THE CHARACTERISTICS OF THE PRODUCTION STRUCTURE AND THE NATURE OF TECHNOLOGICAL PROGRESS IN HONG KONG’S CONSTRUCTION INDUSTRY

K W Chau and Ruby D Zhu

1 Department of Real Estate of Construction, The University of Hong Kong, Pokfulam Road, Hong Kong. E-mail: hrmbckw@hku.hk. Fax: 25599457
2 Central Policy Unit of the Hong Kong SAR Government

Abstract
There has been continuing effort in the construction industry to substitute other types of construction resources for labour due to the high construction labour cost in Hong Kong. The two major types of labour saving technology are mechanization (substitution of capital for labour) and industrialization in the form of use of prefabricated components (substitution of materials for labour).

Empirical data from Hong Kong suggests that mechanization is more effective than industrialization. We also found that technological progress in Hong Kong’s construction industry is not Hicks-neutral. In addition, there has been a noticeable decline in technological progress in recent years, which is consistent with the catching-up hypothesis. Finally, we found significant economies of scale. Increasing return to scale has been the major source of productivity growth in recent years.

Keywords
Catching-up hypothesis, elasticity of substitution, mechanisation, industrialization, production function, technological progress.

INTRODUCTION

One main objective of this study is to investigate the nature and characteristics of the production structure in Hong Kong’s construction industry. Specifically we would like to investigate the degree of substitutability between different types of construction resources in Hong Kong with the aim of comparing the effectiveness of industrialization and mechanization as means of saving labour input. In addition, we would also like to analyze the nature and characteristics of technological progress in Hong Kong’s construction industry.

Firstly, we will examine how easy it is to substitute construction labour with other resources, although substitution between other types of resources will also be investigated. Construction labour wages rates in Hong Kong have remained at a high level compared with those in the region. There has been continuing effort in the construction industry to substitute other construction resources for labour. Two major types of labour-saving technologies have been used i.e. mechanization (substitute plant and machinery for labour) and use of prefabricated components or industrialisation (substitute materials for labour). However, as far as the investigators are aware of, there has been no empirical research on which labour-saving technology is more effective. The results of this study would shed light on which type of