial planning approach is more likely to be effective if it is socially embedded in the dynamics of individual places (Albrechts (2001). One which resists the one-size-fits-all models and instead develop the kind of spatial structures that are tailored-made to individual localities and maximisation of their potential.

## **Conclusions**

The aim of this paper was to unravel the ambiguities surrounding multiple interpretations of the notion of polycentricity by reviewing how the concept has been used to define urban growth patterns at different spatial scales. These include intra-urban scale or the level individual city, inter-urban scale or the regional level, and inter-regional scale focusing on the level of EU as whole. At this latter scale, particular emphasis was placed on the conceptualisation of polycentricity within the European spatial planning in general and the ESDP in particular.

The notion of polycentricity entered the vocabulary of urban researchers to mark a departure from the monocentric model which had remained the dominant depiction of urban structure for at least two decades after World War Two. Its use was first developed at intra-urban scale to enable a better understanding of the dynamic urban spatial structures which were no longer following the ideal nineteenth century city with its compact production core surrounded by an apron of residential units concentrated around transport axis (Anas, et al, 1998). The late twentieth century's city was characterised by decentralisation of economic activities, increased mobility, complex cross-commuting and fragmented spatial distribution of activities. More importantly, it was witnessing the changing economic relationships between and within firms with increasing significance of economies of agglomeration and clustering of activities in shaping the patterns of spatial development. Whilst the conceptualisation of these new dynamics has led to a widespread recognition that the contemporary urban systems present complex and multi-nodal structures, the exact nature of this polycentric system has been subject to multiple interpretations. Furthermore, the research has remained inconclusive about the distinction between a polycentric city, defined as a city surrounded by an organised system of sub-centres, and a dispersed city, defined as a city with an apparently unorganised urban sprawl. Meanwhile, as studies on polycentricity have focused on patterns of 'concentrated

decentralisation', other researchers have pointed out to an almost reverse pattern of re-centralisation in a number of European and American cities.

Thus, the first conclusion which can be drawn from this review is that, although polycentric models have provided a more sophisticated analytical tool for explaining the spatial structure of the contemporary cities, they seem to have been beleaguered by the speed and complexity of the shifting patterns of urban growth which are displaying signs of, on the one hand, generalised dispersion and on the other hand, re-centralisation.

Whilst some may argue that the concept of polycentricity is reaching the end of its useful time as an analytical tool for explaining patterns of urban development at *intra-urban* scale, its development at *inter-urban* scale has only just begun. Despite the fact that references to the notion of polycentricity can be traced back to the 1930s, its conceptualisation at inter-urban level is still at early stages of development. However, despite a lack of consolidated literature and limited empirical research, its usage is gathering momentum particularly in the context of the European spatial planning. Here, polycentricity is used to refer to polycentric urban region (PUR) defined as a region with historically and politically separate cities in reasonable proximity and with a high degree of functional interdependencies, demonstrated in what has become the archetypical example of PUR: Randstad in Holland.

The second conclusion from this account is that there is a lack of common understanding of the definition of PUR in relation to: firstly what constitutes a 'reasonable proximity'; and secondly, how functional interdependencies are to be measured. As regards the latter, the emphasis is to move beyond the simple criteria of labour market flows and to incorporate other indicators of interconnection such as business links, flows of resources, goods and information. However, despite these definitional ambiguities the concept of polycentricity is increasingly shaping the policy discourse of a growing number of European and national spatial planning documents, notably the ESDP.

As discussed in the third section of this paper, the ESDP's interpretation of polycentricity at pan-European level has not only added a new spatial scale (the inter-regional) to the use of the concept, it has also marked a shift in its utility from being predominantly analytical to being normative. ESDP promotes polycentricity as a way of overcoming the core-periphery image of Europe and



achieving two, often, conflicting policy goals of: firstly, making the EU economically more competitive in the global market; and secondly, making it a more socially and spatially cohesive and equitable place. This paper has challenged some of the assumptions that underpin this agenda, and raised a number of questions regarding its practical application within spatial planning framework. The conclusions from these analyses are as follows:

Firstly, advocating a win-win situation between policies targeting the competitiveness and those promoting socially balanced development is at best naïve and at worst misleading. The interplay of globalisation processes with place-specific qualities that are developed historically and culturally over a long period of time is the determining factor in the economic fortunes of the cities. And, as long as these qualities differ, as they do in Europe and elsewhere, the outcome is likely to be a continuing uneven development of European territory. However, at any points in time and space these dynamics bring with them new sources of both threats and opportunities. Policy interventions aimed at maximising the competitive advantage of cities and regions are capable of reducing the threats and capturing the opportunities. Traditionally, such policy interventions were predominantly based on subsidizing the footloose industry to locate in declining regions. Such measures are gradually fading away. Instead, policy makers are encouraged by, for example, the ESDP to adopt a different approach, one that focuses on a spatial development strategy whose key guiding principle is the promotion of the PUR. This paper has shown that the existing empirical evidence from frequently cited PURs is patchy and inconclusive in supporting the effectiveness of such a strategy. Hence, the second conclusion from this account is that in the absence of theoretical vigour and empirical evidence, it would be misleading to promote the development of PUR (understood as a specific model of spatial structure rather than a political agenda for collaboration) as a panacea to economic competitiveness.

Even if we accept the common sense argument that a PUR provides a better chance for smaller cities in peripheral regions to compete globally, it is not proven that providing spatial linkages between a group of neighbouring cities will necessarily lead to functional interdependencies, and it is the latter which is central to the definition and effectiveness of a 'genuine' PUR. So, the third conclusion of this paper is that in the absence of internal economic dynamics and a high degree of functional complementarities between the centres, a PUR will be no more than a group of geographically proximate and physically linked cities.

Fourth, the role of spatial planning - in its broader strategic and integrative sense- in the development of a polycentric pattern of urban growth remains to be a facilitating rather than a determining one. For the PUR to become a reality - i.e. to demonstrate a high degree of functional interdependencies- other long term policy measures, particularly those focused at strengthening the linkages between firms and building the local institutional capacities have to be in place, too.

Finally, for policy intervention to be effective, the emphasis should be on understanding and working with the internal dynamics of places in order to enhance the place-based qualities of cities and regions as determining factors in their competitive advantage. This raises a cautious note against adopting the PUR, or indeed any other model, as a one-size-fits-all model of spatial development.

As regards the concept of polycentricity in general, two concluding remarks are worth mentioning. The first point is about the ambiguity of the concept particularly when it is applied to inter-urban scale, as discussed earlier. This can be considered as both weakness and strength. It is a weakness because it exposes the concept to multiple interpretations, making it possible to be used for different purposes by different people. This lack of clarity and common understanding devoid the concept from meaning and undermines its effective application. However, the current vagueness surrounding the notion of polycentricity can, at the same time, be considered as its strength. In the same way as the 'wooliness' of the notion of sustainability has facilitated its universal political acceptance, the ambiguity surrounding the notion of polycentricity has also led to its wide-spread usage within the European spatial planning community. The concept provokes a 'positive' image, yet one which can be shaped and re-shaped to serve any given purposes. As van Houtum and Legendijk (2001:765) point out, "in many cases the map and the pencil seem to decide the shape of the PURs ... The present popularity of the term is apparently the hidden expression of a more basic need - that is, the need for the image of urban structure, in order to have a conceptual basis for organising network-based strategies for urban development in a world dominated by issues of competitiveness".

The second point, which is partly related to the above, is that polycentricity seems to be following a destiny similar to that of many other concepts that have

come before it (see Keller, 1971:594 on megalopolis). They often start as a tentative notion, a provisional working model. But, all too swiftly, they become hardened into an *idée fixe*. Instead of using the concept as an aid to describe an emerging reality, it is coming to determine that reality. This transformation from a descriptive and analytical tool to a prescriptive and normative agenda may not be problematic in itself, provided that polycentricity is promoted and perceived as one model of spatial development amongst many. This, however, is increasingly not the case. The ESDP's promotion of polycentric urban development as one of its 'policy options' have already led to its incorporation in both the Structural Funds Programmes for Objective 1 and 2 areas and the Community Initiative INTERREG III. Hence, polycentricity now appears to be cropping up everywhere as an 'ideal type' regional spatial structure, despite a lack of common definition and empirical evidence about its desirability, effectiveness, or the potential for its alleged success being replicated elsewhere by policy intervention.

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<sup>i</sup> This means population growth rates rise outward from the centre of the metropolis in concentric circular rings until the crest of the wave moves reached whereupon they subside. Over time the crest of the wave moves outwards, leaving behind rings of declining growth rates (see Wolf, 1969)

<sup>ii</sup> A concentration of at least 500,000 people living within one area

<sup>iii</sup> In 1986 the GDP per capita of the 25 richest regions was 2.7 times larger than that of 25 poorest ones. 10 years later, this figure reduced only by 0.3 making the GDP per capita of the former regions 2.4 times larger than the latter ones (ESDP, 1999, para 11).

<sup>iv</sup> Central Scotland may also be defined as a bi-polar region dominated by Glasgow and Ednburgh.