

Agnieszka Mync

SOME PROBLEMS OF REGIONAL DIFFERENTIATION OF QUALITY OF LIFE*

The aim of the paper is to prove that the Austrian experiences in the synthetical approach to the regional differentiation of quality of life have universal values and thus this approach may be applied to different socio-economic conditions. Another problem dealt with in the paper is the possibility of presenting social phenomena by means of the existing research instruments. A great role in this process is played by information in its operational form.

1. SIMULATION MODEL OF THE REGIONAL DIFFERENTIATION OF QUALITY OF LIFE

There have been very few attempts at investigating the regional differentiation of quality of life for the whole area of Poland. The existing ones do not give a full presentation of this problem¹ (as far as the available instruments are concerned). Nevertheless, there exists a need for such a presentation, especially for planning purposes, therefore it is useful to refer to the best achievements in this field. Hence, the below reflection about the innovatory Austrian experiences.

* The essay is associated with the Diagnosis of the State of Space Economy in Poland. One of the first generation questions of the Diagnosis referred to the state of social infrastructure. The questions of the second generation were even more precise—they dealt with the quality of life in contemporary Poland in global and spatial aspects; see: Kukliński, A., ed. "Diagnoza stanu gospodarki przestrzennej Polski" (Diagnosis of the State of Space Economy in Poland). *Biuletyn KPZK*, Vol. 123 Warszawa 1983, p. 277. Some of the ideas of this essay might be useful in answering the above second generation questions.

¹ Compare the opinions expressed at the conference of the editorial board of Statistical News Letters, Warsaw 26th November, 1973; in: *Problemy mierników poziomu życia ludności* (Problems of Measuring the Population's Level of Life), The Library of the Statistical News Letters, Vol. 23,, GUS Warszawa 1974.

The Austrians² have obtained a synthetical picture of the regional differentiation of quality of life constructing a simulation model of differentiation. They concentrated their investigations on one of the federal countries of Austria — Carinthia. It seems however, that the model may be used for presenting the quality of life in the whole Austria as well.

The model consists of six submodels connected in series. The output information of a given submodel is the input information of the submodel which follows it. At the same time, it is possible to make use of output information of each submodel.

The structure of the model³ is shown in Figure 1:

- commuting time model,
- interaction model,
- indicator procedure,
- classification model,
- allocation model,
- estimation model.

The model gives a presentation of regionally differentiated quality of life expressed as synthetical indicators.

1.1. THE COMMUTING TIME MODEL

The model serves to calculate the commuting time, i.e. the shortest way from the place of residence to the amenities of the following spheres: work, health care, consumption and education.

The places of work and places at schools are divided into four categories according to qualifying requirements and types of schools.⁴

The input data are graphs of public and private transport network. The vertexes of the graphs show definite locations while the graphs themselves assess the connections of these points (e.g. the mean commuting time). The calculations are based on standard programmes.

1.2. THE INTERACTION MODEL

The interaction model is the fundamental part of the calculating system. Its results are decisive for the final effect. It gives the probability of regional population's participation in the investigated components of quality of life (work, health care, consumption, education).

²Cf. Palme, G., Steinbach, J., "Lebensqualität in Kärnten. Ein System regionaler Indikatoren", in: *Raumordnung in Kärnten*, Vol. 9, Amt der Kärntner Landesregierung—Verfassungsdienst, Klagenfurt 1978.

³ *Ibidem*, p. 26.

⁴ Primary school, secondary school, college, university.

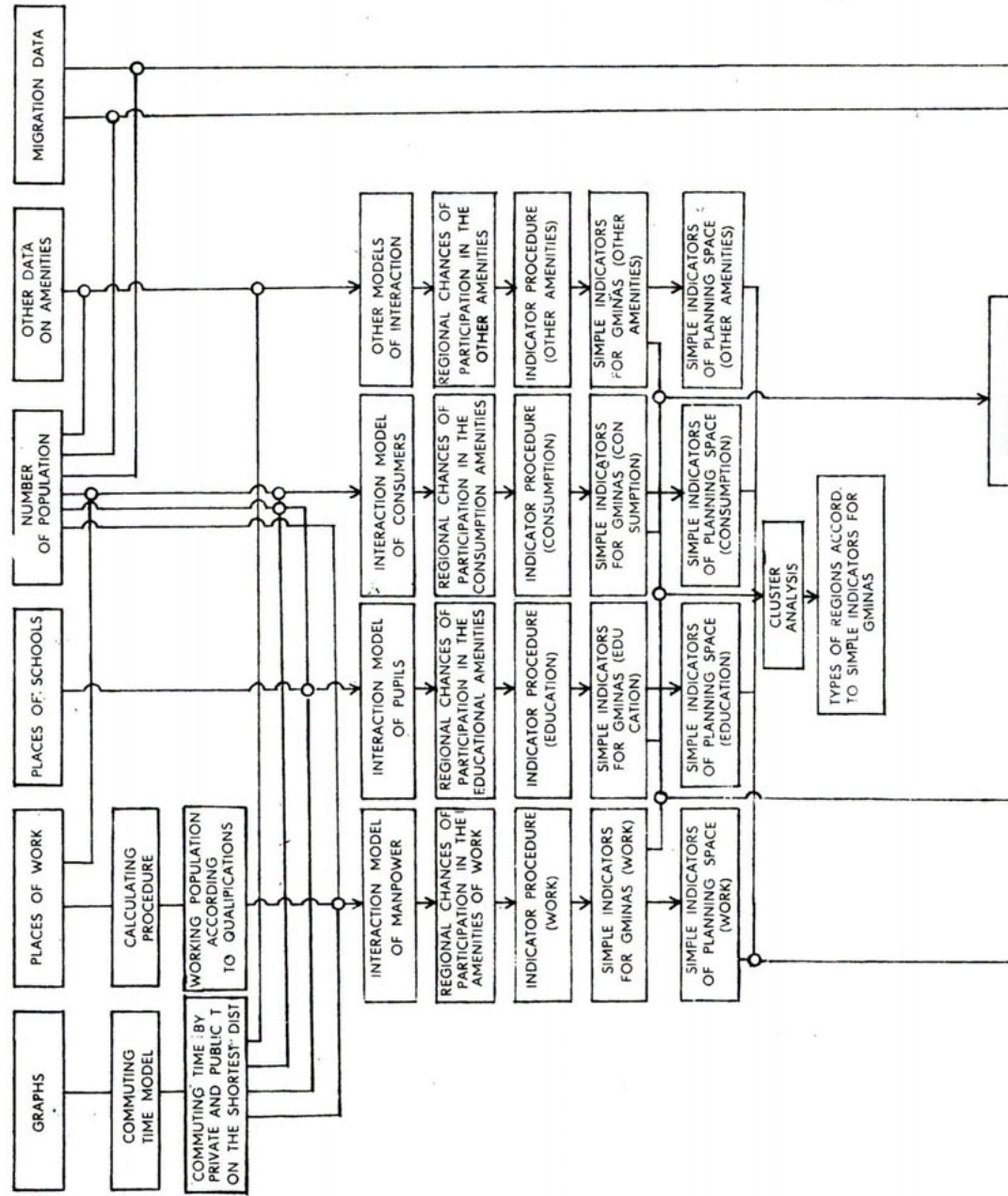
INPUT DATA

COMMUTING TIME MODEL

INTERACTION MODEL

INDICATOR PROCEDURE

CLASSIFICATION MODEL



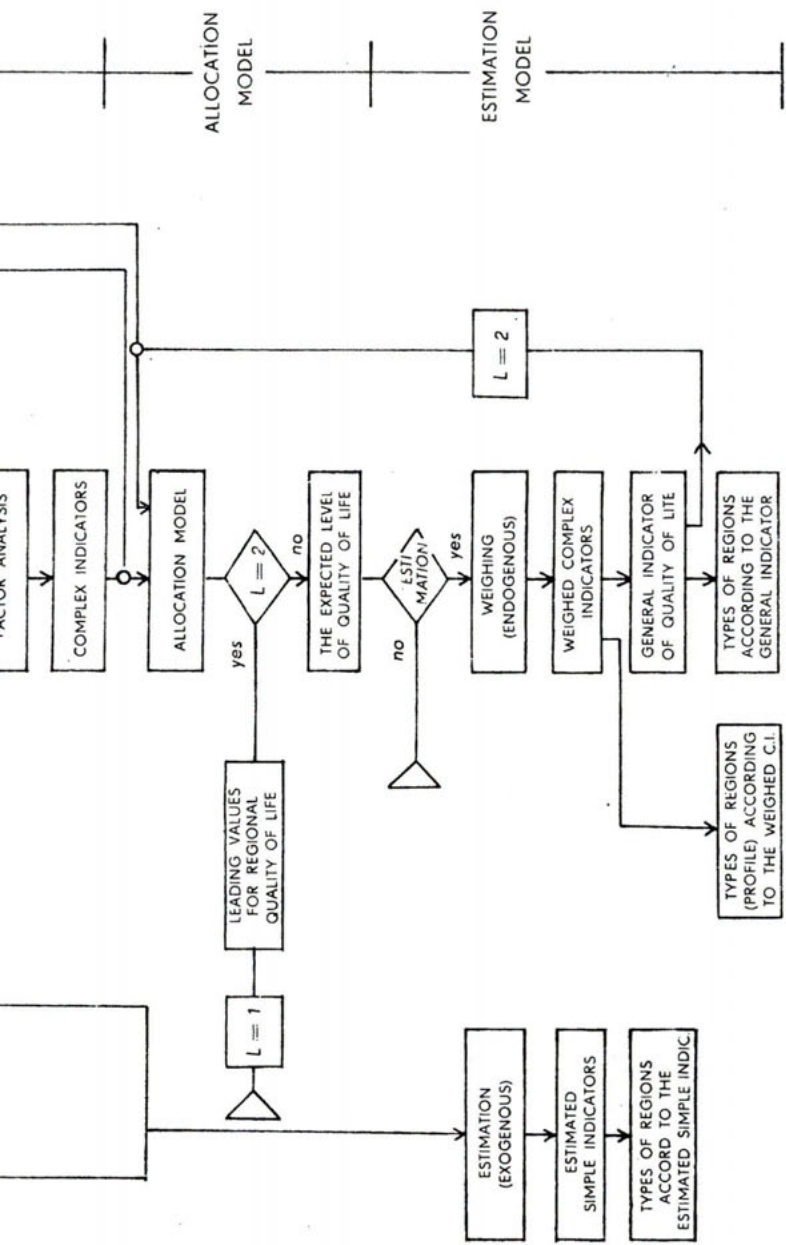


Fig. 1. Simulation Model of Regional Differentiation of Quality of Life

The model shows the relations among particular locations. The intensity of these relations is a function of some variables determined for these places and of the friction of distance among them (the friction function may assume the form of exponential function). In the determination of the variables the economic aspect is taken into consideration. It is assumed that the chances of participating in the spheres of work, health care, consumption and education are determined by:

- demand, which depends on the social status of the population participating in particular amenities;
- supply, i.e. kind, number and spatial arrangement of the amenities;
- their accessibility, depending on the transport network (both private and public).

For each element of quality of life a separate model of interaction is constructed. Thus we obtain interaction models for population at productive age (including its qualifications) and at school age, for all consumers and for those using the health care amenities. The models have identical structure but different input and output data.

1.3. THE INDICATOR PROCEDURE

The probability of finding a proper job and the probability of participating in infrastructure amenities according to preferences are used for calculating the indicators which reflect the share of the components of quality of life in particular regions. In the model both the indicators for communes and for the planning space may be obtained.

The indicators for communes are calculated for all communes (*gminas*) as places of residence. The calculations are based on the statistical distribution of particular participation probabilities, e.g. for work:

- expected distance,
- expected number of places of work,
- distribution of places of work in a definite area,
- shortage of places of work.

The indicators of the planning space are statistical parameters of the distribution of the indicators for communes in the planning space. They show the disproportions in the regional chances of participation and thus may stimulate a discussion on establishing regional norms and criteria and delimiting problem areas in which the quality of life is too low.

The indicators may be divided into two groups:

1. in absolute values:
 - arithmetic mean,
 - median,

- quantiles (or deciles),
 - modal value,
 - standard deviation,
 - range;
2. standardized (with normal distribution as basic):
- skewness,
 - kurtosis.

1.4. THE CLASSIFICATION MODEL

The classification model is based on two techniques: (1) Classification of the observed units in respect to distinguishing variables (cluster analysis). The units with similar living standards are united in groups of types of communes. The distribution of these types within the investigated area shows the regional differentiation of quality of life. (2) Classification of variables in respect to their simultaneous occurrence in the observed units (factor analysis). Such groups may be interpreted as complex indicators of quality of life in the regions. In the allocation model they help quantify the relation between the regional quality of life and allocational behaviour of the population.

1.5. THE ALLOCATION MODEL

The allocation model is based on broader information. It tries to prove that the allocational behaviour of the population is related to the level of quality of life. With that hypothesis being true, the communes which do not provide proper regional amenities should expect an outflow of population. From the mathematical point of view the allocation model is a linear model of multiple regression.

1.6. THE ESTIMATION MODEL

The estimation consists in comparing the indicators or prognoses obtained in the whole procedure with the norms established according to the political goals of particular regions.

According to G. Schubert,⁵ the norms may be established in three ways: "strictly rationalistic" (regarding real problems of the population), "idealistic" (based on the problem without reference to reality — *a priori* procedure), and "pragmatic" (in spatial and temporal profiles).

Our model gives information for the two *a posteriori* methods of establishing the values expressing quality of life in the regions (1 and

⁵ Schubert, G., *The Public Interest*, Glencoe III, 1960, after: Palme, G., Steinbach, J., *op. cit.*, p. 36.

3). In the first case we need information about the preferences of population inhabiting the planning space and concerning the quality of life — it results from the allocation model. In the other case we need information concerning the distribution of the indicators of quality of life — it partly results from the indicator procedure.⁶

1.7. IS THE MODEL UNIVERSAL?

A question arises whether the model has a general, universal character and thus might be used for various purposes and whether it is not too specific for any other applications. We mean the specific space for which it was constructed (one of the federal countries of Austria — Carinthia), the specific time (one year in the seventies) and the phenomenon (quality of life) which the model aimed to describe.

The conducted analysis proves that neither the space⁷ nor the time⁸ reduce the model's application. Both the natural features of space (its size, division, relations among subspaces, the level of its closure, variety, etc.) and the construction principles do not determine the applications of the model. On the other hand, the quality of life as treated by the Austrians has its peculiarities. It is possible however, to use the model for other purposes, also for a different socio-economic system.⁹

2. REGIONAL DIFFERENTIATION OF QUALITY OF LIFE. THE COGNITIVE ASPECT

The quality of life may be considered in two aspects: in reference to society which it characterizes; and in reference to science which tries to examine it. In our case it is considered in its regional differentiation. These two aspects produce two separate categories of quality of life: subjective and objective.¹⁰ The situation would be ideal if these

⁶ The whole simulation model is discussed in: Palme, G., Steinbach, J., "Modell zur Abbildung und Simulation der regionalen Lebensqualität", *Wirtschaft und Gesellschaft* 2, 1975.

⁷ In Austria attempts were made to apply the model to other areas, e.g. Styria. It has also been used in West Germany.

⁸ Compare two excellent publications by Augustynek, Z., *Własności czasu (The Properties of Time)* Warszawa 1972 and *Natura czasu (The Nature of Time)*, Warszawa 1975.

⁹ To support the hypothesis the author wanted to analyse the socio-economic system of Poland but it seems that the nature of the model does not imply any specific socio-economic assumptions. As a formal procedure it is substantially pure and independent of the changing socio-economic reality.

¹⁰ Compare: Kukliński, A., *Dilemmas in Polish Geography* in this publication, especially Dilemma I: Objective or Subjective Approach.

two ranges met. The nuances of subjectivity are not easily expressed in the scientific language. Hence, science is somehow external to the quality of life. It is able to deal with its measurable features only. That is the reason for frequent discrepancies between the social feelings and the results of scientific investigations. The discipline which seems to give the fullest presentation of the quality of life is sociology. It uses a specific language and is close to the society. However, there exists a margin of subjectivity beyond which sociology does not go. That margin is much wider in other disciplines. The distance from the essence of a phenomenon increases when we want to express it quantitatively. The considerations of many elements of quality of life are technically limited.

The Austrians based their definition of quality of life on four spheres: work, health care, consumption and education, and calculated the accessibility to the amenities of social infrastructure in these spheres for particular regions. Despite that narrow range of investigations the Austrian undertaking was enormous and took several years. The fullness requirement as regards the assumed definition was not, however, fulfilled. The distinction between the intuitive and operational definition is too sharp. For this reason the scholars feel guilty to the society as they are not able to show the truth about some phenomena. Their feelings are the same as those of other members of the society.

The searching for better means of presenting phenomena is continued. The discussed model is a successful attempt in this respect. It is a simple and attractive method of obtaining a synthetical picture of regionally differentiated quality of life. As has already been said, a great role in the presentation or simulation of phenomena is played by information. Its significance depends on its quality. Hence the relation between the investigations conducted in many fields with the national system of information and the requirements directed to the institutions which collect and store information. The final effect of all investigations depends on the quality of input data.

Each examination should refer to the category of the so-called full information, i.e. information necessary for presenting a given phenomenon and determined without real limitations. Another aspect of full information is available institutional information (in the existing collections). Finally, the most important information would be selected. We would obtain a picture approximating the optimum one which would be improved if we know the two sets of full information. With such procedure, the most probable picture of a phenomenon would be constructed. This procedure is possible only when the fullest information is collected.