OVERVIEW AND METHODOLOGICAL ASPECTS OF VARIOUS OPERATIONAL MEASUREMENT APPROACHES

3.1 Introduction

The purpose of this chapter is to depict the advantages and disadvantages of the LISREL and two-stage time series measurement approaches by reviewing the various methods which have been used to measure effects of regional economic policy. An important aspect with regard to which the various measurement approaches may differ is the representation of policy variables in the model. Therefore, attention is also paid to this issue.

The various measurement approaches can be divided into micro and spatial approaches. In the former the data is of the lowest level of aggregation and refers to firms, households, etc. Three kinds of micro studies are usually distinguished (see, among others, Campbell and Stanley, 1966): ¹)

- Experimental approaches;
- Quasi-experimental approaches;
- Non-experimental approaches.

In spatial approaches the data obtained by some micro study has been spatially aggregated and the behavior of spatial units is investigated. It should be observed that in addition to aggregation to spatial units the data is usually also aggregated to sectors. The following types of spatial approaches can be distinguished: ²)

- Models with policy variables only;
- Single equation models with non-policy variable only;

¹) The distinction between quasi-experimental and non-experimental research could also be applied to the spatial approaches to be discussed below. In order to avoid confusion, however, this terminology will only be used here in relation to micro studies and not to spatial approaches. With respect to the latter it is clear from the context whether a quasi-experimental or a non-experimental measurement framework is meant.

²) It should be observed that several types of models mentioned here can be applied to data from micro studies as well. The applications to spatial and spatio-temporal data, however, usually require adaptations to the specific features of these kinds of data.
- Single equation models with both policy and non-policy variables;
- Simultaneous equation models.

The organization of this chapter is as follows. In section 3.2 attention will be paid to the representation of policy variables in a measurement model. The various micro- and spatial measurement approaches will be described and evaluated in the sections 3.3 and 3.4, respectively. Finally, in section 3.5, attention will be paid to the methodological problem which approaches are most appropriate to measure the various kinds of effects of instruments of the influencing type and of instruments of the control type (distinguished in section 2.3).

3.2 Representation of policy variables in a measurement model

It is a well-known fact that information needed for regional studies is sometimes rather poor. The situation with respect to regional economic policy is often even worse. Two main reasons for this can be distinguished. First, information about regional economic policy is often intertwined with information which does not refer to it. For example, in the case of public investments, it is often difficult to determine which expenditures relate to regional policy and which do not. Secondly, information about regional policy is sometimes secret, as in the case of financial aid to companies). The lack of information may lead to the exclusion of some relevant explanatory variables from the investigation. Measurement methods using such a selected set of variables, however, usually gives biased results (see inter alia chapter 7 for further details). Therefore, it is of great importance to include the policy variables explicitly into the model. Some ways to represent policy variables are described below.

The crudest way to incorporate a policy variable into a measurement is by simply distinguishing between situations where policy

1) This is a problem which also frequently occurs in impact studies of other kinds of economic policy.