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Printed in Japan

ISBN 92-808-0152-x
ISSN 0379-5764

HSDRGPID-38/UNUP-152

**FOCUS PROBLEMS LATENT IN THE
CONSTRUCTION AND USE OF
SOCIAL-ECONOMIC INDICATORS**

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The present paper by Hugo Zemelman and his colleagues at El Colegio de México was first presented at the Meeting on Indicators, Oslo 17-19 October 1980.

Geneva, November 1980

Johan Galtung

It is being circulated in a pre-publication form to elicit comments from readers and generate dialogue on the subject at this stage of the research.

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I. INTRODUCTION

The problematics involved in the construction and application of social-economic indicators includes aspects which, despite having a close relationship among themselves, retain a certain degree of specific identity. There are those which refer to theoretical-methodological questions, necessarily incorporated into certain theories that offer explanations of social change: development theories, theories concerning the structure of the nuclear periphery, theories on underdevelopment or qualitative concepts of social change; and there are others that are more closely linked to technical-operative questions, oriented toward a search for the functional potential of the indicator or group of indicators.

To a certain degree, the technical aspect of the social-economic indicator has been preferred as it shows an operative capacity (quantification), as well as the possibility of using it to formulate simple or complex statistical constructions through its functional relationship with other indicators. This can be done, however, only with a considerable degree of abstraction of the suppositions latent in the formulation of indicators, particularly those referring to an understanding of the dynamics of social relativity.

Let us rephrase these ideas to provide an example. For this purpose, we shall use an indicator frequently applied to studies on agricultural production: fertilizer.

In principle, we recognize that this indicator is "operative" in the sense that it can be measured; we can speak of kilograms of fertilizer per hectare. Even when it is employed to ascertain not only the

quantity used but also the manner in which it is used, although the possibility of measurement may be complicated (given the qualitative nature involved) the problem could be solved by constructing a typology of models that can be translated into numerical terms. Nevertheless, for us the problem of indicators surpasses their mere technical capacity for enunciating and measuring quantitative or qualitative elements of reality. It resides, rather, in the capability of indicators to reconstruct the dynamics of social reality; in other words, the key to the problem of social-economic indicators resides in their very construction. To our way of thinking, this process consists of two main phases: the first refers to the adaptation of the indicator in order that it may reconstruct social reality, and this must include some of the methodological and theoretical aspects that make up the material we are limiting ourselves to studying here; while the second refers to the statistical-operative solution that is often considered excessively independent of the former, not being considered as conditioned by the solution applied at the outset.

Aware of this problem, let us review some of the possibilities inherent in the use of the fertilizer indicator, as well as the thoughts that may evolve concerning its capacity to reconstruct the complexity of social reality. To this end, we accept an understanding of reality as an articulated whole, which signifies an assumption that phenomena — no matter how unusual or how specific they may appear — are the contradictory units within multiple processes and must be understood as the result of a complex of linkages that refer to the complex of relations which are necessary and objective and which define it, at the same time helping us to reconstruct social reality. We shall try to let this position guide the example presented.

If we consider the indicator "fertilizer" separately from other elements of the specific reality we propose to explain, we can easily assume that the use of fertilizer indicates an increase in agricultural productivity. It would then be possible to receive the reply that would depend on the type of soil, the crop in question, etc.

Let us accept this reply and complicate the chosen indicator, relating it to another complex of indicators of the type mentioned: the crop in question, irrigation, the quality of the soil, financing available, land ownership, proper use of land, agricultural machinery, crop rotation, etc. Now the panorama becomes more complex and may induce us to the following type of interpretation: given this complex of variants, the use of fertilizer increases agricultural yield. On the other hand, the affirmation could be completed by a demonstration that the indicators were arbitrarily chosen, and, even more, that a farm specialist would be able to explain that the relation soil-crop-water-fertilizer responds to the interrelationship of the chemical processes that they generate; or an economist could point out to us the relationship between availability of financing and the use of fertilizer. And, to all this, we could respond that they are right, although their reasoning still forms a relative and arbitrary part of the whole. Why? Because the fact or facts chosen may or may not take into account the specific quality of the concrete reality within which they exist, and may ignore the complex of necessary relations that an apparently economic indicator may have in the political, cultural, institutional, or psycho-social order. And this would lead to a type of lineal or fragmentary interpretation of reality that states that whenever A, B, C, and D exist, they produce H or I.

Now, let us include the same fact — fertilizer — but analyse the overall situation from a focus that qualifies it as a single element of a reality produced by the articulation of diverse economic, political, cultural, and psycho-social processes, adding that, as a single element of the total complex which is society, it would point out or serve as an indicator of a level of real articulation. We are not establishing beforehand a picture of the possible relations among factors in a statistical or theoretical manner but rather, on a basis of established premises, proceeding to reconstruct the complex that the fact suggests. We are basing our thought on a real situation: the introduction of chemical fertilizer at the Ayotla ranch in the state of Puebla. We will consider various elements that support the specific articulation of the different processes, as well as a complex of constructions that

will show the different trends that a social fact tends to produce, the solution of certain problems, and the upsurge of new contradictions.

1. There existed an association of agricultural financing within the settlement to attend to the needs of a few small farmers. With the introduction of fertilizers, and given the possibilities that this group possessed of buying on credit, the least favoured of the farmers formed a nucleus around the association. The association retailed the fertilizer obtained on credit, either for each or in instalments at a given rate of interest, which provided a profit that benefited the sector of former members. In this way, it began to become a power group in the area, or an element that weakened to a certain degree the power, up to that time uncontested, of the local cacique, or "big boss."

2. In order to avoid this speculation, a group of farmers, those who could buy for cash, began to unite to purchase their fertilizer at a neighbouring village. Not only was the connection with the market established with reference to the purchase of fertilizer at a lower price, but the farmers began to buy their groceries at the same time. Thus the business of the storekeepers of the original village was damaged, since they were unable to equal the low prices of the larger stores.

3. Although the use of fertilizer spread with facility, the technical conditions for its use were not observed. The majority of the farmers spread it around their crops when the plants were some two feet high, rather than mixing it with the soil when the seeds were planted and before the rains came. It could be said that the problem consisted in the lack of specialized advice. However, there existed in the zone a group of extension agents from the Ministry of Agriculture and Water Resources who offered permanent and good consultant services, but who did not take into account the cultural peculiarities of the area inhabitants. When the local farmers referred to fertilizer, they spoke of it as a remedy or medicine for plants. Within their view of reality — and one should bear in mind that there was no habit imbued in them to meet a new experience — they repeated or identified similar

situations, and thus, as with a patient, they offered no cure until the latent disease became apparent. They had no experience with health problems that consisted in preventing disease, and, similarly, if fertilizer was to be used in order that plants develop, it was more logical that it be applied when the said crop was developing fully than when the earth contained no more than simple seed. The relationship earth-plant-water-fertilizer was understood in a simplified manner as a plant-fertilizer relation.

4. There was an office of the Ministry of Agriculture and Water Resources in the village to make soil analyses and recommend the proper fertilizers. This agency offered free service, and access was facilitated to anyone in the area. However, only a few farmers used it, and their number did not increase. It was discovered that soil analysis invariably ended in a recommendation for the use of a greater amount of fertilizer, and this was not within the economic possibilities of the campesinos. This experience increasingly proved the inefficacy of soil analysis under such conditions, making it unnecessary.

5. The use of fertilizer extended rapidly, and this apparently was related to the blood or spiritual relationship existing within the settlement. Compadrazgos (the relationship existing between the real parents and the godparents of a child) and close family relations contributed to facile generalization of the use of the substance. When the country people could say "My compadre uses it, so why shouldn't I?" they felt convinced of its worth. This apparently competitive affirmation is only comprehensible when one grasps the strength of a tie of compadrazgo and the importance of advice of this type. To this we must also add that, in the settlement under study, the farmer who harvested the best crop was the object of admiration and acknowledged superiority by the others.

In synthesis, this understanding of the fact, "fertilizer," oriented by a perspective that attempts to reconstruct reality in all its complexity — that is, that takes into consideration social facts that are multiple determinants, that seeks to deduce the specific quality

of each according to the overall context of which it is a part — this understanding, we repeat, allowed us to arrive at the following conclusions:

- a. Change was effected in local power relationships, weakening the strength of the local cacique and favouring the group of farmers who had organized to form the credit association.
- b. The organization of a sector of farmers was instituted to confront speculation by the credit association.
- c. The grocery business of local tradesmen decreased.
- d. Greater productivity was achieved, although to a lesser degree than had been foreseen by agronomists.
- e. Inter-family relations (compadrazgos) were strengthened.
- f. Proper use of chemical fertilizer in relation to specific cultural elements was refunctionalized.

The foregoing deductions represent an effort to re-evaluate social-economic indicators from the point of view of their capacity to encompass the complexity of what is social, emphasizing the complex of premises that allows for the construction of an indicator. This means that, without ignoring the importance of the technical-operative construction of an indicator, an effort must be made to make it explicit as a basis for the evaluation of the theoretical-methodological premises which give it substance.

Following this line of thought, and within the framework of discussion concerning construction and application of indicators, some of the following problems come to light:

- Should isolated indicators, interrelated through functional correlations, be constructed, or should complex indicators that take into consideration the objective and necessary relations between the various levels of social reality from the outset be preferred?
- Should indicators be useful in grasping, in synchronic form, a moment of reality, or should they serve to grasp and recover movements and trends?
- Is the validity of indicators provided by their operative functionality, or do we need to construct historic and concrete indicators

that permanently confront social reality and progressively advance in knowledge of that reality?

Rather than answer this problematic, we would like first to present as a paradigm a complex of theoretical and methodological premises that underlie the formulation of indicators, focused or not from the point of view of an articulated whole. Second, we shall study observations concerning the relation between concept, empirical point of reference, and indicator that mark the progress of our study. And, finally, we shall set forth, in a synthetic form, the most important steps taken in the development of this investigation regarding how to make the theoretical-methodological focus that we advocate into something that is effective.

II. CONTRADICTORY FOCUSES IN THE CONSTRUCTION OF INDICATORS

We have already remarked that a complex of problems, previous to technical questions, underlies the construction of indicators on social reality. Among these, we may mention the following: criteria on the understanding of reality; location and use of theory; identification of separations in space and time; and, finally, criteria on the reading and correspondence of the indicators in relation to reality. Concerning this complex of topics, we shall express, as an example, a series of thoughts that may orient the discussion this encounter generates on contradictions between focuses.

From other points of view	From the point of view of an articulated whole
Reality and the indicator	
a. Reality as a system under which processes are linked through a functional type of relation.	a. Reality as moulded by contradictory processes.
b. Reality conceived of as the sum total of processes.	b. Reality conceived of as a dynamic articulation of multiple processes that transcend disciplinary separation.
c. An understanding of reality consists in grasping the relations among processes, product of an arbitrary decision on an <u>a priori</u> model of relations.	c. An understanding of reality consists in grasping the objective and necessary relations defining the phenomenon or phenomena.
d. Knowledge of reality that respects the classification imposed by the various disciplines comprising social sciences (anthropology, sociology, economics, history, etc.).	d. Knowledge of reality based on something higher than disciplinary separations through a consideration of the various levels that make up the unit of social process (economic, political, cultural, ideological, and psychological levels).

From other points of view	From the point of view of an articulated whole
How to use the theory	
<p>a. The theory as an articulation of concepts from which an explanation of reality may be inferred through hypothesis.</p> <p>b. Hypotheses as a formulation of a theory leading to knowledge of reality enframed within certain conceptual schemes possessing internal demands.</p>	<p>a. The theory as a basis for the organization and construction of reality for its study by means of ordering concepts.</p> <p>b. Ordering concepts reflecting an open use of theory in the interest of the methodological-reconstructive aspect to provide an understanding of reality on an explanatory basis.</p>
Space and time separations and the indicator	
<p>a. Time as a chronological separator in the observation of reality.</p> <p>b. Recognition of a single time for the development of processes constituting reality.</p> <p>c. A criterion for the reconstruction of a time unit for processes realized by the alien imposition of an abstract model formulated by the investigator.</p> <p>d. A grasp of the dimensions of short and long times as two autonomous moments that are externally related. Thus, the intimate connection between specific changes facilitating the conditions of structural change can be understood.</p> <p>e. Space as an external parameter of social processes.</p> <p>f. Recognition of the space within which social processes take place as a single entity.</p> <p>g. A criterion for delimiting space of social reality, based on separations of geographic regions or political-administrative zones.</p> <p>h. Space as an external parameter to the quality of the social process under study is limited once and for all in the investigation.</p> <p>i. Space as a representation of the cultural and psycho-social aspect of the inhabitants of an area has no importance as a limiting criterion for the theoretical-methodological point of view which does not contemplate the population as a mobilizing factor of local structures.</p>	<p>a. Time as rhythm or movement inherent in social processes.</p> <p>b. Recognition of varying development rhythms of processes constituting reality.</p> <p>c. A criterion for the reconstruction of the real time of the processes, considering: (1) identification of the development rhythm of the specific elements of each process; and (2) identification of the manner of interaction of the processes, according to their different rhythms.</p> <p>d. The dimensions of short and long times constitute a unit and shall be used as related criteria for the location of crises or specific changes that generate historical transformations.</p> <p>e. Space as an internal element of the realization of social processes.</p> <p>f. Different spaces corresponding to the peculiarities of the diverse social processes.</p> <p>g. A criterion for delimiting space of social reality that would take into account both the specific space of each process and that resulting from the complex interaction of the processes.</p> <p>h. The social space in question is modified as the reconstruction of the social reality advances.</p> <p>i. Possibilities of change of function in the participation of inhabitants can be modified by the representations they have in space. Consequently, space should be taken into account in the definition.</p>

From other points of view	From the point of view of an articulated whole
Space and time separations and the indicator	
<p>j. Social space seen as a relation of separation between macro- and micro-space that establishes exterior relations between these two dimensions.</p>	<p>j. Space, seen from the point of view of the social whole, incorporates as an internal and reciprocal relationship that which is national with that which is local, and vice versa.</p>
The indicator and its congruence with reality	
<p>a. The congruence of the indicator with reality should tend to seek the confirmation of a theory to explain change in relation to the various alternate practices to be derived.</p> <p>b. The congruence of the indicator with reality considered on the basis of the qualities of the indicators as quantifiers and establishers of inter-indicator relationships without reference to the explanatory powers of the same.</p> <p>c. The congruence of the indicator to reality understood as the capacity of the indicator to reflect reality directly. The worth of the indicator would reside in its power to describe reality in detail.</p>	<p>a. The congruence of the indicator to reality seeks to define precisely the capacity of the indicator to grasp the objective links of the social phenomenon.</p> <p>b. The congruence of the indicator to reality considered on the basis of the construction process of the indicator; that is, taking into account the complexity of reality for the formulation of the indicator that attempts to grasp it.</p> <p>c. The congruence of the indicator to reality implies the possibility of an indicator's presenting not only the factual aspects of reality but their relation to the complex of elements that determine it.</p>

III. ELUCIDATION OF THE CONCEPT-EMPIRICAL REFERENCE RELATIONSHIP TO INDICATORS

The first problem to be met in attempting to construct or use an indicator is how to determine the relationship existing between the concept and the indicator. According to traditional methodology or approach, the step from concept to indicator is understood as part of the operationalization of the concept. In general terms this process would imply, on the basis of an analysis of the elements constituting a concept, the situation of the various dimensions of the concept which should be stated in the form of a complex of empirical references or data. This is the classic manner of defining the connection between theoretical concepts and reality.

From the point of view developed in our study, the relation between concept and reality is more complex. This is due to the fact that a direct relationship between concept and reality is produced not through the simple operationalization of the concept but with the introduction of a mediator, which is the indicator. This greater complexity can be explained if we believe, as we have been doing, that reality is a dynamic articulation that demands a given understanding of the relationship existing between it and concepts. This link is not a simple result of a deductive inference of the concept, but is rather a construction in which an attempt is made to represent the aforementioned conception of reality. Consequently, we cannot assume the empirical references of the concept without first considering the function that the said concept has, in order to reconstruct, rationally and objectively, reality itself. But from our point of view, the relation of the concept with other concepts is established not necessarily according to a theoretical scheme but simply as an expression of the epistemological assumption that reality is a dynamic process.

Accordingly, the content of the relationship concept/reality will be formed by the results of two determinations: on one hand, that of the concept as a possible delimiter of the levels of reality; and, on the other, the concept of reality as a dynamic articulation that imposes its demands on the concept. Consequently, empirical references depend not only on the concept, individually considered in its framework within a predetermined theoretical scheme, but also on the function that the concept fulfils in the reconstruction of the articulation.

The solution to this problem of the relationship established between empirical references and concept is reached through the indicator. The indicator is the conceptualization of the empirical reference in its function of objective articulation; hence, the congruence between concept and empirical reference demands the construction of indicators as expressions of the said relationship.

The indicator corresponds to the empirical reference in the measure that it establishes the reconstruction of objective articulation. This reconstruction should be consistently accomplished with the epistemological demands of the dynamic articulation of reality. This congruence demands that the reconstruction (description) of reality be accomplished with an eye to the double determination we have mentioned concerning empirical references: that which is derived from content and that which determines the function of the concept within the body of the articulation.

And it is true, if we begin our reasoning by considering reality as a dynamic articulation at different levels, that the empirical references that represent singularities of that reality must be understood as elements that refer to certain levels of real articulation (economic, political-institutional, cultural, individual, or small-group attitudes and behaviour), as well as to the relationship existing between levels. In this way the empirical reference or empirical references expressed in the indicator simultaneously constitute an individuality and also act as elements in an articulated whole. But this complexity of empirical references is not inherent in its

empirical-morphological nature, but is the result of their theoretical construction and should be linked to the demands of the complexity that regards reality as dynamic articulation. This construction is the same indicator that will consequently become a fact assuming multiple meanings while functioning as a complex relationship with social articulation.

For example, let us take a commonly used empirical reference or fact: the tractor. The inherent nature of a tractor as an object is its quality of being a mechanical tool. Nevertheless, its significance as an object of social usage — that is, the character it takes on within a given social situation — would exceed its morphological quality. This simple fact, if we understand it as part of an indicator that we might call "a production instrument," would suggest to us some of the following interpretations: regarding whether or not it is considered as property, the simple possession of a tractor has certain social implications; regarding whether or not it is used in one or another type of agricultural process, it speaks to us of differences in productivity; according to whether or not political or institutional relations are what conform the productive process within which it is used, it can serve as a reference to changes in power relations; according to the cultural framework of the users of the tractor, we can deduce the presence of resistance to a new rationale (or even irrationality) present in the work process that the tractor imposes; in regard to the forms of interpersonal relations, it can speak to us of a group organizational process for its use, etc. What interests us in the example is the possibility of showing that, if this or these empirical references are to be relevant in our knowledge of specific realities, they must be interpreted by indicators or complex data that will fulfil the function of reconstructing the objective articulation of reality, integrating a complex of unique empirical data. In other words, these complex data or indicators will retake a complex of empirical references, articulating them into a whole, and this demands that each reference be interpreted in terms of the articulation that provides us with the key to determine its specific quality.

IV. CERTAIN STEPS IN THE SOLUTION OF PROBLEMS DERIVING FROM THE STUDY

The various problems indicated in the topics that have served as examples were examined during this study in the following manner, which we are schematically presenting.

Problems	Manner of approach
1. How can the methodological point of view of concrete totality be made effective for the study of social change?	Our point of departure was to accept social reality as a concrete whole, and we made an effort to achieve an overall reasoning that would allow us to obtain knowledge of reality in its complexity. In order to put this reasoning into practice, we initiated a process of defining certain categories that arose as basic within the methodological perspective of the totality, i.e., levels, articulation, interpretation, process, structuring.
2. How can a definition of social change be begun?	We granted priority to a methodological definition that aided us in defining social change, more by its manner of existence and development than by its possible content. To achieve this, we ignored theories on social change and formulated it as a process constituted by various articulated levels.
3. What are the levels that comprise the process of social change?	In order to determine the elements of the process of social change, we turned to the various social disciplines that contribute to its explanation. We transformed these into what we could call topical areas on social change at levels making up the totality. Some of these are: economic, political-institutional, cultural, and psycho-social levels.
4. How can we refer to the various social disciplines (sociology, economics, anthropology, psychology, history, etc.) without concurring in the fragmentation that they imply for society? How can we refer to the knowledge they represent and integrate them into our methodological perspective?	Disciplinary fragmentation of society was relativized by the elucidation of the disciplines as levels of totality. The difference and specific quality of each level is the result of the application of certain social theories from the point of view of the necessary articulation between levels constituting the social whole, in the form of basic concepts that serve to order reality.
5. How can the methodological demand of the dynamic unit of society be sustained in the theoretical formulation within each level?	Within each level we propose a complex of ordering concepts which simultaneously reflects the theoretical specifics of the level and, for the same reason, establishes multiple connections with the other levels.

Problems	Manner of approach
6. How can theoretical concepts be established to capture the movement of development of social change?	In the formulation of ordering concepts, we granted priority to those aspects of the concepts that allowed for a reconstruction of the process rather than for knowledge of fixed structures.
7. How can theoretical expressions be prevented from limiting an approach to empirical reality, imposing preconceived characteristics on it?	In this approach to empirical reality, we have observed a first moment of apprehension of it, during which the organizing concept functioned as a criterion for observation in such a way that it openly (that is, transcending the limits of any theoretical scheme of a closed nature) ordered a first complex of empirical references. At a second moment (which has not yet arrived), after the description of reality, the ordering concept will fulfil a more explanatory function, retaking the problematics arising from the first approach to what is real.
8. What is the relation that is established between the ordering concept, the empirical references, and the indicators, from our methodological point of view?	We suggest that reference be made to section III of this study, in which certain suggestions/ideas have been expressed.