

**INTERRELATIONSHIPS AMONG CERTAIN SOCIOECONOMIC VARIABLES  
IN A RURAL POPULATION OF BANGLADESH**

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Dacca, Bangladesh**

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## PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international, philanthropic and non-profit centre for research, education and training as well as clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). The activities of the institution are to undertake and promote study research and dissemination of knowledge in diarrhoeal diseases and directly related subjects of nutrition and fertility with a view to develop improved methods of health care and for the prevention and control of diarrhoeal diseases and improvement of public health programmes with special relevance to developing countries. ICDDR,B issues two types of papers: scientific reports and working papers which demonstrate the type of research activity currently in progress at ICDDR,B. The views expressed in these papers are those of authors and do not necessarily represent views of International Centre for Diarrhoeal Disease Research, Bangladesh. They should not be quoted without the permission of the authors.

ABSTRACT

Interrelationships among three key socioeconomic variables— household income, education and occupation of head of 2352 households were determined and compared with a fourth variable, dwelling space. The 1974 census data of Matlab demographic surveillance about dwelling space, education and primary occupation of head of households were matched with household income data calculated on the annual household land yield collected through a follow-up systematic sample survey in five percent of the households.

There was significant difference in the mean education level and the mean dwelling space between occupational groups ( $P < 0.001$ ). Mean annual income increased significantly with educational level of the household head ( $P < 0.001$ ). Similarly, mean dwelling space increased significantly with educational level of the head of household and annual income of the household ( $P < 0.001$ ). So, dwelling space is a readily available and easily measurable criterion for determining the socioeconomic status of rural households.

## INTRODUCTION

Education, occupation and income are three key variables of socioeconomic status. The identification of socioeconomic status on the basis of education or occupation of individuals or households appear to be easier than that of income because the responses related to the former two variables are more readily available than that of the latter. Thus investigators often attempt to roughly measure economic status and tend to avoid the calculation of absolute income. Income is viewed as the amount or flow of money available to individuals or families per month, per annum or per other unit of time and it may derive from wages and salaries or from profits, rents or dividends, interest, or other payments (Matras, 1975). Income is one of the best measures of economic well-being and it vies with educational attainment and occupation as a measure of socioeconomic status (Shryock et al., 1975). In principle, income from all sources should be counted, both cash income and income in kind. In developing countries where the literacy rate is low, it is difficult to collect accurate data on socioeconomic status in general and income in particular. The respondents tend to give unreliable information due to ignorance and a fear that the data will be used for tax or similar purposes. In the developing countries a household generally has multiple income sources. There is also the problem of resources, appropriate questionnaire design and the time available for interview.

In this paper an attempt is made to determine the interrelationships among the three major socioeconomic variables, gross household income, education and occupation of head of such households and compare them with a fourth variable, dwelling space of households with a view to using the size of the dwelling space as an indicator of socioeconomic status.

## THE STUDY AREA

The data for this study were generated from a census carried out in 1974 in 233 villages with an estimated population of 276,984\* in Matlab *thana* (an administrative area) in Comilla district of Bangladesh. The International Centre for diarrhoeal Disease Research, Bangladesh (ICDDR,B, the former Cholera Research Laboratory) had been conducting a demographic surveillance

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\* This figure included population of five villages which were not part of the regular demographic surveillance system but added as special projects. These villages were included in the census along with other villages.

system in this area since 1966. This surveillance system involves cross-sectional censuses and longitudinal registration of births, deaths, marital events and migrations. Matlab *thana* is a low-lying area with a network of rivers and canals. Most of the local communication is by country boat or on foot. The literacy rate in the Matlab demographic surveillance area is 30.3 percent: male literacy rate 41.5 percent and female literacy rate 18.5 percent (Islam et al., 1979). The average density of population is about 1400 persons per square mile; almost 88 percent of the inhabitants are Muslims and the majority of the rest are Hindus (Cholera Research Laboratory, Scientific Report No. 9, 1978). The majority of the Muslims are cultivators and the Hindus fishermen. Principal crops are paddy, jute, potatoes, wheat, *kaurin* (a local cereal), oil-seeds and sun crops.

#### MATERIALS AND METHODS

In May-June, 1974 a census was carried out by trained and experienced Field Assistants with the help of resident female workers. The senior staff members supervised work of several census teams and varified the completed census forms in the field. Data were carefully collected on a preplanned and pretested census proforma (Appendix AI and AII). Every individual, household and village was identified by a well-defined numbering system. The interview was with the head of the household or any other capable member. Inquiries concerned religion, age, sex, date of birth, date of death, history of marital status, relation to the head of the household, ownership of boats, cows, radio, watch, hurricane and area of dwelling house.

Reading and writing ability was recorded in a sample follow-up survey of 5% households after census. The variety and quantity of crop yield, including sale proceeds for the last one year was recorded. The sample households 2352 were systematically selected with a random start in each village. There were 1746 households with at least one member with agriculture as the primary or secondary occupation. Members of the remaining households were engaged in non-farming activities as primary or secondary occupation. The reported level of income determined the occupations as primary or secondary.

The census data on education and primary occupation of head of households and dwelling space were matched with the income data collected in the subsequent sample survey. A dwelling space was defined as any structure owned by a household and used for sleeping regularly, but structures with multiple ownership not regularly used were excluded. The area of dwelling space was calculated by the product of length and breadth of walled in floor space. The length and breadth of dwelling space were actually measured to the nearest square foot. Education according to level attended and/or

Appendix-A(I)

Village : \_\_\_\_\_ Code : \_\_\_\_\_ Family No. : \_\_\_\_\_ Previous Family No. : \_\_\_\_\_

CENSUS - 1974  
CHOLERA RESEARCH LABORATORY  
MATLAB, COMILLA

Bari : \_\_\_\_\_ Religion : \_\_\_\_\_

Ind. No.	Mother's No.	Dwelling No.	Name	Age	Sex	Marital Status	Relation to Head	Date of Birth	Date of Death	Date of M-In	Date of M-Out	IMMUNIZATION SCHEDULE								Remarks
												T	Date	T	Date	T	Date	T	Date	
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				

Any Dwelling with Tin Roof ? Yes  No

Date of Census : \_\_\_\_\_ Signature : \_\_\_\_\_ Family Type : \_\_\_\_\_ Family No. : \_\_\_\_\_

Appendix-A (II)

Village : \_\_\_\_\_ Code : \_\_\_\_\_ Family No. : \_\_\_\_\_ Previous Family No. \_\_\_\_\_

Bari : \_\_\_\_\_ Religion : \_\_\_\_\_ Date Completed : \_\_\_\_\_

Ind. No.	Mother's No.	Dwelling No.	Name	Age	Sex	Marital Status	Relation to Head	Date of Birth	Education	Read/Write		Occupation				
										P	A	Primary		Secondary		
												I	O	I	O	
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																

CENSUS - 1974  
CHOLERA RESEARCH LABORATORY  
MATLAB, COMILLA

Land Yield	Taka	Masuda	Utk
Cash	_____	_____	_____
Paddy	_____	_____	_____
Keon	_____	_____	_____
Wheat	_____	_____	_____
Potato	_____	_____	_____
Swt. Pot.	_____	_____	_____
Jute	_____	_____	_____

Receive Remittance?..... Yes  No   
 Own radio?..... Yes  No   
 Own any watch?..... Yes  No   
 Own hurricane?..... Yes  No   
 Own lap ( quilt )?..... Yes  No

Number of cows:.....   
 Number of boats:.....   
 Kosha  Dinha  Baro

Sources of water during Winter Season  
Oct. -Jan. (Aswin 16th-Magh 15)

	River	Canal	Tank	Ditch	T.W.	Other	Unk.
Drink							
Cook							
Bathe							
Wash							

Use fixed latrine?..... Yes  No   
 Latrine within  
 15 yds. from a  
 used water source?..... Yes  No   
 Majority usually use  
 pot for washing  
 after defecation?..... Yes  No

Dwelling No.	Roof			Wall's			Dimensions: ( feet )	
	Tin	Other		Tin	Tin-mixed	Other	Length	Breadth
1	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		



completed years was collected for all persons over four years of age. The quantity of annual crop grown was assessed in local weight to the nearest maund. The approximate market price prevalent in the study area at time of census and subsequent sample survey were assigned to agricultural commodities (Appendix B).

#### APPENDIX B

<u>Agricultural commodities</u>	<u>Approximate price per maund (May-June, 1974)</u>
Paddy	Tk. 95.00
Wheat	Tk. 85.00
Potato	Tk. 60.00
Sweet Potato	Tk. 35.00
Jute	Tk. 55.00
Kaun	Tk. 75.00
Oil-seeds	Tk. 250.00
Chillies	Tk. 600.00
Sun-crops	Tk. 500.00

#### RESULTS

Table 1 shows education of head of households by occupation. Mean education level of head of households was 2.4 years, lowest for farm/domestic labourers or fishermen/boatmen (0.9 years) and highest for those in service (6.4 years). There was significant differences in mean education levels between occupations ( $P < 0.001$ , Figure I).

Table 2 shows annual income by education of head of households. Mean annual income of households was Taka 3520 head of households with no education had the lowest mean annual income (Taka 2893) and those with class X and above had the highest mean annual income (Taka 5036). There was consistent increase in mean annual income with increase of education level ( $P < 0.001$ , Figure II).

TABLE 1

EDUCATION LEVEL BY OCCUPATIONAL GROUPS OF HOUSEHOLD HEADS (1974)

Occupation of Household Heads	Percent, Education Level					Mean Education Level (Years)
	All	No Education	Class I-IV	Class V-IX	Class X & above	
All	100.0 (2316) *	54.9	21.7	17.0	6.4	2.4
Farm/Domestic Labourer	100.0 (493)	77.1	15.0	7.3	0.6	0.9
Fisherman/Boatman	100.0 (191)	75.4	17.3	6.8	0.5	0.9
Housewife, Disabled and Others	100.0 (96)	79.2	4.2	14.6	2.0	1.2
Non-farm Labourer and Cottage Industry	100.0 (206)	50.5	30.1	16.5	2.9	2.1
Mill Worker	100.0 (137)	46.7	29.2	22.6	1.5	2.2
Share Cropper	100.0 (70)	57.2	21.4	15.7	5.7	2.2
Land Owner Worker	100.0 (721)	46.2	25.0	21.9	6.9	2.9
Businessman	100.0 (167)	37.7	30.5	25.2	6.6	3.1
Land Owner not working	100.0 (123)	38.2	17.1	24.4	20.3	4.2
Service Employee	100.0 (112)	17.9	19.6	23.2	39.3	6.4

Figures in parenthesis indicate households.

\*Excludes 36 households whose education was not known.

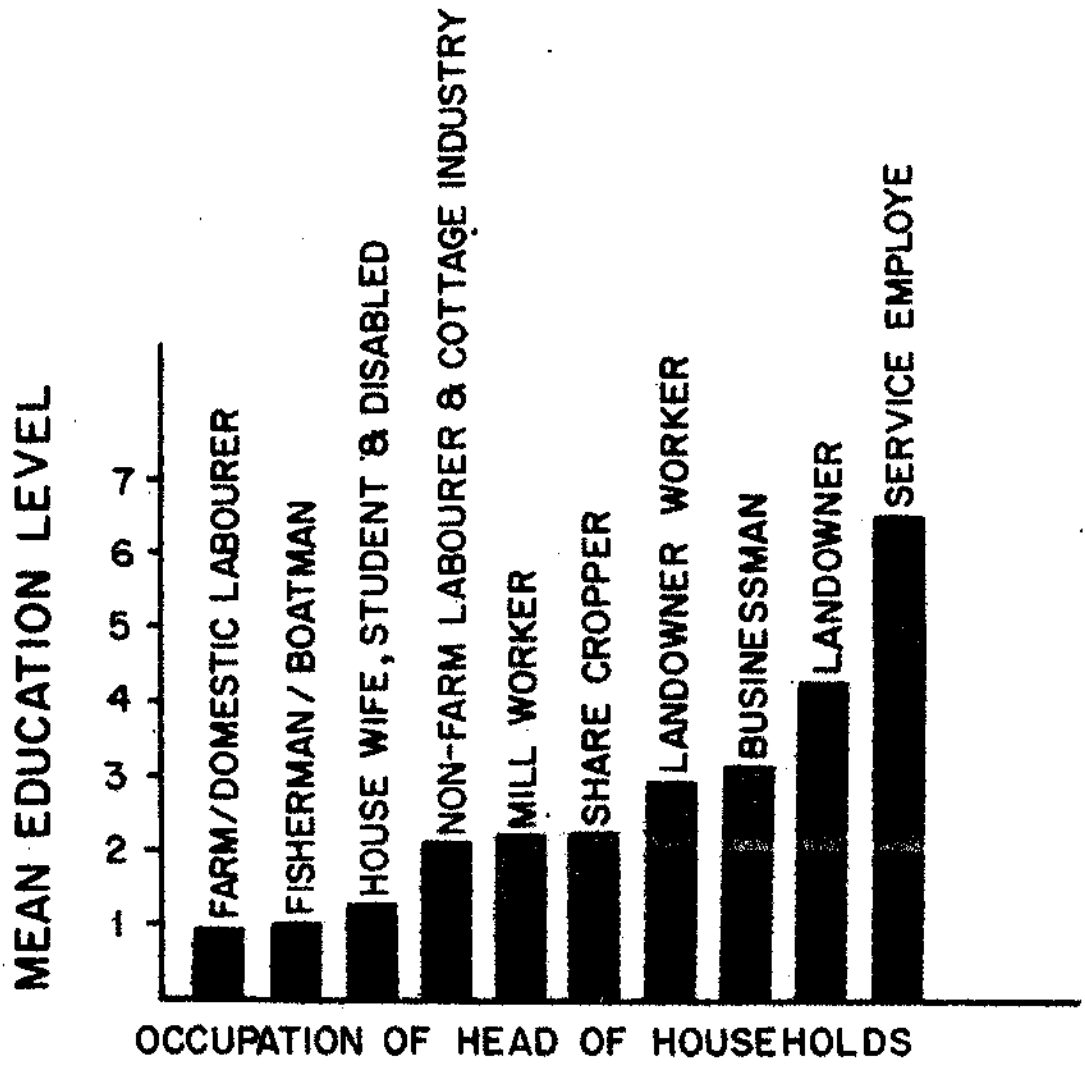


FIG.1 MEAN EDUCATION LEVEL BY OCCUPATION OF HEAD OF HOUSEHOLDS, MATLAB, 1974.

TABLE 2

ANNUAL INCOME OF HOUSEHOLDS BY EDUCATIONAL LEVEL OF HOUSEHOLD HEADS (1974)

Education of Household Heads	Percent, Annual Income (Taka)					Mean Annual Income (Taka)
	All	≤ 1000	1001-2500	2501-5000	Above 5000	
All	100.0 (1720)*	29.8	28.3	22.4	19.5	3519.7
No Education	100.0 (864)	38.4	28.5	20.1	13.0	2893.4
Class I-IV	100.0 (388)	25.8	27.2	23.5	23.5	3821.3
Class V-IX	100.0 (338)	18.9	29.9	24.6	26.6	4191.1
Class X and above	100.0 (130)	12.3	25.4	29.2	33.1	5036.4

Figures in parenthesis indicate households.

\*Excludes 26 households whose education was not known.

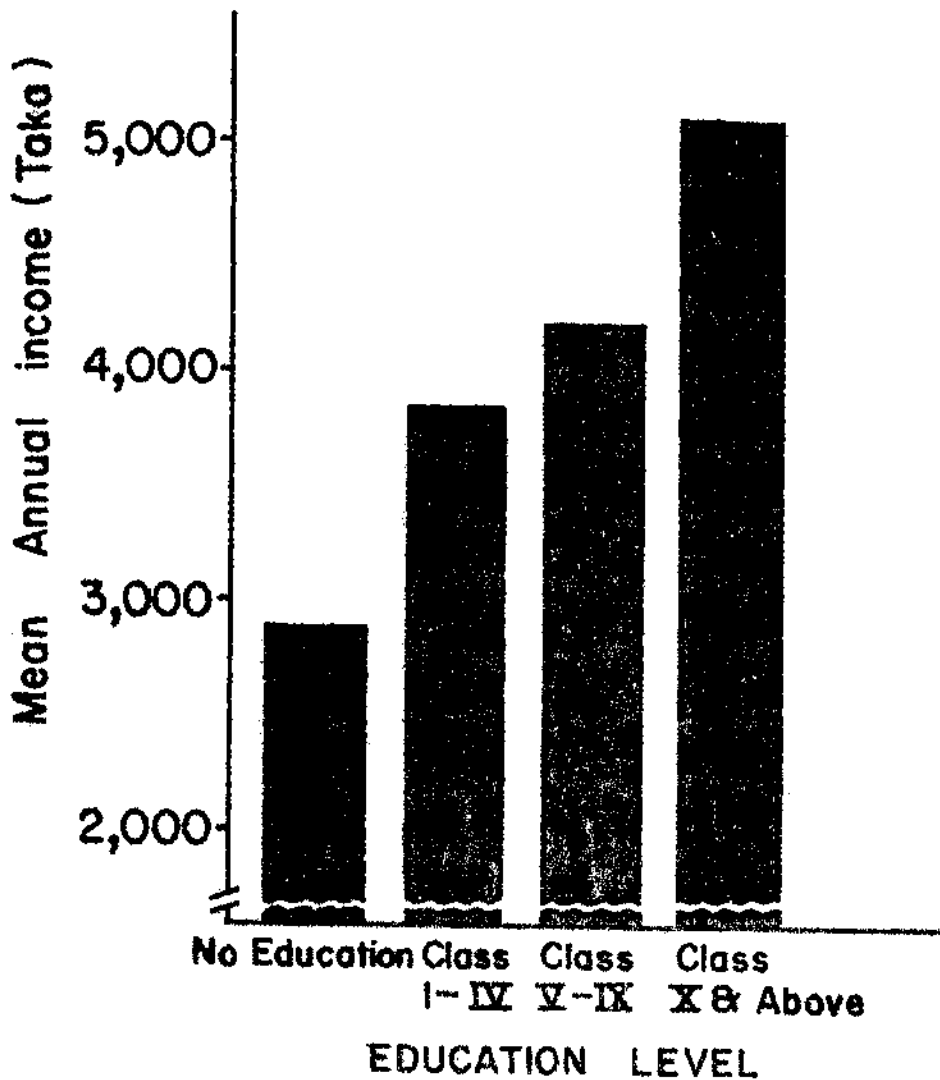


FIG.2. MEAN ANNUAL INCOME OF HOUSEHOLDS BY EDUCATION OF HEAD OF HOUSEHOLDS, MATLAB'74

Table 3 shows dwelling space by education of head of households. Mean dwelling space of households was 245 square feet. The head of households with no education had the lowest mean dwelling space (213 square feet) and those with class X and above level had the highest mean dwelling space (360 square feet). There was a consistent increase in mean dwelling space with increase of education level ( $P < 0.001$ , Figure III).

Table 4 shows dwelling space by occupation of head of households. Mean dwelling space of households was 245 square feet. Households headed by housewives, disabled and other persons had the lowest mean dwelling space (160 square feet). Households headed by landowners cultivating their own lands had the highest mean dwelling space (317 square feet). There was significant difference in mean dwelling space between occupations ( $P < 0.001$ ).

Table 5 shows dwelling space by annual income of households. Mean dwelling space of households was 275 square feet. Households which had annual income upto Taka 1000 had the lowest mean dwelling space (201 square feet). Households which had annual income exceeding Taka 5000 had the highest mean dwelling space (408 square feet). There was a consistent increase in mean dwelling space with increase of annual income ( $P < 0.001$ ).

#### DISCUSSION

The findings of this investigation shows an interrelationship among the three variables, income, education and occupation. There is a significant association between occupation and education and income of the head of households. Similarly, significant association of these three variables - education, occupation and income is found with a fourth variable, household dwelling space. Dwelling space was found to be a useful measure of household economic status in a previous study (Wyon et al., 1971) carried out in a rural population. Dwelling space is an objective and reliable indicator to measure the socioeconomic status of rural households. When reliable data presenting socioeconomic status are lacking, dwelling space may serve as an appropriate and useful criterion.

#### ACKNOWLEDGEMENTS

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TABLE 3

SIZE OF DWELLING SPACE BY EDUCATION OF HOUSEHOLD HEADS (1974)

Education of Household Heads	Percent, Dwelling Space (Square Feet)						Mean Dwelling Space (Sq. Feet)
	All	≤ 150	151-200	201-300	301-400	Above 400	
All	100.0 (2316) *	27.7	18.4	28.7	13.8	11.4	245.3
No Education	100.0 (1271)	36.3	19.5	26.6	10.7	6.9	212.9
Class I-IV	100.0 (502)	21.5	20.3	33.5	11.6	13.1	254.6
Class V-IX	100.0 (395)	14.7	14.7	30.6	22.8	17.2	295.0
Class X and above	100.0 (148)	9.5	11.5	25.0	24.3	29.7	360.3

Figures in parenthesis indicate households.

\* Excludes 36 households whose education was not known.

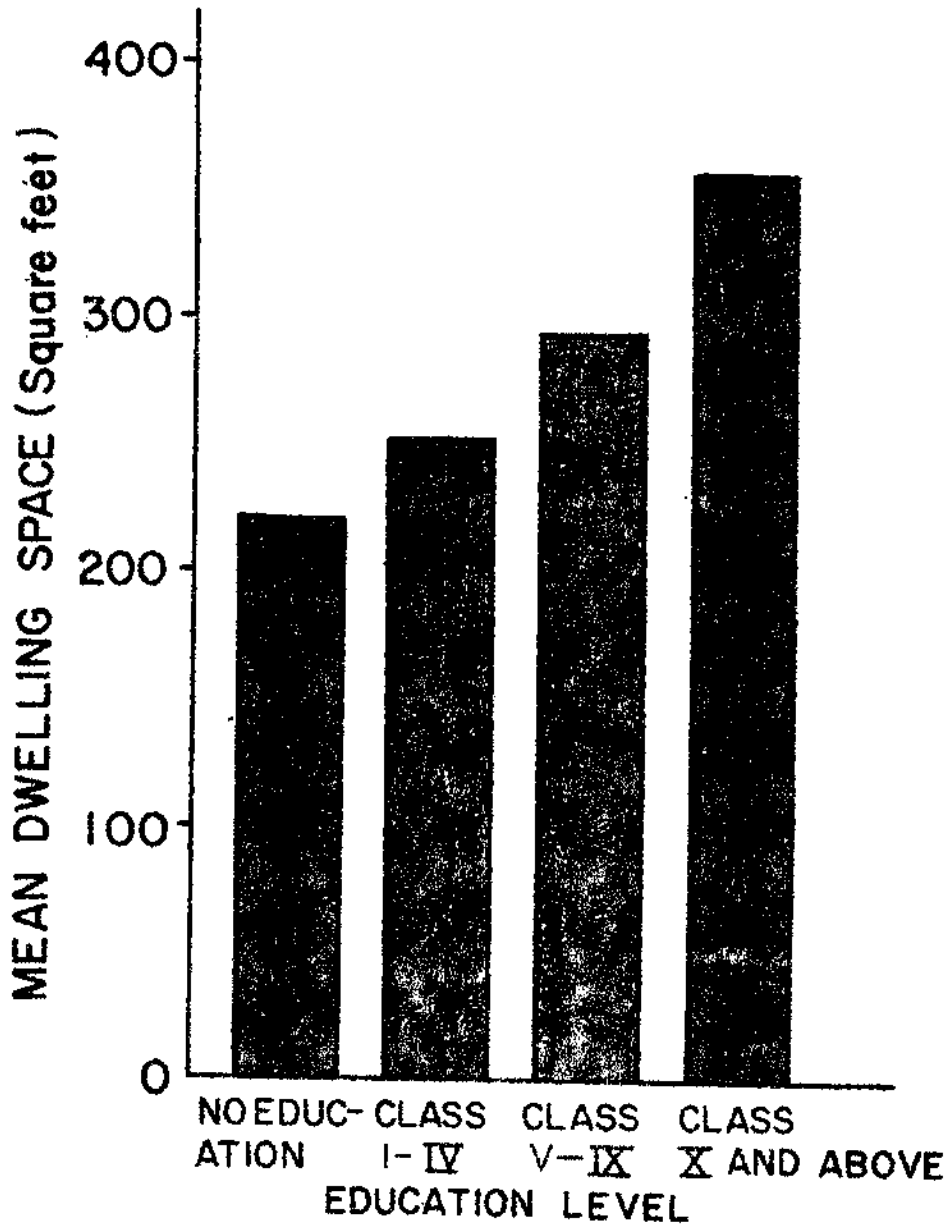


FIG. 3 MEAN DWELLING SPACE BY EDUCATION OF HEAD OF HOUSEHOLDS, MATLAB, 1974



TABLE 4

SIZE OF DWELLING SPACE BY OCCUPATIONAL OF HOUSEHOLD HEADS (1974)

Occupation of Household Heads	Percent, Dwelling Space (Square Feet)						Mean Dwelling Space (Square Feet)
	All	≤ 150	151-200	201-300	301-400	Above 400	
All	100.0 (2352)	27.8	18.5	28.7	13.7	11.3	244.6
House wife, Disabled and Others	100.00 (98)	58.2	13.3	18.4	6.1	4.0	159.5
Fisherman/ Boatman	100.0 (196)	48.5	23.5	20.4	4.6	3.0	170.3
Farm/Domestic Labourer	100.0 (500)	46.6	24.2	23.6	4.4	1.2	171.4
Non-farm Labourer and Cottage Industry	100.0 (209)	36.4	26.8	25.4	9.0	2.4	195.2
Mill Worker	100.0 (140)	20.0	22.9	39.3	10.7	7.1	233.4
Businessman	100.0 (171)	28.6	18.1	27.5	13.5	12.3	248.8
Share Cropper	100.0 (70)	14.3	18.6	32.9	14.2	20.0	286.6
Service Employee	100.0 (113)	15.9	15.1	32.7	15.0	21.3	306.7
Land Owner not working	100.0 (124)	16.1	14.5	29.0	18.6	21.8	309.9
Land Owner Worker	100.0 (731)	9.3	12.0	33.8	24.5	20.4	316.7

Figures in parenthesis indicate households.

TABLE 5

SIZE OF DWELLING SPACE BY ANNUAL INCOME OF HOUSEHOLDS (1974)

Annual Income of Households (Taka)	Percent, Dwelling Space (Square Feet)						Mean Dwelling Space (Square Feet)
	All	≤ 150	151-200	201-300	301-400	Above 400	
All	100.0 (1746)*	17.4	18.8	32.2	17.4	14.2	274.6
≤ 1000	100.0 (518)	32.2	26.3	30.3	8.5	2.7	200.9
1001-2500	100.0 (499)	17.0	23.3	37.9	15.4	6.4	239.2
2501-5000	100.0 (391)	7.2	13.8	38.1	25.3	15.6	302.3
Above 5000	100.0 (338)	7.1	6.5	19.8	24.9	41.7	407.9

Figures in parenthesis indicate households.

\* Excludes non-farm households whose income was not assessed.

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