



Urban networks versus urban hierarchies?

Denise Pumain

► To cite this version:

Denise Pumain. Urban networks versus urban hierarchies?. Environment and Planning A, 1992, 10, pp.1377-1380. halshs-01625339

HAL Id: halshs-01625339

<https://shs.hal.science/halshs-01625339>

Submitted on 27 Oct 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Urban networks versus urban hierarchies ?

Denise Pumain

(Professor, Department of Geography, Université Paris I and
Institut National d'Etudes Démographiques)

European agencies and national governments are more and more concerned by the possible increase of disequilibria in the quality and intensity of land use in various parts of the European territory (CEE, 1991). One aspect of this problem is the spatial distribution of urbanization. It is obviously hoped that the "counterurbanization" trends of the previous period, which were stabilizing (Champion, 1989), will prevail again: "ainsi, les années quatre-vingt-dix laissent présager la possibilité d'un système urbain plus équilibré dans l'ensemble de la Communauté" (CEE, 1991, p. 20).

Experts are called to tell the truth about the future of urban systems. They try to find a new theory for the spatial organization of urban settlements. Many of them come to an agreement about the obsolescence of a Christallerian central place pattern, since its essential justification has disappeared. As more than 80% of the population is now urban, the typical regular triangular lattice that intended to convey services of various ranges as close as possible to a rural population is no longer the main incentive to the optimal organization of size and spacing of urban settlements.

Several experts find Löschian landscapes more appealing. They emphasize the need for very precise urban specializations, following marketing principles. The model is the one of a firm with a significant share of the market or a dominant position upon the market of a specific product. As a consequence, the city whose activity would occupy a market gap would get through its connections with its clients and competitors at the international level. From a long term perspective, this view may be criticized, since it forgets about the risks which are associated to such dedication of urban activity to a single support (Camagni, 1989).

The same experts underline that, as modern communication

means give a better accessibility to many places, centrality can be demultiplicated. There is no need to maintain an hierarchical structure, but instead urban functions of any level could be located almost anywhere. New specializations, even of international importance, could appear without reference to the ranking of cities in a hierarchy of sizes (the success of rather small cities like Zurich or Geneva in activities of international level is often quoted as example).

G. Dematteis (1991) and C. Emanuel (1990) have shown that in northern Italy, the urban functions were no longer organized after the nested hierarchical pattern as predicted by central place theory, but on the contrary tend to develop relationships on the basis of complementarity. They have suggested that urban systems could modify their structure into networks of cities which would replace the traditional hierarchical organization. The viability of non-hierarchical organization of urban functions has often been deduced from those empirical observations. However, G. Dematteis (1991) acknowledges that this network structure is observed within a functional polycentric urban region, whereas the hierarchic principle remains at a higher geographical scale.

The idea of "urban networks", as alternative models to urban hierarchies, has however become fashionable. There are set of cities where relationships are supposed to be a-hierarchical, and where cooperation efforts tend to replace competition in order to develop complementary activities. Under the expression of "city network", two different facts can actually be found: - clubs of cities having similar situations from some point of view; they share experience and informations but they are generally not located in the same region, more often they involve cities of several countries (Bonneville et al., 1992). As many as twenty of such networks are already supported by the EEC; - neighbouring towns and cities of the same region trying to develop cooperation for the attraction of economic activities of the building of infrastructures. For instance, a dozen of such more or less spontaneous associations are helped in France by the DATAR.

It seems often to be admitted that such trends will develop and that they will lead to the progressive replacement of the hierarchized structure of urban systems by another form

of organization, called "network". Letting apart the fact that, within graph theory, hierarchy is nothing else than a special type of network, a few remarks can be made about such an assumption.

The success of the network idea in the theoretical thinking about urban systems is probably partly linked to a contamination of the connotations which are associated to the notions of network and hierarchy in the organization of firms or of institutions (Dupuy, 1992). The network is more efficient because it is flexible, its communication structure is more adaptable to rapid change, it is socially less constraining and more desirable, whereas the hierarchy is rigid, it conveys social inequality and authority. A network instead a hierarchical organization of urban systems would mean therefore a larger efficiency and a greater adaptability of the system to the accelerated speed of urban change.

This reasoning lets unsolved at least two important questions. First, the validity of the analogy between the organization of firms and of territorial systems should be discussed at length. Second, such views tend to forget the dynamic dimension of urban systems. They consider that an urban system should reflect in its organization the structure which is made possible from the current conditions of the spatial division of labour. But urban systems are not the expression of any momentaneous equilibrium which would be oriented towards the optimization of some function. They are the products of an historical evolution. They result from a very long term process of concentration of population. In the course of time, the persistency and the reinforcement of the hierarchical organization of urban systems was mainly due to three elements of their dynamics: an agglomeration principle for activities and population; relations of competitiveness between cities; and space-time contraction effects (Guérin-Pace, Pumain, 1990). A complete change in the hierarchical organization of urban systems would imply that those trends no longer exist.

The concentration principle appears nowadays to be partly released. The big metropolises are criticized for the undesirable effects of large population concentrations. Preferences seem to be oriented toward smaller cities, closer contacts with "natural" environments, and less

congested and polluted areas. Even if deconcentration trends are effective, some observations show however that the agglomeration principle is still active. For instance, at the European level, the economic power of decision is still highly concentrated in the largest capitals and there is no sign of its probable diffusion (Rozenblat, 1992).

Despite a few counteractive trends, the competitiveness is still a major driving force of city development. Local forms of cooperation between towns and cities may correspond only to the acknowledgment of an enlargement of the spatial scope of everyday life with the increasing speed of communications, which makes obsolete the traditional petty local quarrels and suggest to replace at this scale rivalry by cooperation. The contrary evolution is shown by all the contemporary studies of the internationalization process. The opening of economical and political boundaries and the developments of new international relationships contributes to the formation of a system of cities at the European level. The largest cities which have more infrastructures and services for this level of exchanges are the first to benefit of this "innovation". In this process, the upper levels of national urban hierarchies are reinforced.

Geographers like Janelle or Juillard have shown since a long time the effects of the "space-time contraction" due to the increasing speed of communications upon the spatial organization. Urban hierarchies are "simplified by below" by a decrease in the relative importance of the smallest urban units, whose sphere of influence is short-circuited by the extension of the spatial range of the largest. Such a process is still in action under the building of new infrastructures of rapid transportation means (Cattan, 1992).

The main processes which govern the evolution of urban systems and which are responsible for the main features of their spatial structure have not deeply changed. This means that a strong political concern and heavy financial interventions would be necessary if the general territorial organization of the European urban system was to be modified. Simulations of the evolution of the configuration of urban systems by dynamic models show the extreme stability of their hierarchical organization and scenarios using such models could help to evaluate the important

movements of population which would be necessary to modify their population configuration (Sanders, 1992). Whereas urban networks may be encouraged at the local level to improve urban living conditions, it seems highly improbable, under current trends, that this type of spatial organization will shape the urban system at the level of the whole European territory.

References

Bonneville M. Buisson M.A. Commerçon N. Rousier N. 1992, Villes européennes et internationalisation. Lyon, CNRS, Programme Rhône-Alpes, Recherches en Sciences Humaines.

Camagni R. 1989, Economia urbana. Roma, La Nuova Italia Scientifica.

Cattan N. 1992, La mise en réseau des grandes villes européennes. Université Paris I, thèse de doctorat.

CEE (Direction générale des politiques régionales) 1991, Europe 2000. Les perspectives de développement du territoire communautaire. Luxembourg, Office des publications officielles des Communautés européennes, 208 p.

Champion A. G. 1989, Counterurbanization. London, Arnold.

Dematteis G. 1991, Sistemi locali nucleari e sistemi a rete, in Bertuglia C.S. La Bella A. (a cura di), I Sistemi Urbani, Milano, Franco Angeli, vol. 1, 417-439.

Dupuy G. 1992, L'urbanisme et les réseaux. Paris, A. Colin.

Emanuel C. 1990, L'organizzazione reticolare intermetropolitana, in Curti F. Diappi L. (a cura), Gerarchie e reti di città: tendenze e politiche, Milano, Angeli, 155-172.

Guérin-Pace F. Pumain D. 1990, 150 ans de croissance urbaine. Economie et Statistique,
Rozenblat C. 1991, Le réseau des entreprises multinationales dans le réseau des villes européennes. Université Paris I,

thèse de doctorat.

Sanders L. 1992, Systèmes de villes et synergétique. Paris, Economica.