

Fundamentals of “Polycentricity” and “Polycentric Development”

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Abstract: *The paper presents the concepts of Polycentricity and polycentric development and explores the arguments whether they are useful in devising spatial plans/ strategies. Firstly, it brings the concept of Polycentricity and how is it perceived at intra-urban, inter-urban and inter-regional scales. Further, it also presents the concepts of polycentric development and polycentric urban regions. Lastly, this paper explains how these concepts are useful in reducing regional disparities with a special focus on spatial development plans.*

Keywords: Spatial planning, Urban and regional planning, Polycentricity, Polycentric development, Urban scales

1. Polycentricity

Polycentricity was very much in use in explaining spatial structure of cities and studies of urban sociologists since 20th century. Later, very soon it became a jargon and key concept amongst urban planners and policy-makers in developing their spatial development plans and strategies. For instance, the ESDP (European Spatial Development Perspective) is the one based on the concepts of Polycentricity (Davoudi, 2003). Despite its popularity, the concept of Polycentricity is uncertain. It is a strategic spatial planning tool for urban planners in explaining the changes of spatial structure of cities and for economic and human geographers it is the concept that explains socio-economic policy goals aimed at balanced regional development.

1.1. Concepts of Polycentricity

Though it is ambiguous, the concept of Polycentricity can broadly be classified as morphological and functional Polycentricity. The former is defined as static description of urban organization according to hierarchy of the cities (rank-size rule) and illustrate the patterns of spatial distribution of all the cities. The latter is defined as the functional description of cities and regions according to set of specialized functions of that region. For instance, coastal and mountain regions can be categorized into regions those generate economy through tourism. Alternatively, the latter is also defined as economic inter-relationships between different regions i.e. inter-flow of labor, capital, services, etc between different regions (Vandermotten et al., 2008).

Polycentricity, as a concept, is different for different spatial scales in explaining the spatial patterns and structures of cities and regions. The intra-urban patterns explain the livelihoods and economic activities at meso level, the inter-urban patterns explain the multiple economic centers at macro level, and intra-European scale it explains the core-periphery concepts at macro level in spatial policy framework of ESDP (ESDP, 1999; Davoudi, 2003). This complex nature of interpretations of Polycentricity is the reflection of nature of spatial patterns

of cities and regions representing almost all aspects of socio-economic life (Kloosterman et al., 2001).

Over many years, growth of cities was prominently outwards the city centers, precisely known as urban sprawl. The growth also takes place in the vertical direction, i.e. development of high rise and increase of density. These trends of urban development forms and growth patterns increased the relationship between different growth areas, thus led to the origination of models such as mono-centric spatial pattern model and polycentric pattern model.

1.2. Polycentricity at Intra-urban scale

The cities were no longer a single centered rather became the places of poly-nucleus urban structures (Thomas, 1973). The new term ‘multi-nuclei’ was evolved to describe the spatial structure of the city having multiple centers (italics added) (Harris and Ullman, 1945). The cities are moving towards rapid decentralization of economic activities, high levels of accessibility and connectivity, new modes of transportation and alterations in household structure and lifestyles. And the most significant reason for this rapid change of urban structure was change in the distributional patterns of employment and in particular decentralization of economic activities (Scott, 1988). Many economists argue that this spatial distribution patterns are resultant of some externalities known as centripetal forces such as building up of local markets to attract more labor and centrifugal forces such as moving away from the congested core area of cities and rise of land and labor costs (Davoudi, 2003). These are the forces that lead to clustering of activities in polycentric patterns. Further, explaining the urban spatial structure as a result of market forces, economists argue that the cities still continue the tendency of urban sprawl with decentralization of employment and population in a polycentric form. They also claim that these new concentrated centers act as sub-centers to already existing central business district; sometimes these sub-centers cater the needs of central business district. And these sub-centers shoot-up primarily at nodes of transport networks so that they are well accessed to wider range of population (Davoudi, 2003). This kind of spatial pattern will definitely

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result in poly-centric sub-centers but show difference in the patterns of Polycentricity.

The patterns of Polycentricity can be of either an organized system of sub-centers or unorganized patterns of urban sprawl. And the variation in the patterns depends on type of economic activities that take place within the sub-center, employment scale and density levels. On the other hand, the interaction levels between employment scale and densities also reflect upon the patterns of Polycentricity. This criterion is well explained by the trip-generation between them (Gordon et al., 1996). But again, this depends on the type of economic activity that primarily influences the sub-center. For instance, a commercial mall in a sub-center will significantly influence the surrounding land-use and transportation when compared with an IT park, even though the later generate more jobs. Using the same phenomenon Los Angeles, which is primarily the place of multiple sub-centers, can much more accurately described as dispersed or unorganized pattern of urban sprawl rather organized system of sub-centers or polycentric pattern (Gordon et al., 1996). This shows that the Polycentric model will no longer be a sophisticated analytical tool of describing generalized dispersion urban patterns; this is because of the complexity of the changes in spatial structure of the cities over a time period.

Conflicting the concept of Polycentricity that explain the trends of decentralization of urban growth, census data of 1990 show that there is a curb in the decentralization trends in European cities i.e. large cities turned into medium sized cities. There was drastic increase in the core area population in many north European cities (Cheshire, 1995). The people who can with stand the high living conditions were able to move to the core area of cities and the people economically disadvantaged continue to decentralize. The increasing concerns about the environmental issues led to decrease in long distance travel, usage of car or personalized vehicles. And at the same time increasing interests on urbanism and many government-led urban policies that were framed to make jobs available within less commuting distances (Cheshire, 1995).

1.3. Polycentricity at Inter-urban scale

The concept of Polycentricity at inter-urban scale was first developed by Fawcett describing about the formation of aggregates and conurbations. These are formed due to simultaneous expansions or urban sprawl of different neighboring towns partially at the same pace of development, at some stage reaches a practical coalescence into one continuous urban area. Now, this whole region together will have multiple nuclei or can be referred to polycentric patterns. The notion of Polycentricity at inter-urban scale is that polycentric urban region characterized by separate and distinct cities or smaller settlements which interact with each other to a significant extent (Fawcett, 1932; Davoudi, 2003). For instance, the European region that shows the similar tendency of Polycentric development was Randstad in the Netherlands (Priemus, 1998).

1.4. Polycentricity at Inter-regional scale

The concept of Polycentricity at inter-regional scale resulted from the coalescence of series of metropolitan regions. This concept distinguishes the difference between the distinct, separate and clearly bounded urban towns and cities of the earlier times and the far larger, more discontinuous and interrelated urban systems in future (Gottmann, 1957). Further, the concept of Polycentricity may also be applied to all the world cities or urban places comprising of interconnected settlements, forming a continuous system which covers the whole of inhabitants of earth (Doxiadis, 1968 cited in Davoudi, 2003). For instance, poly-nucleated urban field was used to describe the growing decentralization of activities in three regions, namely Randstad, Flemish Diamond, and Rhine-Ruhr in north-west Europe.

2. Polycentric Development

Cities are centers of economic activities and places of economy generation. They also play an important role in social and cultural life. But disparities and imbalanced developments arise over a period of time of development within those regional places. Thus, the concept of Polycentric Development aims at increasing the connectivity between numbers of places forming a network. This concept achieves overall regional developments in terms of economy, services, and facilities and at the same time decrease regional disparities. The inter-connection between these places can be increased not only through transportation; it could be information technology, exchange of labor, or co-operations that enhances the integration and development. The notion of polycentric development is also aiming to increase the managing capacity of growth of cities; interrelationships and connectivity (Glasson et al., 2007; Tatzberger, 2008).

2.1. Concept of Polycentric Development

The concept of polycentric development is the most potential concept which focuses on development of potential cities within the region, treats the cities as the system of networks which are inter-connected with specific functional elements, and tries to catalyze the existing potential areas in the region to sustain the other areas. Furthermore, the concept of polycentric development has significant importance at different geographical scales.

This includes the elements of polarization theory and growth pole theory. The former explains unequal and diverging developments in terms of economy of different scales that lead to developments in fewer cities. The market mechanisms which play a vital role in economic developments of the regions are key elements of economic development differences among cities leading to regional differences. And formulation of national policy interventions and development of infrastructure facilities and services, in economically backward regions would add up to the locational advantage of those areas to increase the polycentric and balanced development. On the other hand, the growth pole theory which

was mainly to do with development of industrial areas which only prosper with spatial connection to other areas (Tatzberger, 2008). Their growth pole cities are the where there is high concentration of economic activities and variety of functions. Thus, the growth passes on to the adjacent regions which are spatially and functionally interrelated to the parent city.

The EU (European Union) is one of the most prominent and economically significant regions of the world, but it still suffers from economically weaker regions or places in the territorial and to some extent in the core areas. There seems to be significant regional imbalances among the European region. The European Spatial Development Perspective (ESDP) adopts the same concept of Polycentricity and polycentric development or otherwise known as decentralization of concentration, focusing on encouraging the significant growth in less economically developed regions rather redistribute completely (ESDP, 1999; Tatzberger, 2008). The only aim of polycentric development is to disperse the economic development from congested areas and to re-concentrate it in other areas using the concept of Polycentricity as a policy objective.

2.2. Polycentric Urban Region

This is defined as a region with two or more historically and politically separated cities within a reasonable proximity and functional interconnections. Further, strengthening the definition of polycentric urban region, the reasonable proximity or reasonable community distance is the distance-travel-time of an hour between the two centers. And, the most commonly used criterion for functional interconnections is the labor market flow between different centers of economic activities. But, if we consider the city or people moving with faster modes of transportation, people can travel much longer distances in one-hour. This leads to the outwards spatial expansion of the limits of the region. And in case of functionality, it would be not only the labor market flow, they would be other non-work trip generation (Davoudi, 2003). But, the level of interaction between within and different regions (globally) are increasing at greater pace and not restricted only to physical limits with tremendous growth of technology.

2.3. Polycentricity as a Spatial Planning strategy

The initial vision of conceptualization of Polycentricity referred only to socio-spatial patterns of Europe but later, referred to entire European region, with the introduction of concept of Polycentricity in ESDP. The main objective of ESDP was to achieve sustainable development with socio-economic spatial development giving significance to ecological and cultural functions of the regions, thus reflecting upon Polycentric development (ESDP, 1999). The European spatial planning strategies reflects upon interregional, intra-terrestrial and also at intra-urban scales of urban patterns. But, the process of inter-governmental compromises and negotiations doesn't reflect upon the concepts of

Polycentricity. The ESDP, on the whole is more likely to do with analytical framework rather than conceptual, in terms of promotion of Polycentricity.

The zone of global economic integration region lies in the core of European region, also known as Pentagon (London, Paris, Milan, Munich, Hamburg) region, but the remaining regions remained as economically disadvantaged regions. This show the regional disparities among European region, which require developing new areas of economic centers which thus improves the economic competitiveness by promoting Polycentricity in policy framework (ESDP, 1999). According to ESDP (1999), the only developments that take place would be at geographically remote areas. But there are many economically backward regions both in core and periphery areas (DETR, 2000). These regional disparities can only be overcome with development of core economic centers in underdeveloped regions. Thus, this gives a spatial vision of group of core economic centers all over Europe, which looks more likely as a bunch of grapes (Kunzmann et al., 1991).

In this context, the concept of Polycentricity acted as a guiding principle to challenge the regional disparities (ESDP, 1999). Thus, these principles included making Europe's economy competitive and reshaping the regional growth and decline into a more socially and spatially cohesive. The other causes for regional disparities those should be acknowledged were globalization and significant local differentiation.

Traditionally, the geographical imbalanced growth was addressed by regional policy aimed at developing industrial base at peripheral regions, with the support of economically prosperous areas. The flow of resources was from affluent areas to economically backward regions (Davoudi, 2003). Despite, these changes in the policy framework, there are no improvements in reducing the regional imbalances and thus, these issues remained as key areas of concerns in ESDP.

Thus, these regional disparities can only be lowered with the use of spatial development strategies aimed at promoting Polycentricity particularly at the inter-urban level i.e. development of polycentric urban regions across Europe. The concept of Polycentricity was the guiding principle in ESDP for strategic planning aimed at promoting multiple growth centers. The more the growth centers, the high is the balanced development of all the regions of Europe (Davoudi, 2003). But, promotion of polycentric urban regions is not the only solution to economic competitiveness and regional imbalances, and empirical evidence show that these are ineffective strategies. Further, there is no proof of any of the polycentric urban regions provide linkage between different neighborhoods those depend functionally. Along with the development of polycentric urban regions, there should be a strong focus on strengthening local institutional capacities to achieve functional interdependencies. There should also be some sound understanding of the local dynamics of the area to improve the conditions of the cities (Davoudi, 2003).

2.4. Concept of Polycentric Development in ESDP

The concept of Polycentric Development was first emerged in ESDP and this was considered to be the key concept of spatial development in European region. The objectives of ESDP is to develop a balanced economic and social cohesion, management of natural resources and cultural heritage, balanced competitiveness of European regions, thus reflecting upon the base concept of polycentric development to achieve these objectives. To achieve these objectives, the policies were framed focused on promotion of spatial integration, co-operation within networks of towns and cities, improvement in inter-links between international/ national networks and also at regional/ local networks. These policies those aimed at polycentric and sustainable development were combined with development of strategic role of global cities and gateway cities. This primarily aims at improving the inter-relations and networks between cities and towns of the region (ESDP, 1999; Tatzberger, 2008). Thus, in response to increasing gaps in competitiveness among the cities of European region, increase in the economic efficiency and unequal territorial opportunities, the concept of Polycentric development was considered in the policy framework. This concept primarily aims at increasing the functionality of different cities at different levels i.e. targeting at division of labor between cities and regions through polycentric development. This also identifies the importance of cities and towns as the potential points for regional developments, with regard to networks and co-operation activities. Thus, these act as the places for the generation of new opportunities and possibilities for a region.

3. Conclusions

The concept of Polycentricity seems to be weak because of multiple interpretations; lacking the clarity and common understanding devoid the concept from meaning and undermines its effective implementations. Comparing with the notion of sustainability which attained the acceptance from universal politics, the ambiguity around the notion of Polycentricity would also be of wide-usage. The concept of Polycentricity seems to more or less a provisional working model, similar to that of megalopolis. The practical implementation of concept of Polycentricity in ESDP as development of polycentric urban regions reflects upon the perspective and normative nature. This also shows that this concept as an ideal regional spatial structure model, despite a lack of proper definition and empirical evidences about its desirability, effectiveness, or the potentiality for the successful usage in terms of policy intervention.

Thus, we can conclude that the concept of Polycentricity in policy frameworks in developing polycentric development through establishing polycentric urban regions are very useful in aiming at developing more spatial balances in terms of reducing the regional imbalances, improve the global competition and global economy of the regions, increasing the connectivity between different cities by developing the networks, counterbalancing the overpopulation in some

regions and prevents the disorderly growth and urbanization at different scales.

References

- [1] Cheshire, P., C. (1995). A New Phase of urban Development in Western Europe? The Evidence for the 1980s. *Urban Studies*. 32. pp. 1045-1063.
- [2] Davoudi, S. (2003). Polycentricity in European Spatial Planning: From an Analytical Tool to a Normative Agenda. *European Planning Studies*. 11(8). pp. 979-999.
- [3] Department of the Environment, Transport and the Region (DETR). (2000). *European Spatial Planning and Urban-Rural Relationships: The UK Dimension*. London: DETR.
- [4] Doxadis, C. (1968) *Ekistics*. London: Hutchinson. Cited in Davoudi, S. (2003). Polycentricity in European Spatial Planning: From an Analytical Tool to a Normative Agenda. *European Planning Studies*. 11(8). pp. 979-999.
- [5] ESDP. (1999). *European Spatial Development Perspective, Towards Balanced and Sustainable Development of the Territory of the EU*. Luxembourg: CEC.
- [6] Fawcett, C., B. (1932). Distribution of the Urban Population of Great Britain. *Geographical Journal*. 79. pp. 100-113.
- [7] Glasson, J. and Marshall, T. (2007). *Regional Planning*. Oxfordshire: Routledge.
- [8] Gordon, P. and Richardson, H, W. (1996). Beyond Polycentricity: The Dispersed Metropolis, Los Angeles, 1970-1990. *Journal of the American Planning Association*. 62(3). Summer. pp.289-294.
- [9] Gottmann, J. (1957). Megalopolis—or the Urbanisation of the Northeastern Seaboard, *Economic Geography*. 33(3).
- [10] Harris, C. and Ullman, E. (1945). *The Nature of Cities, Annals of the American Academy of Political and Social Sciences*. 242.
- [11] Kloosterman, R.,C. and Musterd, S. (2001). The Polycentric Urban Region: Towards a Research Agenda. *Urban Studies*. 38(4). pp. 623-633.
- [12] KUNZMANN, K.R. and WEGENER, M. (1991). The Pattern of Urbanisation in Western Europe, *Ekistics* 350, September, pp. 282–291.
- [13] Scott, A., J. (1988). *Metropolis: From the Division of Labor to Urban Form*. Berkeley. CA: University of California Press.
- [14] Tatzberger, G. (2008). *A Global Economic Integration Zone in Central Europe? Vienna – Bratislava – Győr as a Laboratory for EU Territorial Cohesion Policy*. Norderstedt: BOD.
- [15] Thomas, R. (1973). The Separation of Home and Workplace, in Davoudi, S. (2003). Polycentricity in European Spatial Planning: From an Analytical Tool to a Normative Agenda. *European Planning Studies*. 11(8).
- [16] Preimus, H. (1998). The Randstad and the Central Netherlands Urban Ring: Planner Waver between Two Concepts. *European Planning Studies*. 6. pp.443-466.
- [17] Vandermotten, C. Halbert, L. Roelands, M. and Cornut, P. (2008). European Planning and the Polycentric Consensus: Wishful Thinking? *Regional Studies*. 42(8). pp. 1205-1217.