The Application of the Phillip Hauser Concept to The Underutilisation of Labour in Bangladesh : A Case Study of Chittagong District**

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1. The Conceptual Development of the Theory of Underutilisation of Labour : The Phillip Hauser Concept

The Labour Force Concept (also known as the Economically Active Population Concept) was developed in the U.S.A. during the Great Depression of 1930s. This concept was developed with a view to obtaining a better measurement of the unemployed population. The prevalent Work Force Concept of that time could not provide an adequate estimate of the unemployed population. Unemployment is obviously a serious problem both for individual and the society. But it may so happen that unemployment rate is quite low while a serious underutilisation of labour exists in an economy. One of the major drawbacks of the Labour Force Concept is that it assumed the formalised and institutional work situations in the developed and developing countries as identical. But in practice, this is not so. In the developed economy there is a clear distinction between work and non-work activities where home and work place are usually separated. But in developing countries this is not so. In developing countries there is the prevalance of self- employment and non-paid family labours. The Labour Force Concept fails to recognise the very informal social and economic underpinnings of work in the developing countries. The improvement upon the Labour Force Concept was needed to utilise the large amounts of data on labour force in more productive and useful manner. One of such improved techniques is the Labour Utilisation Framework developed by Phillip Hauser. Myrdal was also not happy with the conceptual device and measurement tools of the Labour Force Concept. He is specially critical of the three assumptions of the Labour Force Concept. The assumptions are : (a) labour can be viewed primarily as a quantity regardless of qualitative dimensions, (b) idleness or partial idleness can be assumed to be involuntary, (c) unemployment can be reduced by the provision of work opportunities.

The Labour Utilisation Framework uses the same basic population as that of the Labour Force Concept. Here 'population' means the population of the working age. This working population is again divided into two : economically active and economically inactive. The definition of economically inactive population is the same in both the Labour Force Concept and the Labour Force Utilisation Framework. The economically active population are those who are either at work or looking for work. The non-economically active population are those who are at school, enjoying pension or sick. Thus, if a person is both economically and non-economically active during the reference week, that person is classified as being in the labour force. Those who are only non-economically active during the reference week are not included in the labour force.

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However, the categories used to divide the components of the economically active population are different in both the concepts. The Labour Force Concept divides the economically active population into employed and unemployed while the Labour Force Utilisation Framework divides them into fully utilised and underutilised. The Labour Force Utilisation Framework categorises underutilisation of Labour into four : (a) underutilised due to unemployment, (b) underutilised due to total hours of work, (c) underutilised due to income and (d) underutilised due to mismatch between occupation and education. A brief description of the types of underutilisation of labour is given below :

(a) Underutilisation due to unemployment : Underutilised persons due to unemployment include any of the following categories :
i) persons who never worked before, but are looking for work ;
ii) persons who usually work, but did not work during the survey period and are looking for work ;
iii) persons who are released from duty and are looking for work.

(b) Underutilisation due to time : Underutilised persons due to time include those persons who work, but have fewer hours of work than in a normal work-week in a society.

(c) Underutilisation due to income : Underutilised persons due to income include those who have full-time work, but receive a very low income in return for their work.

(d) Underutilisation due to mismatch between occupation and education : The persons underutilised due to mismatch between occupation and education include those persons who are placed in occupation not consistent with their training and skill.

The fully utilised persons are those who are economically active and do not fall into any of the above categories.

Hauser Concept thus reflects more accurately the intricacies and complexities of the labour force situation in the developing countries by providing information on different types of labour utilisation.

A detailed understanding of the labour situation in any society can be obtained by looking at the above categories of underutilisation of labour mentioned above. The proportion of the economically active population in any categories can vary over time because of the sub-grouping of the population. Therefore, the differential incidence of various types of underutilisation between population categories such as men and women, rural and urban people, household heads and members of household etc. are topics of great interest specially in developing countries.

2. A Brief Review of Some Studies Applying the Hauser Concept

Smith applied this Hauser Concept to study the labour situations in the Philippines in 1976.[1] Smith's study found that the urban-rural differentials were characterised by high level of unemployment and underutilisation due to mismatch in urban areas. The former was prevalent mostly among wives. Underutilisation due to time and income was most common in the rural areas. The former was mostly common among adult people while the latter was mostly common among housewives. The young people under age of twenty years were found to face underutilisation due to income. The problem of mismatch between occupation and education

was clearly a phenomenon of youth which directly reflected the fact that the young people had relatively high educational attainment.

Redmana applied the Hauser Concept to study the labour situations in Indonesia.[2] Redmana found nearly the same pattern which had been found by Smith. Redmana found that unemployment was common among young and almost exclusive among adults. Household heads were rarely unemployed. Underutilisation due to time was more evenly spread across age groups, but tended to be concentrated among young wives and young men who were not heads of households. Redmana did not measure underutilisation due to mismatch. This was due to the fact that he failed to find the statistical average years of the educational attainment of the people concerned in a given occupation. The survey got only thirty occupational categories for eight educational groupings. These data were too crude to measure labour underutilisation due to mismatch.

3. Objectives of the Study

Based on the above background, the principal aim of the study is to apply the Hauser Concept to some rural and urban areas of Chittagong with a view to answering the following questions:
(a) Does underutilisation of labour exist in the study area?
(b) Is there any variation in the nature and extent of underutilisation of labour between the rural and urban areas under study?
(c) What should be the appropriate policy implications for increasing utilisation of labour in the study areas?

4. Methodology

(a) Selection of the Study Areas, Sample Size and Unit of Study

Four densely populated villages of Chittagong district such as Haith Kandi (under Mirsarai Thana), Mahalanka (under Mirsarai Thana), Kalabaria (under Sitakund Thana) and Harwalchari (under Fatikchari Thana) have been seleced for study. In each village 50 household heads were interviewed on the basis of random sampling. In the same way, four densely populated urban areas of Chittagong port city such as Agrabad Residential Area, North Halishahar, Char Bakalia and Panchlaish Residential Area have been selected for study and in each of the areas, 50 household heads (permanent residents) have been interviewed on the basis of random sampling.

(b) Data Collected

Data have been collected on various aspects of rural and urban households. Among others, the data collected included the following : occupation, total hours of work per week, acreage of cultivated land, value of properties, age, level of education, size of family, size of income etc.

(c) Methods of Data Collection

Data have been collected through field investigation on the basis of a prepared questionnaire.

(d) Formulation of Hypotheses

(I) Underutilisation due to Time (UU_t)

Total hours of work are determined by several explanatory variables such as farm size, size of family, age, level of education and value of properties etc. We hypothesize the following types of relationship between underutilisation due to time and the explanatory variables mentioned above:

i) Underutilisation due to Time and Farm Size

Working activity in the rural areas is closely related with agricultural sector activity. Because in the rural areas non-farm employment opportunities are extremely limited. Farmsize has a significant influence upon the number of hours of work. Therefore, the greater is the size of agricultural land, the greater number of hours of work will be devoted to it. So, the greater is the size of agricultural land, the lower should be the underutilisation due to time. We, therefore, expect that the relationship between farmsize and underutilisation due to time to be inverse or negative.

In the urban areas, the influence of farmsize upon underutilisation due to time is not expected to be significant and as such no definite relationship between the two can be hypothesized.

ii) Underutilisation due to Time and the Age of the Individual

The individual age has also influence upon the number of hours of work. It is said that a labour will be the best fit for work in the interval of 35-54 years of age. Beyond this range the fitness is expected to decrease gradually. Therefore, we expect that there is parallel relationship between fitness and total hours of work. Because it is expected that the more fit a person is, the more he will devote his time to work and less will be the underutilisation due to time. Therefore, the relationship between underutilisation due to time and age will be inverse or negative for group of the best fit interval.

iii) Underutilisation due to Time and Family Size

It is also expected that the size of family (such as spouse, children and other relatives who are members of the head of household) also influences total hours of work. According to White, children is a positive asset to the family economy.[3] The increase in the number of children may alleviate the parent's task. Based on this view, we postulate a positive relationship between size of family and underutilisation due to time. That is, the higher is the size of family, the higher will be the underutilisation due to time.

iv) Underutilisation due to Time and the Level of Education

It is expected that the more educated a person is, the less will be the underutilisation due to time. Since education is an investment in human capital,[4] an educated person is expected to work more efficiently than a non-educated person does. Therefore, it is expected that the relationship between underutilisation due to time and level of education will be inverse or negative.

v) Underutilisation due to Time and the Value of Properties

The value of total properties includes the value of (a) house and other buildings, (b) land and working capital and (c) durable goods. The higher is the value of properties, the higher will be the possibility of creating employment by himself if the scope of employment elsewhere is limited. Therefore, it is expected that the higher amount of properties will reduce the person's possibility of being underutilised due to time. So, at least in the short-run the value of total

properties and underutilisation due to time are expected to have a negative correlation.

Thus, the determinants of underutilisation due to time can be summarised as follows:
$UU_t = f(L, Y, F, K \text{ and } P)$
where,
L = farm size,
Y = age,
F = size of family,
K = level of education and
P = value of properties.
Then, the $UU_t = a_0 + a_1L + a_2Y + a_3F + a_4K + a_5P + e$
where,
UU_t = Underutilisation due to time. The variable will take a value of 1 if a head of household is underutilised or 0 otherwise.
a_0 = constant,
$a_1 \ldots a_5$ = co-efficients of the explanatory variables.
e = random disturbance.

II) Underutilisation due to Income (UU_t)

The income received by a household also is determined by several explanatory variables like farm size, individual age, family size, level of education and value of properties.

i) Underutilisation due to Income and Farm Size

Farm size together with inputs determine total amount of agricultural production which in turn determines the total earning of a head of household in the rural areas. Therefore, it is expected that the relationship between farm size and income is positive. So, the greater is the farm size, the less will be the probability of being underutilised due to income and as such the relationship between them should be negative.

But farm size is not expected to exert any significant influence upon urban income and therefore, no definite relationship between the two is postulated for the urban area.

ii) Underutilisation due to Income and the Age of the Individual

The level of income, to some degree, is determined by the individual age. Working experience of a person is closely related to the individual age and it is the working experience which exerts influence upon the level of income.

According to Hansen's study, the group of people who get the highest income in every level of education was the group of people in the interval of 45-54 years of age.[5] Beyond this range, income generally decreases, but before reaching that range it would increase gradually. Therefore, it is expected that the relationship between underutilisation due to income and the individual age is negative or inverse i.e., the older a head of household is, the smaller will be the probability for a person to be underutilised due to income.

iii) Underutilisation due to Income and the Size of Family

It is expected that the size of family will motivate a head of household to work harder. The higher the dependency ratio is, the higher will be the need for work with a view to earning higher income. Smith's study found that unmarried and young groups are most underutilised

due to income since they do not have dependants.[6] We, therefore, expect that the relationship between underutilisation due to income and family size is negative.

iv) Underutilisation due to Income and the Level of Education

It is expected that an educated person will produce more because he is more efficient and as such his income will be high. Therefore, it is expected that the relationship between underutilisation due to income and the level of education is negative.

v) Underutilisation due to Income and the Total Value of Properties

The properties include the whole earning asset and operating capital such as agricultural land, cash money, house and other establishments, cattles and other durable goods. It is expected that the higher is the value of properties, the smaller will be the possibility for a person to be underutilised due to income. Therefore, we postulate a negative relationship between the underutilisation due to income and the value of total properties.

In this case also, the determinants of underutilisation due to income may be shown as follows :

UU_i = f (L, Y, F, K and P),

Where,

L = farm size,

Y = age,

F = size of family,

K = level of education and

P = value of properties.

If we assume dependent variable as a linear function of the independent variable, the UU_i may be expressed as follows

$$UU_i = b_0 + b_1L + b_2Y + b_3F + b_4K + b_5P + e$$

where

UU_i = Underutilisation due to income. The variable will take a value of 1 if a head of household is underutilised due to income or otherwise 0.

b_0 = Constant

$b_1 \ldots b_5$ = co-efficients of the explanatory variables.

e = random disturbance.

III) Underutilisation due to Mismatch between Occupation and Education (UU_m)

Underutilised due to mismatch between occupation and education includes those persons whose occupation is not commensurate with their training and skill. Since no clear-cut relationship between underutilisation due to mismatch and the above stated independent variables can be hypothesized, the nature of relationship between underutilisation due to mismatch and the independent variables will be examined on the basis of data obtained through field survey.

IV) Underutilisation due to Unemployment (UN_n)

This type of underutilisation is not the central focus of the present study since none of the selected household heads are found unemployed.

In this study, the linear probability model can be used by considering the dependent variables, namely, UU_t and UU_i as dichotomous variables. That is, a head of household is either

underutilised or not underutilised. Then, the regressand in the model can take on only two values which may be designed as 0 and 1. Here 1 stands for underutilised and 0 for otherwise. In such case, we can not treat the dichotomous regressand problem as an ordinary linear regression problem taking the expected value of dependent variables to be a linear function of the regressors:

$Y = X . B + t$

where Y = vector of the dependent variable,

X = the independent variable and

E = Error term.

Then, the classical least square estimator may be obtained. In view of the 0, 1 nature of the regressand, the conditional expectation of Y given the X's can be interpreted as the conditional probability that the event will occur given the X's. Then, the calculated value of Y may be interpreted as an estimate of this conditional probability.

e) Measurement of the Variables

There are two regression equations namely, the UU_t and UU_i equations which have been estimated. Each of these equations provides the relationship between underutilisations of household due to time, with several variables as have been formulated in the previous sections.

f) Definition of the Variables

I) Dependent Variables

i) Underutilisation due to time

In the present study forty eight hours of work per week have been used as the total hours of work threshold to decide if a household is underutilised due to time or not. This is appropriate as per modern standard. An eight hour labour law governs working hours in the formal sector and six days work per week or forty eight hours of work per week have been used as an standard.[7]

In our study we have defined underutilisation due to time as follows :

a person is underutilised due to time if he works less than total hours of work threshold and desires more work without which he can not do.

ii) Underutilisation due to Income

Underutilisation due to income has been defined as an income cut-off point in terms of rice purchasing power. The income threshold implies that a person has enough income to buy a certain amount of staple food, i.e., rice. Some studies[6] show that a person in the rural areas requires 25 seers of rice per month and a person in the urban areas requires 35 seers of rice per month for subsistence. However, these amounts are estimated in terms of rice purchasing equivalent and they should be multiplied by a relevant market price of rice. If we make allowance for other non-rice subsistence cost, then we can add 10 seers of rice to the consumption needs of the rural people and 15 seers of rice to the needs of urban people. The total amount then stands at 35 seers for the rural areas and 50 seers for the urban areas. These other costs are implicitly linked to the price of rice and this seems a reasonable assumption in a low income society of Bangladêsh where rice is a major staple. It should be mentioned here that the difference in the rice standard between the rural and urban areas does not imply that the urban people eat more than those in the rural areas. This difference is rather due to differences in the cost of living between the rural and urban areas.

Two definitions of the underutilisation due to income are used in the study based on rice standards. These are : (a) minimum definition, (b) maximum definition. The minimum definition refers to a head of household as one who can not earn sufficiently to provide him or her with an equivalent of 25 seers of rice (rural area) or 35 seers of rice (urban area) per month. The maximum definition refers to a head of household as one who can not earn sufficiently to supply the basic needs of an average - sized household in the study area, i.e., to supply 35 seers of rice (rural area) or 50 seers of rice (urban area) per person in the average-sized rural or urban household.

The minimum definition of an individual underutilised due to income is focussed on the individual definition of low income. In this definition it is assumed that no person has any dependants which is, of course, very much unrealistic assumption. Because the average household supports more than one or more economically active member.

The maximum definition assumes that each working person (head of household) earns enough to provide for the needs of the average-sized household. This is also an unrealistic assumption. In practice, usually there is more than one economically active person in a household in a particular area. However, any definition of underutilisation due to income is arbitrary. Anyway, by providing information on the underutilisation due to income according to both criteria we expect to add greater depth to the discussion and greater understanding of the underutilisation due to income. Thus, the standard to classify underutilisation due to income in both the definitions can be summarised as follows:

Item	Rural Area	Urban Area
i) Rice requirement per person per month (seer)	35	50
ii) Rice price per seer (Tk.)	7 (average)	9 (average)
iii) Average size of household in the study area	6	4
iv) **Monthly income needed in terms of basic needs (Tk.)**		
(a) minimum definition	245	450
(b) maximum definition	1470	1800

By considering this cut-off income as a critical value, we determine if a head of household is underutilised or not.

II) Independent Variables

i) Farm Size (L) : It refers to the land usually and actually cultivated by a head of household and his family. It includes all of the agricultural land whether owned, hired or sharecropped.

ii) Age (Y) : This refers to the age of household head in full years.

iii) Family Size (F) : It includes all household members who stay or work together with household head such as spouse, children and other relatives.

iv) Level of Education (K) : It refers to the highest formal education completed by the head of household. It is measured by years of schooling and expressed in terms of point system (such as illiterate = 0, primary = 1, SSC = 2, HSC = 3 etc.).

v) **Value of Properties (P) :** This includes all liquid assests, non-liquid assets and also working capital of a household head. The value of house and other durable goods are also included in this variable. This value is expected to reflect the level of wealth of household head in terms of money. In estimating the value of each property, a local price level is used.

g) **Techniques of Analysis :** The hypotheses that have been formulated in the two basic regression equations, namely the underutilisation due to time (UU_t) and the underutilisation due to income (UU_i) have been tested by using multiple linear regression analysis. Due to space constraints, the tables indicating regression results and other relevant tables are not shown in this article.

Besides multiple linear regression analysis, correlation, ratios, percentages etc. have been used for analysis. Qualitative information has also been used to supplement data gap.

6. Summary of the Findings and Policy Recommendations

(a) Summary of the Findings

Out of a sample of 200 employed household heads in the rural area and 200 employed household heads in the urban area, 49.60 percent are found underutilised due to time in the rural area and 51.95 percent are found underutilised due to time in the urban area in terms of UU_{t40} model.[8] In terms of UU_{t48} model[9], this figure is 62.5 percent for the rural area and 58.98 percent for the urban area. In terms of UU_{im} model[10], 74.21 percent are found underutilised due to income in the rural area and 56.64 percent are underutilised due to income in the urban area. 15.62 percent are found underutilised due to mismatch between occupation and education in the rural area while 19.92 percent are found underutilised due to mismatch in the urban area.

Among the five explanatory variables incorporated in the UU_{t40}, UU_{t48}, UU_{im} and UU_{ix} models[11], four variables namely, farm size, age, level of education and value of properties have signs corresponding to our hypotheses in case of rural area. All these four explanatory variables are negatively related to the underutilisation due to time and income both according to maximum and minimum definitions of time and income. However, co-efficients of regression of these variables are not so significant in case of rural area.

In case of urban area, three variables such as age, family size and level of education have expected signs, i.e., these variables are negatively correlated and the co-efficient is significant at the conventional level in terms of UU_{t40} and UU_{t48} model. The underutilisation due to time and value of properties are positively correlated in terms of UU_{t40} and UU_{t48} models in case of urban area contrary to our expectation. That is, the higher is the value of properties, the higher is the value of underutilisation due to time.

The co-efficients of regression of property both in the rural and urban areas are not significant although they have the expected signs.

The UU_m[12] and L (farm size) are negatively correlated. It implies that a poor man is more underutilised due to mismatch compared to a rich man.

The UU_m and Y (age) are positively correlated both in the rural and urban areas, but the co-efficient of regression of this variable in case of urban area is not significant at the conventional

level. It is noticeable that most of the persons underutilised due to mismatch falls within 20-40 age-group.

The UU_m and F (family size) are negatively correlated in the rural area while it is positively correlated in the urban area. But the co-efficients of regression of this variable in the urban area is not at all significant. Therefore, it is most likely that the higher is the family size of a household head, the lower is the underutilisation due to mismatch.

The UU_m and K (level of education) both in the rural and urban areas are positively correlated, but the same is not significant in case of urban area. The positive correlation between UU_m and K implies that underutilisation due to mismatch is most common among the highly educated persons. In fact, it is sometimes seen that a Master degree holder in History or Sociology is appointed to render a job of economist or scientific officer totally disregarding the requisite qualifications and skill for the job.

The UU_m and P (value of properties) are positively correlated both in case of urban and rural areas, but the co-efficient of correlation in case of urban area is not at all significant. The positive correlation between UU_m and P implies that a rich person usually takes recourse to a job not commensurate with his training and skill. For instance, we sometimes find a son of a rich man with a Master degree in English doing business in vegetables or groceries.

(b) Policy Recommendations

Based on the empirical findings presented above, some tentative suggestions can be made with a view to increasing the degree of labour utilisation in the study areas. The real problem in the rural area is the lack of non-farm employment opportunities. With a view to creating additional work opportunities, home industries should be developed. The home industries should be characterised by labour intensive technology which will have the capacity to absorb labour.

The improvement of technology is needed to stimulate the level of productivity. The choice of an appropriate technology is a must which would maximise output without affecting employment. With this end in view, the introduction of an intermediate technology will be most welcome.

The education policy should be framed as per requirement of our country. The employment policy should be designed in such a way that appointment of right man in the right place is ensured. Discriminatory employment practices should be prohibited. This will provide due incentive to our useful manpower and help utilise them in the best possible way.

A drastic land reform based on equity and justice should be introduced for efficient utilisation of poor and landless labourers in the rural area.

Appropriate fiscal and monetary policies should be introduced for increasing labour utilisation.

Last but not the least, a complete reorganisation of the existing institutional structure is urgently required for effective and optimum utilisation of our human resources. The export of redundant manpower should be encouraged so as to reduce pressure of unemployed labour force on our economy side by side with effective population control programmes.

Notes

1. Peter C. Smith and Lita J. Domingo, *Determinants of the Underutilisation of Labour in the Philippines*, (Rizal : June, 1976), p. 33.
2. Han Redmana; Hazel V. J. Moir and Daliyo, *Labour Force and Labour Utilisation in Selected Areas in Java*, (Jakarta : LEKNASLIPI, 1977), pp. 104-105.
3. Benyamin White, "Demand for Labour and Population Growth in Colonial Java", *Human Ecology*, I (March, 1973), pp. 217-236
4. Mark Blaug, *An Introduction to the Economics of Education*, (England : Penguin Books Series, Ltd., 1970), pp. 15-29.
5. W. Lee Hansen, "Total and Private Rate of Returns to Investment in Schooling", *Journal of Political Economy*, Vol. 81, No. 2 (April, 1964), pp. 128-141.
6. Benyamin White, "Demand for Labour and Population Growth in Colonial Java", *Human Ecology*, I (March, 1973), pp. 217-236.
7. We have also used a minimum definition of underutilisation due to time according to which forty hours (five days' work week) are assumed to be total working hours per week. Anybody working less than forty hours per week is regarded as underutilised due to time according to the minimum definition.
8. UU_{t40} = Underutilisation due to time according to minimum definition.
9. UU_{t48} = Underutilisation due to time according to maximum definition.
10. UU_{im} = Underutilisation due to income according to minimum definition.
11. UU_{ix} = Underutilisation due to income according to maximum definition.
12. UU_{m} = Underutilisation due to mismatch between occupation and education.

References

1. Blaug, Mark, ed. *Economics of Education*, England : Penguin Book Ltd., Harmondsworth, 1972.
2. Chowdhury, Omar Haider, "Choice of Technique in a Dual Labour Surplus Economy : A Case Study of Bangladesh," *The Bangladesh Development Studies*, Vol. VIII, Monsoon 1980, No. 3, BIDS, Dhaka.
3. Chowdhury, Rafiqul Huda, "Labour Force Status and Fertility," *The Bangladesh Development Studies*, Vol. II, October, 1974, No. 4, BIDS, Dhaka.
4. Domingo, Lita J. *Measurement of Labour Underutilisation Among Filipino Male Household Heads : An Application of the Hauser Methodology*, Manila, University of Philippines, 1974.
5. Hauser, Philip M. "The Labour Force and Gainful Worker Concept, Measurement and Comparability", *American Journal of Sociology*, (January, 1949).
6. "The Measurement of Labour Utilisation", *The Malayan Economic Review*, Vol. XIX, No. I , April 1974, p. 1-14.
7. Huq, Habibul A. F. M., "Labour Force Analysis : Bangladesh, 1974", *The Bangladesh Development Studies*, Vol. VI, Summer 1978, No. 2, BIDS, Dhaka.
8. Islam, Rizwanul, "Graduate Unemployment in Bangladesh : A Preliminary Analysis", *The Bangladesh Development Studies*, Vol. VIII, Autumn 1980, No. 4, BIDS, Dhaka.
9. Joshi, Nandini U., "Estimating Future Unemployment of Graduates," *The Bangladesh Economic Re-*

view, Vol. I, October 1973, No. 4, BIDS, Dhaka.

10. Klein, L. R. *An Introduction to Econometrics*, Englewood Cliffs, New York, Prentice Hall, Inc., 1962.
11. Khuda, e-Barkat, "Estimation of Potential Supply of Labour in a Rural Agrarian Economy", *The Bangladesh Development Studies*, Vol. VII, Winter 1979, No. I, BIDS, Dhaka.
12. "Measurement of the Economically Active Population : An Alternative Approach", *The Bangladesh Development Studies*, Vol. VII, Autumn, 1979, No. 4, BIDS, Dhaka.
13. *Manpower Bulletin*, Bangladesh Bureau of Manpower, Employment and Training, Govt. of Bangladesh, (Various Issues).
14. Masum, M., "Unemployment and Underemployment in Bangladesh Agriculture : A Micro Study", *The Bangladesh Development Studies*, Vol. VII, Summer 1979, No. 2, BIDS, Dhaka.
15. Meter, John and Maynes, E. Scott. "On the Appropriateness of the Correlation Coefficient with a 0, 1 Dependent Variable", *Journal of the American Statistical Association*, June, 1970.
16. Rahman, Rashidan Islam, "Measurement of Rural Unemployment : A Disaggregative Approach", *The Bangladesh Development Studies*, Vol. VI, Winter 1978, No. I, BIDS, Dhaka.
17. Rahman, Rashidan Islam, "Implications of Seasonality of Rural Labour Use Pattern : Evidences From Two Villages in Bangladesh", *The Bangladesh Development Studies*, Vol. IX, Winter 1981, No. 1, BIDS, Dhaka.
18. Redmana, Han R. Moir; Hazel V. J. and Daliyo, *Labour Force and Labour Utilisation in Selected Areas in Java*. Vol. I and II, Jakarta : LEKNASLIPI, 1977.
19. Streeten, Paul and Stewart, Frances, "Conflicts Between Output and Employment Objectives in Developing Countries", *The Bangladesh Economic Review*, Vol. I, January 1972, No. I, BIDS, Dhaka.
20. Sudarman, Ari., "Labour Utilisation of Household Head in the Rural Area of Yogyakarta Special District, Indonesia, 1976", Thammasat University, 1978.
21. Turnham, David., "The Employment Problem in Less Developed Countries" *Development Center Studies*, OECD, Paris, 1971.
22. White, Benyman, "Notes on Agricultural Employment and Rural Labour Utilisation in Java", Bogor : *Agro Economic Survey*, 1977.