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HOUSING CONDITIONS AND HOUSING SHORTAGE IN INDIA —AN INTERSTATE ANALYSIS

by

Bakul H. Dholakia

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Indian Institute of Management
Ahmedabad

BAKUL H. DHOLAKIA

May 5, 1979

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I

INTRODUCTION

Shelter is an essential ingredient in the basic requirements of civilized living. Quality of life depends largely on the kind of housing facilities which are available. In underdeveloped countries, however, housing facilities are generally inadequate and leave much to be desired both in terms of quantity as well as quality. The main feature of the housing problem plagueing most underdeveloped countries is an acute shortage of residential dwellings or housing units. India is also facing this problem since a wide gap between housing requirements and availability of useable housing stock has been found to exist in the country for the last several decades.

The housing problem in India is essentially a multi-dimentional problem. It is, therefore, not an easy task to assess the true magnitude of the housing problem in India as it exists today. The problem is not simply of a certain magnitude of housing shortage and the number of dwellings required to eliminate this shortage. Besides the gap between the existing number of dwellings and the required number of dwellings, the housing problem also has several structural aspects that need to be considered. For instance, many of the existing housing units are barely fit for human inhabitation. A large number of the existing houses are bad and dilapidated structures and several others represent kutcha or semi-pucca constructions. There also exists squalid slums surrounded by the most deplorable conditions of sanitation and hygiene. The situation is equally dismal in relation to the service infrastructure. A large proportion of the existing houses does not have independent bathrooms and toilets. Similarly, most of the smaller towns and villages do not have any sewerage system at all. Many villages still do not have even the most elementary water supply system.

Provision of adequate housing facilities to the millions of people living in such villages and towns is not, therefore, merely a problem of quantifying the magnitude of the gap between

the existing and the required number of dwellings. However, it is extremely difficult to bring these quantitative aspects of the housing problem under the purview of direct measurement and quantitative assessment primarily on account of the lack of detailed statistics required for this purpose. Hence, major emphasis in the analysis of housing problem in an underdeveloped country like India continues to be placed on quantification of aggregate housing shortage and the feasible alternative courses of action that can be taken for eliminating it over a given time period.

Thus, the starting point for analysing the housing problem faced by the Indian economy is to examine the existing housing conditions and quantify the extent of housing shortage in different regions. In the present study, we have made an attempt in this direction. The main objectives of this study are:

1) To review the housing conditions and examine the growth of housing stock in rural and urban areas of different states;

2) To estimate the extent of housing shortage in different states;

3) To forecast the likely magnitude of housing shortage in different states in the years 1980-81 and 1990-91; and

4) To examine the overall investment implications of the policy aiming at eliminating the housing shortage within a specified period of time.

In the light of the above objectives, the paper is divided into six sections. The first section discusses the purpose and plan of the study. The second section is devoted to an analysis the housing conditions and housing growth in different states on the basis of the data available from population census of 1961 and 1971. In the third section, an attempt is made to estimate the extent of housing shortage in rural and urban areas of different states on the basis of the census data. The fourth section makes an attempt to project the magnitude of housing shortage in the years 1980-81 and 1990-91 on the basis of the trends in housing growth and related variables observed in the past. In the fifth section an attempt is then made to estimate the amount of additional investment that would be required to eliminate the housing shortage within a given period of time. In the sixth and final section, the main findings of the study are summarised.

The basic statistical data required for conducting the analysis of housing conditions and housing shortage in Indian economy are readily available from the various volumes of Census of India, 1961 and 1971. However, in some cases the data are not available in the required form and detail. We have therefore derived required series of data from the available information.* The various series of statistical data that we have used for analysing the housing conditions and housing shortage in India are given in the Appendix tables.

II

REVIEW OF HOUSING CONDITIONS

The major aspects of general housing conditions that need to be examined in the context of an analysis of housing problem are: (a) composition of census houses according to uses and growth of housing stock; (b) composition of housing stock according to construction material; (c) tenure status of households; (d) composition of housing stock according to the number of rooms; and (e) average size of dwellings in terms of the number of rooms per dwelling.

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*For details, see the brief introductory note given in the Appendix.

In this section, we have examined the trends in housing conditions in rural and urban areas of each state with respect to the above aspects.

2.1 Growth And Composition Of Housing Stock:

Table 1 brings out the trends in the quantum and composition of housing stock in Indian economy during the last decade. It can be seen from this table that the total number of census houses in Indian economy has increased from 107.82 million in 1960-61 to 122.55 million in 1970-71. Out of the total number of census houses, a substantial part is directly used as residential dwellings. A small proportion of the census houses are used as shop-cum-dwellings or workshop-cum-dwellings. Both these categories constitute what may be called the houses used partially as dwellings. The total of these three categories turns out to be 79.19 million in 1960-61 and 92.23 million in 1970-71.

The relative increase in the number of census houses used wholly or partially as residential dwellings is much greater in urban areas as compared to the rural areas. It is interesting to observe that in rural areas the relative increase in the number of census houses used for non-residential purposes has been quite low especially as compared to the relative increase in the number

Table 1

Distribution of Census Houses by Residential And Non-Residential Uses, 1960-61 and 1970-71

(Figures in Thousands)

Category	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
1) Dwellings	63614	13576	77190	71747	17698	89448
2) Shop-cum-Dwellings	438	234	672	704	272	1056
3) Workshop-cum-Dwellings	1076	252	1328	1325	408	1733
4) Sub Total: Census Houses Used Wholly or Partially as Residential Dwellings	65128	14062	79190	73856	18378	92234
5) Census Houses Used For Non-Residential Purposes	23856	4774	28630	24306	6011	30317
6) Total Number of Census Houses	88984	18836	107820	98162	24389	122551

Source: 1) Census of India 1961, Volume I - India, Part IV (B), Housing and Establishment Tables

2) Census of India, 1971, Series I - India, Part IV-B, Housing Tables

of census houses used wholly or partially as residential dwellings. It may be noted here that for the purpose of the present study, we shall treat the census houses reported under the categories of (a) dwellings; (b) shop-cum-dwellings; and (c) workshop-cum-dwellings as residential dwellings or housing units.

Table 2 shows the proportion of total census houses which are used wholly or partially as residential dwellings in the years 1960-61 and 1970-71.

It is evident from the figures given in the table that there is a considerable variation in this proportion among different states and also between rural areas and urban areas within each state. For instance, in 1970-71, the proportion of dwellings in total census houses in rural areas varies from 92.4% in Assam to 44.5% in Jammu and Kashmir. Similarly in urban areas the proportion varies from 83.2 percent in West Bengal to 54.87 percent in Jammu and Kashmir. In the country as a whole, this proportion is found to be 75.2 percent in rural areas and 75.4 percent in urban areas in 1970-71, the corresponding figures for the year 1960-61 being 73.2 percent and 74.7 percent respectively. Thus, on the whole, there seems to have been an increase in the proportion of census houses used for residential purposes. However, this trend is not

Table 2

Proportion of Total Census Houses Used as Residential Dwellings

(In percent)

State	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	80.5	78.3	80.2	77.0	78.9	77.3
Assam	94.3	82.5	93.2	92.4	77.5	90.9
Bihar	80.0	77.6	79.8	80.9	75.4	80.3
Gujarat	71.8	69.7	71.2	67.8	69.4	68.2
Haryana	63.2	68.9	64.3	66.3	70.5	67.1
Himachal Pradesh	55.0	58.2	55.2	75.0	69.2	74.5
Jammu & Kashmir	48.7	48.0	48.6	44.5	54.8	46.0
Karnataka	74.6	70.7	73.8	75.7	74.2	75.3
Kerala	83.0	72.8	81.5	75.1	66.7	73.7
Madhya Pradesh	70.2	76.5	71.1	76.3	75.9	76.3
Maharashtra	65.2	74.1	67.4	73.4	75.1	73.9
Orissa	89.5	81.4	88.9	77.8	73.4	77.4
Punjab	69.4	67.6	69.0	69.8	70.2	69.9
Rajasthan	73.7	69.1	72.8	70.9	70.8	70.9
Tamil Nadu	88.0	80.9	86.2	84.5	80.5	83.4
Uttar Pradesh	63.2	72.1	64.2	66.4	72.8	67.2
West Bengal	73.2	80.1	74.8	91.0	83.2	88.9
Union Territories and Other States	87.2	79.6	84.0	84.3	79.0	81.6
ALL INDIA	73.2	74.7	73.4	75.2	75.4	[illegible]

Source: Appendix Tables 1, 2 & 3

found in every state. Andhra Pradesh, Assam, Gujarat, Jammu and Kashmir, Kerala, Orissa, Rajasthan and Tamil Nadu are the states in which the overall proportion of census houses used as dwellings has declined during the period 1960-61 to 1970-71. As against this, Bihar, Haryana, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Uttar Pradesh and West Bengal are the states in which this proportion has increased.

Another interesting feature of the composition of census houses according to the residential and non residential houses is that in the country as a whole the composition is found to be more or less the same in rural areas as well as in urban areas. However, there are significant rural-urban differences in this proportion among different states. For instance, in 1970-71, the proportion of census houses used as dwellings was higher in urban areas as compared to the rural areas in Andhra Pradesh, Haryana, Jammu and Kashmir, Maharashtra, Punjab and Uttar Pradesh, whereas in all other states the proportion was found to be higher in rural areas as compared to the urban areas.

Table 3 shows the percentage increase in the number of residential dwellings in 1970-71 over 1960-61 in rural and urban areas of different states. It can be seen from the table that

Table 3

Relative Increase In The Number Of Residential Dwellings In Different States, 1960-61 to 1970-71

(Figures Indicate Percentage Change In 1970-71 over 1960-61)

State	Rural Areas	Urban Areas	All Areas
1	2	3	4
Andhra Pradesh	14.48	32.64	17.27
Assam	20.56	39.87	22.04
Bihar	15.02	47.00	17.87
Gujarat	12.49	26.47	16.19
Haryana	17.93	23.11	18.93
Himachal Pradesh	14.59	29.47	15.74
Jammu & Kashmir	-3.63	7.33	-1.94
Karnataka	10.74	27.73	14.37
Kerala	20.25	33.78	22.06
Madhya Pradesh	13.09	22.19	14.44
Maharashtra	10.97	33.38	17.10
Orissa	14.09	61.52	17.19
Punjab	12.91	17.41	14.00
Rajasthan	14.89	26.50	16.05
Tamil Nadu	12.70	37.60	18.59
Uttar Pradesh	10.63	24.39	12.34
West Bengal	14.50	17.45	15.23
Union Territories and Other States	23.48	80.92	46.51
ALL INDIA	13.40	30.69	[illegible]

Source: Appendix Tables 1, 2 & 3

there are marked variations in the relative growth of housing stock among different states. Taking the Indian economy as a whole, we find that the number of residential dwellings increased by about 16.5 percent during the period 1960-61 to 1970-71. Among the individual states, however, the decennial growth rate varried from 22.06 percent in Kerala to -1.94 percent in Jammu and Kashmir, the latter actually indicating marginal decline.

The degree of interstate variation in the growth of residential dwellings seems to be higher in urban areas as compared to the rural areas. Moreover, on the whole, the rate of growth of dwellings is also much greater in urban areas as compared to the rural areas in every state. For the country as a whole, the growth of dwellings in rural areas during the sixties has turned out to be 13.4 percent which is significantly less than the corresponding growth rate of population during the same period. The relative increase in the number of dwellings in rural areas seems to have lagged behind the corresponding increase in population in almost every state. This indicates that there is an urgent need to step up the growth rate of dwellings especially in rural areas.

An alternative way of analysing the relative growth of housing stock in different states is to examine what is generally known as the rate of construction of dwellings. It represents the increase in the number of dwellings in a given year per thousand of population. We have computed the rates of construction of dwellin in different states for the reference year 1970-71. For this purpose, we have first computed the average compound rate of growth of dwellings per annum observed between 1960-61 and 1970-71 and applied it to the housing stock in 1970-71 to derive the annual increase in the number of dwellings during the year following 1970-71. We have then divided this number by the observed population in 1970-71 to derive the average rate of construction of dwellings per thousand persons. The estimated rates of construction of dwellings in rural and urban areas of different states are shown in Table 4.

It can be seen from table 4 that the average rate of construction of dwellings is considerably higher in urban areas as compared to the rural areas in every state. Moreover, the rate of construction varies significantly in rural as well as urban areas, but the degree of interstate variation in the rate of construction seems to be higher in urban areas as compared to the

Table 4

Rates of Construction of Residential Dwellings
Per Thousand Population Per Annum

State	Rural Areas	Urban Areas	All Areas
1	2	3	4
Andhra Pradesh	2.71	5.29	3.19
Assam	3.15	6.09	3.40
Bihar	1.97	6.23	2.40
Gujarat	2.01	4.24	2.63
Haryana	2.47	3.66	2.68
Himachal Pradesh	2.51	6.60	2.70
Jammu & Kashmir	-0.51	0.03	-0.26
Karnataka	1.74	4.24	2.33
Kerala	2.97	4.35	3.19
Madhya Pradesh	2.23	3.75	2.47
Maharashtra	1.87	5.29	2.93
Orissa	2.35	9.83	2.95
Punjab	1.97	2.84	2.17
Rajasthan	2.39	4.18	2.71
Tamilnadu	2.47	6.00	3.51
Uttar Pradesh	1.62	3.60	1.89
West Bengal	2.28	2.84	2.42
Union Territories and Other States	3.74	10.8	7.23
ALL INDIA	2.15	4.85	2.68

Source: Appendix Tables 1 to 6

rural areas. In urban areas, the overall rate of construction for the country as a whole is 4.85, whereas in rural areas it is 2.15. So far as the urban areas are concerned, Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Maharashtra, Orissa and Tamil Nadu are the states where the rate of construction of dwellings is found to be higher than the national average. As against this, in rural areas, the rate of construction is found to be higher than the national average in Andhra Pradesh, Assam, Haryana, Himachal Pradesh, Kerala, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu and West Bengal.

On the whole, the rate of construction is found to be much lower in every state than the generally accepted norm for underdeveloped countries of about five dwellings per annum per thousand of population. Considering all areas, Andhra Pradesh, Assam, Kerala and Tamil Nadu are the only four states where the rate of construction exceeds three. Jammu and Kashmir and Uttar Pradesh are the two states where the rate of construction is found to be less than two. However, if we consider only the rural areas, the rate of construction is found to be less than two in six states, viz. Bihar, Jammu and Kashmir, Karnataka, Maharashtra, Punjab and Uttar Pradesh. As against this,

Assam is the only state in which the rate of construction in rural areas exceeds three. These findings support the earlier conclusion that rate of construction of new dwellings in rural areas needs to be stepped up to a considerable extent in the near future to lessen the impact of overall housing shortage.

While analysing the growth and composition of housing stock, it is worthwhile to examine the rural-urban breakup of the aggregate housing stock and also the average number of persons per dwelling in different states. Table 5 shows the share of urban areas in the total number of dwellings in each state in the years 1960-61 and 1970-71. It can be seen from this table that there is a considerable variation among different states in regard to the share of urban dwellings in total dwellings. The highest share of urban areas is found to be in Maharashtra with 27.35 percent in 1960-61 and 31.15 percent in 1970-71. As against this, the share of urban areas is found to be as low as 6.55 percent in Orissa in 1960-61 and 8.68 percent in Himachal Pradesh in 1970-71. For the country as a whole, the share of urban areas in total dwellings is found to be 19.93 percent in 1970-71, which is fairly close to the degree of urbanisation measured in terms of the proportion of total population living in urban areas.

Table 5

Share of Urban Dwellings in Total Dwellings

(In percent)

State	Share of Urban Residential Houses in Total Residential Houses	
	1960-61	1970-71
1	2	3
Andhra Pradesh	15.37	17.39
Assam	7.70	8.82
Bihar	8.93	11.13
Gujarat	26.48	28.82
Haryana	19.24	19.91
Himachal Pradesh	7.76	8.68
Jammu & Kashmir	15.39	16.85
Karnataka	21.37	23.87
Kerala	13.41	14.70
Madhya Pradesh	14.77	15.77
Maharashtra	27.35	31.15
Orissa	6.55	9.03
Punjab	24.08	24.80
Rajasthan	16.89	18.28
Tamil Nadu	23.63	27.42
Uttar Pradesh	12.41	13.74
West Bengal	24.85	25.32
Union Territories and other States	40.09	49.51
ALL INDIA	17.76	19.93

Source: Appendix Tables 1,2 and 3

Gujarat, Karnataka, Maharashtra, Punjab, Tamil Nadu, West Bengal and Uttar Pradesh are the states where the share of urban areas in total dwellings is found to be higher than the national average in the year 1970-71. On the whole, the share of urban areas in total dwellings shows a significant increase in every state during the period 1960-61 to 1970-71. The unanimous increase in the share of urban areas in total dwellings in all states is the direct consequence of the relatively faster growth of dwellings in urban areas as compared to rural areas in every state.

The average number of persons per dwelling derived as the ratio of total population to total number of dwellings is shown in Table 6. It can be seen from the table that for the country as a whole the number of persons per dwelling in rural areas is marginally higher than the corresponding number in urban areas. Moreover, this number has increased in 1970-71 as compared to 1960-61 in rural as well as urban areas. The increase in the number of persons per dwelling has taken place in every state and also within rural and urban areas of each state. Similarly, the pattern that the number of persons per dwelling is higher in rural than in urban areas is found in most of the states, the only exceptions being Andhra Pradesh, Jammu and Kashmir and Tamil Nadu. It follows from the above observations that,

Table 6

Average Number of Persons Per Dwellings

State	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	4.84	5.20	4.90	5.02	5.43	5.09
Assam	5.42	5.16	5.40	6.00	5.61	5.96
Bihar	6.80	6.22	6.75	7.14	6.32	7.05
Gujarat	5.40	5.21	5.35	5.87	5.61	5.80
Haryana	6.13	5.25	5.96	6.77	5.74	6.57
Himachal Pradesh	5.20	4.37	5.14	5.43	4.07	5.32
Jammu & Kashmir	5.51	6.15	5.61	7.23	7.98	7.35
Karnataka	5.44	5.56	5.47	5.92	5.84	5.90
Kerala	5.80	6.49	5.96	6.25	6.80	6.33
Madhya Pradesh	5.04	4.81	5.01	5.55	5.39	5.52
Maharashtra	5.15	5.20	5.17	5.61	5.52	5.58
Orissa	5.23	4.93	5.21	5.66	4.99	5.61
Punjab	5.77	5.34	5.67	6.19	5.71	6.07
Rajasthan	5.38	5.19	5.34	5.85	5.70	5.82
Tamil Nadu	4.73	5.34	4.88	4.86	5.40	5.00
Uttar Pradesh	5.68	5.72	5.69	6.28	6.14	6.26
West Bengal	5.39	5.01	5.30	5.96	5.71	5.89
Union Territories and Other States	5.35	6.09	5.64	5.70	5.66	5.68
ALL INDIA	5.46	5.36	5.44	5.90	5.70	5.86

Source: Appendix Tables 1 to 6

if we accept the norm of five persons per dwelling as an adequate number specifying the upper limit, there is a considerable amount of overcrowding in rural areas as well as urban areas and the extent of overcrowding is increasing with the passage of time.

2.2 Composition of Housing Stock by Construction Material:

We can classify the dwellings into some broad categories indicating the type of structure such as pucca, kutcha, semi-pucca etc., on the basis of the information available on the type of material used for the construction of walls and roof of the dwellings. Table 7 provides a fairly detailed classification of the housing stock in the Indian economy based on the type of construction material that is used. It is evident from the figures given in this table that the composition of the housing stock by construction material varies considerably between rural and urban areas. For instance, in the year 1970-71, only about 19 percent of the dwellings in rural areas are found to be pucca, whereas the corresponding proportion for urban areas is as high as about 64 percent. Similarly, the proportion of kutcha houses in rural areas is about 44 percent while the corresponding proportion for urban areas is only 13 percent.

Table 7

Composition of Housing Stock By Type of Structure In Rural And Urban Areas*

(In millions)

Category	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
1) Pucca	12.1 (18.6)	6.4 (45.0)	18.5 (23.4)	14.0 (18.9)	11.7 (63.8)	25.7 (27.9)
2) Semi-Pucca	23.1 (35.4)	4.9 (35.0)	28.0 (35.4)	27.7 (37.5)	4.2 (23.2)	31.9 (34.6)
3) Serviceable Kutcha	21.9 (33.6)	- -	21.9 (27.6)	24.2 (32.8)	- -	24.2 (26.2)
4) Unserviceable Kutcha	8.0 (12.4)	2.8 (20.0)	10.8 (13.6)	8.0 (10.8)	2.4 (13.0)	10.4 (11.3)
5) Total Housing Stock	65.1 (100.0)	14.1 (100.0)	79.2 (100.0)	73.9 (100.0)	18.3 (100.0)	92.2 (100.0)
6) Usable Housing Stock (1+2+3)	57.1	11.3	68.4	65.9	15.9	81.8

*Excluding Union Territories of Arunachal Pradesh And Diu, Daman and Goa.

Source: Government of India, Ministry of Works & Housing, Report of the Study Group On Rural Housing, March 1975.

It is also interesting to notice that the composition of housing stock in rural areas has not undergone any significant change between 1970-71 and 1960-61. As against this, the composition of housing stock in urban areas has changed considerably in favour of the pucca dwellings, whose share in the total dwellings has increased from 45 percent in 1960-61 to about 64 percent in 1970-71. Thus, we find that the extent of housing growth both in quantitative as well as qualitative terms is much higher in urban areas as compared to the rural areas. The finding that in relation to urban areas, the housing growth in rural areas is not only quantitatively inadequate but also qualitatively inferior, further reinforces the earlier conclusion that greater attention needs to be paid to the problem of rural housing.

State-wise details regarding the composition of dwellings according to construction material are available separately for the material of wall and the material of roof. The information on the overall composition of the dwellings including walls as well as roof is, however, not available. Tables 8 and 9 show the proportion of dwellings in different states having pucca walls and pucca roof, respectively. The actual proportion of pucca dwellings in total dwellings in a given state would generally

Table 0

Proportion of Dwellings In Rural And Urban Areas having Pucca Wall Material

(In Percent)

State	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	27.31	53.22	31.29	35.26	63.64	40.19
Assam	6.82	29.92	8.60	9.98	40.98	12.71
Bihar	10.15	58.65	14.48	17.58	71.56	23.59
Gujarat	36.16	86.23	49.42	46.33	87.49	58.19
Haryana	36.71	87.90	46.56	57.52	92.01	64.38
Himachal Pradesh	55.73	72.43	57.02	58.00	85.42	60.38
Jammu & Kashmir	54.08	76.28	57.50	61.32	81.39	64.70
Karnataka	40.67	56.72	44.10	47.24	69.43	52.54
Kerala	34.01	50.38	36.21	47.10	71.37	50.67
Madhya Pradesh	12.57	49.69	18.05	19.39	67.73	27.01
Maharashtra	39.98	73.90	49.26	48.73	82.45	59.23
Orissa	5.93	44.04	8.43	13.61	60.15	17.81
Punjab	33.61	85.81	46.18	61.40	91.98	61.47
Rajasthan	39.75	79.53	46.47	44.22	86.93	52.03
Tamil Nadu	22.58	57.08	30.73	28.56	64.31	38.36
Uttar Pradesh	13.49	73.74	20.97	25.22	83.89	33.28
West Bengal	9.32	69.86	24.36	14.75	77.42	30.62
Union Territories & Other States	10.38	79.04	37.91	22.39	86.30	53.66
ALL INDIA	22.24	66.93	30.18	31.39	76.38	39.69

Source: Appendix Tables 1 to 3 and 7 to 9

Table 9

Proportion of Dwellings In Rural and Urban Areas having Pucca Roof Material

(In Percent)

State	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	37.26	62.78	41.18	27.89	62.30	33.87
Assam	14.84	59.58	18.28	17.22	63.73	21.33
Bihar	55.44	87.56	58.31	58.79	89.87	62.25
Gujarat	89.61	90.82	89.93	93.71	94.38	93.90
Haryana	11.44	34.86	15.94	23.52	56.95	30.18
Himachal Pradesh	69.28	88.87	70.80	68.31	84.42	69.70
Jammu & Kashmir	11.05	51.46	17.27	8.79	58.49	17.15
Karnataka	30.62	87.62	34.25	44.74	75.50	52.08
Kerala	23.04	43.29	25.76	40.47	64.90	44.06
Madhya Pradesh	87.72	93.98	88.64	89.04	96.93	90.29
Maharashtra	67.79	88.32	73.40	62.45	88.52	70.57
Orissa	16.31	50.52	18.55	22.95	64.82	26.73
Punjab	9.28	33.98	15.23	31.56	67.95	40.59
Rajasthan	60.01	86.25	64.44	66.70	89.48	70.86
Tamil Nadu	33.60	67.46	41.60	40.29	72.32	49.07
Uttar Pradesh	79.37	93.39	81.11	45.25	76.56	49.55
West Bengal	28.40	91.88	44.17	39.98	93.43	53.52
Union Territories & Other States	9.15	76.52	36.16	20.46	83.72	50.39
ALL INDIA	53.64	79.96	58.31	49.60	80.90	55.60

Source: Appendix Tables 1 to 3 and 10 to 12

be less than the lower of the two proportions given in these two tables.

It can be seen from tables 8 and 9 that there is a significant degree of interstate variation in the proportion of pucca dwellings in total dwellings. According to the material of wall, the proportion of pucca houses is found to be as high as 64.71 percent in Jammu and Kashmir and as low as 12.7 percent in Assam in 1970-71. Similarly, according to the material of roof, the proportion of pucca houses varies all the way from 93.9 percent in Gujarat to 17.15 percent in Jammu and Kashmir. Between rural areas and urban areas, the degree of interstate variation in the proportion of pucca houses is found to be higher in rural areas as compared to the urban areas. Considering all areas, Gujarat, Himachal Pradesh, Maharashtra and Rajasthan are the only states where the proportion of pucca houses is found to be higher than the corresponding national average in the case of both the material of wall as well as the material of roof.

It is interesting to observe that the proportion of dwellings having pucca walls has shown a clear tendency to increase in rural as well as urban areas in every state. The pattern, however, is not so clear in the case of the classification

based on roof material. There are six states, viz., Andhra Pradesh, Himachal Pradesh, Jammu and Kashmir, Karnataka, Maharashtra and Uttar Pradesh in which the proportion of dwellings having pucca roof has declined in 1970-71 as compared to 1960-61. In rural areas, in addition to these six states, there are other states such as Assam, Bihar, Gujarat and Madhya Pradesh, where the proportion of dwellings having pucca roof has not increased significantly and whatever increase is observed can be regarded as only marginal. As against this, in urban areas, in almost every state the proportion of pucca dwellings both according to wall material as well as roof material has increased in 1970-71 as compared to 1960-61. Thus, we can conclude that the pattern of change in the composition of housing stock according to construction material that is observed in the rural and urban areas in the country as a whole is also found in most of the states.

2.3 Tenure Status of Households:

The distribution of occupant households according to their tenure status in rural areas, urban areas and all areas in the year 1960-61 and 1970-71 is given in Appendix Tables 22, 23 and 24. The proportions of households living in their own

houses, derived from the information given in these tables, are presented in Table 10.

It can be seen from table 10 that the proportions of owner occupant households is much higher in rural areas as compared to the urban areas in every state. In the country as a whole, the proportion of owned households is as high as 93.8 percent in rural areas in 1970-71, whereas the corresponding figure for urban areas is found to be 47.1 percent. It is interesting to observe that the extent of interstate variations in this proportion is quite low in the case of rural areas. For instance, in the year 1970-71, the highest proportion of owner occupant households in rural areas is found to be 98 percent in Uttar Pradesh, whereas the lowest proportion turns out to be 82.8 percent in Assam. As against this, this proportion shows a considerable degree of variation in urban areas among different states. In the year 1970-71, the highest proportion of owner occupant households in urban areas is found to be 74.1 percent in Jammu and Kashmir, whereas the lowest proportion is found to be 29 percent in Himachal Pradesh.

Table 10

Proportion of Total Households Staying In Owned Houses

(In percent)

State	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	95.95	60.55	90.37	94.03	54.22	87.01
Assam	82.31	47.37	79.61	82.79	46.78	79.59
Bihar	97.54	56.50	94.11	97.86	53.77	93.29
Gujarat	90.57	39.30	76.97	90.53	41.99	76.58
Haryana	96.45	57.20	88.87	95.63	62.63	88.99
Himachal Pradesh	94.63	29.89	89.53	91.88	29.03	86.32
Jammu & Kashmir	94.48	71.41	90.92	96.36	74.09	92.47
Karnataka	86.06	47.16	77.63	86.70	44.71	76.71
Kerala	90.58	71.74	88.00	92.09	73.65	89.33
Madhya Pradesh	93.13	44.08	85.99	94.16	46.86	86.79
Maharashtra	88.02	30.28	72.22	89.52	31.61	71.54
Orissa	98.10	61.68	95.71	96.41	51.90	92.51
Punjab	95.60	54.86	85.78	95.36	60.20	86.52
Rajasthan	96.21	56.71	90.13	95.59	58.91	88.86
Tamil Nadu	90.23	48.00	79.64	90.48	46.85	78.39
Uttar Pradesh	98.19	52.56	92.35	97.96	54.01	91.92
West Bengal	90.26	33.90	76.19	93.24	40.13	79.77
Union Territories and Other States	92.12	33.32	66.38	91.08	41.50	65.99
ALL INDIA	93.59	46.22	85.17	93.78	47.12	84.58

Source: Appendix Tables 4 to 6 and 22 to 24

In the year 1970-71, the proportion of owner occupant households in urban areas is found to be higher than the national average in Andhra Pradesh, Bihar, Haryana, Jammu and Kashmir, Kerala, Orissa, Punjab, Rajasthan and Uttar Pradesh. In each of these states the proportion of owner occupant households in rural areas is also found to be higher than the corresponding national average in 1970-71. It is interesting to observe that while Punjab and Haryana are the states with a relatively very high per capita income, Bihar and Orissa are the states with very low per capita income. This shows that there is perhaps no significant correlation between the level of economic development of the state and the distribution of households according to their tenure status.

Over a period of time, there seems to be a general tendency for the proportion of owner occupant households to increase both in rural as well as urban areas. For the country as a whole, while this proportion has increased in rural areas as well as in urban areas, the increase in the latter is somewhat greater than the increase in the former. Gujarat, Haryana, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Punjab, Uttar Pradesh and

West Bengal are the states in which the proportion of owner occupant households in urban areas shows a significant increase in 1970-71 as compared to 1960-61.

2.4 Composition of Households by Number of Rooms:

An interesting aspect of the analysis of housing conditions is to examine the composition of the existing dwellings according to the number of rooms. While information regarding the distribution of dwellings according to number of rooms is not directly available, the census provides information on the distribution of households according to the number of rooms occupied. Tables 11 and 12 show the percentage distribution of households, in rural and urban areas respectively, among three categories: (a) Households occupying one or two rooms; (b) Households occupying three rooms; and (c) Households occupying more than three rooms.

It is evident from table 11 that a very high proportion of households in rural areas lives in dwellings with one or two rooms. For the country as a whole, this proportion is found to be 75.7 percent in 1970-71. There are, however, significant differences in this proportion among various states. The highest proportion of households living in dwellings with one or two rooms is found to be 90.8 percent in Maharashtra, whereas the lowest proportion is found to be 53.5 percent in Kerala. There are

Table 11

Distribution of Households By Number of Rooms Occupied in Rural Areas

(In Percent)

State	1960-61			1970-71		
	Households with one & two rooms	Households with three rooms	Households with more than three rooms	Households with one & two rooms	Households with three rooms	Households with more than three rooms
1	2	3	4	5	6	7
Andhra Pradesh	88.36	6.30	5.34	87.62	7.00	5.38
Assam	71.34	15.17	13.49	82.40	11.54	6.06
Bihar	65.25	15.73	19.02	66.18	15.66	18.16
Gujarat	89.72	6.50	3.78	89.66	6.85	3.49
Haryana	64.98	16.74	18.28	60.40	17.86	21.74
Himachal Pradesh	55.04	15.31	29.65	72.63	10.84	16.53
Jammu & Kashmir	75.61	11.45	12.94	71.66	12.67	15.67
Karnataka	71.14	10.04	18.82	83.14	10.34	6.52
Kerala	64.52	18.06	17.42	53.46	22.16	24.38
Madhya Pradesh	82.43	10.07	7.50	79.41	12.19	8.40
Maharashtra	88.91	5.73	5.36	90.77	6.22	3.01
Orissa	68.86	15.06	16.08	68.79	15.64	15.57
Punjab	67.70	16.72	15.58	70.36	15.61	14.03
Rajasthan	77.06	11.75	11.19	70.98	14.16	14.86
Tamil Nadu	85.21	4.89	9.90	89.11	6.65	4.24
Uttar Pradesh	59.03	17.13	23.84	59.01	17.65	23.34
West Bengal	87.02	6.64	6.34	89.40	5.82	4.78
Union Territories & Other States	75.29	11.43	13.28	81.27	11.12	7.61
ALL INDIA	74.93	11.53	13.54	75.73	12.14	12.13

Table 12

Distribution of Households By Number of Rooms Occupied In Urban Areas

(In percent)

State	1960-61			1970-71		
	Households with one & two rooms	Households with Three rooms	Households with More than three rooms	Households with one & two rooms	Households with Three rooms	Households with More than three rooms
1	2	3	4	5	6	7
Andhra Pradesh	77.84	11.05	11.11	79.60	10.79	9.61
Assam	74.22	12.19	13.59	78.81	11.88	9.31
Bihar	70.48	12.71	16.81	69.82	13.41	16.77
Gujarat	81.26	8.48	10.26	81.54	9.34	9.12
Haryana	76.57	11.39	12.04	73.16	13.45	13.39
Himachal Pradesh	68.54	12.58	18.88	77.76	10.00	12.24
Jammu & Kashmir	52.12	15.96	31.92	49.29	18.34	32.37
Karnataka	69.99	13.39	16.62	72.10	13.74	14.16
Kerala	57.86	17.79	24.35	45.41	21.56	33.03
Madhya Pradesh	77.13	11.08	11.79	73.08	13.89	13.03
Maharashtra	84.04	8.32	7.64	85.28	8.91	5.81
Orissa	70.78	11.77	17.45	72.37	13.53	14.10
Punjab	73.78	12.14	14.08	71.80	13.45	14.75
Rajasthan	71.00	12.44	16.56	65.66	13.93	20.43
Tamil Nadu	81.39	8.54	10.07	80.27	10.57	9.16
Uttar Pradesh	73.85	11.80	14.35	74.20	12.36	13.44
West Bengal	85.26	6.99	7.75	85.04	7.97	6.99
Union Territories & Other States	83.09	8.39	8.52	80.89	10.11	9.00
ALL INDIA	77.71	10.29	12.00	77.05	11.42	11.53

Source: Appendix Table 14

seven states in which this proportion exceeds 80 percent, viz., Andhra Pradesh, Assam, Gujarat, Karnataka, Maharashtra, Tamil Nadu and West Bengal. As against this, there are only three states in which this proportion is found to be around 60 percent or less viz., Haryana, Kerala and Uttar Pradesh. Out of the seven states in which the proportion is found to be greater than 80 percent, there are five states in which the proportion of households living in dwellings with more than three rooms is found to be only five percent or less. These states are Andhra Pradesh, Gujarat, Maharashtra, Tamil Nadu and West Bengal. The degree of inequality in the consumption of housing services in rural areas can, therefore, be said to be fairly high in these five states.

A similar analysis of the information given in table 12 reveals that there are only four states in which the proportion of households in urban areas living in dwellings with one or two rooms exceeds 80 percent. These states are Gujarat, Maharashtra, Tamil Nadu and West Bengal. In each of these four states, however, the proportion of households living in dwellings with more than three rooms exceeds five percent. Moreover, we find that in many states the proportions of households in urban areas living in dwellings with three rooms as well as in dwellings with more than three rooms both exceed 10 percent by a significant margin. It

appears, therefore, that although there is a fairly high degree of inequality in the consumption of housing services in rural areas as well as in urban areas, the degree of inequality seems to be somewhat higher in rural areas as compared to the urban areas.

It is interesting to observe that no clear pattern of change in the room-wise composition of households emerges from the comparison of the percentage distribution in 1970-71 with the corresponding distribution for 1960-61. In rural areas the proportion of households occupying one or two rooms has increased in seven states, viz., Assam, Himachal Pradesh, Karnataka, Maharashtra, Punjab, Tamil Nadu and West Bengal. As against this, it has declined in five states, viz., Haryana, Jammu & Kashmir, Kerala, Madhya Pradesh and Rajasthan, while it has remained more or less the same in the remaining five states. In urban areas, we find that this proportion has increased in six states, viz., Andhra Pradesh, Assam, Himachal Pradesh, Karnataka, Maharashtra and Orissa. Similarly, it has declined in seven states, viz., Haryana, Jammu and Kashmir, Kerala, Madhya Pradesh, Punjab, Rajasthan and Tamil Nadu. Thus, the overall degree of inequality in the consumption of housing services seems to be increasing with the passage of time in Himachal Pradesh, Karnataka and

Maharashtra, where the proportion of households occupying one or two rooms has increased simultaneously in rural areas as well as urban areas during the period 1960-61 to 1970-71. As against this, the overall degree of inequality seems to have declined in Haryana, Jammu & Kashmir, Kerala, Madhya Pradesh and Rajasthan where the above proportion has declined in rural as well as urban areas.

Considerable degree of overcrowding is generally found to be prevalent among the households living in dwellings with three or less number of rooms. Table 13 shows the average number of persons per room in households living in dwellings with three or less number of rooms. It is evident from this table that the average number of persons per room exceeds two in rural and urban areas within every state without exception. There are, however, noticeable differences in the relative degree of overcrowding among different states. In the year 1970-71, the highest degree of overcrowding in rural areas is found in West Bengal, whereas the lowest degree of overcrowding is found in Orissa, the number of persons per room in the former being 4.12 while in the latter being 2.67. In urban areas the highest degree of overcrowding is found in Maharashtra, whereas the lowest degree is found in

Table 13

Average Number of Persons Per Room In Dwellings having Three or Less Rooms

State	1960-61			1970-71		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	3.44	3.06	3.38	3.44	3.26	3.41
Assam	2.84	2.82	2.84	3.55	3.22	3.52
Bihar	2.82	3.00	2.84	3.05	3.04	3.05
Gujarat	3.73	3.30	3.62	4.02	3.54	3.88
Haryana	3.16	3.05	3.14	3.31	3.09	3.27
Himachal Pradesh	2.49	2.24	2.47	3.01	2.28	2.95
Jammu & Kashmir	3.40	2.93	3.33	3.37	2.82	3.28
Karnataka	3.24	3.00	3.19	3.58	3.23	3.49
Kerala	3.04	3.10	3.05	2.91	2.98	2.92
Madhya Pradesh	3.06	2.75	3.02	3.21	2.91	3.16
Maharashtra	3.69	3.50	3.64	3.98	3.74	3.91
Orissa	2.45	2.51	2.46	2.67	2.60	2.66
Punjab	3.06	3.10	3.07	3.34	3.09	3.28
Rajasthan	3.27	2.96	3.22	3.21	3.01	3.17
Tamil Nadu	3.44	3.17	3.37	3.37	3.33	3.36
Uttar Pradesh	2.54	2.93	2.59	2.77	3.21	2.83
West Bengal	3.68	3.41	3.61	4.12	3.70	4.01
Unnion Territories and Other States	3.11	3.27	3.18	3.42	3.32	3.37
ALL INDIA	3.09	3.13	3.10	3.29	3.31	3.30

Source: Appendix Tables 16, 17 & 18

Himachal Pradesh, the number of persons per room being 3.74 in the former and 2.28 in the latter. It is interesting to see that for the country as a whole, the relative degree of overcrowding appears to be more or less the same in rural areas as well as in urban areas. The extent of interstate variation in the degree of overcrowding, however, appears to be greater in rural areas as compared to the urban areas.

On the whole, the degree of overcrowding among the households belonging to the lower income groups appears to be increasing with the passage of time. For the country as a whole, the number of persons per room among the households occupying three or less rooms has increased from 3.09 to 3.29 in rural areas and from 3.13 to 3.31 in urban areas during the period 1960-61 to 1970-71. While this pattern is observed in most of the states, the exceptions are Jammu & Kashmir, Kerala, Rajasthan and Tamil Nadu, so far as the rural areas are concerned; and, Jammu & Kashmir, Kerala and Punjab, so far as the urban areas are concerned.

2.5 Average size of Dwellings:

Finally, we may examine the average size of dwellings as indicated by the number of rooms per dwelling. Table 14 shows the average number of rooms per dwelling in rural and urban areas

Table 14

Average Number of Rooms Per Dwelling

State	1960-61		1970-71	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	1.588	2.050	1.626	1.935
Assam	2.195	2.106	1.793	1.935
Bihar	2.967	2.549	2.862	2.521
Gujarat	1.543	1.883	1.559	1.851
Haryana	2.420	2.096	2.631	2.210
Himachal Pradesh	2.909	2.508	2.261	2.048
Jammu & Kashmir	1.920	2.974	2.648	3.951
Karnataka	1.643	2.131	1.826	2.222
Kerala	2.346	2.825	2.825	3.303
Madhya Pradesh	1.832	2.068	1.973	2.189
Maharashtra	1.441	1.647	1.484	1.639
Orissa	2.512	2.470	2.477	2.289
Punjab	2.281	2.120	2.225	2.255
Rajasthan	1.957	2.269	2.243	2.464
Tamil Nadu	1.400	1.943	1.557	1.901
Uttar Pradesh	2.866	2.438	2.873	2.310
West Bengal	1.589	1.643	1.554	1.700
Union Territories and Other States	1.970	2.085	1.865	1.956
ALL INDIA	2.087	2.041	2.132	2.053

Source: Appendix Tables 1 to 3 and 19 to 21

in the years 1960-61 and 1970-71. The figures given in this table are derived by dividing the total number of rooms in all dwellings taken together by the total number of dwellings.

It can be seen from table 14 that, like other structural aspects of housing stock, the average size of dwellings also shows significant variation among different states. In the year 1970-71, the average size of dwelling in rural areas varies all the way from 2.9 rooms per dwelling in Bihar and Uttar Pradesh to 1.5 rooms per dwelling in Maharashtra and about 1.6 rooms per dwelling in Andhra Pradesh, Gujarat, Tamil Nadu and West Bengal. Similarly, the average size of dwelling in urban areas varies all the way from about 4 rooms per dwelling in Jammu & Kashmir to about 1.6 rooms per dwelling in Maharashtra. The average size of the dwelling does not seem to be significantly correlated with any of the broad economic or demographic variables such as per capita income, total population, density of population or related variables.

During the period 1960-61 to 1970-71, the average size of dwellings for the country as a whole seems to have increased marginally especially in the rural areas. The pattern, however, is not uniform among various states. The average size of dwelling in rural areas shows a noticeable increase in Andhra Pradesh,

Haryana, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu. As against this, it shows a noticeable decline in the rural areas of Assam, Bihar, Himachal Pradesh, Orissa, Punjab and West Bengal. Similarly, in urban areas, the average size of dwelling shows a noticeable increase in Haryana, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Punjab, Rajasthan and West Bengal. While it shows a noticeable decline in urban areas of Andhra Pradesh, Assam, Gujarat, Himachal Pradesh, Orissa, Tamil Nadu and Uttar Pradesh. On the whole, the average size of dwellings seems to have increased in both rural areas as well as urban areas in six states, viz., Haryana, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh and Rajasthan. As against this, the average size of dwelling seems to have decreased in both rural areas as well as urban areas in these states, viz., Assam, Himachal Pradesh and Orissa. This indicates that while there is no uniform trend in regard to the average size of dwellings in different states, in many states the general tendency seems to be more of an increase rather than a decrease in the average size of dwellings.

III

ESTIMATES OF HOUSING SHORTAGE

3.1 Concept and Measurement:

Housing shortage is a normative concept indicating a given shortfall in the availability of housing stock from some desired level of housing stock providing adequate housing services. The concept of housing shortage is essentially based on the concept of housing need. In economic terminology housing need does not have exactly the same meaning as housing demand. The basic distinction between housing demand and housing need is that the former represents effective demand for houses which is backed by the willingness and ability to pay on the part of the consumer, whereas the latter indicates some kind of a requirement of housing services irrespective of the ability of the consumer to pay for it. The question as to whether or not the households can afford to have a house at the prevailing market prices is the question of housing demand, while societal welfare goal that every family should be provided with a house is the indicator of the extent of housing need. The difference between the housing need and the existing housing supply shows the extent

of housing shortage. Whether or not the additional houses as indicated by the extent of housing shortage will actually be demanded depends upon relative price of housing services, income of the consumers and the willingness of the consumers to pay for the housing services.

Since housing shortage is defined as the difference between housing need and housing supply, the measurement of housing shortage involves specification and measurement of housing need as well as housing supply. Several alternative criteria can be suggested for specifying housing need, and similarly some alternative criteria can also be suggested for defining housing supply. This would accordingly give rise to several alternative measures of housing shortage.

To begin with we may consider some alternative criteria for specifying housing need. First and foremost of these criteria is that every household is in need of a house and must therefore be provided with one. According to this criterion, the problem of measuring housing shortage reduces itself to estimating the differences between the number of households and the available stock of residential dwellings in the country.

However, this criterion is too simplistic and ignores the average size of household in relation to the average size of dwelling. It is, therefore, likely to involve a certain degree of overcrowding especially in the case of households belonging to lower income groups.

To overcome this limitation, the second criterion which is suggested to have one housing unit for every five persons. According to this criterion, the extent of housing shortage can be estimated as the differences between total population divided by five, which indicates housing need, and the available stock of residential dwelling, which indicates housing supply.

Another criterion of measuring housing need is based on the norm that for every two persons one room should be provided. If the average number of persons per room exceeds two, it is regarded as the indicator of overcrowding. According to this criterion, housing need can be estimated by dividing the total population by two to derive required number of rooms, which can be further divided by the average size of the house measured in terms of the number of rooms per dwelling to arrive at the required number of houses.

Both these criteria (i.e., second and third) involve the basic assumption that the total number of dwellings or rooms which are available can be equally distributed among the existing population irrespective of the income groups to which the different sections of the population belong. In practice, it is extremely difficult, if not impossible, to achieve what may be called a perfectly equitable distribution of housing services. The population belonging to the higher income groups, which is already enjoying more of the housing facility than what is specified by these norms, cannot be made to sacrifice or surrender the extra amount of housing services that they are enjoying in order to generate some surplus that can be distributed among the less previleged sections of the society. A more realistic estimate of housing shortage must, therefore, be based on the assumption that the existing degree of inequality in the consumption of housing services indicated by the additional services consumed by the richer sections cannot be reduced.

The direct implication of assuming the existing degree of inequality as given, is that the norm of two persons per room should be applied to those sections of the population who suffer from overcrowding, and the housing shortage should be measured in terms of the number of additional dwellings that need to be

constructed in order to eliminate this overcrowding. As it has already been noted in the previous section, the phenomenon of overcrowding is found to exist among the households living in houses having three or less number of rooms. The housing need according to this criterion can, therefore, be estimated by dividing the population living in houses with three or less number of rooms by two to derive the required number of rooms, and from the number so obtained the number of rooms actually occupied by these sections of the population can be substracted to arrive at the additional rooms that need to be constructed. The extent of housing shortage can then be derived by dividing the number of additional rooms required by the average number of rooms per dwelling. The measure of housing shortage so derived would indicate the number of additional dwellings required to be constructed to ensure that one room is provided for every two persons without any redistribution of surplus rooms occupied by higher income groups.

Having examined the alternative criteria for measuring housing need, we may now consider the alternative criteria for measuring housing supply. The important aspects of housing supply

deserve consideration in this respect. The first involves the condition of the existing housing unit, while the other involves a distinction between the different types of structures or housing units. Regarding the first aspect, we may note that the various sample surveys on housing conditions conducted by the National Sample Survey from time to time have clearly indicated that a sizeable proportion of the existing dwellings represents age-old structures which are considered dangerous to its inhabitants and which, therefore, need to be immediately replaced. The total housing supply can accordingly be defined by excluding such dwellings from the existing dwellings. Thus, we can measure housing supply in two ways: one which includes all existing dwellings and the other which excludes the dwellings that need replacement.

The second aspect of housing stock that deserves consideration while measuring housing supply involves a three-fold classification of the existing housing stock, viz., pucca houses, serviceable kutcha houses, and unserviceable kutcha houses. The total number of dwellings reported by the census consists of all the three categories of houses. It is, however, possible to define housing supply consisting of (a) only pucca houses, and (b) pucca and serviceable kutcha houses. The rationale for

treating only pucca houses and serviceable kutcha houses as constituting housing supply is that the houses which are provided must be fairly sound structures made up of standardised construction materials.

As already noted in the previous section, a large part of the existing dwellings especially in the rural areas can be classified as kutcha houses of which a substantial proportion in fact represents the unserviceable kutcha houses. Hence, the norm that every house which is provided must necessarily be a pucca house, or a somewhat more liberal norm that every house must be either a pucca or a serviceable kutcha house, essentially involves replacement of all existing kutcha or unserviceable kutcha houses, as the case may be, by the corresponding number of pucca or serviceable kutcha houses. These alternative specifications of housing supply would, therefore, give rise to a magnitude of housing shortage which would be far in excess of the measures based on total housing supply including all available dwellings irrespective of the type of their structure or construction.

3.2 Alternative Measures Of Housing Shortage in India:

In actual measurement, these alternative criteria of specifying housing need as well as housing supply can be combined with each other to generate several possible combinations of different criteria for measuring housing shortage. For instance, the above mentioned criteria when combined with one another can give rise to as many as 24 alternative measures of housing shortage. Table 15 presents the alternative estimates of housing shortage in Indian economy in the year 1970-71 based on these 24 alternative measures.

It is evident from table 15 that the measurement of the extent of housing shortage depends largely on the specific criterion that is adopted for defining housing need and housing supply. Out of the 24 alternative measures of housing shortage in the economy as a whole for the year 1970-71 presented in table, the minimum estimate turns out to be 4.57 million dwellings, whereas the maximum estimate turns out to be as high as 110.12 million dwellings. The minimum estimate is based on the criterion of one dwelling for every household to define the housing need and the criterion of all dwellings including both the unserviceable kutcha dwellings as well as the dwellings that need replacement

Table 15

Various Estimates of Housing Shortage In India Based On Alternative Criteria For the Year 1970-71

(Figures In Millions)

Specification Of Housing Need	Specification Of Housing Supply		
	All dwellings including Unserviceable kutcha dwellings	Pucca & Serviceable kutcha dwellings	Only Pucca dwellings
1	2	3	4
	Including Dwellings That Need Replacement		
1) One Dwelling for Every Household	4.57	14.89	71.09
2) One Dwelling for Five Persons	15.88	26.20	82.40
3) One Room For Two Persons:			
(a) With Redistribution	35.47	45.79	101.99
(b) Without Redistribution	41.57	51.89	108.09
	Excluding Dwellings That Need Replacement		
1) One Dwelling for Every Household	11.84	21.34	73.12
2) One Dwelling for Five Persons	23.15	32.65	84.43
3) One Room For Two Persons:			
(a) With Redistribution	42.74	52.24	104.02
(b) Without Redistrib ution	48.84	58.34	110.12

Source: See the Text

to define housing supply. As against this, the maximum estimate is based on the criterion of providing one room for two persons so far as the housing need is concerned, and the criterion of including only pucca dwellings, after making due allowance for the dwellings that need replacement, so far as the housing supply is concerned.

Out of the four alternative criteria of defining housing need, the criterion of providing one dwelling for every household is obviously the most liberal one. Similarly, the criterion of one room for every two persons without involving any redistributive effort turns out to be more strict than any of the other criteria. The criterion of providing one dwelling for five persons seems to be a reasonably good compromise between the most liberal criterion of one dwelling for every household, on the one hand, and the most strict criterion of one room for every two persons without any redistribution, on the other hand.

The pattern is fairly clear so far as the criteria of specifying the housing supply are concerned. The most liberal criterion is obviously the one which includes all existing dwellings in housing supply consisting of even unserviceable kutcha dwellings and the dwellings that need replacement. As

against this, the criterion of including only pucca dwellings and excluding the dwellings that need replacement is the most strict one. The extent of housing shortage rises steeply as we pass on from the criterion of including all dwellings to the criterion of including only pucca dwellings. The obvious reason for such a steep increase in the extent of housing shortage from one criterion to the other is that pucca dwellings constitute only a very small proportion of the total housing supply in the Indian economy.

Thus, the goal that every household should be provided with a pucca house is undoubtedly a laudable one; but, in the context of the present housing conditions in the Indian economy, it also appears to be rather too ambitious. On the basis of the estimates given in table 15, it appears that in the near future it is not feasible to alter the composition of existing dwellings so drastically as to replace all serviceable and unserviceable kutcha dwellings by pucca dwellings, which in turn do not need any replacement. Greater attention, therefore, needs to be paid to providing adequate housing facilities to the households belonging to the lower income groups. Since any drastic redistribution of the existing housing services which involves a transfer from

the richer sections of the community to the lower income groups is not feasible in the near future, the criterion of defining housing need which does not involve any redistribution appears to be more relevant for the purpose of defining housing shortage. Similarly, although we may include all existing dwellings in housing supply while defining housing shortage, it is necessary to exclude the dwellings that need immediate replacement.

Thus, the two main alternative criteria for defining housing shortage that seem to be more relevant in the formulation of housing policy in the near future are: (a) one dwelling for every five persons taking into account all existing dwellings excluding the ones that need replacement; and (b) one room for every two persons without involving any redistribution taking into account all existing dwellings excluding the ones that need replacement. In what follows, we have employed these two criteria to estimate the extent of housing shortage in different states.

3.3 State-wise Estimates of Housing Shortage:

To examine the extent of housing shortage in rural and urban areas in different states, we have adopted two alternative criteria for defining housing need. The first criterion is

based on the norm that for every five persons one dwelling must be provided. The second criterion is based on the norm that for every two persons one room must be provided and it also involves the assumption that it is not feasible to redistribute the surplus consumption of housing services enjoyed by the higher income groups among the lower income groups. The difference between housing need estimated by each of these two alternative criteria and the total number of existing dwellings (including the age-old and dilapidated dwellings) represents what may be called the extent of housing shortage due to population growth. The estimate of housing shortage due to population growth based on the first criterion of defining housing need is called Estimate I, while the extent of housing shortage based on the second criterion mentioned above is called Estimate II. The estimates of housing shortage due to population growth in the years 1960-61 and 1970-71, in rural and urban areas, are presented in Tables 16 and 17, respectively.

For estimating the total housing shortage, it is necessary to adjust the extent of housing shortage arising due to population growth by the number of dwellings which are bad and dilapidated to such an extent that they pose a danger to the life of those

Table 16

Estimates Of Housing Shortage In Rural Areas Due to Population Growth, 1960-61 And 1970-71

(Figures in Thousands)

State	1960-61		1970-71	
	Estimate I	Estimate II	Estimate I	Estimate II
1	2	3	4	5
Andhra Pradesh	-188	3504	29	4068
Assam	157	549	452	1486
Bihar	2288	1522	3130	2278
Gujarat	227	2201	560	2898
Haryana	232	359	428	439
Himachal Pradesh	21	57	51	186
Jammu & Kashmir	55	264	232	227
Karnataka	290	1644	671	2345
Kerala	417	808	718	710
Madhya Pradesh	49	2308	673	2846
Maharashtra	164	4176	737	5423
Orissa	143	458	464	780
Punjab	225	507	393	750
Rajasthan	237	1412	614	1403
Tamil Nadu	-276	3228	-167	3440
Uttar Pradesh	1515	1590	3133	2548
West Bengal	1397	3407	1082	5129
Union Territories & Other States	45	257	111	448
ALL INDIA	5988	28251	13311	37404

Source: Table 14 and Appendix Tables 1, 4 and 16.

Table 17

Estimates Of Housing Shortage In Urban Areas Due to Population Growth, 1960-61 and 1970-71

(Figures in Thousands)

State	1960-61		1970-71	
	Estimate I	Estimate II	Estimate I	Estimate II
1	2	3	4	5
Andhra Pradesh	43	398	122	670
Assam	5	43	27	102
Bihar	152	188	241	289
Gujarat	42	478	158	752
Haryana	92	87	44	111
Himachal Pradesh	-5	3	-10	5
Jammu & Kashmir	23	19	63	18
Karnataka	100	304	191	462
Kerala	110	106	178	104
Madhya Pradesh	-35	243	91	355
Maharashtra	83	1238	284	1963
Orissa	-3	33	-	69
Punjab	31	166	77	193
Rajasthan	24	180	113	228
Tamil Nadu	108	690	175	1095
Uttar Pradesh	227	464	444	787
West Bengal	2	871	272	1288
Union Territories & Other States	93	212	103	390
ALL INDIA	1012	5723	2573	8881

Source: Table 14 and Appendix Tables 2,5 and 17.

who live in them. The task of estimating the replacement requirements of dwellings at the state level becomes particularly difficult on account of the paucity of basic data pertaining to the age-composition of dwellings and the information relating to the actual condition of the housing structures in each age-group in different states. We have, therefore, used the estimates of replacement requirements in rural and urban areas for the country as a whole made in a recent study on the basis of the information available from the NSS reports.* The estimates of the number of existing dwellings that need replacement are presented in Table 18.

By adding the housing shortage that arises due to population growth to the corresponding estimates of replacement requirements, we have derived the two alternative sets of estimates (viz., Estimate I and Estimate II) of total housing shortage in the rural and urban areas of different states. As already discussed in section 3.2, the estimates based on the above-mentioned two alternative criteria appear to be more relevant in the near future for the purpose of measuring housing shortage under the existing housing conditions. The estimates of total housing shortage,

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*Cf. B.D. Sinha: Housing Growth In India (Arnold-Heinemann publishers India Private Limited, New Delhi; 1976).

Table 18

Estimates Of The Number Of Existing Dwellings That Require Replacement, 1960-61 And 1970-71

(Figures in Thousands)

State	1960-61		1970-71	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	372	46	580	76
Assam	110	7	193	12
Bihar	398	26	623	49
Gujarat	178	44	273	69
Haryana	64	10	103	16
Himachal Pradesh	32	2	50	3
Jammu & Kashmir	34	4	44	6
Karnataka	205	38	309	61
Kerala	149	16	244	26
Madhya Pradesh	340	40	524	61
Maharashtra	341	87	515	146
Orissa	193	9	299	19
Punjab	91	20	140	29
Rajasthan	197	27	307	43
Tamil Nadu	321	68	493	116
Uttar Pradesh	694	67	1045	104
West Bengal	309	69	482	102
Union Territories & Other States	40	18	67	41
ALL INDIA	4076	598	6291	979

Source: See the text

as derived for the years 1960-61 and 1970-71, are presented in Tables 19 and 20, respectively.

It is evident from tables 19 and 20 that the phenomenon of housing shortage is fairly widespread and it is found in every state without exception. In the year 1970-71, the extent of housing shortage in the country as a whole has turned out to be 19.6 million dwellings in rural areas and 3.55 million dwellings in urban areas according to Estimate I. The extent of housing shortage according to Estimate II turns out to be much higher than the corresponding measures based on Estimate I, with rural areas having the shortage of 43.7 million dwellings and urban areas having the shortage of 9.86 million dwellings in 1970-71. These estimates imply that, out of the total housing shortage in the country as a whole in the year 1970-71, rural areas account for about 85 percent according to Estimate I and about 82 percent according to Estimate II. Since rural areas account for about 80 percent of total population, the above estimates of housing shortage indicate that the degree of housing shortage in relation to population is higher in the rural areas as compared to the urban areas.

Table 19

Estimates Of Total Housing Shortage Including Replacement Requirement, 1960-61

(Figures in Thousands)

State	Estimate I			Estimate II		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	184	89	273	3876	444	4320
Assam	275	12	287	667	50	717
Bihar	2686	178	2864	1920	214	2134
Gujarat	405	86	491	2379	522	2901
Haryana	296	22	318	423	97	520
Himachal Pradesh	53	-3	50	89	5	94
Jammu & Kashmir	89	27	116	298	23	321
Karnataka	495	138	633	1849	342	2191
Kerala	566	126	692	957	122	1079
Madhya Pradesh	389	5	394	2648	283	2931
Maharashtra	505	170	675	4517	1325	5842
Orissa	336	6	342	651	42	693
Punjab	316	51	367	598	186	784
Rajasthan	434	51	485	1609	207	1816
Tamil Nadu	45	176	221	3549	758	4307
Uttar Pradesh	2209	294	2503	2284	531	2815
West Bengal	696	71	767	3716	940	4656
Union Territories & Other States	85	111	196	297	230	527
ALL INDIA	10064	1610	11674	32327	6321	38648

Source: Tables 16 to 18

Table 20

Estimates of Total Housing Shortage Including Replacement Requirement, 1970-71

(Figures in Thousands)

State	Estimate I			Estimate II		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	609	198	807	4648	746	5394
Assam	645	39	684	1679	114	1793
Bihar	3753	290	4043	2901	338	3239
Gujarat	833	227	1060	3171	821	3992
Haryana	531	60	591	542	127	669
Himachal Pradesh	101	-7	94	236	8	244
Jammu & Kashmir	276	69	345	271	24	295
Karnataka	980	252	1232	2654	523	3177
Kerala	962	204	1166	954	130	1084
Madhya Pradesh	1197	152	1349	3370	416	3786
Maharashtra	1252	430	1682	5938	2109	8047
Orissa	763	19	782	1079	88	1167
Punjab	533	106	639	890	222	1112
Rajasthan	921	156	1077	1710	271	1981
Tamil Nadu	326	291	617	3933	1211	5144
Uttar Pradesh	4178	548	4726	3593	891	4484
West Bengal	1564	374	1938	5611	1390	7001
Union Territories & Other States	178	144	322	515	431	946
ALL INDIA	19602	3552	23154	43695	9860	53555

Source: Tables 16 to 18

Considering the decennial change in the extent of housing shortage for the country as a whole, we find that according to Estimate I, the magnitude of housing shortage has increased by 95 percent in rural areas and by 121 percent in urban areas during the period 1960-61 to 1970-71. The percentage increase turns out to be much lower according to Estimate II which shows that housing shortage in rural areas and urban areas increased by about 35 percent and 56 percent, respectively.

If we examine the break-up of the growth in total housing shortage, we find that in rural areas the housing shortage arising on account of the replacement requirements increased by 54 percent, whereas the housing shortage arising on account of the population growth in relation to the observed growth of dwellings increased by 122 percent according to Estimate I and by 32 percent according to Estimate II during the period 1960-61 to 1970-71. A similar analysis for urban areas shows that the housing shortage arising on account of the replacement requirements increased by 64 percent, whereas the housing shortage arising on account of population growth increased by 154 percent according to Estimate I and by 55 percent according to Estimate II.

Thus, a substantial part of the phenomenal growth of housing shortage according to Estimate I is the direct consequence of the low rates of construction of new dwellings, on the one hand, and a fairly rapid rate of population growth, on the other hand, observed during the sixties.

Considering the state-wise estimates of housing shortage, we find that in the year 1970-71 there are five states in which the absolute magnitude of housing shortage exceeds one million dwellings according to Estimate I. These states are Bihar, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal. According to Estimate II, the number of such states increases to twelve, the additional seven states falling under this category being Andhra Pradesh, Assam, Gujarat, Karnataka, Orissa, Rajasthan and Tamil Nadu. Similarly, there are eight states in which the magnitude of housing shortage in urban areas exceeds two lakh dwellings in 1970-71 according to Estimate I. These states are Bihar, Gujarat, Karnataka, Kerala, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal. According to Estimate II, the number of such states increases to eleven with four additional states, viz., Andhra Pradesh, Madhya Pradesh,

Punjab and Rajasthan, joining this category while Kerala dropping out.

If we consider the states where the magnitude of housing shortage simultaneously exceeds one million dwellings in rural areas and two lakh dwellings in urban areas, we find that there are four such states according to Estimate I, viz., Bihar, Maharashtra, Uttar Pradesh and West Bengal. To these four states another four states get added if we consider Estimate II, these additional four states being Gujarat, Karnataka, Madhya Pradesh and Rajasthan. Thus, there are at least eight states in the country where the absolute magnitude of housing shortage can be regarded as very high and which therefore need to be paid immediate attention. It is interesting to observe that out of these eight states, Uttar Pradesh is the only state which had the housing shortage of such a magnitude in the year 1960-61. This implies that as many as seven states have joined the category of states facing huge deficits in housing supply during the last decade. If the present trends in housing supply and population continue at this rate, several other states may also join this category during the next few years, and in addition to this, the magnitude of housing shortage in the above eight states would also increase phenomenally.

To identify the states in which housing shortage is growing at a fairly rapid rate, we may classify the states into two categories: those where the housing shortage has more than doubled during the period 1960-61 to 1970-71, and the rest which have not experienced a doubling of the housing shortage during the last decade. According to Estimate I, there are ten states in which the magnitude of housing shortage has doubled during the sixties. These states are Andhra Pradesh, Assam, Gujarat, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Tamil Nadu and West Bengal. Similarly, there are elevent states in which the extent of housing shortage in urban areas has more than doubled. These states are Andhra Pradesh, Assam, Gujarat, Haryana, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan and West Bengal. Thus, there are as many as nine states in which the extent of housing shortage has more than doubled simultaneously in rural as well as urban areas.

It is interesting to note in this context that five of the above nine states viz., Gujarat, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal are the states which are already facing a very high deficit in housing supply in relation to housing

need in rural as well as urban areas. The housing problem in these states is, therefore, likely to worsen to a considerable extent if timely effort on a large scale is not made to counteract the growing housing shortage in these states.

Having examined the absolute magnitude of housing shortage in different states we may now examine the degree of relative shortage in each state. Table 21 shows housing shortage expressed as a percentage of the total housing stock in different states for the years 1960-61 and 1970-71.

It is evident from table 21 that the extent of housing shortage is fairly high in relative terms also. For the country as a whole, according to Estimate I, the relative extent of housing shortage is found to be 14.7 percent in 1960-61 and 25.1 percent in 1970-71. The corresponding percentages for Estimate II are considerably higher than the extent of housing shortage in 1960-61 being 48.8 percent and in 1970-71 being 58.1 percent. There are, however, significant variations among different states in regard to the relative housing shortage. In fact, we can classify the states into the following three categories based on the extent of housing shortage: (i) the states where

Table 21

Housing Shortage as Percentage of Total Housing Stock, 1960-61 and 1970-71

(In Percent)

State	1960-61		1970-71	
	Estimate I	Estimate II	Estimate I	Estimate II
1	2	3	4	5
Andhra Pradesh	3.89	61.52	9.80	65.50
Assam	14.07	35.16	27.49	72.05
Bihar	41.06	30.59	49.17	39.39
Gujarat	12.69	74.95	23.57	88.76
Haryana	25.11	41.06	39.24	44.42
Himachal Pradesh	9.01	16.93	14.63	37.97
Jammu & Kashmir	18.18	50.31	55.14	47.15
Karnataka	15.18	52.56	25.84	66.64
Kerala	25.13	39.18	34.68	32.24
Madhya Pradesh	6.18	45.95	18.48	51.86
Maharashtra	9.00	77.90	19.15	91.63
Orissa	10.38	21.04	20.26	30.24
Punjab	19.09	40.79	29.16	50.75
Rajasthan	12.84	48.08	24.40	44.89
Tamil Nadu	3.29	64.06	7.74	64.52
Uttar Pradesh	19.77	22.24	33.24	31.53
West Bengal	11.66	70.78	25.57	92.36
Union Territories & Other States	18.30	49.22	20.53	60.30
ALL INDIA	14.74	48.80	25.10	58.06

Source: Tables 19 & 20 and Appendix Table 3.

the extent of housing shortage is less than 25 percent; (ii) the states where the extent of housing shortage lies between 25 percent and 50 percent; and (iii) the states where the extent of housing shortage exceeds 50 percent.

In the year 1970-71, according to Estimate I, there are eight states falling under the first category, viz., Andhra Pradesh, Gujarat, Himachal Pradesh, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Tamil Nadu, whereas there is only one state, viz., Jammu & Kashmir which falls under the third category. The corresponding classification of states emerging from Estimate II is, however, significantly different. According to Estimate II, there is no state which falls under the first category. Thus, according to Estimate II, the relative extent of housing shortage in every state exceeds 25 percent which implies that there is a fairly high degree of housing shortage in almost every state. There are eight states where the extent of housing shortage as indicated by Estimate II lies between 25 percent and 50 percent. These states are Bihar, Haryana, Himachal Pradesh, Jammu & Kashmir, Kerala, Orissa, Rajasthan and Uttar Pradesh. In all other states, the extent of housing shortage exceeds 50 percent.

Considering the trends in the relative housing shortage during the period 1960-61 to 1970-71, we find that there is a general tendency for the relative extent of housing shortage to increase in most of the states. In fact, according to Estimate I, the extent of housing shortage expressed as percentage of total housing stock has increased in every state without exception. According to Estimate II also, the relative housing shortage shows a significant increase in almost every state, the only exceptions being Jammu & Kashmir, Kerala and Rajasthan. The states which already had a fairly high degree of housing shortage in 1960-61, and which have also experienced a significant increase in the housing shortage during the sixties, are Gujarat, Karnataka, Maharashtra and West Bengal. Barring the exception of Karnataka, in each of these states the extent of housing shortage in 1970-71, according to Estimate II, is around 90 percent.

The following conclusions emerge from the above analysis of the housing shortage in different states: (a) the phenomenon of housing shortage is not confined to only a few states; rather, it is fairly widespread; and (b) while the problem of housing shortage exists in almost every state, the intensity of the problem varies considerably from state to state. This indicates that, although there is a need to make a considerable effort to tackle the housing problem in every state, the need is much more urgent in some states as compared to others.

IV

HOUSING SHORTAGE IN THE FUTURE: PROJECTIONS FOR 1980-81 AND 1990-91

In the preceding section, we have examined the extent of housing shortage in different states during the sixties. In this section, we have made an attempt to forecast the likely magnitude of housing shortage as it will prevail in different states during the seventies and the eighties.

In the absence of any useful and reliable data regarding the future trends in the stock of residential dwellings and related variables, we have relied mainly on the trends in these variables observed during the past decade for making the required projections. On the basis of the observed past trends, we have projected the likely magnitudes of (a) the stock of residential dwellings, (b) total population, (c) total number of rooms occupied by all households taken together, (d) total number of persons in households occupying three or less rooms, and (e) total number of rooms occupied by households living in dwellings having three or less rooms. The projections have been made for the years 1980-81 and 1990-91 by applying the average annual compound

rates of growth in each of these variables in rural and urban areas of each state observed between 1960-61 and 1970-71 to the corresponding values of the variables observed in 1970-71. The projected values of each of the five above mentioned variables so derived for the years 1980-81 and 1990-91 are presented in the Appendix Tables 25 to 29.

The data presented in Appendix Tables 25 to 29 constitute the required information for projecting the extent of housing shortage for the years 1980-81 and 1990-91 using the two criteria discussed in the preceding section. By employing the broad methodology described in the previous section, we have accordingly derived the estimates of the likely magnitude of housing shortage in rural and urban areas arising due to population growth according to Estimate I as well as Estimate II. These projections are given in Tables 22 and 23. To derive the estimates of the number of dwellings that require replacement, we have applied the average annual growth rate of replacement requirement observed between 1960-61 and 1970-71 to the corresponding values observed for the year 1970-71. The projections of the number of dwellingsthat will require replacement in the years

Table 22

Projections Of Housing Shortage In Rural Areas Due to Population Growth, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Estimate I	Estimate II	Estimate I	Estimate II
1	2	3	4	5
Andhra Pradesh	323	4722	714	5480
Assam	896	3431	1549	7334
Bihar	4201	3296	5558	4655
Gujarat	1002	3774	1583	4870
Haryana	705	533	1093	643
Himachal Pradesh	91	472	143	1082
Jammu & Kashmir	449	195	718	168
Karnataka	1166	3252	1801	4416
Kerala	1140	616	1724	526
Madhya Pradesh	1530	3606	2687	4450
Maharashtra	1488	6963	2461	8854
Orissa	902	1217	1487	1804
Punjab	612	1078	896	1518
Rajasthan	1132	1391	1834	1377
Tamil Nadu	-23	3660	166	3887
Uttar Pradesh	5246	3795	7979	5409
West Bengal	2047	7535	3367	10881
Union Territories & Other States	210	758	355	1251
ALL INDIA	23117	50294	36115	68605

Source: Appendix Tables 25 to 29

Table 23

Projections Of Housing Shortage In Urban Areas Due to Population Growth, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Estimate I	Estimate II	Estimate I	Estimate II
1	2	3	4	5
Andhra Pradesh	251	1110	457	1815
Assam	68	221	140	459
Bihar	380	444	596	682
Gujarat	342	1163	627	1780
Haryana	94	142	170	182
Himachal Pradesh	-17	10	-27	18
Jammu & Kashmir	121	17	205	16
Karnataka	329	687	534	1006
Kerala	280	101	435	97
Madhya Pradesh	294	507	610	713
Maharashtra	624	3078	1179	4784
Orissa	6	145	22	299
Punjab	140	225	228	262
Rajasthan	258	289	486	365
Tamil Nadu	278	1722	433	2687
Uttar Pradesh	769	1286	1245	2049
West Bengal	680	1871	1282	2680
Union Territories & Other States	74	718	-53	1319
ALL INDIA	4971	13736	8569	21213

Source: Appendix Tables 25 to 29

1980-81 and 1990-91 are shown in Table 24. By adding the projected magnitude of housing shortage arising due to (a) population growth and (b) replacement requirement, we have derived the estimates of the likely magnitude of aggregate housing shortage for the years 1980-81 and 1990-91. The projections of total housing shortage in the two years are presented in Tables 25 and 26 respectively.

The projections of housing shortage presented in tables 25 and 26 are based on the assumption that the trends observed during the last decade in each of the component variables will continue during the years to come. The actual trends that most of the component variables may follow during the seventies and the eighties may in fact deviate from the trends observed in the past. Depending on the extent of deviation of the actual future trend from the observed past trend, the actual future values of the variables would differ from the projected values. However, irrespective of the actual outcome, the projections based on past trends serve as a reference point for predicting the likely magnitude of the relevant variables in the absence of any deliberate or predesigned attempt to alter the course of events. Thus, the projections given in tables 25 and 26 indicate the

Table 24

Projections Of The Number Of Dwellings That Require Replacement, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	902	125	1402	204
Assam	317	20	518	35
Bihar	973	89	1520	160
Gujarat	417	108	637	168
Haryana	165	24	264	37
Himachal Pradesh	78	5	121	8
Jammu & Kashmir	58	7	76	10
Karnataka	465	96	700	150
Kerala	399	44	652	72
Madhya Pradesh	805	93	1236	139
Maharashtra	777	241	1170	394
Orissa	464	37	718	74
Punjab	215	42	330	61
Rajasthan	480	67	748	105
Tamil Nadu	755	199	1155	335
Uttar Pradesh	1571	160	2360	245
West Bengal	750	149	1167	214
Union Territories & Other States	113	93	190	206
ALL INDIA	9704	1599	14964	2617

Source: Table 18

Table 28

Projections Of Total Housing Shortage Including Replacement Requirement, 1980-81

(Figures in Thousands)

State	Estimate I			Estimate II		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	1225	376	1601	5624	1235	6859
Assam	1213	88	1301	3748	241	3989
Bihar	5174	469	5643	4269	533	4802
Gujarat	1419	450	1869	4191	1271	5462
Haryana	870	118	988	698	166	864
Himachal Pradesh	169	-12	157	550	15	565
Jammu & Kashmir	507	128	635	253	24	277
Karnataka	1631	425	2056	3717	783	4500
Kerala	1531	324	1863	1015	145	1160
Madhya Pradesh	2335	387	2722	4411	600	5011
Maharashtra	2265	865	3130	7740	3319	11059
Orissa	1366	43	1409	1681	182	1863
Punjab	827	182	1009	1293	267	1560
Rajasthan	1612	325	1937	1871	356	2227
Tamil Nadu	732	477	1209	4415	1921	6336
Uttar Pradesh	6817	929	7746	5366	1446	6812
West Bengal	2797	829	3626	8285	2020	10305
Union Territories & Other States	323	167	490	871	811	1682
ALL INDIA	32821	6570	39391	59998	15335	75333

Source: Tables 22 to 24

Table 26

Projections Of Total Housing Shortage Including Replacement Requirement, 1990-91

(Figures in Thousands)

State	Estimate I			Estimate II		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	2116	661	2777	6882	2019	8901
Assam	2067	175	2242	7852	494	8346
Bihar	7078	756	7834	6175	842	7017
Gujarat	2220	795	3015	5507	1948	7455
Haryana	1357	207	1564	907	219	1126
Himachal Pradesh	264	-19	245	1203	26	1229
Jammu & Kashmir	794	215	1009	244	26	270
Karnataka	2501	684	3185	5116	1156	6272
Kerala	2376	507	2883	1178	169	1347
Madhya Pradesh	3923	749	4672	5606	852	6538
Maharashtra	3631	1573	5204	10024	5178	15202
Orissa	2205	96	2301	2522	373	2895
Punjab	1226	289	1515	1848	323	2171
Rajasthan	2582	591	3173	2125	470	2595
Tamil Nadu	1321	768	2089	5042	3022	8064
Uttar Pradesh	10339	1490	11829	7769	2294	10063
West Bengal	4534	1496	6030	12048	2894	14942
Union Territories & Other States	545	153	698	1441	1525	2966
ALL INDIA	51079	11186	62265	83569	23830	107399

Source: Tables 22 to 24

likely magnitude of housing shortage that would prevail in different states if no extra effort, over and above the effort already made during the sixties, is made in the direction of reducing the extent of housing shortage.

It is evident from the estimates presented in tables 25 and 26 that, if the past trends are allowed to continue at the same rate as in the sixties, the extent of housing shortage will increase at a phenomenal pace during the seventies and the eighties. For the country as a whole, the likely increase in the extent of housing shortage in rural areas turns out to be 67 percent between 1970-71 and 1980-81 and 56 percent between 1980-81 and 1990-91 showing an overall increase of 161 percent during the period 1970-71 to 1990-91, according to Estimate I. The corresponding percentage change according to Estimate II are 37 percent during the period from 1970-71 to 1980-81; 39 percent during the period from 1980-81 to 1990-91 and 91 percent during the entire twenty year period from 1970-71 to 1990-91. A similar exercise for urban areas indicates that, according to Estimate I, the growth of housing shortage is likely to be 85 percent between 1970-71 and 1980-81 and 70 percent during 1980-81 to 1990-91, implying an overall increase of 215 percent

during the period 1970-71 to 1990-91. According to Estimate II, the housing shortage in urban areas will increase by 56 percent during the eighties and 55 percent during the nineties, showing an overall increase of 142 percent during the two decades taken together.

Considering the rural-urban break-up of the projected housing shortage, we find that rural areas will continue to account for nearly four-fifths of the total housing shortage. The share of rural areas in total housing shortage, according to Estimate I, will be 83 percent in 1980-81 and 82 percent in 1990-91, the corresponding figures for Estimate II being 80 percent and 78 percent respectively. The tendency for the share of the rural areas in total housing shortage to decline with the passage of time is explained by the relatively faster growth of housing shortage in urban areas as compared to the rural areas.

Considering state-wise projections of housing shortage we find that according to our estimates there is likely to be a significant growth in the extent of housing shortage in rural as well as urban areas of every state. In fact, if we compare estimates given in Table 26 with the corresponding estimates

given in Table 20, we find that according to Estimate I, there will be at least a doubling of the housing shortage in almost every state during the period 1970-71 to 1990-91. There are in fact several states which are likely to experience a three-fold increase in the extent of housing shortage in 1990-91, according to Estimate I. So far as rural areas are concerned, there are seven states in which there will be a nearly three-fold increase in housing shortage during the period 1970-71 to 1990-91. These states are Andhra Pradesh, Assam, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and West Bengal. Similarly, there are nine states which will experience a nearly three-fold increase in housing shortage in urban areas, viz., Andhra Pradesh, Assam, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and West Bengal. Thus, there are six states in which the housing shortage will increase nearly three times simultaneously in urban areas as well as rural areas during the period 1970-71 and 1990-91. These states are Andhra Pradesh, Assam, Madhya Pradesh, Maharashtra, Orissa and West Bengal.

To examine the trends in the absolute magnitude of housing shortage in different states, we can divide the various states into three categories: (a) Those having an overall housing shortage

of less than two million dwellings, (b) those having housing shortage of two to five million dwellings, and (c) those having housing shortage of more than five million dwellings. According to Estimate I, eleven states fall under the first category, four states fall under the second category and two states fall under the third category, in the year 1980-81. The classification, however, changes significantly in the year 1990-91, in which only four states fall under the first category, nine states fall under the second category and four states fall under the third category, according to Estimate I. It is interesting to note in this connection that, in the year 1970-71, all states. c except Bihar and Uttar Pradesh, fall under the first category while no state falls under the third category. This shows the rate at which the problem of housing shortage will grow during the years to come, if no extra effort are made to counteract these tendencies.

The projected magnitude of housing shortage, according to Estimate II, turns out to be much larger than the one based on Estimate I in most of the States. If we apply the above classificatif to the figures based on Estimate II, we find that as many as seven states fall under the third category in 1980-81 and this

number increases to ten in 1990-91. The number of such states having an overall housing shortage of more than five million dwellings, according to Estimate II, is found to be only four in 1970-71. This again shows how fast the situation on the housing front is likely to worsen during the years to come in the absence of any well designed attempt to check the rising levels of housing shortage in many states.

It is interesting to examine the trends in the relative extent of housing shortage in different states during the years to come. Table 27 shows the extent of housing shortage expressed as percentage of projected housing stock in the years 1980-81 and 1990-91. It is evident from this table that the relative extent of housing shortage is increasing steadily with the passage of time. For the country as a whole, according to Estimate I, the relative extent of housing shortage based on our projections is likely to be 36 percent in 1980-81 and as high as 49 percent in 1990-91. These figures may be compared with the corresponding figures of 15 percent and 25 percent observed for the years 1960-61 and 1970-71, respectively. The relative extent of housing shortage, according to Estimate II, is likely to be as high as 70 percent in 1980-81 and 84 percent in 1990-91,

Table 27

Housing Shortage As Percentage Of Projected Housing Stock in 1980-81 and 1990-91

State	1980-81			1990-91		
	Projected Number of Residential Dwellings	Housing Shortage as Percentage of Estimate I	Estimate II	Projected Number of Residential Dwellings	Housing Shortage as Percentage of Estimate I	Estimate II
1	2	3	4	5	6	7
Andhra Pradesh	9687	16.53	70.81	11435	24.29	77.84
Assam	3043	42.75	131.09	3728	60.14	223.87
Bihar	9750	57.88	49.25	11645	67.27	60.26
Gujarat	5240	35.67	104.24	6124	49.23	121.73
Haryana	1791	55.16	48.24	2133	73.32	52.79
Himachal Pradesh	744	21.10	75.94	865	28.32	142.08
Jammu & Kashmir	614	103.42	45.11	604	167.05	44.70
Karnataka	5473	37.57	82.22	6308	50.49	99.43
Kerala	4109	45.34	28.23	5032	57.29	26.77
Madhya Pradesh	8361	32.56	59.93	9583	48.75	68.22
Maharashtra	10358	30.22	106.77	12312	42.27	123.47
Orissa	4569	30.84	40.77	5479	42.00	52.84
Punjab	2498	40.39	62.45	2850	53.16	76.18
Rajasthan	5165	37.50	43.13	6052	52.43	42.88
Tamil Nadu	9530	12.69	66.48	11489	18.18	70.19
Uttar Pradesh	16001	48.41	42.57	18036	65.59	55.79
West Bengal	8736	41.51	117.96	10069	59.89	148.40
Union Territories & Other States	2383	20.56	70.58	3750	18.61	79.09
ALL INDIA	108,052	36.46	69.72	127,494	48.84	84.24

the corresponding figure for 1970-71 being 58 percent. Thus, the gap between the magnitude of housing need and the corresponding housing supply has been steadily widening and will, in all probability, continue to widen, both in absolute terms as well as in relative terms, with the passage of time.

There are elevent states in which the relative extent of housing shortage in 1990-91, according to Estimate I, exceeds the corresponding national average. These states are: Assam, Bihar, Gujarat, Haryana, Jammu & Kashmir, Karnataka, Kerala, Punjab, Rajasthan, Uttar Pradesh and West Bengal. According to Estimate II, there are six states, viz., Assam, Gujarat, Himachal Pradesh, Karnataka, Maharashtra, and West Bengal, in which the relative extent of housing shortage in 1990-91 exceeds the corresponding national average. The relative extent of housing shortage according to Estimate I, shows a steady increase between 1970-71 and 1980-81 and also between 1980-81 and 1990-91 in every state without exception. Similarly, according to Estimate II also, the relative extent of housing shortage shows a significant increase between 1970-71 and 1990-91 in almost every state, the only exceptions being Jammu & Kashmir, Kerala and Rajasthan, in which the proportion of housing shortage shows a marginal decline.

It is significant to observe in this connection that there are likely to be at least four states viz., Assam, Gujarat, Maharashtra, and West Bengal, where the relative extent of housing shortage according to Estimate II may exceed 100 percent by a considerable margin in the year 1990-91.

The main conclusion that emerges from the above analysis of the future trends in housing shortage in different states is that the existing magnitude of housing shortage is likely to increase significantly in every state during the seventies and the eighties both in absolute as well as in relative terms. While the phenomenon of growing housing shortage is likely to be common to all the states, some states are in fact likely to develop housing shortage that will be close to or even greater than the entire stock of dwellings existing in those states. Massive investment effort is, therefore, required at least in such states to prevent such serious shortfalls in housing supply and the serious deterioration in general housing conditions that might accompany such huge gaps between housing need and housing supply.

V

ELIMINATING HOUSING SHORTAGE: INVESTMENT IMPLICATIONS

One of the basic objectives of the national housing policy is undoubtedly to progressively reduce or eliminate the existing housing shortage over a certain specified period of time. Given the rate of population growth and the age-structure of the existing housing stock, the only direct method that is available for tackling the problem of housing shortage in the near future is to step up the rate of construction of new dwellings in the economy. Any effort at increasing the rate of construction necessarily involves a substantial increase in the volume of investment expenditure on the construction of residential dwellings. Increased investment is, therefore, a pre-requisite for any meaningful effort at eliminating the housing shortage. In this section, we have made an attempt to examine the investment implications of an effort to eliminate housing shortage in different states by the end of the year 1990-91.

To estimate the magnitude of investment effort that is needed for eliminating housing shortage, we require the estimates

of (a) the number of dwellings which are likely to be constructed in the years to come; (b) the housing shortage which is likely to prevail in future; and (c) the average expenditure or average cost of construction per dwelling. In the preceding section, we have already derived the projections of the number of dwellings as well as the extent of housing shortage in different states in the years 1980-81 and 1990-91.

The direct estimates of average expenditure per dwelling are, however, not available from official or unofficial sources. We have, therefore, estimated the average expenditure per dwelling in different states by adopting the following procedure: From the time series estimates of gross capital formation in residential dwellings at constant 1970-71 prices for the country as a whole, we have derived the cumulated aggregate expenditure on the construction of residential dwellings in rural and urban areas incurred during the period 1960-61 to 1970-71. From the information given in Appendix Tables 1 and 2, we have derived the additions to the stock of residential dwellings in rural and urban areas made during the period 1960-61 to 1970-71. By taking the ratio of cumulated aggregate expenditure on dwellings to the number of dwellings added between 1960-61 and 1970-71, we have derived

the estimates of average expenditure per dwelling at 1970-71 prices in the rural and urban areas. These estimates turn out to be Rs. 5258 per dwelling in rural areas and Rs. 10,175 per dwelling in urban areas at 1970-71 prices. By dividing these per dwelling estimates by the average number of rooms per dwelling in rural and urban areas respectively, we have derived the estimates of the average expenditure of Rs. 2466 per room in rural areas and Rs. 4956 per room in urban areas. In the absence of any other information on the cost of construction of dwellings at the state level, we have assumed that the above estimates of average expenditure per room derived for the rural and urban areas of the country as a whole, are applicable to the rural and urban areas of each state. Hence, by multiplying the per room expenditure by the number of rooms per dwelling in rural and urban areas of each state, we have derived the corresponding estimates of average expenditure per dwelling at 1970-71 prices in different states. These estimates are presented in Appendix Table 30.

We have estimated the cumulative aggregate investment in residential dwellings that is likely to be made during the period 1970-71 to 1990-91 by multiplying the difference between the projected dwellings in 1990-91 and the number of dwellings existing in 1970-71 by the average expenditure per dwelling given in Appendix Table 30. The estimates of aggregate investment

in dwellings so derived are presented in Table 28.

The estimates shown in Table 28 indicate the total amount of investment at 1970-71 prices that is likely to be made during the period of two decades following 1970-71 in the absence of any extra effort in the direction of stepping up the rate of investment over and above what it is likely to be during the years to come. As already noted in the previous section, the projected growth of dwellings is not sufficient to meet the growing requirements of housing and as a result a substantial amount of housing shortage is likely to existin 1990-91. This implies that the aggregate investment in dwellings that is shown in Table 28 is not going to be adequate and there will be a need to undertake a considerable amount of additional investment effort to eliminate the housing shortage.

The additional investment effort that is necessary to eliminate the housing shortage in every state by the end of the year 1990-91 can be estimated by multiplying the projected magnitude of housing shortage given in Tables 25 & 26 by the corresponding average expenditure per dwelling given in Appendix Table 30. The estimates of additional investment in dwellings

Table 28

Estimates Of Cumulative Aggregate Investment In Dwellings At 1970-71 Prices That would Be Made During 1970-71 to 1990-91

(Rupees Crores at 1970-71 Prices)

State	Rural Areas	Urban Areas	All Areas
1	2	3	4
Andhra Pradesh	847	1042	1889
Assam	455	201	656
Bihar	1666	1327	2993
Gujarat	327	713	1040
Haryana	306	170	476
Himachal Pradesh	103	39	142
Jammu & Kashmir	-	29	29
Karnataka	370	792	1162
Kerala	891	640	1531
Madhya Pradesh	834	616	1450
Maharashtra	512	1731	2243
Orissa	647	635	1282
Punjab	249	230	479
Rajasthan	639	591	1230
Tamil Nadu	600	1840	2440
Uttar Pradesh	1946	1225	3171
West Bengal	675	613	1288
Union Territories & Other States	191	1711	1902
ALL INDIA	11258	14145	25403

Source: Appendix Tables 1, 2, 25 and 30

required to eliminate the housing shortage, so derived, are presented in Table 29. The estimates given in Table 29 relate to the cumulative investment expenditure that needs to be incurred over the entire period of twenty years from 1970-71 to 1990-91.

From these estimates, we can derive the estimates of additional investment that is required to be made every year during the period 1970-71 to 1990-91. The estimates of the actual investment in dwellings that is likely to take place per annum and the corresponding estimates of additional investment in dwellings that is required to be made per annum to eliminate the housing shortage by the end of 1990-91 are presented in Table 30. Table 30 also shows the estimates of total investment that is required to be made in each state to achieve the objective of eliminating housing shortage by 1990-91. The total investment that is required consists of actual investment that is likely to take place and the additional investment effort that is needed.

It can be seen from the estimates presented in Tables 28 and 29 that, for the country as a whole, the total investment

Table 29

Estimates Of Additional Investment In Dwellings Required To Eliminate The Housing Shortage By 1990-91

(Rupees Crores at 1970-71 Prices)

State	Estimate I			Estimate II		
	Rural Areas	Urban Areas	All Areas	Rural Areas	Urban Areas	All Areas
1	2	3	4	5	6	7
Andhra Pradesh	849	634	1483	2760	1936	4696
Assam	914	168	1082	3472	474	3946
Bihar	4996	945	5941	4358	1052	5410
Gujarat	853	729	1582	2117	1787	3904
Haryana	860	227	1107	588	240	828
Himachal Pradesh	147	-	147	671	26	697
Jammu & Kashmir	518	421	939	159	51	210
Karnataka	1126	753	1879	2304	1273	3577
Kerala	1655	830	2485	821	277	1098
Madhya Pradesh	1909	813	2722	2766	924	3690
Maharashtra	1329	1278	2607	3669	4206	7875
Orissa	1347	109	1456	1540	423	1963
Punjab	673	323	996	1014	361	1375
Rajasthan	1428	722	2150	1175	574	1749
Tamil Nadu	507	724	1231	1936	2847	4783
Uttar Pradesh	7325	1706	9031	5504	2626	8130
West Bengal	1737	1260	2997	4617	2438	7055
Union Territories & Other States	251	148	399	663	1478	2141
ALL INDIA	28444	11790	40234	40134	22993	63127

Source: Tables 25 and 26 and Appendix Table 30

Table 30

Estimates Of The Likely Investment, The Required Investment And The Gap Per Annum During The Period 1970-71 to 1990-91

(Rupees Crores at 1970-71 prices)

State	Total Requirement		Expected Investment	Additional Effort Needed	
	Estimate I	Estimate II		Estimate I	Estimate II
1	2	3	4	5	6
Andhra Pradesh	168.7	329.3	94.5	74.2	234.8
Assam	86.9	230.1	32.8	54.1	197.3
Bihar	446.8	420.2	149.7	297.1	270.5
Gujarat	131.1	247.2	52.0	79.1	195.2
Haryana	79.2	65.2	23.8	55.4	41.4
Himachal Pradesh	18.5	42.0	7.1	11.4	34.9
Jammu & Kashmir	48.5	12.0	1.5	47.0	10.5
Karnataka	152.1	237.0	58.1	94.0	178.9
Kerala	200.9	131.5	76.6	124.3	54.9
Madhya Pradesh	208.6	257.0	72.5	136.1	184.5
Maharashtra	242.6	505.0	112.2	130.4	393.0
Orissa	136.9	162.3	64.1	72.8	98.2
Punjab	73.8	92.8	24.0	49.8	68.8
Rajasthan	169.0	148.9	61.5	107.5	87.4
Tamil Nadu	183.6	361.2	122.0	61.6	239.2
Uttar Pradesh	610.2	565.1	158.6	451.6	406.5
West Bengal	214.3	417.2	64.4	149.9	352.8
Union Territories & Other States	115.1	202.2	95.1	20.0	107.1
ALL INDIA	3262.8	4427.8	1270.5	2012.3	3156.7

Source: Tables 28 and 29

in dwellings that is likely to take place during the two decades following 1970-71 will be of the order of Rs. 11,258 crores in rural areas and Rs. 14145 crores in urban areas. However, in addition to the aggregate investment that is likely to be made during the period 1970-71 to 1990-91, a huge amount of extra investment effort will be required to eliminate the housing shortage. The additional investment effort according to Estimate I, turns out to be Rs. 28,444 crores in rural areas and Rs. 11,790 crores in urban areas. The additional investment effort according to Estimate II turns out to Rs. 40,134 crores in rural areas and Rs. 22,993 crores in urban areas taking the country as a whole.

Among the individual states, we find that the highest amount of additional investment effort according to Estimate I as well as Estimate II is required in Uttar Pradesh, where the magnitude of additional investment required is as high as Rs. 9,031 crores according to Estimate I and Rs. 8,130 crores according to Estimate II. The other states where the additional investment effort is required on a fairly large scale are Bihar, Kerala, Madhya Pradesh, Maharashtra, Rajasthan and West Bengal according to Estimate I; and, Andhra Pradesh, Assam

Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal, according to Estimate II. In each of these states, the additional investment effort that is required to eliminate the housing shortage by 1990-91 exceeds Rs. 2,000 crores at 1970-71 prices.

It is interesting to compare the additional investment effort that is required to eliminate housing shortage with the actual investment effort that is likely to take place. This comparison is attempted in Table 30. It is evident from the estimates presented in Table 30 that the additional investment effort that is required to eliminate housing shortage by 1990-91, constitutes a sizeable proportion of the total investment effort that is required in almost every state. For the country as a whole, the total investment effort that is required according to Estimate I, is as high as Rs. 3,281 crores per annum, of which the actual investment effort that is likely to take place is only Rs. 1,269 crores whereas the rest i.e., Rs. 3,157 crores per annum, represents the additional effort that is required. Thus, in the absence of any extra effort to accelerate the rate of investment in dwellings during the seventies and eighties, the actual investment effort that is

likely to be made would be only about two-fifths of what is required according to Estimate I. According to Estimate II, it may, in fact, be as low as only one-third of the total requirement.

The state-wise estimates of actual investment that is likely to take place, and the additional effort that is required to eliminate housing shortage, reveal that, barring Andhra Pradesh and Tamil Nadu, the additional investment effort that is required according to Estimate I exceeds the actual investment effort per annum that is likely to be made during the period 1970-71 to 1990-91 in every state. According to Estimate II, however, the additional investment effort constitutes more than half of the total investment effort required in every state without exception.

There are six states in which the additional investment effort that is required according to Estimate I constitutes more than two-thirds of the total investment effort that is required to eliminate the housing shortage. These states are Bihar, Haryana, Jammu & Kashmir, Punjab, Uttar Pradesh and West Bengal. Out of these six states, Haryana and Punjab are relatively high income states. Effort can, therefore, be made

in these states to encourage private investment in residential construction through various measures. However, Bihar, Jammu & Kashmir and Uttar Pradesh are the states with relatively low levels of per capita income. It would be somewhat difficult, therefore, to envisage a significant stepping up of the rate of private investment in residential construction in these states during the years to come. Hence, a substantial amount of public investment effort is required to be made in these states to bridge the gap between the investment effort that is required and the investment effort that is likely to be coming forth in the field of residential construction during the years to come. In addition to these states, the other states, which also belong to the category of low income states and where the additional investment effort that is required exceeds Rs. 100 crores per annum, are Madhya Pradesh and Rajasthan. It would be necessary to undertake a substantial amount of public investment effort in these states also to help them overcome the problem of growing housing shortage during the period of the seventies and the eighties.

VI

CONCLUSION

Finally, we may summarise the major findings of the study. The following broad conclusions can be drawn from the above analysis of housing conditions and housing shortage in different states:

1) There are significant variations in several aspects of the general housing conditions among different states. However, the interstate variations in most aspects of housing conditions are not found to be significantly correlated with any of the major economic or demographic variables.

2) The rates of construction in rural as well as urban areas are found to be much lower in every state than the generally accepted norm of more than five dwellings per annum per thousand of population. Moreover, the housing growth in rural areas appears to be quantitatively inadequate and qualitatively inferior as compared to the the housing growth in urban areas. This suggests that greater attention needs to be paid to the problem of rural housing.

3) The measurement of the extent of housing shortage is highly sensitive to the specific criterion that is adopted for defining housing need and housing supply. The various alternative measures of housing shortage that can be devised on the basis of different criteria reveal a significant range of variation all the way from 4.57 million dwellings to 110.12 million dwellings in the year 1970-71.

4) The alternative measures of housing shortage make it clear that, in the context of the present housing conditions in the Indian economy, the goal of providing every household with a pucca house appears to be rather too ambitious. A more relevant criterion for the purpose of defining housing shortage seems to be the one that defines housing need on the assumption of the given degree of inequality in the consumption of housing services.

5) The phenomenon of housing shortage is prevalent in every state, though the intensity of the housing problem varies considerably from state to state. The magnitude of housing shortage is rising steadily with the passage of time in every state, though the rates of increase in

housing shortage also vary from state to state. This indicates that, although there is a need to make a considerable effort to tackle the housing problem in every state the need is much more urgent in some states as compared to others.

6) If the observed past trends in housing supply and related variables continue in the future, the magnitude of housing shortage is likely to reach staggering proportions by 1990-91. The extent of housing shortage is likely to double in every state during the two decades following 1970-71, and it may, in fact, register a more than three-fold increase in several states.

7) A huge investment effort is required to deal with the problem of housing shortage during the years to come. Out of the total investment that is required to eliminate the problem of housing shortage by 1990-91, only about one-third to one-fourth is likely to be undertaken without any additional effort on the part of the government in different states to deal with this problem. A substantial amount of additional investment effort will, therefore,

have to be mobilised through a properly formulated housing policy in most of the states if the problem of housing shortage is to be completely eliminated by the end of 1990-91.

The above findings clearly suggest that there is an urgent need to deal with the problem of growing housing shortage in various states before it really assumes dimensions that become almost uncontrollable. A steadily increasing magnitude of housing shortage in an underdeveloped country is likely to be accompanied by a serious deterioration in the general housing conditions. It is, therefore, necessary that an all out effort is made in the direction of stepping up the rate of construction of new dwellings in every state in the form of a combination of measures involving direct investment through the public sector and various incentive schemes to encourage investment in the private sector.

APPENDIX

In the Appendix Tables that follow, we have presented the various series relating to (a) Total number of census houses and total number of residential/dwellings; (b) population and total number of households; (c) composition of residential dwellings by material of wall and roof; (d) classification of census households by number of rooms occupied; (e) population and number of rooms occupied by households living in dwellings with three or less number of rooms; (f) total number of rooms occupied by census households; (g) classification of census households by tenure status.

Information on each of the above aspects of housing statistics relating to the census years 1961 and 1971 is presented in Appendix Tables 1 to 24. It may be noted here that, although the housing statistics forms a part of the population census, the information relating to housing statistics is generally collected six to eight months earlier than the actual population count, by canvassing uniform house-list throughout the country. Thus, the reference date for housing statistics is around October of the year preceding the census

year. The information on housing available from the 1961 census, therefore, relatesto October 1960 while the information available from 1971 census relates to October 1970. Hence, we have referred to the information available from 1961 census and 1971 census as the data relating to the years 1960-61 and 1970-71, respectively.

The major problem that arises in preparing comparable estimates at the state level is in regard to the states Punjab and Himachal Pradesh whose geographical areas have undergone significant changes between 1961 census and 1971 census and Haryana which did not exist as a separate state at the time of 1961 census. From the detailed information relating to old Punjab and old Himachal Pradesh at the district level, available from the 1961 census, we have derived the comparable estimates for the three states Haryana, Punjab and Himachal Pradesh according to their respective geographical boundaries at the time of 1971 census. Moreover, while presenting the statewise data, we have clubbed together the smaller states of Manipur, Meghalaya, Nagaland and Tripura, along with the union territories under the broad heading of Union Territories and Other States. Since 1961 census did not collect information regarding housing

statistics for the union territories of NEFA and Diu, Daman & Goa, we have excluded these two union territories from the purview of our analysis.

The data given in Appendix Tables 1 to 24 are derived from the following two sources:

1) Census of India 1961, Volume I - India, Part IV (B), Housing And Establishment Tables; and
2) Census of India, 1971, Series I - India, Part IV-B, Housing Tables.

Appendix Table 7

Total Number of Census Houses and Residential Dwellings* In Rural Areas

(Figures In Thousands)

State	Census Houses		Residential Houses	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	7379.7	8833.6	5942.5	6803.0
Assam	1996.6	2455.9	1882.1	2269.0
Bihar	7939.9	9029.5	6353.1	7307.3
Gujarat	3963.8	4723.1	2845.8	3201.2
Haryana	1617.2	1818.5	1022.8	1206.2
Himachal Pradesh	931.2	782.3	512.1	586.8
Jammu & Kashmir	1109.4	1168.9	539.9	520.3
Karnataka	4390.7	4795.1	3277.6	3629.6
Kerala	2873.1	3820.1	2384.8	2867.7
Madhya Pradesh	7742.7	8054.0	5437.0	6148.9
Maharashtra	8360.3	8238.0	5448.2	6046.1
Orissa	3437.8	4511.6	3077.7	3511.2
Punjab	2102.7	2360.3	1459.2	1647.6
Rajasthan	4261.9	5084.9	3139.2	3606.5
Tamil Nadu	5836.0	6849.7	5134.5	5786.8
Uttar Pradesh	17550.8	18475.0	11087.0	12265.7
West Bengal	6755.3	6221.9	4943.6	5660.3
Union Territories & Other States	735.3	939.7	641.5	792.1
ALL INDIA	88984.4	98162.1	65128.6	73856.3

*Including Shop-cum-Dwellings and Workshop-cum-Dwellings.

Appendix Table 2

Total Number of Census Houses And Residential Dwellings* In Urban Areas

(Figures in Thousands)

State	Census Houses		Residential Houses	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	1378.7	1815.3	1079.5	1431.9
Assam	190.3	283.2	157.0	219.6
Bihar	801.9	1214.1	622.6	915.2
Gujarat	1469.6	1866.9	1024.8	1296.1
Haryana	353.7	425.2	243.6	299.9
Himachal Pradesh	74.1	80.6	43.1	55.8
Jammu & Kashmir	204.6	192.3	98.2	105.4
Karnataka	1260.4	1533.0	891.0	1138.1
Kerala	507.4	741.1	369.4	494.2
Madhya Pradesh	1231.4	1517.2	942.3	1151.4
Maharashtra	2769.3	3642.6	2050.9	2735.5
Orissa	264.9	474.9	215.7	348.4
Punjab	684.6	773.8	462.9	543.5
Rajasthan	923.1	1139.0	637.8	806.8
Tamil Nadu	1963.7	2713.8	1588.5	2185.8
Uttar Pradesh	2179.6	2685.6	1570.9	1954.1
West Bengal	2039.4	2307.0	1634.3	1919.5
Union Territories & Other States	539.1	983.1	429.3	776.7
ALL INDIA	18835.8	24388.7	14061.8	18377.9

*Including Shop-cum-Dwellings and Workshop-cum-Dwellings.

Appendix Table 3

Total Number of Census Houses And Residential Dwellings* In All Areas

(Figures in Thousands)

State	Census Houses		Residential Houses	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	8758.4	10648.9	7022.0	8234.9
Assam	2186.9	2739.1	2039.1	2488.6
Bihar	8741.8	10243.6	6975.7	8222.5
Gujarat	5433.4	6590.0	3870.6	4497.3
Haryana	1970.9	2243.7	1266.4	1506.1
Himachal Pradesh	1005.3	862.9	555.2	642.6
Jammu & Kashmir	1314.0	1361.2	638.1	625.7
Karnataka	5651.1	6328.1	4168.6	4767.7
Kerala	3380.5	4561.2	2754.2	3361.9
Madhya Pradesh	8974.1	9571.2	6379.3	7300.3
Maharashtra	11129.6	11880.6	7499.1	8781.6
Orissa	3702.7	4986.5	3293.4	3859.6
Punjab	2787.3	3134.1	1922.1	2191.1
Rajasthan	5185.0	6223.9	3777.0	4413.3
Tamil Nadu	7799.7	9563.5	6723.0	7972.6
Uttar Pradesh	19730.4	21160.6	12657.9	14219.8
West Bengal	8794.7	8528.9	6577.9	7579.8
Union Territories & Other States	1274.4	1922.8	1070.8	1568.8
ALL INDIA	107,820.2	122,550.8	79,190.4	92,234.2

*Including Shop-cum-Dwellings and Workshop-cum-Dwellings.

Appendix Table 4

Total Population And Number of Households In Rural Areas

(Figures in Thousands)

State	Population		Households	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	28773.1	34160.8	6007.7	6923.2
Assam	10194.7	13606.0	1882.1	2278.2
Bihar	43207.0	52184.2	7745.8	8671.2
Gujarat	15364.5	18805.0	2872.9	3233.0
Haryana	6273.1	8168.6	1025.9	1222.4
Himachal Pradesh	2664.9	3188.9	519.8	596.6
Jammu & Kashmir	2974.9	3760.4	541.7	633.0
Karnataka	17835.5	21504.5	3319.4	3722.1
Kerala	14011.0	17928.0	2423.5	2919.2
Madhya Pradesh	27429.6	34110.4	5674.3	6329.5
Maharashtra	28063.0	33915.3	5513.7	6136.1
Orissa	16103.6	19877.6	3337.7	3786.2
Punjab	8419.2	10202.0	1462.1	1669.9
Rajasthan	16880.8	21101.4	3175.6	3682.0
Tamil Nadu	24294.2	28097.1	5324.1	5912.9
Uttar Pradesh	63008.7	76992.1	12207.5	13406.6
West Bengal	26652.0	33711.0	4958.1	5773.0
Union Territories & Other States	3430.6	4513.7	675.4	824.8
ALL INDIA	355,580.4	435,827.0	68,667.3	77,719.9

Note: Figures for 1960-61 and 1970-71 relate to October, 1960 and October 1970 respectively.

Appendix Table 5

Total Population And Number of Households In Urban Areas

(Figures in Thousands)

State	Population		Households	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	5613.4	7769.1	1122.6	1482.7
Assam	810.7	1232.4	157.5	222.3
Bihar	3874.9	5781.0	706.4	1003.5
Gujarat	5336.2	7270.9	1037.2	1304.1
Haryana	1277.9	1721.1	245.8	307.8
Himachal Pradesh	188.5	227.3	44.5	58.0
Jammu & Kashmir	603.5	841.1	99.0	134.1
Karnataka	4954.5	6644.8	917.9	1162.2
Kerala	2397.3	3359.1	384.4	514.0
Madhya Pradesh	4536.6	6211.6	966.6	1168.1
Maharashtra	10670.1	15098.0	2076.5	2763.4
Orissa	1064.3	1740.2	234.4	363.7
Punjab	2469.8	3100.7	464.6	560.7
Rajasthan	3307.0	4597.5	634.4	827.8
Tamil Nadu	8482.1	11803.9	1782.5	2268.0
Uttar Pradesh	8990.2	11992.5	1790.2	2136.3
West Bengal	8182.8	10957.7	1650.3	1962.9
Union Territories & Other States	2613.3	4396.8	525.8	845.0
ALL INDIA	75,373.1	104,745.7	14,840.6	19,084.6

Note: The figures for 1960-61 and 1970-71 relate to October 1960 and October 1970 respectively.

Appendix Table 6

Total Population And Number of Households In All Areas

(Figures in Thousand)

State	Population		Households	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	34386.5	41929.9	7130.3	8405.9
Assam	11005.4	14838.4	2039.6	2500.5
Bihar	47081.9	57965.2	8452.2	9674.7
Gujarat	20700.7	26075.9	3910.1	4537.1
Haryana	7551.0	9889.7	1271.7	1530.2
Himachal Pradesh	2853.4	3416.2	564.3	654.6
Jammu & Kashmir	3578.4	4601.5	640.7	767.1
Karnataka	22790.0	28149.3	4237.3	4884.3
Kerala	16408.3	21287.1	2807.9	3433.2
Madhya Pradesh	31966.2	40322.0	6640.9	7497.6
Maharashtra	38733.1	49013.3	7590.2	8899.5
Orissa	17167.9	21617.8	3572.1	4149.9
Punjab	10889.0	13302.7	1926.7	2230.6
Rajasthan	20187.8	25698.9	3810.0	4509.8
Tamil Nadu	32776.3	39901.0	7106.6	8180.9
Uttar Pradesh	71998.9	88984.6	13997.7	15542.9
West Bengal	34834.8	44668.7	6608.4	7735.9
Union Territories & Other States	6043.9	8910.5	1201.2	1669.8
ALL INDIA	430,953.5	540,572.7	83,507.9	96,804.5

Note: The Figures for 1960-61 and 1970-71 relate to October 1960 and October 1970 respectively.

Appendix Table 7

Classification of Residential Dwellings By Predominant Material of Wall in Rural Areas

(Figures in Thousand)

State	1960-61		1970-71	
	Kutcha	Pucca	Kutcha	Pucca
1	2	3	4	5
Andhra Pradesh	4319.6	1622.9	4404.3	2398.7
Assam	1753.7	128.4	2042.6	226.4
Bihar	5708.3	644.8	6022.7	1284.6
Gujarat	1816.8	1029.0	1718.1	1483.1
Haryana	647.3	375.5	512.4	693.8
Himachal Pradesh	226.7	285.4	246.5	340.3
Jammu & Kashmir	247.9	292.0	201.3	319.0
Karnataka	1944.6	1333.0	1915.0	1714.6
Kerala	1573.7	811.1	1517.0	1350.7
Madhya Pradesh	4753.6	683.4	4956.6	1192.3
Maharashtra	3270.0	2178.2	3099.8	2946.3
Orissa	2895.2	182.5	3033.3	477.9
Punjab	968.8	490.4	800.7	846.9
Rajasthan	1891.4	1247.8	2011.7	1594.8
Tamil Nadu	3975.1	1159.4	4134.1	1652.7
Uttar Pradesh	9591.4	1495.6	9172.3	3093.4
West Bengal	4482.9	460.7	4825.4	834.9
Union Territories & Other States	574.9	66.6	543.5	248.6
ALL INDIA	50641.9	14486.7	51157.3	22699.0

Appendix Table 8

Classification of Residential Dwellings By Predominant Material of Wall In Urban Areas

(Figures in Thousands)

State	1960-61		1970-71	
	Kutcha	Pucca	Kutcha	Pucca
1	2	3	4	5
Andhra Pradesh	505.0	574.5	520.6	911.3
Assam	110.0	47.0	129.6	90.0
Bihar	257.4	365.2	260.3	654.9
Gujarat	141.1	883.7	162.1	1134.0
Haryana	29.5	214.1	24.0	275.9
Himachal Pradesh	11.9	31.2	8.1	47.7
Jammu & Kashmir	23.3	74.9	19.6	85.8
Karnataka	385.6	505.4	347.9	790.2
Kerala	183.3	186.1	141.5	352.7
Madhya Pradesh	474.1	468.2	371.6	779.8
Maharashtra	535.3	1515.6	480.1	2255.4
Orissa	120.7	95.0	138.8	209.6
Punjab	65.7	397.2	43.6	499.9
Rajasthan	130.6	507.2	105.4	701.4
Tamil Nadu	681.8	906.7	780.1	1405.7
Uttar Pradesh	412.5	1158.4	314.8	1639.3
West Bengal	492.6	1141.7	433.4	1486.1
Union Territories & Other States	90.0	339.3	183.5	593.2
ALL INDIA	4650.4	9411.4	4465.0	13912.9

Appendix Table 9

Classification of Residential Dwellings By Predominant Material of Wall In All Areas

(Figures in Thousands)

State	1960-61		1970-71	
	Kutcha	Pucca	Kutcha	Pucca
1	2	3	4	5
Andhra Pradesh	4824.6	2197.4	4924.9	3310.0
Assam	1863.7	175.4	2172.2	316.4
Bihar	5965.7	1010.0	6283.0	1939.5
Gujarat	1957.9	1912.7	1880.2	2617.1
Haryana	676.8	589.6	536.4	969.7
Himachal Pradesh	238.6	316.6	254.6	388.0
Jammu & Kashmir	271.2	366.9	220.9	404.8
Karnataka	2330.2	1838.4	2262.9	2504.8
Kerala	1757.0	997.2	165815	1703.4
Madhya Pradesh	5227.7	1151.6	5328.2	1972.1
Maharashtra	3805.3	3693.8	3579.9	5201.7
Orissa	3015.9	277.5	3172.1	687.5
Punjab	1034.5	887.6	844.3	1346.8
Rajasthan	2022.0	1755.0	2117.1	2296.2
Tamil Nadu	4656.9	2066.1	4914.2	3058.4
Uttar Pradesh	10003.9	2654.0	9487.1	4732.7
West Bengal	4975.5	1602.4	5258.8	2321.0
Union Territories & Other States	664.9	405.9	727.0	841.8
ALL INDIA	55292.3	23898.1	55622.3	36611.9

Appendix Table 10

Classification of Residential Dwellings By Predominant Material of Roof In Rural Areas

(Figures in Thousands)

State	1960-61		1970-71	
	Kutcha	Pucca	Kutcha	Pucca
1	2	3	4	5
Andhra Pradesh	3728.3	2214.2	4905.6	1897.4
Assam	1602.8	279.3	1878.3	390.7
Bihar	2830.9	3522.2	3011.3	4296.0
Gujarat	295.7	2550.1	201.4	2999.8
Haryana	905.8	117.0	922.5	283.7
Himachal Pradesh	157.3	354.8	186.0	400.8
Jammu & Kashmir	480.2	59.7	474.6	45.7
Karnataka	963.0	2314.6	2005.7	1623.9
Kerala	1835.3	549.5	1707.1	1160.6
Madhya Pradesh	667.7	4769.3	673.9	5475.0
Maharashtra	1754.9	3693.3	2270.3	3775.8
Orissa	2575.7	502.0	2705.4	805.8
Punjab	1323.8	135.4	1127.6	520.0
Rajasthan	1255.4	1883.8	1201.0	2405.5
Tamil Nadu	3409.3	1725.2	3455.3	2331.5
Uttar Pradesh	2287.2	8799.8	6715.5	5550.2
West Bengal	3539.6	1404.0	3397.3	2263.0
Union Territories & Other States	582.8	58.7	630.0	162.1
ALL INDIA	30195.7	34932.9	37468.8	36387.5

Appendix Table 11

Classification of Residential Dwellings By Predominant Material of Roof in Urban Areas

(Figures in Thousands)

State	1960-61		1970-71	
	Kutcha	Pucca	Kutcha	Pucca
1	2	3	4	5
Andhra Pradesh	401.8	677.7	539.8	892.1
Assam	63.5	93.5	79.6	140.0
Bihar	77.5	545.1	92.7	822.5
Gujarat	94.1	930.7	72.8	1223.3
Haryana	158.7	84.9	129.1	170.8
Himachal Pradesh	4.8	38.3	8.7	47.1
Jammu & Kashmir	47.7	50.5	43.8	61.6
Karnataka	110.3	780.7	278.8	859.3
Kerala	209.5	159.9	173.5	320.7
Madhya Pradesh	56.7	885.6	35.3	1116.1
Maharashtra	239.5	1811.4	314.0	2421.5
Orissa	106.7	109.0	122.6	225.8
Punjab	305.6	157.3	174.2	369.3
Rajasthan	87.7	550.1	84.9	721.9
Tamil Nadu	516.9	1071.6	605.0	1580.8
Uttar Pradesh	103.8	1467.1	458.0	1496.1
West Bengal	132.7	1501.6	126.1	1793.4
Union Territories & Other States	100.8	328.5	148.3	628.4
ALL INDIA	2818.3	11243.5	3487.2	14890.7

Appendix Table 12

Classification ofResidential Dwellings By Predominant Material of Roof In All Areas

(Figures in Thousand)

State	1960-61		1970-71	
	Kutcha	Pucca	Kutcha	Pucca
1	2	3	4	5
Andhra Pradesh	4130.1	2891.9	5445.4	2789.5
Assam	1666.3	372.8	1957.9	530.7
Bihar	2908.4	4067.3	3104.0	5118.5
Gujarat	389.8	3480.8	274.2	4223.1
Haryana	1064.5	201.9	1051.6	454.5
Himachal Pradesh	162.1	393.1	194.7	447.9
Jammu & Kashmir	527.9	110.2	518.4	107.3
Karnataka	1073.3	3095.3	2284.5	2483.2
Kerala	2044.8	709.4	1880.6	1481.3
Madhya Pradesh	724.4	5654.9	709.2	6591.1
Maharashtra	1994.4	5504.7	2584.3	6197.3
Orissa	2682.4	611.0	2828.0	1031.6
Punjab	1629.4	292.7	1301.8	889.3
Rajasthan	1343.1	2433.9	1285.9	3127.4
Tamilnadu	3926.2	2796.8	4060.3	3912.3
Uttar Pradesh	2391.0	10266.9	7173.5	7046.3
West Bengal	3672.3	2905.6	3523.4	4056.4
Union Territories & Other States	683.6	387.2	778.3	790.5
ALL INDIA	33014.0	46176.4	40956.0	51278.2

Appendix Table 13

Classification of Census Households by Number of Rooms Occupied In Rural Areas

(Figures in Thousands)

State	1960-61			1970-71		
	Households with one & two rooms	Households with three rooms	Households with more than three rooms	Households with one & two rooms	Households with three rooms	Households with more than three rooms
1	2	3	4	5	6	7
Andhra Pradesh	5308.6	378.5	320.6	6065.8	484.3	373.1
Assam	1342.7	285.5	253.9	1877.3	262.8	138.1
Bihar	5054.3	1218.8	1472.7	5730.2	1358.0	1575.0
Gujarat	2577.7	186.8	108.4	2898.6	221.3	113.1
Haryana	666.6	171.7	187.6	738.3	218.3	265.8
Himachal Pradesh	286.1	79.6	154.1	433.3	64.7	98.6
Jammu & Kashmir	409.6	62.0	70.1	453.6	80.2	99.2
Karnataka	2361.4	333.4	624.6	3094.5	384.8	242.8
Kerala	1563.7	437.8	422.0	1560.6	646.9	711.7
Madhya Pradesh	4677.6	571.4	425.3	5026.3	771.6	531.6
Maharashtra	4902.4	315.7	295.6	5559.9	381.5	184.7
Orissa	2298.2	502.5	537.0	2604.4	592.2	589.6
Punjab	989.9	244.5	227.7	1174.9	260.7	234.3
Rajasthan	2447.2	373.0	355.4	2613.4	521.4	547.2
Tamil Nadu	4536.7	260.5	526.9	5269.2	393.3	250.4
Uttar Pradesh	7205.6	2091.5	2910.4	7911.6	2366.1	3128.9
West Bengal	4314.3	329.0	314.8	5160.9	336.1	276.0
Union Territories & Other States	508.5	77.2	89.7	670.3	91.7	62.8
ALL INDIA	51451.1	7919.4	9296.8	58861.1	9435.9	9422.9

Appendix Table 14

Classification of Census Households by Number of Rooms Occupied In Urban Areas

(Figures in Thousand)

State	1960-61			1970-71		
	Households with one & two rooms	Households with three rooms	Households with more than three rooms	Households with one & two rooms	Households with three rooms	Households with more than three rooms
1	2	3	4	5	6	7
Andhra Pradesh	873.8	124.1	124.7	1180.2	160.0	142.5
Assam	116.9	19.2	21.4	175.2	26.4	20.7
Bihar	497.9	89.8	118.7	700.6	134.6	168.3
Gujarat	842.8	88.0	106.4	1063.4	121.8	118.9
Haryana	188.2	28.0	29.6	225.2	41.4	41.2
Himachal Pradesh	30.5	5.6	8.4	45.1	5.8	7.1
Jammu & Kashmir	51.6	15.8	31.6	66.1	24.6	43.4
Karnataka	642.4	122.9	152.6	838.0	159.7	164.5
Kerala	222.4	68.4	93.6	233.4	110.8	169.8
Madhya Pradesh	745.5	107.1	114.0	853.6	162.3	152.2
Maharashtra	1745.0	172.7	158.8	2356.7	246.3	160.4
Orissa	165.9	27.6	40.9	263.2	49.2	51.3
Punjab	342.8	56.4	65.4	402.6	75.4	82.7
Rajasthan	450.4	78.9	105.1	543.4	115.3	169.1
Tamil Nadu	1450.7	152.2	179.6	1820.5	239.7	207.8
Uttar Pradesh	1322.0	211.2	257.0	1585.2	264.0	287.1
West Bengal	1407.1	115.4	127.8	1669.2	156.5	137.2
Union Territories & Other States	436.9	44.1	44.8	683.5	85.4	76.1
ALL INDIA	11532.8	1527.4	1780.4	14705.1	2179.2	2200.3

Table 15

Classification of Census Households by Number of Rooms Occupied In All Areas

(Figures in Thousands)

State	1960-61			1970-71		
	Households with one & two rooms	Households with three rooms	Households with more than three rooms	Households with one & two rooms	Households with three rooms	Households with more than three rooms
1	2	3	4	5	6	7
Andhra Pradesh	6182.4	502.6	445.3	7246.0	644.3	515.6
Assam	1459.6	304.7	275.3	2052.5	289.2	158.8
Bihar	5552.2	1308.6	1591.4	6438.8	1492.6	1743.3
Gujarat	3420.5	274.8	214.8	3962.0	343.1	232.0
Haryana	854.8	199.7	217.2	963.5	259.7	307.0
Himachal Pradesh	316.6	85.2	162.5	478.4	70.5	105.7
Jammu & Kashmir	461.2	77.8	101.7	519.7	104.8	142.6
Karnataka	3003.8	456.3	777.2	3932.5	544.5	407.3
Kerala	1786.1	506.2	515.6	1794.0	757.7	881.5
Madhya Pradesh	5423.1	678.5	539.3	5879.9	933.9	683.8
Maharashtra	6647.4	488.4	454.4	7926.6	627.8	345.1
Orissa	2464.1	530.1	577.9	2867.6	641.4	640.9
Punjab	1332.7	300.9	293.1	1577.5	336.1	317.0
Rajasthan	2897.6	451.9	460.5	3156.8	636.7	716.3
TamilNadu	5987.4	412.7	706.5	7009.7	633.0	458.2
Uttar Pradesh	8527.6	2302.7	3167.4	9496.8	2630.1	3416.0
West Bengal	5721.4	444.4	442.6	6830.1	492.6	413.2
Other States & Union Territories	945.4	121.3	134.5	1353.8	177.1	138.9
ALL INDIA	62983.9	9446.8	11077.2	73566.2	11615.1	11623.2

Appendix Table 16

Total Number of Members And Rooms Occupied by Households with Three or Less Number of Rooms In Rural Areas

(Figures in Thousands)

State	Total Number of Members		Total Number of Rooms	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	26598.0	31601.7	7734.2	9186.4
Assam	8134.2	12197.9	2861.7	3433.8
Bihar	31046.0	37918.8	11005.9	12440.2
Gujarat	14639.9	17966.7	3924.2	4465.3
Haryana	4737.4	5834.2	1501.2	1761.5
Himachal Pradesh	1698.9	2497.9	682.3	828.5
Jammu & Kashmir	2463.6	2959.2	724.2	877.9
Karnataka	14115.7	19424.0	4357.7	5430.5
Kerala	11088.7	12852.7	3649.1	4419.5
Madhya Pradesh	24370.3	29788.4	7957.0	9278.7
Maharashtra	26258.4	32344.8	7111.8	8124.6
Orissa	12431.4	15438.3	5064.3	5788.0
Punjab	6683.8	8330.9	2185.8	2497.0
Rajasthan	14233.3	16735.9	4353.7	5221.8
Tamil Nadu	21553.9	26400.6	6258.2	7844.9
Uttar Pradesh	42853.0	52659.3	16870.4	19010.7
West Bengal	23749.6	30979.1	6460.8	7519.5
Union Territories & Other States	2841.7	4023.0	914.6	1175.5
ALL INDIA	289,497.8	359,953.4	93,617.1	109,304.3

Appendix Table 17

Total Number of Members And Rooms Occupied by Households With Three or Less Number of Rooms In Urban Areas

(Figures in Thousands)

State	Total Number of Members		Total Number of Rooms	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	4706.9	6707.4	1537.9	2057.0
Assam	622.3	1034.5	220.4	320.8
Bihar	2864.6	4252.0	953.6	1397.7
Gujarat	4582.0	6406.0	1390.4	1812.0
Haryana	1056.7	1390.0	346.5	449.3
Himachal Pradesh	134.6	183.6	60.0	80.7
Jammu & Kashmir	352.0	492.9	120.3	174.8
Karnataka	3876.6	5404.6	1290.3	1675.3
Kerala	1685.1	2101.0	542.8	705.9
Madhya Pradesh	3672.7	4979.6	1333.5	1713.6
Maharashtra	9526.6	13836.8	2724.8	3701.5
Orissa	788.0	1370.4	313.8	526.9
Punjab	1979.4	2472.6	638.7	801.1
Rajasthan	2514.0	3351.3	848.3	1113.3
Tamil Nadu	7268.7	10418.4	2294.2	3127.1
Utter Pradesh	7114.9	9623.2	2427.6	2993.6
West Bengal	6937.0	9527.8	2037.0	2574.3
Union Territories & Other States	2275.0	3842.2	695.0	1157.3
ALL INDIA	61,957.1	87,394.3	19,775.1	26,382.2

Appendix Table 18

Total Number of Members And Rooms Occupied by Households with Three or Less Number of Rooms in All Areas

(Figures in Thousands)

State	Total Number of Members		Total Number of Rooms	
	1960-61	1970-71	1960-61	1970-71
1	2	3	4	5
Andhra Pradesh	31304.9	38309.1	9272.1	11243.4
Assam	8756.5	13232.4	3082.1	3754.6
Bihar	33910.6	42170.8	11959.5	13837.9
Gujarat	19221.9	24372.7	5314.6	6277.3
Haryana	5794.1	7224.2	1847.7	2210.8
Himachal Pradesh	1833.5	2681.5	742.3	909.2
Jammu & Kashmir	2815.6	3452.1	844.5	1052.7
Karnataka	17992.3	24828.6	5648.0	7105.8
Kerala	12773.8	14953.7	4191.9	5125.4
Madhya Pradesh	28043.0	34768.0	9290.5	10992.3
Maharashtra	35785.0	46181.6	9836.6	11826.1
Orissa	13219.4	16808.7	5378.1	6314.9
Punjab	8663.2	10803.5	2824.5	3298.1
Rajasthan	16747.3	20087.2	5202.0	6335.1
Tamil Nadu	28822.6	36819.0	8552.4	10972.0
Uttar Pradesh	49967.9	62282.5	19298.0	22004.3
West Bengal	30686.6	40506.9	8497.8	10093.8
Union Territories & Other States	5116.7	7865.2	1609.6	2332.8
ALL INDIA	351,454.9	447,347.7	113,392.2	135,686.5

Appendix Table 19

Total Number of Rooms Occupied By Census Households In Rural Areas

(Figures In Thousands)

State	Total Number of Rooms	
	1960-61	1970-71
1	2	3
Andhra Pradesh	9437.5	11062.9
Assam	4131.4	4068.4
Bihar	18849.3	20912.3
Gujarat	4391.4	4991.0
Haryana	2475.3	3173.7
Himachal Pradesh	1489.9	1327.0
Jammu & Kashmir	1036.8	1377.9
Karnataka	5385.8	6628.2
Kerala	5595.0	8100.0
Madhya Pradesh	9961.4	11911.1
Maharashtra	7852.3	8973.8
Orissa	7732.5	8697.8
Punjab	3329.1	3665.7
Rajasthan	6142.0	8088.2
Tamil Nadu	7189.1	9007.7
Uttar Pradesh	31780.1	35240.3
West Bengal	7853.4	8794.4
Union Territories & Other States	1263.9	1476.9
ALL INDIA	135,896.2	157,497.3

Appendix Table 20

Total Number of Rooms Occupied By Census Households In Urban Areas

(Figures In Thousands)

State	Total Number of Rooms	
	1960-61	1970-71
1	2	3
Andhra Pradesh	2212.6	2771.0
Assam	330.6	424.9
Bihar	1587.2	2307.4
Gujarat	1929.6	2399.3
Haryana	510.7	662.8
Himachal Pradesh	108.1	114.3
Jammu & Kashmir	292.0	416.4
Karnataka	1898.7	2528.6
Kerala	1043.5	1632.4
Madhya Pradesh	1949.1	2520.1
Maharashtra	3378.3	4484.0
Orissa	532.8	797.5
Punjab	981.3	1225.7
Rajasthan	1447.0	1987.8
Tamil Nadu	3085.9	4155.7
Uttar Pradesh	3829.3	4513.9
West Bengal	2685.3	3262.6
Union Territories & Other States	895.0	1519.1
ALL INDIA	28697.0	37723.5

Appendix Table 21

Total Number of Rooms Occupied By Census Households In All Areas

(Figures in Thousands)

State	Total Number of Rooms	
	1960-61	1970-71
1	2	3
Andhra Pradesh	11650.1	13833.9
Assam	4462.0	4493.3
Bihar	20436.5	23219.7
Gujarat	6321.0	7390.3
Haryana	2906.0	3836.5
Himachal Pradesh	1598.0	1441.3
Jammu & Kashmir	1328.8	1794.3
Karnataka	7204.5	9156.8
Kerala	6630.5	9732.4
Madhya Pradesh	11910.5	14431.2
Maharashtra	11230.6	13457.8
Orissa	8265.3	9495.3
Punjab	4310.4	4891.4
Rajasthan	7589.0	10076.0
Tamil Nadu	10275.0	13163.4
Uttar Pradesh	35609.4	39754.2
West Bengal	10530.7	12057.0
Union Territories & Other States	2150.9	2996.0
ALL INDIA	164,593.2	195,220.8

Appendix Table 22

Households Classified By Tenure Status In Rural Areas

(Figures in Thousands)

State	1960-61		1970-71	
	Owned Households	Rented Households	Owned Households	Rented Households
1	2	3	4	5
Andhra Pradesh	5764.1	243.6	6510.0	413.2
Assam	1549.2	332.9	1886.1	392.1
Bihar	7554.9	190.9	8485.6	185.6
Gujarat	2602.0	270.9	2926.9	306.1
Haryana	989.5	36.4	1169.0	53.4
Himachal Pradesh	491.9	27.9	540.2	48.4
Jammu & Kashmir	511.8	29.9	610.0	23.0
Karnataka	2856.5	462.9	3227.3	494.8
Kerala	2195.2	228.3	2688.3	230.9
Madhya Pradesh	5284.4	389.9	5959.8	368.7
Maharashtra	4853.0	660.7	5492.9	643.2
Orissa	3274.2	63.5	3650.4	135.8
Punjab	1397.8	64.3	1592.4	77.5
Rajasthan	3055.2	120.4	3519.9	162.1
Tamil Nadu	4803.9	520.2	5350.8	562.9
Uttar Pradesh	11985.9	221.6	13132.5	274.1
West Bengal	4475.3	482.8	5382.9	390.1
Union Territories & Other States	622.2	53.2	751.2	73.6
ALL INDIA	64267.0	4400.3	72883.4	4836.5

Appendix Table 23

Households Classified By Tenure Status In Urban Areas

(Figures in Thousands)

State	1960-61		1970-71	
	Owned Households	Rented Households	Owned Households	Rented Households
1	2	3	4	5
Andhra Pradesh	679.7	442.9	803.9	678.8
Assam	74.6	82.9	104.0	118.3
Bihar	399.1	307.3	539.6	463.9
Gujarat	407.6	629.6	547.6	756.5
Haryana	140.6	105.2	192.8	115.0
Himachal Pradesh	13.3	31.2	16.8	41.2
Jammu & Kashmir	70.7	28.3	99.3	34.8
Karnataka	432.9	485.0	519.6	642.6
Kerala	275.8	108.6	378.6	135.4
Madhya Pradesh	426.1	540.5	547.4	620.7
Maharashtra	628.8	1447.7	873.4	1890.0
Orissa	144.6	89.8	188.8	174.9
Punjab	254.9	209.7	337.5	223.2
Rajasthan	378.8	255.6	487.6	340.2
Tamil Nadu	855.7	926.8	1062.7	1205.3
Uttar Pradesh	941.0	849.2	1153.8	982.5
West Bengal	559.5	1090.8	787.7	1175.2
Union Territories & Other States	175.2	350.6	350.7	494.3
ALL INDIA	6858.9	7981.7	8991.8	10092.8

Appendix Table 24

Households Classified By Tenure Status In All Areas

(Figures in Thousands)

State	1960-61		1970-71	
	Owned Households	Rented Households	Owned Households	Rented Households
1	2	3	4	5
Andhra Pradesh	6443.8	686.5	7313.9	1092.0
Assam	1623.8	415.8	1990.1	510.4
Bihar	7954.0	498.2	9025.2	649.5
Gujarat	3009.6	900.5	3474.5	1062.6
Haryana	1130.1	141.6	1361.8	168.4
Himachal Pradesh	505.2	59.1	565.0	89.6
Jammu & Kashmir	582.5	58.2	709.3	57.8
Karnataka	3289.4	947.9	3746.9	1137.4
Kerala	2471.0	336.9	3066.9	366.3
Madhya Pradesh	5710.5	930.4	6507.2	990.4
Maharashtra	5481.8	2108.4	6366.3	2533.2
Orissa	3418.8	153.3	3839.2	310.7
Punjab	1652.7	274.0	1929.9	300.7
Rajasthan	3434.0	376.0	4007.5	502.3
Tamil Nadu	5659.6	1447.0	6412.7	1768.2
Uttar Pradesh	12926.9	1070.8	14286.3	1256.6
West Bengal	5034.8	1573.6	6170.6	1565.3
Union Territories & Other States	797.4	403.8	1101.9	567.9
ALL INDIA	71,125.9	12,382.0	81,875.2	14,929.3

Appendix Table 25

Projections Of The Stock Of Residential Dwellings, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	7788	1899	8916	2519
Assam	2736	307	3298	430
Bihar	8405	1345	9667	1978
Gujarat	3601	1639	4051	2073
Haryana	1422	369	1678	455
Himachal Pradesh	672	72	771	94
Jammu & Kashmir	501	113	483	121
Karnataka	4019	1454	4451	1857
Kerala	3448	661	4147	885
Madhya Pradesh	6954	1407	7864	1719
Maharashtra	6709	3649	7445	4867
Orissa	4006	563	4570	909
Punjab	1860	638	2101	749
Rajasthan	4144	1021	4761	1291
Tamil Nadu	6522	3008	7350	4139
Uttar Pradesh	13570	2431	15012	3024
West Bengal	6481	2255	7421	2648
Union Territories & Other States	978	1405	1208	2542
ALL INDIA	83816	24236	95194	32300

Appendix Table 26

Projections Of Total Population, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	40556	10752	48148	14881
Assam	18159	1873	24234	2848
Bihar	63028	8625	76125	12867
Gujarat	23015	9907	28169	13500
Haryana	10637	2318	13852	3122
Himachal Pradesh	3816	274	4566	330
Jammu & Kashmir	4753	1172	6008	1634
Karnataka	25928	8912	31261	11953
Kerala	22941	4707	29355	6595
Madhya Pradesh	42420	8505	52753	11645
Maharashtra	40987	21364	49532	30230
Orissa	24537	2845	30288	4653
Punjab	12363	3893	14981	4887
Rajasthan	26377	6391	32971	8885
Tamil Nadu	32494	16426	37580	22859
Uttar Pradesh	94077	15998	114952	21341
West Bengal	42641	14674	53937	19649
Union Territories & Other States	5939	7398	7814	12447
ALL INDIA	534668	146034	656526	204326

Appendix Table 27

Projections Of Total Number of Rooms Occupied, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	12968	3470	15201	4346
Assam	4007	546	3946	702
Bihar	23200	3355	25738	4877
Gujarat	5672	2983	6447	3709
Haryana	4069	860	5217	1116
Himachal Pradesh	1182	121	1053	128
Jammu & Kashmir	1831	594	2434	847
Karnataka	8157	3368	10039	4485
Kerala	11726	2554	16976	3995
Madhya Pradesh	14242	3259	17029	4213
Maharashtra	10255	5952	11720	7900
Orissa	9783	1194	11004	1787
Punjab	4036	1531	4444	1912
Rajasthan	10651	2731	14027	3751
Tamilnadu	11287	5597	14142	7537
Uttar Pradesh	39078	5321	43334	6272
West Bengal	9848	3964	11028	4816
Union Territories & Other States	1726	2578	2017	4376
ALL INDIA	183718	49978	215796	66769

Appendix Table 28

Projections Of Total Number Of Persons In Households Occupying Three Or Less Rooms, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	37546	9558	44608	13620
Assam	18292	1720	27431	2859
Bihar	46314	6311	56568	9368
Gujarat	22049	8956	27058	12522
Haryana	7185	1828	8848	2405
Himachal Pradesh	3673	250	5400	342
Jammu & Kashmir	3555	690	4270	967
Karnataka	26729	7535	36782	10505
Kerala	14898	2620	17268	3266
Madhya Pradesh	36410	6751	44504	9154
Maharashtra	39842	20097	49078	29188
Orissa	19173	2383	23811	4145
Punjab	10384	3089	12942	3859
Rajasthan	19678	4468	23138	5956
Tamil Nadu	32338	14933	39611	21403
Uttar Pradesh	64708	13015	79513	17603
West Bengal	40409	13086	52710	17974
Union Territories & Other States	5695	6489	8063	10959
ALL INDIA	448,878	123,779	561,603	176,095

Appendix Table 29

Projections of Total Number Of Rooms Occupied by Households Having Three Or Less Rooms, 1980-81 And 1990-91

(Figures in Thousands)

State	1980-81		1990-91	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	2	3	4	5
Andhra Pradesh	10912	2751	12961	3680
Assam	4120	467	4944	680
Bihar	14061	2049	15893	3003
Gujarat	5081	2361	5782	3077
Haryana	2067	583	2425	755
Himachal Pradesh	1006	109	1222	146
Jammu & Kashmir	1064	254	1290	369
Karhataka	6768	2175	8434	2824
Kerala	5353	918	6482	1194
Madhya Pradesh	10820	2202	12617	2830
Maharashtra	9282	5028	10603	6830
Orissa	6615	885	7560	1486
Punjab	2853	1005	3259	1260
Rajasthan	6263	1461	7512	1918
Tamil Nadu	9834	4262	12326	5809
Uttar Pradesh	21423	3692	24142	4553
West Bengal	8752	3253	10186	4112
Union Territories & Other States	1511	1927	1942	3209
ALL INDIA	127785	35382	149580	47735

Appendix Table 30

Estimates Of Average Expenditure Per Dwelling at 1970-71 Prices

(In Rupees at 1970-71 Prices)

State	1970-71	
	Rural Areas	Urban Areas
1	2	3
Andhra Pradesh	4010	9590
Assam	4422	9590
Bihar	7058	12494
Gujarat	3844	9174
Haryana	6488	10953
Himachal Pradesh	5577	10150
Jammu & Kashmir	6530	19581
Karnataka	4503	11012
Kerala	6966	16370
Madhya Pradesh	4865	10849
Maharashtra	3660	8123
Orissa	5108	11344
Punjab	5487	11176
Rajasthan	5531	12212
Tamil Nadu	3840	9421
Uttar Pradesh	7085	11448
West Bengal	3832	8425
Union Territories & Other States	4599	9694
ALL INDIA	5258	10175