

**Model Construction for the Structure  
of Industrial R&D Progress**

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The primary objective of this research is to construct an industrial R&D progress model of manufacturing industries in Korea.

To achieve this research objective, the basic information associated with the R&D activities for the past 15 years, from 1976 to 1990, in the areas of electrical- electronic, mechanical and chemical industries have been obtained from Science and Technology Annual Yearbook and Industrial Census Report.

The production function of the Cobb-Douglas form is used in measuring both the overall contribution and the relative contribution of R&D input on R&D output.

The major findings in this research based on a new R&D progress model are summarized as follows:

(1) The time-lag between input variables and output variables in R&D activities is from one to four years. Also, it is found that the time-lag of patents is longer than that of utility models.

(2) There is a diminishing return relationship between R&D inputs and the outputs. And the elasticity of the R&D inputs to the outputs is less than 1.

(3) The R&D output growth is generally more affected by R&D expenditure than R&D manpower.

(4) The contribution of R&D administration effort to the R&D output is relatively low, although the contribution rate in recent years is increased slightly.

It is expected that the above found in this research will be very significant in establishing exact R&D policy in Korea where the study for the quantitative analysis on the structure of industrial R&D progress lacks.