Contextual Effects and Their Quantitative Analysis

By Tapani Valkonen

This article is the summary report of a series of six studies dealing with the relations of collective and individual variables and contextual analysis. A list of the studies is presented on page 1. Three of them are methodological and three empirical analyses of contextual effects.

A contextual effect is said to exist, if a variable characterizing collectivities affects a variable characterizing individuals or other members of the collectivities. The effect may be direct or indirect. In the latter case the collective variable affects the relation between two individual level variables.

Two methodological problems of contextual analysis are studied in the main part of the article. One of them concerns the ways in which collectivities may influence their members. The other deals with the technique of analysing the effects with survey data.

In earlier classifications of contextual effects the criteria of classification have mainly been formal and based on the structure of the statistical model representing the effect. In the following classification the main purpose is to find and understand the various causal mechanisms that lead to contextual effects.

1. *The contagion effect* is based on the personal interaction of individuals. The simplest result of this interaction is the diffusion of information. A more interesting type of contagion effect results from what is called personal influence. In this case not only information, but also attitudes and modes of behavior are transferred from individual to individual. Social psychological theories explain the exact mechanisms of these processes.

2. *The effects of group cultures* are based on the assumption that collectivities have properties describing their norms and value systems. These norms and values characterize a collectivity as a whole and the members are assumed to orient themselves according to them even against their own value orientation. Several studies seem to indicate, however, that effects often interpreted as the results of system-wide properties are in fact based on interpersonal influence and no system-wide properties are needed in explaining them.

3. *The effects of global properties of collectivities.* It is easy to see that various global properties of collectivities influence the behavior and attitudes of individuals. One type of such properties are the opportunities collectivities

offer their members. The use of social, educational or recreational services, for example, depends on their availability. Another type of relevant global properties are restrictions influencing the behavior of individuals in the form of laws and other officially maintained norms. A third type of global properties influencing individuals characterize the activities of the leadership or center of information of the collectivity.

4. *Dissonance effects.* If the attitudes or behavior of an individual differ from the attitudes or norms dominant in his social environment, the individual is likely to feel unsatisfied and may leave the environment or try to change it. There are several other ways in which the individual and collective properties may be inconsistent. The study of the effects of this dissonance is important. It may lead to an understanding of conflicts and change in collectivities. Dissonance effects are also related to theories of status crystallization and rank disequilibration.

The main problem in the quantitative analysis of contextual effects is the separation of the effects of collective and individual variables. It has been shown earlier that simple comparisons of means or percentages often lead to spurious effects. This can be avoided by means of correlational techniques. Another reason for the use of correlational techniques is the requirement that in assessing the direct effect of a contextual variable on a dependent variable, several individual level independent variables have to be controlled. The best way to do this seems to be the use of causal models such as path analysis.

If the dependent variable is not quantitative but a classification, such as party preference, discriminant analysis can be used in a way analogous to the use of regression analysis. Linear causal models cannot be used in the ordinary way, if the contextual variable is hypothesized to influence the relationship between individual level variables.

An important means of checking the validity of the results of contextual analysis is the explicit use of variables measuring the manner and intensity of the exposure of individuals to the influence of the environment. These kind of variables, called »mapping variables» by *Stinchcombe,* are also essential in determining the mechanisms and channels through which the properties of collectivities affect individuals.

The collectivities usually differ from each other in several respects and it is difficult to know what the specific collective property is that causes an observed contextual effect. Factor analysis can be used to find relatively independent dimensions of contextual variables. A more general way to cope with the difficulty is to include several contextual variables in the analysis and to take them into account explicitly in causal models if necessary. If only a few collectivities are used in analysis this is not possible. As a general strategy it seems advisable to avoid designs with only a few contexts, even when these are considered to be »typical» in some way. The small number of contexts may sometimes be partly compensated for by the use of several mapping variables.

The methodological and empirical study of contextual effects is relevant to the development of the principles of ecological analysis. The problems of ecological studies usually concern the effect of the properties of spatially delineated social units on individual behavior although the data on individuals are not available.

Participation of Members of the Finnish Parliament in Roll-call Voting

By Tuomo Martikainen

This study investigates the participation of the members of the Finnish parliament in roll-call voting. The data was collected from the roll-calls of the 1967 session of parliament. Each roll-call was examined to determine which members participated in the voting and which did not and in addition, whether the absence of the member was »permitted» or »not-permitted». The absence of the member was considered »permitted», if the member was absent from the voice-vote and the final vote. If, on the other hand, the representative had been present during the voice-vote, but absent from the final vote, the absence was viewed as »not-permitted».

The data was analyzed using factor-analysis. Two factors were obtained, which were called »not-permitted absence» and »regular-seasonal absence». Then, the exact location of each of the representatives in each of the two factor categories was determined. The two factors obtained were dichotomized and each of the representatives was placed into one of the cells of a fourfold table.

An attempt was then made to statistically explain the absences by relating them to background variables, in particular, age and education. But these independent variables did not adequately explain the absence. Because of that, at least two interpretations may be offered. One may conclude that the reasons for absence were so diverse that simple explanation based on an explanatory model is not possible. On the other hand, one may think that within the body of data there are highly differentiated groups displaying quite different patterns of behavior. It was hypothesized according to this principle that belonging to some parliamentary group -to a »group climate»- has a greater effect on behavior than individual properties.

The typology outlined by *Erik Allardt* -with the dimensions 'division of labor' and 'pressure towards uniformity'- was used in postulating the effects of the group climate and as a point of departure for a theoretical justification for rather rough hypotheses. The party groups analyzed in the study were placed into this typology and an attempt was made to determine and operatinalize the basic dimensions according to the criteria presented by Allardt. After that the effect of theoretically different age groups and levels of education on absence were empirically tested using the simple three-variable causal model presented by Hayward *Alker*. The results supported the hypothesis about the effects of the assumed group climates. This conclusion was further reinforced by a regression analysis of the more essential background variables affecting absence.

It should also be noted in conclusion that the purpose of the study was not so much to accurately identify the factors affecting the absence of the representatives, but rather to test the adaptation of different research techniques to this type of analysis. One of the new features was, among other things, the study of contextual effects with the aid of the above mentioned three-variable causal model outlined by Alker.

Political Modernization: A Comparison of Some Theoretical Frameworks

By H a n n u N u r m i

The sample of frameworks chosen for examination consists of frameworks constructed by Gabriel *Almond,* David *Apter,* S. N. *Eisenstadt,* Daniel *Lerner* and Lucian *Pye.* In this article the main features of each framework are first described and some of the critique is also repeated in the same context. The examination reveals that the frameworks differ rather widely from each other, perhaps because the writers have clearly different conceptions concerning the most important sub-phenomena of political modernization, or perhaps the differences can be found in the emphasis laid on certain social structures and institutions.

In the second part of the article the author compares the frameworks with each other according to the criteria suggested by Ilkka *Heiskanen.* The criteria used here are: pragmatic and informative value, aggregate levels, the style of observation and the strategy used in explanation. Using three of these criteria — namely pragmatic value, informative value and style of observation — a typology model is constructed according to the suggestion made by Paavo *Hoikka* and Iikko B. *Voipio.* In constructing the model, each framework is located along these three dimensions (the method of location is completely subjective and therefore rather dubious). Thereafter the distances between the frameworks are calculated in the three-dimensional space determined by the model. Based on this study Apter, Lerner and Eisenstadt are grouped together to form a hypothetico- dynamic framework type. The type consisting of the frameworks of Almond and Pye can be called analytico-descriptive.