

266

WP: 266

Working Paper

ECONOMIC BENEFITS OF PUBLIC
HOUSING - A CASE STUDY OF
AHMEDABAD CITY

by

Bakul H. Dholakia

WP266



WP
1978/266



INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD

ECONOMIC BENEFITS OF PUBLIC
HOUSING - A CASE STUDY OF
AHMEDABAD CITY

by

Bakul H. Dholakia

WP266
1978
(266)

W P No. 266
Dec. 1978.

* The main objective of the working paper series *
* of the IIMA is to help faculty members *
* to test out their research findings *
* at the pre-publication stage. *

INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD

**ECONOMIC BENEFITS OF PUBLIC HOUSING -
A CASE STUDY OF AHMEDABAD CITY**

BY

**BAKUL H. DHOLAKIA
INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD**

ACKNOWLEDGEMENTS

The present study constitutes a part of the research project on 'Economics of Housing' undertaken by me at the Indian Institute of Management, Ahmedabad. The project is sponsored by the National Buildings Organisation, Ministry of Works and Housing, Government of India. I am grateful to the Director, N.B.O. for providing financial support for this project. During the initial phase of this study, I had the benefit of some useful discussion on various aspects of the study with Mr. J.B. D'Souza, Secretary, Ministry of Works and Housing. I am grateful to Mr. D'Souza for taking keen interest in this study and for making some valuable suggestions.

Until August 1978, Dr. A.M. Isaac was also a member of the project team. I would like to gratefully acknowledge the valuable contribution made by Dr. Isaac in designing and conducting the sample survey of households in Ahmedabad on which the present study is based. I am grateful to Mr. Bipin Patel who provided in conducting the field work and carrying out the computations based on the data contained in the questionnaires.

ECONOMIC BENEFITS OF PUBLIC HOUSING

— A CASE STUDY OF AHMEDABAD CITY

by

BAKUL H. DHOLAKIA

Indian Institute of Management
Ahmedabad

I

INTRODUCTION

1.1 The Background:

In recent years, increased public investment in housing has been widely recognised as one of the main ingredients of national development programmes. It is also explicitly recognised that housing investment plays a significant role in the national economy. A case is therefore being made for raising public investment to provide subsidised housing for masses.

The case for subsidised public housing is evidently based on the hypothesis that improved subsidised housing generates a stream of social and personal benefits which are fair in excess of those resulting from the kind of housing provided by the uncontrolled operation of market forces. Better housing improves the standards of living and health of individuals. In most cases, it also improves their social environment. As a result, better housing generates the additional energy, enthusiasm and strength

which in turn lead to higher efficiency. Besides prompting the growth of productivity, better housing can also prove to be conducive to household savings. Some case studies conducted in other countries have testified the hypothesis that improved housing can raise the capacity or desire to work resulting in higher productivity in the form of increased output per person per annum and lower absenteeism.*1 Another equally significant hypothesis that is often advanced is that better housing provides strong incentives to the occupant households to save more and leads to an increase in household savings.*2

It would be interesting to analyse the Indian experience in this regard because such analysis would not only bring out the economic effects of public housing in India but it would also provide an important input in the formulation of national housing policy for the Indian economy. However, empirical investigation of the economic benefits of public housing in India has so far remained a relatively unexplored field of research. The present study tries to make a small contribution towards filling this crucial gap in our understanding of the economics of housing in India by presenting the findings of a sample survey relating to the economic benefits of public housing in Ahmedabad City.

1.2 Review of Housing Conditions in Ahmedabad:

Since the present study tries to examine the impact of public housing in Ahmedabad City, it would be useful to review the general housing conditions in Ahmedabad before describing the objectives and plan of the study. Major aspects of the housing conditions in Ahmedabad City are brought out by Tables 1, 2 and 3.

Table 1 shows that burnt bricks represent the most widely used material in the construction of walls of the houses in Ahmedabad. The materials which are generally classified under 'kuchcha' construction such as unburnt bricks, grass, and other materials constitute predominant wall material in 8.36% of the houses in Ahmedabad.

Table 2 indicates that more than three-fourths of the households in Ahmedabad live in houses having one or two rooms. The average number of persons per room is found to be more than three for all households taken together. Over the period 1961-71, we find some significant changes in the distribution of households according to the living rooms. The proportion of households living in a one-roomed accommodation has declined significantly from 65.5% in 1961 to 57.6% in 1971. This decline is accounted for by an appreciable increase in the proportion of households

Table 1Distribution Of Census Houses in Ahmedabad
According to Wall Material, 1971

Wall Material	Number of Houses(1971)	Percentage Distribution
1	2	3
Burnt Bricks	290,750	86.09
Cement Concrete	2,070	0.60
G.I. Sheets	4,345	1.29
Stone	390	0.11
Wood	11,985	3.55
Unburnt Bricks	9,545	2.83
Grass, Leaves Reeds or Bamboo	570	0.17
Mud	17,410	5.16
Other Material	685	0.20
Total	337,720	100.00

Source: Census of India, 1971

Table 2

Distribution of Households by Living Rooms And Number of Persons Per Room in Each Category of Households in Ahmedabad, 1961 and 1971

Category of Households	Percentage Distribution of Total Households		Number of Persons Per Room	
	1961	1971	1961	1971
(1)	(2)	(3)	(4)	(5)
One Roomed	65.5	57.6	4.35	5.14
Two Roomed	23.0	27.5	2.87	2.84
Three Roomed	5.5	7.8	2.05	2.04
Four Roomed	2.8	3.9	1.73	1.65
Five Roomed & above	3.2	3.2	1.31	1.28
Total	100.0	100.0	3.11	3.22

Sources: Census of India 1961 and 1971

Table 3

Distribution Of Households in Ahmedabad According to Tenure Status, 1961 and 1971

Tenure Status	1961	1971
(1)	(2)	(3)
<u>Number of Households</u>		
Owned	39,820	63,590
Rented	186,230	205,010
Total	226,050	268,600
<u>Percentage Distribution</u>		
Owned	17.6	23.7
Rented	82.4	76.3
Total	100.0	100.0

Source: Census of India 1961 and 1971

living in houses having two to four rooms. There has, however, been a considerable increase in the number of persons per room in the case of households living in one roomed houses from 4.35 in 1961 to 5.14 in 1971. The average number of persons per room has remained fairly steady in the case of two roomed and three roomed houses, while the remaining categories show a decline. If we treat the proportion of total households having more than two persons per room as an index of overcrowding, we find that the index has declined between 1961 and 1971, although it is still found to be as high as 85.1% in 1971.

Table 3 shows the distribution of households in Ahmedabad according to tenure status. It is evident from this table that more than three-fourths of the households live in rented houses. However, there has been a significant increase in the number of households living in owned houses between 1961 and 1971. The number of households living in owned houses has registered an increase of about 60% between 1961 and 1971 whereas the corresponding increase has been of the order of only 10% in the case of households living in rented houses. Consequently, the proportion of households living in owned houses has increased from 17.6% in 1961 to 23.7% in 1971.

It follows from the above observations regarding the housing conditions in Ahmedabad that a majority of the households in Ahmedabad live in rented houses having one or two rooms and made up of materials that can be classified under pucca construction. However, there is a clear tendency on the part of the households to shift from one roomed houses to multi-roomed houses and from rented houses to owned houses.

1.3 Objectives and Plan of the Study:

The present study aims at identifying the economic benefits of public housing in Ahmedabad City. The main objectives of this study are: (1) to examine the general economic benefits of public housing using indicators such as household size, level of education, housing conditions and household income; (2) to measure the effects of public housing on the savings potential of the occupant households; (3) to assess the impact of public housing on the general level of productivity of the workers in the occupant households; and (4) to examine factors underlying the demand for public housing.

It is obvious that a study of this nature would require collection and analysis of primary data. Accordingly, the present study is based on the primary data collected during a sample survey of 298 households in Ahmedabad City. Field work relating to

the sample survey was carried out during the period February-November '78.

The study is divided into seven sections. The first section being introductory in nature, reviews housing conditions in Ahmedabad and describes the objectives of the study. The second section examines the methodology adopted by the present study. The third section discusses the general effects of public housing. The fourth section makes an attempt to measure the effect of public housing on the saving potential of the occupant households, while the fifth section tries to examine the effect of public housing on the labour productivity. The sixth section examines the factors underlying the demand for public housing. The final section summarizes the main findings of the study.

II

METHODOLOGY

2.1 Method of Measuring the Benefits :

Measurement of the benefits of public housing involves comparison of the values of certain variables relating to the occupant households over a period of time especially the values of the variables observed during the period of time before and after these households moved on to the improved dwellings provided

by the public housing agency. However, the change in the values of the variables observed for the group of households (enjoying the benefit of public housing) over the period of time before and after they experienced a change in the housing, by itself, cannot be regarded as a satisfactory indicator of the actual effect of public housing. The obvious reason for this is that the observed changes in the variables are likely to be due not only to the availability of public housing, but to a considerable extent they would also be due to a variety of factors which are of a more general nature. Hence, to ensure that we attribute only that part of the observed change to the availability of public housing which actually measures the effect of public housing alone, it is necessary to hold "other things constant". For the purpose of measurement, holding 'other things' constant requires similar information on the observed changes in the same set of variables in the case of another group of households who have not been allotted the improved dwellings provided by the public housing agency.

In view of the above considerations, the methodology that we have adopted for measuring economic benefits of public housing involves the derivation of the values of selected variables such as income, saving, productivity etc., for two different categories of households and for two different points of time. The first category of households consists of those who have been rehoused in the improved dwellings provided by the public housing agency.

We may call this category of households as the Test Group. The information on the specified variables is collected for the households belonging to the Test Group for two points of time, time period 'a' or the current period and time period 'b' or the period prior to rehousing. The second category of households consists of those who have not been able to get the benefit of rehousing through a public housing agency. We may call this category of households as the Control Group. The information on the same specified variables is collected also for the households belonging to the Control Group for the same two points of time for which the information is collected for the Test Group.

The information collected on each variable can be represented in a matrix form as shown below:

Household category	Time Period	
	Before Rehousing	After Rehousing
Households in the Test Group	S_b^t	S_a^t
Households in the Control Group	S_b^c	S_a^c

Fig. 1: Experimental Design for Measuring the Effect of Public Housing

The elements of the information matrix shown in Fig. 1 represent the observed values of household saving, in accordance with the celled pattern emerging from the experimental design described above. The observed change in the household saving for the households belonging to the Test Group over the period before and after rehousing, is measured by $S_a^t - S_b^t$. The entire magnitude of this change cannot, therefore, be treated as the effect of public housing, because, the change in the household saving depends upon a variety of information on non-housing factors also, such as increase in the household income, change in the household size, change in the amount and pattern of expenditure incurred by the household, and several other factors. To estimate the part of the change in household saving observed in the case of the Test Group that can be attributed directly to the availability of public housing, it is necessary to eliminate the effect of changes in the other factors influencing household saving. This is done by measuring the change in the household saving which has occurred over the same period of time in the case of households belonging to the Control Group, which is selected in such a way that it turns out to be closely similar to the Test Group. The net effect of public housing on household saving is then

measured as:

$$(S_a^t - S_b^t) - (S_a^c - S_b^c)$$

where the first bracket represents the change in household saving observed in the case of the Test Group, while the second bracket represents the corresponding change observed in the case of the Control Group. The benefits of public housing as measured by the changes in each of the selected variables are estimated by using the method described above.

2.2 Sample Design :

For the purpose of present study, we selected the sample of households who have been enjoying the benefits of public housing from the group of households who have been allotted the houses constructed by the Gujarat Housing Board (GHB) during the period from April 1971 to March 1978.

The benefits of public housing derived by the occupant households may differ depending upon the broad income categories of the households. Moreover, the extent of benefits derived from the public housing might, at least in the initial stages, vary directly with the period of stay in such houses. For drawing the sample it is necessary, therefore, to follow the method of stratified random sampling. Accordingly, we have collected the data on the total number of houses allotted by GHB according to (a) the year of allotment, (b) the category of houses; and (c) the locality in which they constructed.

To begin with, the total number of households which were allotted the GHB houses were classified into three categories according to the broad income groups, viz., economically weaker sections (EWS), Lower Income Group (LIG) and Middle Income Group (MI) Households within each of these categories were further classified into two categories according to the period stay, viz., the households which were allotted the GHB houses before March 1974 and the households which were allotted the houses after March 1974. Finally, the distribution of the total number of households falling under all the six categories taken together, which have been allotted houses by GHB (hereafter referred to as GHB households) during the period 1971-78 among different localities in the city was obtained from the GHB records.

For purpose of detailed household survey, we have selected a sample of 149 GHB households out of the population of 6124 GHB households. The sampling is done separately for each of the six categories on the basis of random sampling with probability proportional to the category of households and the duration of stay. On the whole, the sample size in each category has turned out to be about 2 to 2½ per cent of the corresponding population in the respective categories. The details regarding the number of houses allotted by the GHB and the corresponding number of sample households selected for survey are shown in Table 4 and 5.

Table 4Distribution Of GHB Households According To Income Categories
and Period of Stay

Category	<u>Distribution of the Houses Allotted by GHB</u>			<u>Distribution of Sample Houses</u>		
	Houses Allotted during the Period April '71 to March '74	Houses Allotted during the Period April '74 to March '77	Total	Houses Allotted during the Period April '71 to March '74	Houses Allotted during the Period April '74 to March '77	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
EWS	600	2254	2854	19	52	71
LIG	348	1416	1764	7	35	42
MIG	636	870	1506	15	21	36
TOTAL	1584	4540	6124	41	108	149

Table 5Distribution Of GHS Households According To Income Category and Locality

Locality	Distribution of the Houses Constructed by GHS			Distribution of Sample Houses		
	EWS	LIG	MIG	EWS	LIG	MIG
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Adarsh Nagar	-	528	-	-	15	-
Amraiwadi	216	-	-	3	-	-
Bage Firdosh	1326	120	-	26	3	-
Bapu Nagar	544	-	-	16	-	-
Krishna Nagar	768	240	-	26	6	-
Pragati Nagar	-	108	402	-	-	11
Shastri Nagar	-	768	468	-	18	10
Vijay Nagar	-	-	636	-	-	15
Total	2854	1764	1506	71	42	36

Table 4 shows the classification of households according to the income category of households and the period of stay, while Table 5 shows the classification of sample households according to income category and locality.

It is a fairly difficult task to identify the kind of households who have not been able to get the benefit of public housing and who could still be regarded as otherwise comparable to GHB households falling under different categories. To attain the highest possible degree of comparability, the procedure that we have adopted for identifying the households who have not derived the benefit of public housing is as follows: Whenever GHB constructs houses for specific income categories, it invites applications for the allotment of these houses. Only a certain proportion of the applicants are actually allotted the GHB houses. The process of allotment can be considered as the process of random selection out of the given population. We can, therefore, consider the households who had applied for the GHB houses of a particular category but who could not succeed in getting them, as the kind of households who are broadly comparable to the corresponding category of GHB households at the time of allotment. We can call such households as the Non-GHB households. Evidently, the Non-GHB households represent the Control Group for the purpose

of comparison and derivation of the benefits of public housing which have accrued to the GHB households representing the Test Group. From the list of such Non-GHB households available from the GHB records, we have selected the sample of households having an equal number in each income category as in the case of the sample of GHB households. The distribution of the households in the Non-GHB sample according to the category of households and the locality is given in Table 6. The locality-wise spread of the sample households, falling under both the GHB Sample as well as the Non-GHB Sample is shown in the map of Ahmedabad City indicating the specific location of the sample households selected for the present study. As it can be seen from the map, the sample households, especially those falling under the Non-GHB sample, have been drawn from almost all parts of the city.

2.3 Design of Questionnaires :

Since the economic benefits of public housing can accrue in various directions, we have designed a fairly detailed questionnaire to bring out various aspects of the benefits.

The questionnaire is divided into ten parts.

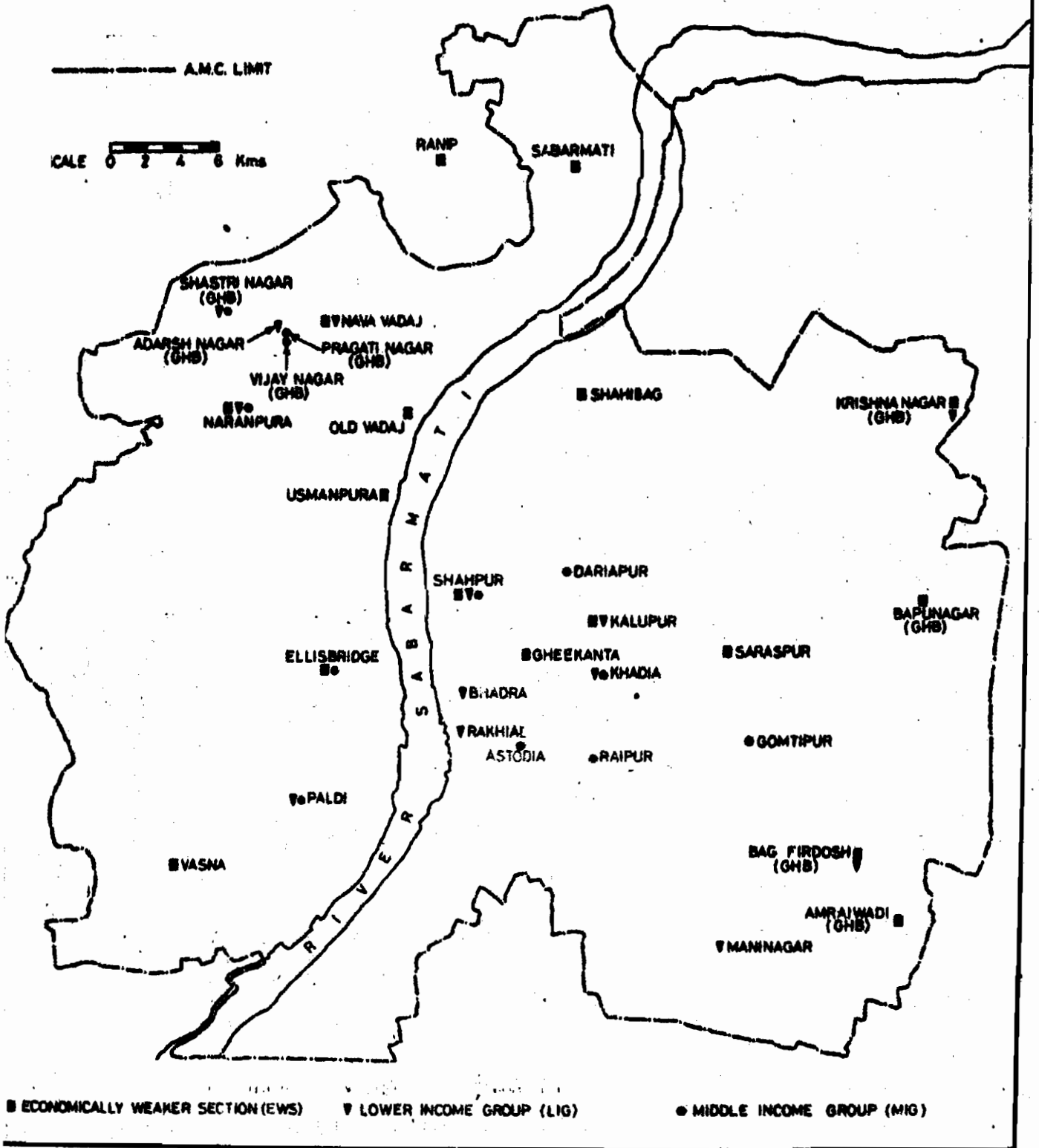
The first part contains questions relating to primary household data involving complete enumeration of all the members of the households. It includes questions on age, sex, level of

Table 6

Distribution Of The Non-GHB Sample Households According To
Income Category and Locality

Locality	EWS	LIG	MIG	TOTAL
(1)	(2)	(3)	(4)	(5)
1. Astodia	-	-	2	2
2. Bhadra	-	1	-	1
3. D. riapur	-	-	3	3
4. Ellisbridge	2	-	1	3
5. Gheekanta	12	-	-	12
6. Gontipur	-	-	4	4
7. Kalupur	3	6	-	9
8. Khadia	-	4	3	7
9. Maninagar	-	11	-	11
10. Naranpura	5	1	14	20
11. Nava Vadaj	9	4	-	13
12. Old Vadaj	5	-	-	5
13. Paldi	-	2	1	3
14. Raipur	-	-	1	1
15. Rakhial	-	1	-	1
16. Ranip	17	-	-	17
17. Sabarmati	10	-	-	10
18. Saraspur	-	5	-	5
19. Shahibag	-	1	-	1
20. Shahpur	8	4	7	19
21. Usmanpur	-	1	-	1
22. Vasna	-	1	-	1
Total	71	42	36	149

LOCATION OF SAMPLED HOUSEHOLDS : AHMEDABAD CITY



of family education, primary and secondary occupation and monthly income of different members of the household before and after rehousing. The second part of the questionnaire contains questions on the description of the houses including housing conditions, while the third part contains questions on the transportation expenses.

Various questions on the productivity of the head of household and other family members before and after rehousing are included in the fourth and fifth parts of the questionnaire. The sixth, seventh, eighth and ninth parts of the questionnaire cover various aspects of household savings, expenditure, indebtedness, purchases of consumer durables and commitments for future expenses. The last part of the questionnaire includes questions of a general nature inviting the respondent to express his views and provide his own assessment of the benefits of public housing.

The questionnaire designed for the GHB households has also been canvassed with minor modifications to the Non-GHB households.

It was observed in the case of the GHB sample that the average duration and stay of the sample households in the GHB houses, was about 4 years for all sample households taken together at the time of survey. While canvassing the questionnaire to the Non-GHB sample households, the questions regarding the situation now and before rehousing have, therefore, been interpreted to mean the

current situation vis-a-vis the situation prevailing four years ago, (i.e., it involved a comparison of the situation in the year 1978 with the corresponding situation in the year 1974). The questionnaire canvassed to the GHB households is given in the Appendix.

III

GENERAL EFFECTS OF PUBLIC HOUSING

3.1 Household Size

The effects of rehousing on the household size and the number of earning members per household observed in the case of GHB sample and also in the case of Non-GHB sample are shown in Table 7. It can be seen from the figures given in this table that the average household size observed for the GHB sample is less than the corresponding household size observed in the case of Non-GHB sample. The difference in the household size between the two samples is however not very significant, the sample households in both the cases having an average size of about five persons.

If we examine the change in the household size before and after rehousing in the case of GHB sample, we find that the household size has increased significantly among the households

Table 7

Changes In The Average Household Size And The Average Number Of
Earning Members Per Household In The GHB Sample And The
Non-GHB Sample

Category	GHB Sample				Non-GHB Sample			
	Sam- ple House- holds	Current Period (1978)	Before rehou- sing	Change	Sam- ple House- holds	Current Period (1978)	Before rehou- sing	Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>Number of Persons Per Household</u>								
EWS	71	5.07	4.38	0.69	71	5.35	4.93	0.42
LIG	42	4.93	4.98	-0.05	42	5.29	5.10	0.19
MIG	36	4.89	4.72	0.17	36	5.31	5.11	0.20
TOTAL	149	4.99	4.63	0.36	149	5.32	5.02	0.30
<u>Number of Earning Members Per Household</u>								
EWS	71	1.35	1.17	0.18	71	1.49	1.25	0.24
LIG	42	1.45	1.52	-0.07	42	1.38	1.19	0.21
MIG	36	1.64	1.28	0.36	36	1.67	1.31	0.39
TOTAL	149	1.45	1.30	0.15	149	1.50	1.25	0.27

falling under the EWS category, increased marginally among the households falling under the MIG category, whereas it has declined marginally among the households falling under the LIG category. We observe a similar pattern in the case of the Non-GHB sample households also, the only difference being that the household size shows a marginal increase rather than decrease in the case of the Non-GHB households falling under the LIG category. The difference between the change in the household size after rehousing observed for two samples (for all categories taken together) turns out to be insignificant. This indicates that the availability of public housing does not exercise any strong influence on the overall household size, though there is some evidence suggesting that in the case of households belonging to economically weaker sections, public housing seems to have some influence towards increasing the household size. One of the factors explaining this phenomenon is the facilitating role played by the security of public housing in encouraging the joint family system especially among the poorer sections of the society. This is evident from the significant increase in the number of "other members" in the case of GHB households after rehousing as against no appreciable change noticed in the case of the corresponding Non-GHB households belonging to the EWS category.

3.2 Education

The effect of public housing on the education-wise distribution of the members of sample households is shown in Table 8. It is evident from the table that, on the whole, the availability of public housing does not show any significant impact on the education of the members of the occupant households. In the case of the households belonging to EWS and LIC categories, however, we find some positive effect. This is evident from the fact that the increase in the number of persons having primary and secondary education after rehousing observed for the GHB sample is appreciably greater than the corresponding increase observed for the Non-GHB sample.

3.3 Housing Conditions

The changes in the plinth area of the houses occupied by the GHB households and the Non-GHB households before and after rehousing are shown in Table 9. The figures given in this table clearly show that there is a significant increase in the average plinth area per household in all categories of households belonging to the GHB sample, whereas there is hardly any noticeable increase in the average plinth area for any category of households falling under Non-GHB sample. As a result, the difference between the change in the average plinth area

Table 8

Changes In The Educationwise Distribution Of The Members
Of Sample Households

GHB Sample								
Level of Education	1978				Before rehousing			
	EWS	LIG	MIG	TOTAL	EWS	LIG	MIG	TOTAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
No Education	108	21	13	142	98	40	20	158
Primary	83	42	28	153	63	29	28	120
Secondary	96	42	24	162	85	40	27	152
Matriculate	53	61	45	159	52	53	35	140
Graduates and Above	20	41	66	127	13	47	60	120
Total	360	207	176	743	311	209	170	690

Non-GHB Sample								
	1978				1974			
	No Education	118	24	21	163	124	40	27
Primary	61	42	33	136	55	46	32	133
Secondary	97	54	32	183	92	55	35	182
Matriculate	93	66	46	205	69	47	53	169
Graduates and Above	11	36	59	106	10	26	37	73
Total	380	222	191	793	350	214	184	748

Table 9

Change In The Plinth Area and Number Of Rooms Per
Household In The GHB Sample
and Non-GHB Sample

Category	Increase in Average Plinth Area Per Household (in Sq.Yar)					
	GHB Sample			Non-GHB Sample		
	1978	Before Rehousing	Change	1978	1974	Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)
EWS	38	28	10	36	34	2
LIG	55	45	10	30	29	1
MIG	105	64	41	56	54	2
TOTAL	58	41	17	39	37	2

Proportion Of Household Reporting An Increase In The Average
Number Of Rooms And Plinth Area

(Figures Indicate the Percentage of total sample household
in the respective categories)

	Plinth Area		Number of Rooms	
	GHB	Non-GHB	GHB	Non-GHB
EWS	66.2	11.3	70.4	9.9
LIG	67.5	4.8	62.5	2.4
MIG	84.9	25.0	66.7	11.1
TOTAL	70.8	12.8	67.4	8.1

between the GHB sample and corresponding Non-GHB sample households turns out to be significant for each category of households. This indicates that the households who have moved to the GHB houses are enjoying a significant increase in the per capita living space while the Non-GHB households continue to have the same per capita living space as before.

If we examine the situation with respect to the number of rooms per household, we again find that the GHB households are better off as compared to the Non-GHB households. Almost two-thirds of the households in the GHB sample show an increase in the number of rooms, whereas only eight per cent of the households in the Non-GHB sample have experienced an increase in the number of rooms. Moreover, the GHB houses for all categories of households are made up of pucca construction materials whereas some of the houses in the Non-GHB sample appear to be made up of inferior or some kuchcha construction material. Thus, we can conclude that the availability of public housing has undoubtedly improved the general housing conditions for the occupant households.

3.4 Household Income :

The change in the average income per household observed in the case of the GHB households as well as the Non-GHB households before and after rehousing are shown in Table 10. It is evident

Table 10

Change In The Average Monthly Income Per Household In
The GHB Sample and The Non-GHB Sample

(Figures in Rupees)

Category	GHB Sample			Non-GHB Sample		
	1978	Before rehou- sing	Change	1978	1974	Change
(1)	(2)	(3)	(4)	(5)	(6)	(7)
EWS	564.52	440.11	124.41	522.17	590.56	131.61
LIG	1347.05	1013.33	333.72	881.79	652.74	229.05
MIG	1843.69	1232.50	611.19	1340.42	956.53	383.89
TOTAL	1094.16	793.14	301.02	821.23	601.21	220.02

from the figures given in this table that there is a significant increase in the monthly household income accruing to the households belonging to each category in both types of samples.

If we compare the average increase in the monthly household income observed for the GHB households with the corresponding increase observed for the Non-GHB households, we find that, for all categories of households taken together, the increase registered by the GHB sample is appreciably higher than that registered by the Non-GHB sample. However, there is a striking difference between the households in the EWS category on the one hand and the households in the LIG & MIG categories on the other hand. The average increase in the monthly household income has turned out to be more or less of the same magnitude for both types of samples in the case of households belonging to the EWS category. As against this, the households in the GHB sample belonging to the LIG & MIG categories show a significantly higher increase in monthly income after rehousing as compared to the corresponding increase observed for the Non-GHB households in these categories. This implies that the availability of improved public housing has exercised a favourable influence on the average household earnings at least in the case of the households belonging to the relatively higher income groups.

IV

EFFECT OF PUBLIC HOUSING ON HOUSEHOLD SAVING

To measure the effect of public housing on average saving of the occupant households, it is necessary to identify the various components of household saving. The major components of household saving would include bank deposits, recurring deposits, LIC premiums and provident fund, money sent to the relatives in the native place or the loans given to others, investment in land, housing, shares, etc., and total debt or outstanding borrowing. In addition to this, in the case of GHB households, the monthly instalment which is paid by the occupant households to GHB would also form a part of the household saving because it constitutes a part of the total amount that needs to be paid in order to acquire the ownership of the GHB house. From the point of view of the household, therefore, this payment is similar to investment in land or housing. In fact, monthly instalment paid to GHB, represents some kind of a forced saving on the part of the occupant household.

Besides the above mentioned components of household saving, we can also consider the annual expenditure on the purchase of consumer durables as an indicator of the existing saving potential

of the households. The expenditure on consumer durables as such may not constitute the saving, but it does result in an increase in the total assets of the household. Moreover, if this expenditure is not actually incurred, it results in an increase in household saving. We have, therefore, also included this component while computing the change in household saving.

The specific equation that we have used for measuring the change in average annual saving per household between the current period and the period before rehousing is as follows:

$$\begin{aligned}
 & \text{Change in direct saving per household per annum} \\
 & = \text{change in bank deposits per household per annum} \\
 & + \text{change in recurring deposits per household per annum} \\
 & + \text{change in investment in land, housing, shares, etc.} \\
 & \quad \text{per household per annum} \\
 & - \text{change in debt or borrowing per household per annum} \\
 & + \text{change in LIC premiums and providend fund per household} \\
 & \quad \text{per annum} \\
 & + \text{change in money sent to relatives in native place and} \\
 & \quad \text{loans given to others per household per annum.}
 \end{aligned}$$

To the change in direct annual saving per household, so measured, we have added the change in indirect saving as reflected in the monthly instalments paid to GHB (in the case of GHB households) to arrive at the change in total saving per household. To the

change in total saving so derived, we have added the increase in the expenditure on consumer durables per household per annum to arrive at the measure of change in total saving potential of the occupant households.

The estimates of changes in average saving per household per annum derived from the information contained in the questionnaires are presented in Tables 11 and 12. Table 11 gives the figures relating to the GHB sample and Table 12 gives the figures relating to the Non-GHB sample. The estimated differences between the increase in average annual savings per household observed for the GHB sample and the Non-GHB sample are presented in Table 13.

It is evident from Table 11 that the GHB households show a significant increase in the average annual saving per household after rehousing. However, the increase observed for the households in the LIG and MIG categories is much greater than the increase observed for the households in the EWS category. Similarly, it can be seen from Table 12 that the Non-GHB households in the LIG and MIG categories also show an appreciable increase in average annual saving per household during the corresponding period, whereas the households in the EWS category show a marginal decrease in average saving, if we exclude the expenditure on consumer durables.

Table 11

Changes In Average Annual Saving Per Household In The GHB Sample :
Component-wise Analysis

(Figures indicate Rupees per household
per annum)

	EWS	LIG	MIG	TOTAL: All categories
(1)	(2)	(3)	(4)	(5)
1. Change in Bank Deposits	102.39	270.93	1072.36	384.26
2. <u>Add:</u> Change in Recurring Deposits	8.45	11.43	-	7.25
3. <u>Add:</u> Change in Investment in land, housing and shares etc.	-	1497.62	2638.89	1059.73
4. <u>Less:</u> Change in Debt	336.97	1758.26	2215.64	1191.51
5. <u>Add:</u> Change in LIC Premiums and Provident Fund	120.56	387.43	358.00	253.15
6. <u>Add:</u> Change in Money Sent to Native Place	-46.62	11.90	161.11	20.07
7. Sub-Total: Change in Direct Saving	-152.19	421.05	2014.72	532.95
8. <u>Add:</u> Change in Indirect Saving: Monthly Instalment paid to GHB	897.46	2684.57	3672.67	2071.73
9. Change in Total Saving	745.27	3105.62	5687.39	2604.68
10. <u>Add:</u> Increase in Annual Expenditure on the Purchase of Consumer Durables	239.41	853.81	1285.36	665.31
11. Change in Total Saving including Expenditure on Consumer Durables	984.68	3959.43	6972.75	3269.99

Table 12

Changes In Average Annual Saving Per Household In The
Non-CHB Sample: Component-wise Analysis

(Figures indicate Rupæes per household
per annum)

	EWS	LIG	MIG	TOTAL All categories
(1)	(2)	(3)	(4)	(5)
1. Change in Bank Deposits	67.96	438.40	571.11	293.95
2. <u>Add:</u> Change in Recurring Deposits	8.45	90.00	373.33	119.60
3. <u>Add:</u> Change in Investment in land, housing and shares etc.	63.38	107.14	812.50	256.71
4. <u>Less:</u> Change in Debt	177.61	89.29	658.89	268.99
5. <u>Add:</u> Change in LIC Premiums and Provi- dent Fund	14.03	129.90	213.33	94.85
6. <u>Add:</u> Change in Money Sent to Native Place	0.70	1.67	-1.39	0.47
7. <u>Sub-Total:</u> Change in Total Saving	-23.09	677.82	1309.99	496.59
8. <u>Add:</u> Increase in Annual Expenditure on the Purchase of Consu- mer Durables	64.99	315.21	579.31	259.79
9. Change in Total Savings including Expenditure on Consumer Durables	41.90	993.03	1889.30	756.38

Table 13

Difference Between The Changes In Average Annual Saving
Per Household Observed For The GHB And The Non-GHB
Households: Component-wise Analysis

	EWS	LIG	MIG	TOTAL: All Categories
(1)	(2)	(3)	(4)	(5)
1. Change in Bank Deposits	34.43	-167.47	501.25	90.31
2. <u>Add:</u> Change in Recurring Deposits	-	-78.57	-373.33	-112.35
3. <u>Add:</u> Change in Investment in land, housing and shares etc.	-63.38	1390.48	1826.39	803.02
4. <u>Less:</u> Change in Debt	159.36	1668.97	1556.75	922.52
5. <u>Add:</u> Change in LIC Premium and Provident Fund	106.53	257.53	144.67	158.30
6. <u>Add:</u> Change in Money Sent to Native Place	-47.32	10.23	162.50	19.60
7. Sub-Total: Change in Direct Saving	-129.10	-256.77	704.73	36.36
8. <u>Add:</u> Change in Indirect Saving: Monthly Instalment Paid to GHB	897.46	2684.57	3672.67	2071.73
9. Change in Total Saving	768.36	2427.80	4377.4	2108.09
10. <u>Add:</u> Increase in Annual Expenditure on the Purchase of Consumer Durables	174.42	538.60	706.05	405.52
11. Change in Total Saving including Expenditure on Consumer Durables	942.78	2966.4	5083.45	2513.61

Note: Figures indicate the difference between the values for the GHB sample (given in Table 11) and the corresponding values for the Non-GHB sample (given in Table 12).

The effect of public housing on household saving is brought out by the figures given in Table 13. It is obvious from this table that the increase in average household saving observed for the GHB households is significantly greater than the corresponding increase observed for the Non-GHB households. On an average, the increase in the annual household saving observed for the GHB households exceeds the corresponding increase observed for the Non-GHB households by a margin of Rs.768 for the households in EWS category, by Rs.2428 for the houses in LIG category, and by Rs.4377 for the households in MIG category. Moreover, the increase in the annual expenditure on the consumer durables as reported by the GHB households exceeds the corresponding increase in the expenditure reported by the Non-GHB households by a margin of Rs.17 for the households in EWS category by Rs.339 for the households in LIG category, and by Rs.106 for the households in MIG category. It follows, therefore, that if we include the increase in annual expenditure on consumer durables as a component of the household saving, the difference between the increase reported by the GHB households and the corresponding increase reported by the Non-GHB households will actually increase.

The analysis of changes in household saving between the current period and period before rehousing presented in tables 11 to

13 reveals that the availability of public housing brings about a significant increase in the average annual saving per household among the occupant households. The results given in Tables 11 to 13 are, however, in absolute terms. We can relate the observed changes in average saving per household per annum with the corresponding change in the average income per household per annum, and compare the propensities to save of the households in the GHB sample and the Non-GHB sample. This is done in Table 14.

The figures given in Table 14 indicate the proportion of increase in income which has resulted in an increase in saving among the households in different categories in the two samples. It is evident from the table that the ratio of incremental saving to incremental income observed in the case of the GHB households is significantly higher than the corresponding ratio observed for the Non-GHB households. The difference in the proportions of incremental income saved by the GHB households on the one hand and the Non-GHB household on the other hand, turns out to be as high as 53.3 per cent for all categories of households taken together. The GHB households in EWS category have saved about 50 per cent of their incremental income, whereas their counterpart in the Non-GHB sample actually show a marginal decrease in saving. The GHB households in LIG category have saved about 78 per cent of the incremental income, whereas their counterpart in the Non-GHB sample seems to have saved only 25 per cent of the

Table 14

Comparison Of The Propensity To Save Of The Households
In The GHB Sample And In The Non-GHB Sample

Category	Ratio of Incremental Saving to Incremental Income Per Household Per Annum (in per cent)			Ratio of Incremental Expen- diture on Consumer Durables to Incremental Income Per Household Per Annum (in per cent)		
	GHB	Non-GHB	Difference	GHB	Non-GHB	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)
EWS	49.9	-1.5	51.4	16.0	4.1	11.9
LIG	77.6	24.7	52.9	21.3	11.5	9.8
MIG	77.5	28.4	49.1	17.5	12.6	4.9
TOTAL	72.1	18.8	53.3	18.4	9.8	8.6

incremental income. Similarly, the GHB households in MIG category have also saved about 78 per cent of their incremental income, while their counterpart in the Non-GHB sample have saved only 28 per cent of the incremental income.

The obvious conclusion which emerges from the above analysis is that the availability of public housing exercises a strong influence in increasing the saving potential of the occupant households. The results of the sample survey clearly show that the households which enjoyed the benefit of public housing have registered a significant increase in their annual saving whereas the corresponding group of broadly comparable households which did not get the benefit of public housing has registered a much smaller increase in annual savings. A major component of the additional saving observed in the case of GHB households is obviously the monthly instalment which these households have to pay to GHB. The requirement to make this payment regularly, and the desire to own the house thereby, induces the occupant household to save as much of its incremental income as possible and this, in turn, results in a significant increase in the overall household saving, as it is evident from the tables given above.

EFFECT OF PUBLIC HOUSING ON PRODUCTIVITY

To measure the effect of public housing on the average productivity of the occupant household, we have adopted two alternative methods. The first method involves measurement and comparison of the change in average household income per earning member (before and after rehousing) observed for the GHB sample on the one hand and the Non-GHB sample on the other hand. Since average productivity is generally measured in terms of output per worker, and since average earnings per worker can be regarded as a reasonably good proxy for the output per worker, the method of comparing average earnings per worker at two points of time and for both types of samples represents the direct method of measuring the effect of public housing on average productivity.

The second method that we have adopted can be regarded as an indirect method of assessing the effect of rehousing on productivity. It involves an analysis of certain factors which have a significant influence on the general productivity level of the household. Such factors can be termed as the main components or determinants of average productivity. The components that we have considered for the present analysis are: (a) increase in the average number of hours work per day and decrease in absenteeism;

(b) increased involvement on the part of the head of the household in his occupation or profession and also in the extra activities like social service or community welfare; (c) improvement in the general level of health enjoyed by the head of the household and other members of the family; (d) improvement in the employment opportunities for other members of the household; and (e) improvement in the ability of the head and other members of the household to put in hard work and the resulting increase in general productivity level.

Table 15 shows category-wise averages of monthly household income per earning member for the two periods in time (before and after rehousing) and for the two samples. It can be seen from the figures given in this table that the average monthly income per earning member per household has increased in all categories of households falling under both samples. However, the comparison of the increase in average income per earning member in the GHB sample with the corresponding increase in the Non-GHB sample shows that the former exceeds the latter for each category of households. For all categories of households taken together, the increase in average income per earning member turns out to be Rs.142 in the GHB sample, whereas it is found to be only Rs.65 in the Non-GHB sample. The difference between the change in productivity observed

Table 15

Monthly Household Income Per Earning Member Per Household
In The GHB Sample And In The Non-GHB Sample

(in rupees)

Category	Average Monthly Income Per Earning Member		
	1978	Before rehousing	Change
(1)	(2)	(3)	(4)
<u>GHB Sample</u>			
EWS	417.51	376.48	41.03
LIG	927.48	665.00	262.48
MIG	1124.97	964.57	160.40
TOTAL	754.77	612.32	142.45
<u>Non-GHB Sample</u>			
EWS	349.75	311.57	38.18
LIG	638.53	548.30	90.23
MIG	804.25	732.66	71.59
TOTAL	546.27	481.61	64.66

in the two samples is the highest for the households belonging to LIG category, whereas it is very low for the households belonging to EWS category. The increase in average productivity observed for the GHB sample exceeds the corresponding increase observed for the Non-GHB sample by a margin of Rs.172 for the households in LIG category, by Rs.88 for the households in MIG category, and by Rs.3 for the households in EWS category. Thus, we can conclude on the basis of the results given in Table 15 that the availability of GHB houses has resulted in an increase in the average productivity of the occupant households over and above what would have occurred otherwise, though the impact seems to be relatively insignificant among the households in the EWS category as compared to the households in other categories.

Component-wise analysis of the improvement in productivity observed in the two samples is presented in Table 16. The figures given in this table represent the proportion of sample households which reported an increase or improvement in a given component of average productivity in the current period as compared to the period before rehousing. It is evident from this table that barring a few exceptions the proportions of GHB households showing an increase in each of the components is generally higher than the corresponding proportion of Non-GHB households in almost every category of the households.

Proportion of Households Showing An Increase In Average Productivity In The GHB Sample And In The
Non-GHB Sample

Category	Number of Sample Household	Proportion of Sample Households Showing (in per cent)							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Increase in daily Hours of Work and/or decrease in Absenteeism (Head of the Household)	Increased Involvement in Occupation/Social Service/Community Welfare (Head of the Household)	Improve-ment in Health of Family members	Improvement in the employment opportunities for the members other than the Head of the Household	Increased in general productivity and improvement in Ability to Work (Head of the Household)	Improvement in At least One of the Five Components of Household Productivity		
<u>GHB Sample</u>									
EWS	71	11.3	26.8	47.9	18.3	42.3	71.8		
LIG	42	9.5	54.8	50.0	14.3	66.7	86.1		
MIG	36	11.1	55.6	52.8	36.1	50.0	86.1		
TOTAL	149	10.7	41.6	49.7	21.5	51.0	79.8		
<u>Non-GHB Sample</u>									
EWS	71	4.2	12.7	19.7	22.5	35.2	52.3		
LIG	42	7.1	21.4	28.6	21.4	54.8	64.3		
MIG	36	13.9	52.8	33.3	30.6	55.5	77.7		
TOTAL	149	7.4	24.8	25.5	24.2	45.6	61.7		

For all categories of households taken together, we find that 10.7 per cent of the GHB households show an increase in the daily hours of work or a decrease in overall absenteeism as compared to corresponding figures of 7.4 per cent for the non-GHB households. Similarly, 41.6 per cent of the GHB households have reported a significant increase in their involvement in either their respective occupations and professions or in social service or in community welfare activities as compared to the corresponding figure of 24.8 per cent observed for the non-GHB households. Regarding the improvement in general level of health of the head of the household and other members of the family, we find that 49.7 per cent of the GHB households have reported a significant improvement after rehousing, whereas the corresponding proportion is only 25.5 per cent among the non-GHB households. The proportion of households reporting an improvement in the employment opportunities for the other members of the household has turned out to be more or less the same for the two samples, the figure for the GHB households being 21.5 per cent whereas corresponding figure for the non-GHB households being 24.2 per cent. In response to the direct question regarding one's personal assessment of the improvement in overall ability to work and one's general level of efficiency, 51 per cent of the GHB households have reported a significant improvement, whereas corresponding proportion for the non-GHB households has turned out to be 45.6 per cent.

After examining the relative position of the two samples regarding the individual components of the average productivity, it is useful to compare the proportion of households in the two samples which report improvement at least one of the five components of productivity that we have considered here. The last column of Table 16 shows this proportion. It is evident from the figures given there that a significant proportion of the GHB households show an improvement in at least one of the five components that we have examined and the proportions observed for the GHB sample are also considerably higher than the corresponding proportions observed for the Non-GHB sample for each category of the households.

Thus, the component-wise analysis of the productivity change attempted in Table 16 lends considerable support to the conclusion emerging from a direct comparison of average income per earning member presented in Table 15. On the whole, it appears that the availability of public housing does have a favourable impact on the general productivity level of the household, though its absolute impact is perhaps more significant among the households belonging to relatively higher income groups as compared to the households belonging to the category of economically weaker sections.

VI

FACTORS UNDERLYING THE DEMAND FOR GHB HOUSES

After assessing the economic benefits of public housing, it is useful to examine the main factors which explain the demand for public housing. The final part of the questionnaire which was canvassed to the GHB households and the Non-GHB households included some questions on this aspect. On the basis of the replies given by the respondents to these questions, we are in a position to highlight the main factors which explain the households' preference or demand for GHB houses.

Table 17 summarises the specific reasons behind the households' preferences for GHB houses and indicates the corresponding number of sample households classified according to their income category. It can be seen from the table that the desire to own a house and the desire to have more space, better accommodation and better locality are the two major factors which largely explain the demand for GHB houses. More than 80 per cent of the households belonging to the EWS and LIC categories in the GHB sample have indicated that keen desire to own a house was the main reason why they decided to shift to the GHB houses. This factor was mentioned as the predominant reason behind the preferences for GHB houses by a significant proportion of the Non-GHB households also, the proportions

Table 17

Distribution Of Sample Households According To The Reason Underlying
Their Demand For GHB Houses

Specification of the Reason mentioned by the Respondents	Preparation of Households in the GHB Sample			Proportion of Households in the Non-GHB Sample			TOTAL: All categories	
	(2)	(3)	(4)	(5)	(6)	(7)		(8)
1. Desire to Own a House	81.7	85.7	63.9	78.5	39.4	57.1	69.4	51.7
2. Desire to have more space, better accommodation and better locality	16.9	38.1	25.0	24.8	60.6	66.7	41.7	57.7
3. Desire to Migrate to City or Transfer of job/business	19.7	11.9	19.4	17.5	4.2	-	-	2.0
4. Desire to establish a separate and independent family unit	-	-	-	-	14.1	9.5	11.1	12.1
Total Number of Sample Households	71	42	36	149	71	42	36	149

of Non-GHB households indicating this reason being 39 per cent in the case of households belonging to EWS category, 57 per cent in the case of households belonging to LIG category and 69 per cent in the case of households belonging to MIG category.

Among the Non-GHB households, the significant proportion also mentioned the desire to have more space and better accommodation and the desire to shift to better locality as the main reason behind their preference for GHB houses. The proportions of Non-GHB households which indicated this reason are: 61 per cent in the case of households belonging to EWS category, 67 per cent in the case of households belonging to LIG category and 42 per cent in the case of households belonging to MIG category. The corresponding proportions of the households in the GHB sample which indicated this reason are: 17 per cent in the case of EWS category, 38 per cent in the case of LIG category and 25 per cent in the case of MIG category.

Among the other factors underlying the demand for GHB houses, which have been mentioned by the respondents, the major ones are: (a) desire to migrate to the city, (b) desire to establish a separate and independent family unit mainly to avoid overcrowding in a smaller accommodation; and (c) transfer of job or business.

It is interesting to observe that the desire to migrate to city and transfer of job have been reported by a significant proportion of GH8 households as the main factors underlying their demand for public housing.

It should be noted here that the factors indicated in Table 17 are of a fairly general nature in the sense that they represent the factors underlying the demand for improved housing in general. However, they can be regarded as the factors underlying the preference for public housing in particular for the following reasons: The factors like desire to own a house or desire to have a spacious house represent demand for such houses only if the households are willing to purchase the houses at the prevailing market prices at which they are available. Since most of the households are not in a position to make outright purchases by paying the **entire** price at any given point of time, the purchase of the house take the form of a process which involves periodical payments in terms of certain fixed instalments. Thus, the demand for improved housing of households belonging to lower and middle income groups essentially depends upon the current market price or the total capitalised value of the house on the one hand, and the specified mode of payment involving a series of periodical instalments over a given period of time, on the

other hand. The first of these two factors involves choice between cheaper houses vis-a-vis costlier houses whereas the second factor involves the question of the size of the instalments and also of having faith in the selling agency and a sense of security while purchasing the houses. According to a large majority of respondents from the sample households, the houses provided by a public housing agency such as the Gujarat Housing Board can be regarded as comparatively cheaper. Moreover, the process of owning the house provided by GHB involves payment of monthly instalments of a reasonable amount spread over a fairly long period of time. This reduces the immediate burden for payment on the part of the occupant household. In addition to this, the households feel a greater degree of security while dealing with a public housing agency. In view of this, we can regard the factors mentioned in Table 17 as the basic factors underlying the demand for public housing viewed essentially in relation to the other alternatives in the context of the market price as well as the process of payment involved in the purchase.

VII

CONCLUSIONS

Finally we may summarize the major findings of our study. The main conclusions that can be drawn from the above analysis are as follows:

1. Economic benefits of public housing derived by the occupant households are of a significant magnitude and varied in nature.
2. Availability of public housing leads to a marginal increase in the household size and also in the general level of education of the members of the occupant households.
3. Availability of public housing leads to a significant improvement in the general housing conditions for the occupant households.
4. Availability of public housing exercises a favourable influence on the average household income and leads to an increase in the average annual expenditure on consumer durables, both of which indicate a significant improvement in general living standard of the occupant households.

5. Public housing has a favourable effect on household saving. The availability of public housing induces the occupant households to save more than before and leads to a significant increase in their propensity to save.
6. Public housing also has a favourable effect on the average productivity of the household. It leads to a significant increase in the average household income per earning member among the occupant households.
7. Availability of public housing seems to have an appreciable effect on the overall degree of involvement of the head of the household in his profession or social service or community welfare. It also seems to have the effect of reducing the degree of absenteeism and increasing the average hours of work per day.
8. Availability of public housing leads to an appreciable improvement in the general level of health of the members of the occupant households.
9. The major factors underlying the demand for public housing are: (a) the desire to own a house; and (b) the desire to have more space, better accommodation and a better locality, on the part of the prospective users of such houses.

The policy implications that emerge from the above conclusions derived from our study are obvious. On the whole, it is evident that public housing generates a stream of economic benefits, a part of which accrues to the public housing agency and the rest of which accrues to the occupant households. It follows, therefore, that evaluation of investment in public housing cannot be done on the basis of benefits that accrue to the public housing agency alone. Such investment decisions have to be taken on the basis of a proper assessment of the larger social benefits that accrue to the society as a whole. The findings of the above study show that the overall economic benefits of public housing which accrue to the occupant households are of considerable importance and must be taken into account while taking decisions regarding the allocation of resources for the purpose of providing the facility of public housing especially to the economically weaker sections of the society.

NOTES AND REFERENCES

- *1 See, for instance, L.S. Burns, R.G. Healy, D.M. McAllister and B.K. Tjioe: Housing: Symbol and Shelter (Los Angeles: International Housing Productivity Study, University of California; 1970)

See also, D.B. Wambem: Some Effects of Improved Housing on Health and Educational Performance: South Dos Palos, California (Los Angeles: I.H.P.S., University of California; 1970)

- *2 See, for instance, Leland S. Burns and Leo Grebler: The Housing of Nations — Analysis and Policy in a Comparative Framework (The MacMillan Press Limited; 1977) Chapter 8.

APPENDIX

ECONOMIC BENEFITS OF HOUSING: HOUSEHOLD SURVEY

Conducted by Indian Institute of Management, Ahmedabad, 1978

Name of
Investigator:Date of
Survey:Time of
Survey:Household:Category:Locality:House No:Head of Household: Name:Respondent: Head/
(Name if not Head)

Relationship to Head:

1. PRIMARY HOUSEHOLD DATA

(1) When did you shift to this house: _____

(2) Where did you live before shifting to this house: _____

Sl. No.	Members of the Household and Relation to Head	Age	Sex	N O W				Since when an earning member	B E F O R E					
				Level of Formal Education	Occupation		Current Monthly Income		Level of Formal Education	Occupation		Current Monthly Income		
					Primary	Secondary (Part-time activity)	Primary job			Secondary or part-time job	Primary	Secondary (Part-time activity)	Primary job	Secondary or Part-time
I	Head													
II	Wife													
III	Sons/Daughters 1) 2) 3) 4) 5)													
IV	Others staying in your House* 1) 2) 3) 4) 5)													

* Specify the relationship to Head

Household size: M ___ + F ___ (Now); M ___ + F ___ (Before)

2. Description of House

Plinth Area
 Number of Rooms
 Roof Height
 Materials of Construction
 Roof
 Well
 Floor
 Ventilation
 Monthly Instalment (if purchased/Rent)
 Repairs of House
 Frequency per year
 Amount spent annually on repair
 Annual cost of maintenance

Now	Before
Bad/Fair/Good/V.Good	Bad/Fair/Good/V.Good
Nil/Once/Twice	Nil/Once/Twice

3. Transportation

House to work place in (Kms) for each earning members:
 1
 2
 3
 House to nearest Hospital or Clinic (where you go)

Now	Before
Distance Mode of Amount Travel spent per month	Distance Mode of Amount Travel spent per month

4. Productivity (of Head of Household)
- 4.1 Have you changed the job after shifting?
- 4.2 What is the nature of your Primary Work?
- 4.3 No. of hours you work for this per day
- 4.4 Your income from primary job
- 4.5 Are you doing any additional work (Nature of Work)?
- 4.6 Number of hours for the additional works
- 4.7 Your income from any additional works
- 4.8 Absence (average number of days) from Primary occupation per month
- 4.9 If you have no permanent employment, average number of days per month you work
- 4.10 Your involvement in Extra-activities in your locality such as social service, community welfare, etc. (Describe in detail)

Now	Before

- 4.11 After shifting to this house are you able to work Better/No change/Worse
- 4.12 Has your involvement in Company/Office/Profession increased after shifting? (Describe)
- 4.13 Is there any change in the employment opportunity (Full time or part time jobs) for other members of your family

YES/NO

If YES

Family members
(other than Head)

Relation to Head

- 1
- 2
- 3

Increase		Decrease	
Hours per day	Rs. per month	Hours per day	Rs. per month

5. Health/Medical

The condition of your health after shifting to this house

Better No change Worse

The condition of health of other members of your family

Better No change Worse

Total amount (Rupees) spent per month for your treatment

Total amount (Rupees) spent per month for the treatment of other family members

Now (Rs)	Before (Rs)

6. Savings and Investment (of entire household)

6.1

1. Bank Account & Balance

2. National Savings Certificate

3. Postal Savings

4. Life Insurance

5. Lending to others

Total

	Now (Rs)			Before (Rs)			
	Head	Other Members		Head	Other Members		
		1	2	3	1	2	3

6.2

1. Have you any other house/land in Ahmedabad?

2. Have you any other house/land at your native place/outside the City?

3. What is your total saving per month (entire family)

Now	Before

7. Expenditure

7.1 State your monthly expenditure on:

Foodgrain
 Vegetables
 Milk
 Oil
 Fuel
 Clothing
 Education
 Recreation
 Others
 Repayment of Loans
 Total

7.2 Debt/Loan

(a) GHB (b) From Other

Amount of outstanding loan

Amount of repayment you are able to make per year

(a) GHB (b) Others

7.3 How much money do you send to your native place (average per year)

	Now	Before
7.1 State your monthly expenditure on:		
7.2 Debt/Loan		
7.3 How much money do you send to your native place (average per year)		

8. State the cost of following articles you have bought after shifting to this house:

(1) Utencils :	(6) Fan :
(2) Pressure Cooker:	(7) Radio :
(3) Gas :	(8) Clock :
(4) Furniture :	(9) Vehicle :
(5) Sewing Machine :	(10) Any other article :

9. Your commitments (How much did you think you would be required to spend on):

Repayment of loan
 Children's marriage
 Children's education
 Any other major expense

Now	Before

Reasons/Details

10. General Assessment:

- 10.1 Is there any improvement in your ability to save as a result of your shifting to this house : YES/NO
- 10.2 Is there any improvement in your productivity as a result of your shifting to this house : YES/NO
- 10.3 Are you able to repay regularly your monthly hire purchase instalment/rent : YES/NO
- 10.4 Is the environment of your house better compared with the previous residence (Describe) : YES/NO
- 10.5 Have you celebrated any important social occasion after shifting to this house : YES/NO
- 10.6 What was the expenditure on Social occasion you celebrated : Re.
- 10.7 Is there any improvement in your social life on account of your new residence : YES/NO
- 10.8 Why did you shift to this house :
- 10.9 Is there any improvement in your overall living standard as a result of your shifting to this house :