In this dissertation, an attempt has been made to show, in a variety of models, the impact of labour augmenting technical change for a surplus labour economy. In the densely populated areas of Asia and Africa, the existence of surplus labour is taken to be axiomatic. And most of these Developing Economies invariably adopt techniques developed in labour scarce economies, which are, thus, inherently labour saving in nature.

We have tried, in this dissertation, to study the implications of labour saving technical progress for employment growth and factor shares in a labour surplus economy. In Chapter III, we studied a model of labour augmenting technical change in a small open economy. The "small open economy" assumption was invoked in order to dispense with changing terms-of-trade and hence all prices in this model were determined internationally. The economy was assumed to be divided into the modern or manufacturing sector and the traditional or agricultural sector. The modern sector produced a single homogeneous product and
was dependent upon the agricultural sector for food and labour. Unlimited quantities of labour were assumed to be available to the modern sector at a fixed real wage. Employment in the modern sector was determined by the equality between the fixed real wage and the marginal product of labour. The residual labour force was absorbed by the traditional sector, thus ensuring full employment. It was assumed that technical progress in the modern sector was exogenous and labour saving in nature. It was possible to decompose the rate of growth of employment into three effects: (i) the effect due to the increasing rate of capital accumulation, (ii) the labour displacement effect due to labour augmenting technical change and (iii) the effect of a fall in the unit cost of augmented labour and the consequent substitution of labour for capital. The first and third effects were found to be favourable to the interests of labour. The second effect, however, was detrimental to the interests of labour. The overall impact of these three factors was found to be dependent on the elasticity of factor substitution. If the elasticity of substitution was less than unity, the rate of capital accumulation tended to a finite limit over time. Further, the labour displacement effect owing to labour augmenting technical progress tended to outweigh the substitution
effect. Thus, over time, the relative distribution of income within the modern sector tended to shift in favour of capital and against labour. But, if the elasticity of substitution was equal to or greater than unity, the rate of capital accumulation approached infinity over time. Also, the effect of a fall in the unit cost of augmented labour and the consequent substitution of labour for capital outweighed the labour displacement effect of technical change. On both counts, therefore, employment grew at a rate faster than the rate of capital accumulation and the relative distribution of income in the modern sector tended to shift steadily in favour of labour.

It is, however, unrealistic to assume that the modern sector produces a single homogeneous output which can be transformed without cost into either a consumption good or a capital good. In Chapter IV, the modern sector was assumed to produce two goods -- consumption goods and investment goods. In the interests of clarity the rate of labour augmenting technical progress was assumed to be equal in the two industries. The major distinction between the two models, however, was that this model was concerned with a closed economy. Therefore, demand relationships played an important role and production was geared to meet
demand. Further, there was no fixed price relationship between consumption and capital goods and hence this model took account of changing terms of trade. Existence of a steady state solution in this model entailed an equality between the rate of capital accumulation and the rate of labour augmenting technical change. The necessary and sufficient condition for the existence of steady state was that $\lambda$, the rate of labour augmenting technical change, should lie between the maximum and minimum rates of capital accumulation. Given the existence, uniqueness and stability of the steady state solution, labour augmenting technical progress resulted in a zero rate of growth of employment. Output of each industry was found to grow at the rate $\lambda$, because the effective factor inputs were growing at the rate $\lambda$. And the relative distribution of income shifted steadily in favour of capital. However, the real income of the employed increased owing to a decline in prices at the rate $\lambda$.

Steady state path was not attained by the system either when the rate of labour augmenting technical change, $\lambda$, exceeded the maximum rate of accumulation or when $\lambda$ was less than the minimum rate of capital accumulation. $\theta_i$, the rate of growth of capital-
augmented labour ratio, was negative and hence capital accumulated at a rate less than \( \lambda \). Employment growth depended crucially on \( \sigma_c \), the elasticity of substitution in the consumption goods industry and was positive when it was greater than unity. Employment tended to decline when \( \sigma_c \) was less than one. When the rate of labour augmenting technical change fell short of the minimum rate of capital accumulation, \( \dot{\theta}_x \) was positive, and capital accumulated at a rate faster than the rate of labour augmenting technical change. Employment tended to decline when \( \sigma_c \) exceeded one. The peculiar feature of this model was that employment growth in the investment goods industry was zero. The relative distribution of factor shares in the modern sector shifted against labour when \( \dot{\theta}_x \) was positive, for the share of labour in the investment goods industry declined to zero. And, when \( \dot{\theta}_x \) was negative the relative distribution of income depended upon the strength of the substitution effect vis-a-vis the labour
displacing effect of technical progress. The real income of the employed improved both when $\frac{\dot{y}}{y}$ was positive as well as negative because of a decline in prices.

Finally we studied the implications of labour augmenting technical change for employment when the supply of labour to the modern sector was imperfectly elastic. The presentation in Chapter V was based on the model postulated by Johansen and Taylor. The imperfectly elastic labour supply was explained in terms of the Harris-Todaro model where the urban rural wage differential acted as an inducement to migrate. Unemployment in the modern sector was an imminent possibility owing to the fact that the number of job seekers exceeded the number of jobs. Continuous labour saving technical change was found to be detrimental to labour because of its employment reducing effect. This model, however, was a fixed coefficient one, and the elasticity of factor substitution was assumed to be zero. The results obtained may be quite different if the possibility of a higher elasticity of substitution is envisaged. And, labour augmenting technical change may prove to be beneficial to labour if the elasticity of
factor substitution is greater than zero.

Other kinds of models such as models of endogenised technical progress can be incorporated within the framework studied. It is very likely that these would yield the same results.

This analysis is particularly relevant for the densely populated, Developing Economies of Asia and Africa as they are faced with the need to create employment while at the same time raising output. Contrary to the existing opinion, labour augmenting technical progress need not necessarily be injurious to labour and the conflict between output raising effects of technical change and the employment or labour saving bias of these techniques may not exist.