MULTI-LEVEL PLANNING IN THE PUBLIC SECTOR

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ABSTRACT

The purpose of this paper is to investigate the applicability of formal procedures for decentralized planning to some steering problems in the public sector. Actually the allocation of subsidies from the state to the municipalities in Denmark is considered. A survey of those theoretical procedures, which might be useful to this case, is given, differentiating with respect to (1) the degree of decentralization, (2) the steering tool and (3) the characteristics of the feasibility sets. As a conclusion, it is pointed out, that introduction of interactive methods in the decentralization procedures facilitates the implementation and hence the applicability of them.

Finally, a detailed description of a procedure for the considered problem is stated.

1. INTRODUCTION

The importance of multiple criteria decision-making has increased through the last years - in acknowledgement of the fact, that most real world problems should be stated as multi-objective problems (cf. Arne Jensen [9], Johnsen [10] and Näslund [18]).

Usually, the concept of multiple criteria is identified with the imagination of one decision maker summing up various and conflicting goals in a single utility measure. Here this concept is extended to contain various decision-makers searching a compromise of their individual objectives.

1.1 Problem Statement

Although the Danish municipalities in principle are autonomous, the state has certain steering-instruments in order to attain some overall objectives. One of those instruments is subvention, which until now has been allocated as a specific percentage of expenditures within specific areas, but in the future as a total block: (lump sum grants).

This change in the subvention-structure implies roughly a transition from price to budget guided steering of the local activities.

The questions are now:

1. Which criteria should be considered by the allocation of these grants
   and
2. With which weights.

The considered organization can be regarded as a two-level-system consisting of one central decision-maker (state) and n decentralized units (municipalities). Furthermore, the system is characterized by a high degree of freedom on the
The decentralized level, which means that special consideration must be shown for the existence of various and conflicting goals. The activities all go on within the municipalities, which are supposed to be divided into sectors. The informations communicated back to the center describe the local needs for expense, which means some demographic and other parameters, but might as well indicate the political preferences in the municipalities.

It seems that the objectives in both levels only with difficulty can be stated explicitly.

Conditions of formal procedures

Summarizing, a procedure for the stated problem must satisfy the following conditions:

1. Consideration must be shown for local preferences.
2. The utility functions cannot be written explicitly
3. The central steering must take place by budgetary, not pricing tools.

2. SURVEY OF FORMAL PROCEDURES

The procedures can be represented by this general formulation:
The decentral level contains n units, producing m different commodities (or operate within m different sectors).

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\begin{align*}
\text{central} & : \quad \text{Max } U(x, d_1, \ldots, d_j, \ldots, d_n) \\
\text{level} & : \quad \text{s.t. } g(x, d_1, \ldots, d_j, \ldots, d_n) \leq 0 \\
& \quad z_j = z_j(x) \\
& \quad d_j = d_j(x_j) \\
\text{local} & : \quad \text{Max } U_j(x_j, z_j) \\
\text{level} & : \quad \text{s.t. } f_j(x_j, z_j) \leq 0 \\
& \quad x_j \in X_j
\end{align*}
\]

\(x\) : central decision vector
\(z_j\) : central steering of decentral unit j. (m-dimensional). Price-guiding implies