

INPUT AND CAPITAL STRUCTURES AS PARAMETERS OF INSTANTANEOUS PRODUCTION FUNCTIONS OF FIRMS AND TECHNOLOGICAL PROCESSES IN STEEL FORGINGS INDUSTRY IN INDIA

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1. Introduction

The art of forging process may be defined¹ as the plastic deformation of metals and alloys into some predetermined size or shape generally at elevated temperatures, by a compressive force exerted by a hammer, press, or upsetting machine. Parts or members produced in such a manner are called forgings. The forging process produces a wide range of numerous products, each of which is identified by continuous product dimensions or characteristics of the products. Because of continuous variability in the physical quantities of the product dimensions the input and capital structures of the technological processes, firms and of the industry are also likely to be fluctuating as a continuous phenomenon. It is assumed to approximate the input and capital structures of the technological processes as discrete economic processes or the combinations of them as discrete economic processes or process production functions, to incorporate them as sectors in the inter-industry analysis. The production function relationships of an industry or a firm or a process, i , in the inter-industry analysis are represented by a series of homogeneous linear equation.

$$\text{viz., } x_{t1} = a_{t1}x_1, \dots, x_{tn} = a_{tn}x_t \\ (i = 1, 2, \dots, r)$$

The complete set of coefficients, a_{ij} , arranged in the form of a matrix $(a_{ij}) = A$, corresponding to the input output flow table (x_{ij})

* This is in dedication of my everlasting memory of my wife Susila.

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¹ Steeds, W., *Engineering materials Machine tools and Processes*, Longmans, Third ed., 1957, Chapter 5, Forging, p. 120.