Chapter III

AGRICULTURAL UNDEREMPLOYMENT IN DEVELOPING ECONOMIES

3.1 INTRODUCTION

Many developing economies are faced with a problem of persistent unemployment and underemployment, bulk of which is located in agriculture. A major cause is over crowded agriculture. This situation prevails in a large part of Asia, some areas of Middle East, South Europe and Latin America. In all these areas most farms are too small to make full and effective use of all the available resources.¹

Most of the regions with surplus population in agriculture are situated in the tropical zone. Agriculture in the tropical zones is a more hazardous and less productive enterprise than in the temperate zones. Consequently, irrigation assumes exceptional importance in tropical agriculture and an irrigated acre of land produces about three times as much as an acre of dry land. Besides, the nature of tropical rainfall creates serious problems of floods and soil erosion.²

In this chapter an attempt is made to survey the problem of underemployment in agriculture especially in the context of

² Prafulla Sanghvi, op.cit., p.5.
over populated developing countries. Section 3.2 examines
the theoretical foundations of underemployment. Section 3.3
deals with some recent empirical studies of underemployment in
developing economies. Section 3.4 reports the broad conclusions
of similar studies on India. Finally section 3.5 makes some
concluding observations on the chapter content.

3.2 THE THEORETICAL FOUNDATIONS OF AGRICULTURAL
UNDEREMPLOYMENT IN DEVELOPING ECONOMIES

Habler opines that "What I think is wrong with the theory
of disguised unemployment by stating positively what in my
opinion is actually true in varying degrees in various countries,
not only in underdeveloped but in developed countries as well:
If it were possible to improve methods of production in
agriculture; if the skill of farm labourers is increased; if
social habits could be changed, a new spirit implanted and the
resistance to moving to land living incited and to working in
factories could be changed so as to working in factories could
be overcome; if technology in industry could be changed so as to
employ unskilled rural workers; if capital and other cooperating
factors could be provided in large quantities and better
quality; if and to the extent that all these things happen or
are done, agriculture can release a lot of labour without loss
of output and industrial output be stepped up at the same time."

3 Gottfried Habler, "Critical observations on some current
nations in the theory of economic development", L'Industria,
No.2, 1957, pp. 3-5, reproduced in Gerald M. Meier (Ed.),
Leading Issues in Development Economics; Selected materials
and commentary, Oxford University Press, Oxford, 1964,
p. 78.
Surplus manpower in agriculture is often described as disguised unemployment or underemployment and defined as the existence of a portion of labour force which can be removed without reducing output. Some studies presented statistical data for China, Eastern and South-Eastern Europe, to suggest that a large percentage of

4 The term "disguised unemployment" was originally used by Mrs. Joan Robinson in 1936 to describe a situation of inadequate aggregate effective demand in which workers were forced to take up low productivity jobs of a type inferior to those for which they were suitable and technically qualified, see Joan Robinson, 'Disguised Unemployment', Economic Journal, Vol. 46, June, 1936, pp. 225-237


agricultural labour were idle or redundant for substantial periods of the year. In 1945 Mandelbaum estimated that "about 27 per cent of active rural workers in Greece, Yugoslavia, Poland, Rumania and Bulgaria were redundant." After that he presented a "Mechanical Model" of planned industrialization to absorb the surplus labour within one generation. In fact the widely quoted United Nations Report in 1951 by a group of experts including W. Arthur Lewis, T.W. Schultz and U.R. Gadgil, cited these studies and added that it seems "safe to assume that for many regions of India and Pakistan, and for certain parts of the Philippines and Indonesia, the surplus rural population cannot be less than the pre-War average for East European region (20-25 per cent)." Most of the economists like, Nurks Lewis, Navratre, Eckaus and others support the views of zero marginal productivity of labour or surplus labour in underdeveloped agriculture. Eckaus explained the other factors like limited technical substitutability of factor of production in agriculture also responsible in the existence of disguised unemployment.

9 See, for reference, foot note 5.
10 Eckaus, *op. cit.*, p. 556
Concerted opposition\textsuperscript{11} to disguised unemployment came from Koestner, Schultz, Viner and Khusro. Egyptian economist Koestner was among the first who criticized disguised unemployment doctrine. Khusro criticised the Nurkse ideas that development could be initiated by forming capital through employment of redundant rural labour. While Schultz cited examples in Latin American countries where the removal of agricultural labour resulted in a decline in output, Viner was strong opponent of disguised unemployment who criticised Eckaus that the limited technical substitutability of factors of production is not strong reason in explaining disguised unemployment.

Some of the relevant questions which must be answered before the hypothesis of zero marginal productivity of labour could be accepted are: (i) if labour is unemployed or otherwise wasted, why are techniques not introduced which useless land and capital relative to labour, (ii) with given technology (fixed capital, land labour ratio), why is labour used to the point where no returns are forthcoming? Employers of hired

labour lose money when they pay a wage to labour whose product is zero or negligible. The self employed who produce nothing would do better to hire out their surplus labour for a wage, (iii) why are wages higher than marginal product? If large number of people produce nothing or very little, wages normally would be bid down to the marginal product of labour.

Several economists deal with one or more of the above questions in this manner. Eckaus\textsuperscript{12} described that disguised unemployment exists when, "with agricultural techniques remaining unchanged withdrawal of farm family labour would not reduce output." He then asks why if labour is in surplus, more labour intensive techniques are not in use. He believes that even the most labour intensive agricultural process requires some minimum amount of capital per unit of labour, there is some minimum ratio of capital to labour, but many underdeveloped nations have less capital than is required to utilize their whole labour force. Hence, a portion of the available labour supply is unused. Eckaus left it to others to explain why labour is used until its marginal productivity is zero but continues to be paid a positive wage.

Lewis\textsuperscript{13} analyses the relationship between the subsistence and capitalist sectors of an underdeveloped country. The rural labour surplus is disguised in the sense that every one is

\textsuperscript{12} Eckaus, \textit{op. cit.}, p. 545.
\textsuperscript{13} Lewis, \textit{op. cit.}, pp. 139-192.
working out if some proportion is withdrawn, output will not fall; the remaining worker just work harder. The urban surplus labour is openly unemployed, porters waiting for the next ship to come in, retail traders waiting for customer, messengers sitting in the courtyard. Workers, rural and urban, do not receive their marginal product, but a higher traditional wage. Labour employed in the capitalist sector is also paid the traditional wage as long as there is a surplus of labour in the subsistence sector.

Lewis' chief contribution to the concept of disguised unemployment is his explanation of the existence of a greater than zero wage when the marginal product of labour is zero. He explains by tradition and lack of alternatives the existence of self-employed labour which receives a positive wage but whose marginal product is negligible. In peasant agriculture, each family member receives the family's average product regardless of his contribution. Since there are no opportunities for receiving a wage higher than the average product on the family farm, there is no motivation to leave the farm and the average product will be greater than marginal product.

Ranis and Fei\textsuperscript{14} present an ingeniously elaborate model that may be regarded as a variant of the Lewis model. They give considerable emphasis to the reinvestment of profits in industry. In fact, the central aspect of their model is the financing of industrialisation from an agricultural 'Surplus'.

\textsuperscript{14} Ranis and Fei, \textit{op. cit.}, pp. 533-58.
a surplus of income as well as labour. They further explain
that as surplus workers leave the agriculture sector,
consumption per capita among those remaining remains constant.
Thus the food previously consumed by the workers who leave,
is sold to the industrial sector, where the same workers buy
it on the market out of their industrial wages. But all of
the income received by cultivators from its sale is saved.¹⁵

Leibenstein¹⁶ provides another explanation of a greater
than zero wage rate. When labour is unemployed and the labour
market is competitive, wages would be bid down to very low
levels. He explains the phenomenon of greater than zero
wages through an interaction between labour product and wage
rates.

Nurkse¹⁷ associates disguised unemployment with zero
marginal product of labour when some organisational changes are
introduced. If minor changes such as consolidation of land
holdings are permitted then a substantial amount of agricultural
labour can be used in other projects, such as building, dams

¹⁵ "So far as this direct effect is concerned, the level of
income elsewhere in agriculture remains unchanged, and
labour continues to be available at the subsistence plus
wage. However, food consumption in the families from
which members depart will rise. (This is the effect which
Lewis fails to consider). So Lewis' assumption of an
unlimited supply of labour is a classical one". Evertt
F. Hagen, 'The Economics of Development', Richard, D. Irwin

¹⁶ Leibenstein, op. cit., pp. 91-103.

and rural roads. He suggests that through reorganisation enough labour time can be saved to make feasible the utilization of labour in other capacities.

A study by Khusro\(^\text{18}\) rules out the applicability of the growth model of Nurkse and Lewis in so far as they base the policy of industrialisation on the exploitation of the saving potential inherent in the disguised unemployment associated with agriculture in the underdeveloped countries. In his opinion the modern sector should absorb surplus labour from subsistence sector, to promote development. A very real and serious difficulty is the supply of food necessary for additional industrial employment.

If only the food consumed by these unproductive workers could be transported to their new locations and made available to them, the most serious impediment to growth would be got out of the way.

While the strategy of transferring men who are not doing anything useful to sectors, where they might be doing something is obviously sound, there has been an awareness on the part of Nurkse as well as others, of some pitfalls in such a strategy. Nurkse had noted that when some men are transferred away from the farms, those who are left on the farms may consume more than before, so that the surplus or saving potential will be less by the extent of increased consumption. Secondly, those

\(^{18}\) A.M. Khusro, \textit{op. cit.}, pp. 2-5, 46-47.
who are transferred to urban industrial areas perhaps working with greater regularity and under conditions of industrial discipline and strain, may consume more food than before. Thirdly, there are costs of transfer of food which Nurkse mentioned and the cost of transfer of men which he did not. The surplus that remains to be transferred does not match the normal demand for food by the transferred workers.

There is possibility of yet another pitfall. The transferred workers will require some capital to work with. This will come from the savings of the non-agricultural sector. Savings which are admittedly in short supply for underdeveloped economies, and hence have to be most economically used as they could have gone into alternative use if they had not been used as capital required by the transferred men in new ventures.

When transferred workers are employed in non-agricultural occupations, they are given a wage at the end of the working day or week or month. As they spend the wage on food, stocks of food get depleted and prices tend to rise. Attracted by these higher prices, producers of food may presumably market a large proportion of their crops or indeed grow more food and market it. But a little reflection (as well as empirical evidence) shows that it is a far cry from increase of food prices to the actual availability of food in the non-agricultural sector. At least three serious leakages can be easily discerned:
(i) In the first place, the price insensitivity of farmers and the consequent price inelasticity of supply in under-developed agriculture is a well-known phenomenon. Thus food prices will rise but food production might fall to oblige to any significant extent.

(ii) Even production of some farmers might be reduced owing to increased food prices. In other words in some cases at least the backward sloping curve of agricultural supply may manifest itself; and to the extent this happens, the price mechanism will fail to deliver the goods. Food will not reach the non-agriculture sector in desired quantities and inflation will continue.

(iii) Finally, there is a hoarding propensity of farmers, wholesale traders and retail traders to contend with. Rising food prices, consequent upon transfers of workers, may easily lead to expectations of further price increase.

Mellor’s\(^\text{19}\) approach to disguised unemployment assumes a deficiency of demand. He argues that the peasant in under-developed country works hard to achieve some traditionally determined minimum standard of living, but has no motivation for increasing his income above that level because of tradition bound consumption patterns.

3.3 EMPIRICAL STUDIES OF DISGUISED UNEMPLOYMENT

A number of empirical studies of disguised unemployment in various countries have been made. Some of the important among them will be surveyed in the following pages. The discussion will centre, in the main, on two aspects: the methodology adopted and their empirical results.

Study on Thailand

Mellor and Stevens undertook a study of the average and marginal product of farm labour in Thailand, which was based on labour income records obtained by personal interviews in 104 rice farms at Bangchan, Thailand. All farms were assumed to have a identical rice production function. The total output of rice was estimated with a high degree of accuracy because most of the rice was taken to the local miller for polishing. Labour inputs were measured in terms of man equivalents on the basis of interviews concerning the number of persons available for farm work on each farm. In fact the study suggested that yields can be raised by greater use of labour.


21 Rephrase: Oshima is critical of the conclusions of this study mainly on grounds of methodology and regards it as inconclusive for either theoretical or policy use. For details see, Harry T. Oshima, "Under employment in backward economies: An Empirical Comment", Journal of Political Economy, Vol. 66, June, 1958, pp. 259-264.
study on Southern Italy

In 1957, Rosenstein-Rodan wrote that it was his firm belief that disguised unemployment of more than 5 per cent existed in many, though not all over populated countries; he supported this belief by measuring disguised unemployment in Southern Italy. According to them the amount of population in agriculture, which can be removed without any change in the method of cultivation and without leading to any reduction in output. Hence, the marginal product is zero or disguised unemployment.

The following major assumptions and criteria were used:

(i) only agricultural small holdings of peasant owners and tenants were included;

(ii) the active population was assumed to be between fourteen and sixty-five years of age;

(iii) surplus workers were assumed to be involuntarily unemployed;

(iv) labour hours required for each type of cultivation over the whole year, month by month, were counted and compared with available labour hours. An average of 270 available work-days per year was assumed;

(v) a distribution was made between (a) removable disguised underemployment or disguised unemployment; (b) seasonal under-

employment due to climatic factors. These distinctions were
taken into account in calculating the number of labourers
affected by disguised unemployment; and

(vi) a slight deviation from the rigid concept was allowed
in the analysis.

The author used the direct method of questionnaire to
distinguish different types of cultivation, different size and
forms of property, the composition of the labour force, and
the number of labour hours required and supplied. Rosenstein-
Rodan observed that "in Southern Italy around 10 to 12 per cent
of the actual population in agriculture are removable. He is
including among the removable surplus the individuals who
are needed for 50 days or less. If the more rigid definition
which is also the more sensible one, is adopted, the removable
surplus is reduced to 5 per cent."23

Study on Greece

The macro level study of Pepelasis and Yotopoulos'24 was
designed to measure the volume of removable surplus labour as

23 Carl Echer and Lawrence Witt (Ed.), 'Agriculture in
Economic Development', McGraw-Hill Book Company, New York,
1964, Chapter VII, p. 139, reproduced from Berdj Kenadjian,
"Disguised unemployment in underdeveloped countries."

24 Adam A. Pepelasis and Pan A. Yotopoulos: Surplus Labour
in Greek Agriculture, 1953-1960, Centre of Economic
Research, Research Monograph Series 2, Athens, Greece,
1962, pp. 86-138. Reproduced in Agriculture in Economic
Development, Edited by Echer and Witt, Chapter VII,
well as the seasonal surplus labour in Greek agriculture for the period 1953-1960. The authors measured surplus labour by comparing the labour available with the labour required for a given volume of output within the agriculture sector. The indirect method, using secondary data, was employed to derive estimates of labour availability and labour requirements.

Separate estimates of the annual agricultural labour requirements for farming, husbandry, forestry, fishing and agricultural transport were computed. Given each year's agricultural activities, Pepelasis and Yotopoulos derived annual labour requirements by product by applying a "Labour-intensity coefficient", that is, a labour/land and/or a labour-capital output ratio. The Labour coefficient were "expressed in terms of man and supplementary nine-hour work days estimated to be used per stremma of animal or unit of output to produce the given volume of agricultural output of the year". The authors found that "chronic (removable) surplus labour in Greek agriculture is virtually non-existent. In the eight years of study it existed only in 1953 and 1954 to a degree of 3.5 and 2.3 respectively. The other years of the period are marked by a seasonal shortage of labour; therefore, it cannot exactly determine how much chronic surplus labour is feasible to remove, its size can only be determined through a disaggregative microeconomic investigation based on the direct method of studying a sample of farm households". The important point of this study is the non-existence of disguised unemployment in
Greek agriculture during 1955-60.

**Study on Ghana**

International Labour Organisation (ILO) appointed an expert in 1957-58 to investigate the development of an employment information programme in Ghana where most of about 80 per cent of population was engaged in agriculture and agricultural allied activities. It was reported that "there is virtually no completely unemployed agricultural labour, although under-employment is fairly common, as a result both of seasonality and low levels of production, because much of the farming in Ghana is seasonal between April, September and October (when harvesting is completed)." During the off-season a large number of farmers from the north migrated to the southern region of Ghana in season of manual employment. In Cocoa farming the main crop is harvested from October to February and the mid-season crop from April to July. This means that employment is rather more evenly spread throughout the year.

**Study on Indonesia**

A Labour Force Sample Survey of Indonesia was conducted in 1958 with the help of I.L.O. technical assistance. The Survey

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consisted of the study of a sample of 10,700 rural and 1,300 urban households, rural being defined as a locality with less than 50,000 inhabitants and urban as one with 50,000 or more.

In agriculture, according to the estimates of the Survey, there were 15.74 million persons aged 12 years and over at work in the peak season of the agricultural year of whom 7.37 million worked for seven hours or more per day, 7.10 million four to six hours and the remaining 1.27 million for one to three hours. The estimated number of man-hours of work in both seasons worked out at 22,352.9 million. If, however, all 15.74 million workers had full employment for 305 days in the year, and if they had worked for seven hours a day, the total number of man-hours would have been 33,604.9 million. The maximum under-employment in agriculture would thus seem to be 11,252.5 million man-hours or 33 per cent. This rough figure, of course, takes no account of the fact that many of the 15.7 million persons engaged in agriculture in the peak season were not actually available for employment for seven hours per day all the year round.

Study on Philippines

Several rounds of a sample survey of households were conducted between October 1956 and March 1957 and May 1957 in the Philippines27 with the object of collecting comprehensive information various aspect of the labour force.

The concept of underemployment of workers used in this study was very different from those adopted by other surveys. Persons working below than 40 hours a week or above, who wanted additional work were considered invariably underemployment. In October 1956 the number of people working less than 40 hours a week and seeking additional work was 1.6 million. In May 1957 the figure still stood at 1.4 million. Underemployment, as could be expected, was more serious among agricultural workers than among non-agricultural workers, but the difference was not large.

Studies on India

Few attempts have been made to study the problem of agricultural underemployment in India. It is only after independence that an interest has been shown in the problem resulting in some studies. More important among them are - Schultz studied in influenza epidemic of 1918-19 in India to test the hypothesis that the marginal product of a part of the labour force in agriculture was zero.28 Schultz estimated the existence of disguised unemployment by comparing the reduction in average sown with the reduction in the labour force. Such a comparison assumes that if any disguised unemployment exists, the acreage sown will not be reduced as a result of a sudden reduction in the labour force. The rationale for such a comparison was, "where there are many people relative to land

and much land is cultivated intensively, the expectation would be that acreage sown would be less sensitive to a decrease in the labour force than the total yield**, therefore, the acreage sown "would be a more decisive test than a reduction of the same percentage in agricultural production." Schulz found that the agricultural labour force in India was reduced by about 9 per cent.

Schultz in his study of 'Some Problems of Underemployment' studied two facets of underemployment in agriculture, namely disguised and seasonal unemployment.

Field investigations covering three months in 1954-55 were conducted in nine selected villages of Bombay and Karnataka regions to measure the degree of disguised unemployment. The author interviewed village officers and studied village records to determine the population, occupations, land use, number of live stock, labour movements, work schedule and standard cultivated holdings in each village. He intensively interviewed twenty-five families in each village to determine family size, occupation, source of income, size of holdings and annual work schedule.

Majumdar found in his study of small farmers that 71

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29 Schultz, op. cit., p. 11.
per cent of farmers were affected by disguised unemployment, and could be removed from the region without lowering production. He felt no need to estimate the productivity of farm or the productivity of the groups, using the standard holdings approach to underemployment. This is defined as "taking the size of labour force as given, disguised unemployment may be described as a situation in which the withdrawal of a certain quantity of the factor labour to other uses will not diminish the total output of the sector from which it is withdrawn, given a measure of reorganisation in sector."

Three agricultural and rural labour enquiries were conducted by the Government of India in 1950-51, 1956-57 and 1963-64 with the main objective of collecting information on certain socio-economic conditions of agricultural labourers (workers) in rural areas. The first conducted in 1950-51 studied a sample of 11,000 agricultural labour families spread over 800 villages, second in 1956-57 covered 21,000 agricultural families in 3,600 villages. In 1963-64 the scope of enquiry was extended to include other rural labour household covering over 37,000 household in 8,500 villages.

Table 3.1 makes a comparative study of the scope, methodology and the main findings of each of their enquiries.

31 A household is defined as a group of persons who commonly live together and would take their meals from a common kitchen and help in their family work.
### TABLE 3.1
Agricultural and Rural Labour Enquiries in India - A Comparative Chart

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<tr>
<td>1 Coverage</td>
<td>These enquiries were conducted in a fixed set of 800 villages for a period of 12 months.</td>
<td>These were conducted in about 3,600 villages, which formed a moving set of villages, evenly over a period of 12 months.</td>
<td>These were conducted for about 37,000 rural households in 8,500 villages.</td>
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<tr>
<td>2 Data Collected</td>
<td>Data were collected on wages, income, expenditure, indebtedness and employment and unemployment of agricultural labour families on a monthly basis.</td>
<td>Data collected more or less on the same lines as First Agricultural Labour Enquiry.</td>
<td>Data on wages, expenditure, farm employment were collected of agricultural and rural labourers.</td>
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<tr>
<td>3 Definition of agricultural labour</td>
<td>A household was considered to be an agricultural labour household if the major part of earnings of household was derived by members working as agricultural labourers. An agricultural labour family was defined as one in which either the head of the family or 50 per cent or more of the earners reported agricultural labour as their main occupation. The main occupations of the person was one in which he was engaged for 50 per cent or more of the total number of the days worked by him during the previous year.</td>
<td>Agricultural labour was defined to include labour not only employed in crop production but also in other agricultural occupations, such as dairy, farming, horticulture, raising of livestock, bee farming or poultry farming, etc. Any agricultural labour family was defined as one which derived a major portion of its income from agricultural wages.</td>
<td>According to the Rural Labour Enquiry an agricultural labour household is one which derives a major portion of its income from wage-paid employment in agricultural operation.</td>
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TABLE 3.1 (Contd.)

4 Methodology

No meticulous attempt was made to measure the varied economic activities in quantitative form. Employment data were collected only for those adult male workers who reported wage employment in each month. In the case of workers who did not report wage employment in each month, it was assumed that they were self-employed for half of the period and unemployed for the other half. Wage employment for half of the day and less than half was ignored. Data on selfemployment were not collected separately, but was obtained by inference as the residual left after deducting wage employment and unemployment for 365 days.

Total number of days spent in different types of activities was recorded separately under suitable intensities of employment classification. The number of workers was calculated after assigning proper weightage to part employment. The data on unemployment were obtained as a residual after deducting employment and selfemployment for 365 days.

5 Findings

Average annual income of an agricultural household was Rs. 447. Unemployment among adult male agricultural worker was 98 days on the assumption that on an average 14 per cent of adult male agricultural workers who were not engaged in wage-paid employment throughout the year.

Average annual income of an agricultural labour household was Rs. 437 that decreased by Rs. 10 from 1950-51. Adult women were unemployed on India level for 196 days in a year as comparable to 128 days of unemployment for male workers.

Average annual income of an agricultural labour household had gone upto Rs. 660, that is about 51 per cent. During this period the income from cultivation of land per household increased by 41.5 per cent, income from wage-paid annual employment increased by 53.7 per cent. Women agricultural labourers were unemployed for a greater number of days when compared to male agricultural labourers. Women agricultural workers were employed due to want of work for 96 days in a year and were not at work for 24 days due to sickness, bad weather, etc.
3.4 CONCLUDING REMARKS

The foregoing review of studies of agricultural underemployment and underemployment in India and elsewhere seems to suggest its presence in varying degrees and form. The conclusion appears to be warranted that the agricultural sector in developing economies, by and large, serves as a refuge to their surplus population without a corresponding increase in output. In this context the approach of the developmental models with their implicit employment policy aiming at transferring workers from the agricultural sector to the non-agricultural may not be very helpful in view of the magnitude of the problem.