

On Estimation of Cobb-Douglas Production Function in Selected Indian Industries

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I. INTRODUCTION

The Indian industries suffered a major setback in industrial production after the mid-sixties. Its annual growth rate declined to 3.9 per cent in 1966-84 from 7.6 per cent in 1951-66.¹ The two periods, namely, 1967-71 and 1975-80, that have been included in this paper, are from the later phase, namely from 1965-66 to 1983-84, which recorded decline in growth rate of industrial production. It is therefore imperative to further study this period. The industries,² selected in this paper during the two periods studied are at 2-digit and 3-digit levels of industrial classification. These are major industry groups.³ Obviously that the period and the industries that form the scope of this paper are very important.

The objective of applying Cobb-Douglas production function in this paper is to estimate the coefficients of inputs, their marginal productivities and shares in total output and degree of returns to scale. It is based on unitary elasticity of substitution of inputs incorporated in the equation of the production function. This production function has been widely applied in studies on agriculture and industries to estimate technological relationship between output and its inputs because of relative ease in its computation and interpretation. In this paper, it has been applied to twenty industries. The seven industries were from 1967-71 and remaining thirteen industries were from 1975-80. These thirteen industries have been divided into two groups. Each group consists of seven industries with transport and equipments included in both the groups. This classification has been done for the sake of keeping equal number of industries uniform in both the groups and periods.

The data for output and inputs are in monetary terms. These have been collected from the records of Annual Survey of Industries (ASI) compiled by Central Statistical Organisation (CSO). As is customary output data is in the form of value added and the studied inputs are fixed capital labour and raw material. The use of nominal values is our