

Technology and Productivity of Cement Industry in India - A Case Study of Fifteen Cement Companies

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The paper has been divided into two sections. In the first section, an attempt has been made to examine the theoretical framework underlying technical change affecting productivity. In the second section, the contribution of technical change to productivity in cement industry has been measured.

SECTION I

INTRODUCTION

Productivity, among other things, is affected by technical change which may be neutral or non-neutral. Thus the basic problem is how to isolate the rise of productivity owing to change in technical knowledge, i.e., separation of movements along the production function, from the shift in the function itself.

Amongst the models suggested, Salter (1969, pp. 23-82) presents one of the earliest models of 'best practice technique' which is optimal in the context of prevailing technoeconomic conditions associated with best practice cost. In the long run, as technical parameters change, there is also a change in Best Practice Technique. In the short run, there is also instantaneous change in the existing capital stock leading to the replacement of obsolete plants. Thus in the long run, price of output is not only equal to the cost of marginal investment (interest and depreciation) but also equal to the operating cost (materials plus labour) of plants on the verge of obsolescence i.e. Price = Total Cost of Marginal new investment = operating cost of plants on the margin of obsolescence (outmoded plants).

Salter has measured the effect of technical change as the proportional reduction in cost per unit as

$$Tr = \frac{\left(\frac{dL}{dt}\right)w + g\left(\frac{dK}{dt}\right)}{Lw + gK}$$