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ON THE LIMITS OF SOCIAL ECOLOGICAL EXPLANATIONS IN COMPARATIVE RESEARCH

INTRODUCTION

IN COMPARATIVE research as elsewhere the important word is research. The "comparative" part just indicates one way of doing the research. It may be that the complexity of the world and the forever changing conjunctures of history put out of reach anything but incomplete and fragmented webs of understanding. But the goal is with us: to unravel and master the forces shaping us and our societies. We want to build a model of the world which will help mankind become master of its destiny.

One thread in this web is labeled social ecological theory. Every so often our separate small projects run across this one. Sometimes we even make it an anchor for directing our own threads of reasoning. But do we really know it? Do we know its strength or its weak parts?

The central problem of social ecological theory is to understand how a population organizes itself in adapting to a constantly changing yet restricting environment. The "ecological complex" (Duncan 1959) of population, organization, technology and environment are the main variables used in the studies of growth and development of social systems. A social ecological

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explanation in comparative research will thus be concerned with the variation in the interrelations among the variables of the ecological complex. Differences in development are then explained by differences in the interrelations of variables in the complex. What are the limits of such explanations?

Before we go into this problem a note on what is meant by "Limits" seem in order. Usually, limits may not be overstepped without suffering some kind of sanctions. The limits of scientific explanations are no exception to this. At best the theory will not support out statements, at worst we are talking nonsense. But from that it does not follow that we shall take care to stay within the limits posed by the present theory. Theories are there for us to work on so that our explanations stay within the limits of the theory and yet are explanations of the phenomena of interest.

Social ecological theory as it stands today (Hawley 1971, Berry & Kasarda 1977) encounters limits to its explanatory power at several points. But the way to treat these limits is not to resign from the effort to explain, but to rework the theory, to reinforce or replace its weak parts so that the present limits may be overcome, circumvented or moved further away.

If this is taken to be the aim, we still have the problem of identifying exactly what and where the limits of social ecological theory are. One well-tried way of finding such limits is to overstep them. Not having done much of that, I shall comment on some of the more established limits.

Limits due to data

Comparative research will today sooner or later—usually sooner—run into problems of obtaining comparable data. The standard way of treating this problem is to do something else, Some face the problem squarely and organize efforts to produce comparable data. A third way which should not be overlooked is to use theoretical models to bridge the gaps where data are missing. The study of factorial ecology will for instance point to the possibility of multiple ways of defining indexes of ecological structure (Hamm 1978) and maybe lists of equivalent

indicators which in specific circumstances may substitute for each other.

Another possibility is to use models to compute a desired item, if information linked to it by theory is available. Demographic research may here provide examples (Keyfitz 1977).

Limits due to the choice of unit of analysis

The choice of unit of analysis must be done with regard to the problems one wants to investigate and according to the theory as it is established. What then is the appropriate unit for the study of urban development within social ecological theory?

To take for granted that it is the city, the urban area or the metropolitan region or some variation of this possibility is exactly what urban research usually has done. But what is "development", exactly what is this urban entity which "develops" and how does it "develop"? Is the city to be likened with a self-contained rational actor which develops in the same sense a human develops? Or is it more to be compared with the development of a natural ecological system? In other words, is the unit of analysis a non-actor systems* or an actor-system? Social ecological theoy does not indicate that this is a theoretical problem whose solution impose limits on the possible explanation. Exactly the same problem is encountered in cross-national research on development.

A central concept of the social ecological theory of development is "ecological expansion". Hawley (1950) and Duncan (1964) discuss societal evolution in a way indicating they think of industrial civilization as the unit which develops. But in Hawley (1979) the unit which develops is just referred to as a societal system. Shevky & Bell (1955) discuss development with reference to a concept of increasing scale of a society. For them, as for most of the students of development during the fifthies and sixthies, the natural unit for the study of development seemed to be the nation-state. But what kind of unit is a nation-state? A state is clearly an actor with certain responsibilities for a society. A nation is usually thought to be a

*A system is always composed of actors. An actor system is a system so organized that the system as a whole may be called an actor.

populaion with a common culture. It is clearly a non-actor system. Only rarely will one find coincidence of the boundaries of responsibility for a state and the boundaries of a culture.

The various processes generating what we call development, must in social systems have actors as executing agents. So what is it that generates the development of nation-state? Is it the activities of the individual actors of a culture or the activities of the system of state-actors? Posed this way the answer is obviously that they both affect the development of the nation-state. But until Wallerstein (1974; see also Wallerstein 1979, 1980; Chirot 1977 and Breiger 1981) published his investigation into the dynamic of the world system of states and large scale business enterprises, the implications for sociological theory of the marxist critique of mainstream theories of development seemed mostly unnoticed or ignored. Since then the problems of multilevel systems with different kinds of actors have cropped up everywhere. In order to contribute to the understanding of the development of different soical systems also social ecological theory must expand its scope to include multiple levels, different kinds of actors and systems, as well as specifications of how effects can be traced across levels, across system boundaries and how these effects are related to different types of actors. A beginning might be to recognize that social ecological theory as it stands today applies only to non-actor systems where there is no single actor or coalition of actors with any responsibility for the system as a whole (like states have responsibility for the society within their boundaries). This at least seems to be one possible interpretation of Hawley's (1979) speculations on the utility of an evolution model for the explanation of cumulative change.

In order to attack the problems connected with the duality of state and society (or nation) or at another level the duality of incorporated city and metropolitan region, the population and organization variables need to be refined by distinguishing among a population of human actors, a population of system responsible actors and a population of other incorporated actors (other than system responsible). The organization variable must differentiate between the organization of non-actor systems and

the organization of actor systems. Both for non-actor systems and for actor systems of the various types of populations there will be levels of systems. Each hierarchy of levels can be summarized as follows:

Type of system organization / Type of population	Non-actor systems of		
	System responsible actors	Organization actors	Human actors
Level			
Environment	World systems -of states -of cultures -of multinationals	Society	Society
Units of analysis	Society	Market	Social network
Agents of internal processes of the unit of analysis	All actors which are legitimate members of the society	All actors which are able to participate	Human actors

Type of system organization / Type of population	Non-actor systems of		
	System responsible actors	Organization actors	Human actors
Level			
Environment	World systems -of states -of cultures -of multinational	World systems -of states -of cultures -of multinational	Society
Unit of analysis	State	Multi-national organizations	Organization
Agents of internal processes of the unit of analysis	Local system responsible actors and elected representatives from other populations	Member organizations	Human actors

If we from here return to the problem of doing comparative research on urban development, the problem must be restates as having to do with how technology and environment determine the parameters shaping the internal spatial distribution of the member actors of a society and their acivities. From an applied points of view the most interesting aspect lies in the possible degrees of freedom the system responsible actors of a society (the state, the cities and municipalities) have for influencing the internal spatial distribution of actors given the externally determined parameters. The appropriate unit for doing applied comparative urban research would then be societies where variations in externally determined parameters might be used as controls in the assessment of the efficiency of various efforts of system responsible actors to influence the characteristics of the urban regions within their societies.

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