

2. Statement of the Problem and Objectives of the Study

Problem

The potential for growth in the manufacturing sector is enormous. It can provide gainful employment to a large number of people in Nepal. This growth in the manufacturing sector will however depend on easy access to raw materials, markets, other inputs, capital, energy, and many other requirements, including a set of conducive policies. The present study focusses on the energy input by the manufacturing sector.

Currently, little is known about the economics of the manufacturing sector. As the role of the manufacturing sector increases, generating more income, employment and exports will be generated, and the structural changes that are likely to take place can be influenced by appropriate policies. Moreover, the resource base is scarce, therefore, appropriate investment policies should be encouraged and inappropriate ones discouraged.

To understand the economics of the manufacturing sector, the production structure or technological features of this sector should be understood. From an economic point of view, a production technology is summarised by the production function or its dual, the cost function. A production function or a cost function that does not *a priori* restrict the technology and which also allows the possibility of testing the validity of different kinds of restrictions is desirable.

Knowledge of the technology of the production structure enhances understanding of factor demand and its relation to changes in relative prices, degree of factor substitution among inputs, economies of scale, technical change biases of factor use, as well as other types of information that can be valuable in policy formulation.

As the role of the manufacturing sector increases, the demand for energy inputs will also increase. Currently, the manufacturing sector consumes three broad classes of energy inputs, namely, solid fuel (wood and coal), liquid fuel (diesel, kerosene, petrol), and electricity. Except for wood and electricity, all other energy inputs are imported by means of convertible currency. Increased energy consumption also has negative environmental implications.

Wood continues to be used by many industries in Nepal. Given the large-scale deforestation and related problems in Nepal, the continued use of this energy type does not appear to be rational from a long-term perspective. Electricity is among the major energy types consumed presently in Nepal. The manufacturing sector of Nepal can be electricity-based, given the fact that Nepal has the potential to develop this non-polluting energy. Currently, however, many industries continue to use other types of energy than electricity for various reasons.

Objectives of the Study

The purpose of this study is to understand the demand for energy in the Nepalese manufacturing establishment. This investigation was carried out by utilising the translog cost function described below. Energy is assumed to be a separable input from labour, capital, and materials in the manufacturing sector. This assumption means that we hold output and other variable inputs constant along a given isoquant and evaluate the role of different types of energy. Thus, we develop an energy sub-model for the manufacturing sector. This sub-model permits examination of the relationship between the different types of energy consumed by the manufacturing sector.

The specific objectives are as follows:

- to estimate the manufacturing sector's energy demand;
- to evaluate the relationships between different types of energy;
- to understand the implications of energy demand on growth of the manufacturing sector and employment generation; and
- to examine policy implications.