Chapter VI

USE OF MODEL HEADSHIP RATES

HEADSHIP RATES BY LEVELS OF ECONOMIC DEVELOPMENT

Tables 40a and 40b show age-specific headship rates for the male and female population in countries where pertinent data are available. Both tables contain 43 different sets of census household headship rates of 33 countries. To facilitate analysis, the data are grouped, first by the dichotomy of the more developed and less developed regions (table 41) and secondly by the three *per capita* income groups (table 42).

Levels of development

Table 41 shows unweighted average age-specific headship rates for the more developed and less developed countries. As with economic activity rates, the male headship rates are higher than the female rates in all age groups.[1] It is also noted that country variations in headship rates are larger among females than among males. This reflects the fact that in all societies man in his prime of life assumes the role of chief breadwinner in the household as well as the main responsibilities for family affairs, apart from domestic chores, child-bearing and child-rearing, and therefore the rates for males at certain ages tend to frequent a narrower range than those for females.

As with labour force participation rates, the specific headship rates for males are low in the young ages but increase with increasing age and reach a peak of around 90 per cent or more some time after age 45. In many countries, the peak headship rate for males actually falls in the age group 55–64 years; for example, in the United States of America (1950) it was between 55 and 59 years of age.[2] In Sweden (1965), it fell in the age group 60–64 years (92.8 per cent); in Japan (1965) in the age group 50–54 years (93.8 per cent); and in Hungary (1960) in the age group 50–54 years (89.3 per cent). Indeed, of 31 countries included in the present analysis, nearly all showed peak headship rates for males either in the age group 45–54 or in that of 55–64 years. These are the ages when men generally reach the apex of social power and prestige, bolstered by the highest earnings of their lifetime.[3] As decreasing employment opportunities and declining health with advancing age increasingly limit the possibilities for the maintenance of separate households by elderly men, it has been noted that whereas more than 9 out of 10 men in their sixties in the United States were listed as household heads, after age 75 the proportion was only about 7 out of 10.[2]

Differences in age-specific headship rates between the more developed and the less developed countries are less significant for males than for females. In all except the youngest age group, 15–24, male headship rates are uniformly higher in the more developed than in the less developed countries. For the 15–24 age group, the higher average headship rate found in the less developed countries is largely influenced by the high levels reported in India (West Bengal, 1951) and to a lesser extent in Brazil. India, of course, is noted for very early marriages of boys in their teens.[4] Indeed, for the 38 censuses studied, a very high (+0.80) correlation was found between the headship rate for the young age group and the percentage of the population who were married. Also at this age group, the variation in headship is largest among six age groups.[5] For the other five age groups, coefficients of correlation were much less significant.

The patterns for females show much wider differences between the more developed and less developed countries than do those for males. There is a similar tendency among groups of both countries for headship rates to be very low in the youngest age group, and then to increase with advancing age. But, beyond this point there are few analogous features between them. Except for the youngest age group the less developed countries show higher rates than the more developed countries in all age groups, precisely the opposite of the pattern found among males. The difference between the two groups is slight at the youngest ages, but it widens at the middle ages, and at ages 35–44 the rate for the less developed is almost twice as high as that for the more developed countries. At ages 55–64, the rate for the less developed countries

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[1] This was pointed out by Louis Winnick in *American Housing and its Use: The Demand for Shelter Space* (New York, John Wiley, 1956), p. 94.

[2] *Ibid.*, p. 94.

[3] W. S. Woytinsky, *Earnings and Social Security in the United States* (Washington, D.C. Social Science Research Council Committee on Social Security, 1943), pp. 228–249; Sweden, Statistiska Centralbyrån, *Folk-och bostadsräkningen den 1 November 1965; IX* (Stockholm, 1969), pp. 46–47, 54–55; United States Bureau of the Census, "Income in 1969 of families and persons in the United States", *Current Population Reports*, Series P-60, No. 75 (Washington, D.C., Government Printing Office, 1970), p. 85.

[4] For example, see S. N. Agarwala, *Age at Marriage in India* (Allahabad, Kitab Mahal Private Ltd., 1962), chaps. 4, 5, 9; and A. Collver, "The family cycle in India and the United States", *American Sociological Review* (Washington D.C.), vol. 28, No. 1 (February 1963).

[5] The next most variant group is the last age group, 65 and over.

TABLE 40a. AGE-SPECIFIC HEADSHIP RATES FOR MALES: CURRENT AND PAST CENSUSES
(Percentage of heads among male population of given age group)

Country or territory and year of census		Age group (years)					
		15–24	25–34	35–44	45–54	55–64	65+
Argentina	1960	7.2	60.7	89.4	91.7	73.8	52.0
Brazil	1950	17.7	66.2	87.8	90.4	90.7	80.0
Canada	1961	12.5	73.6	87.0	90.0	88.3	79.3
Costa Rica	1950	11.5	59.1	80.3	86.1	86.2	78.0
Costa Rica	1963	12.0	65.4	82.7	86.7	85.7	76.0
Dominican Republic (Común de San Cristobal)	1950	14.7	59.4	80.6	85.8	89.5	77.2
Greenland	1960	9.0	57.9	84.0	90.8	89.5	80.2
Guadeloupe	1961	11.3	61.2	84.7	94.7	93.8	89.3
Guatemala	1950	18.5	66.4	85.2	91.3	92.1	85.6
Haiti	1950	5.4	52.6	84.5	92.2	93.3	90.8
Martinique	1961	10.5	59.3	77.8	94.0	92.2	87.4
Nicaragua	1950	9.4	46.9	69.4	80.0	82.6	77.5
Panama	1950	13.5	57.0	73.0	74.5	70.0	61.3
Panama	1960	15.0	63.0	81.1	85.8	86.4	80.4
Puerto Rico	1960	12.0	69.3	85.1	90.6	90.7	83.8
Trinidad and Tobago	1960	11.7	64.6	85.1	89.0	87.7	78.3
United States	1930	11.2	61.3	79.2	83.3	83.4	72.8
United States	1940	10.6	62.2	79.5	84.3	84.2	75.4
United States	1950	17.0	71.0	83.4	85.7	85.2	75.9
United States	1960	19.8	80.3	89.3	90.7	89.9	83.0
India (West Bengal)	1951	22.7	51.6	72.4	76.4	76.4	60.4
Japan	1955	4.1	50.4	84.1	93.5	90.6	60.5
Japan	1960	4.3	51.5	81.7	92.7	91.1	63.1
Japan	1965	7.0	58.3	81.8	92.7	92.1	66.8
Singapore	1966	7.1	49.8	80.5	89.0	85.7	63.0
Austria	1961	9.0	64.8	87.6	91.3	89.9	78.3
Belgium	1947	12.5	70.2	88.1	94.0	94.7	86.2
Belgium	1961	13.7	76.8	89.1	92.2	93.2	82.5
Czechoslovakia	1961	13.0	78.0	87.5	91.0	89.7	79.8
Denmark	1960	9.5	71.1	90.6	91.5	93.4	86.4
Finland	1960	15.7	72.1	88.4	93.1	91.9	75.8
France	1947	11.4	65.9	85.2	90.7	92.3	92.9
France	1962	7.1	67.9	86.0	92.3	93.5	85.7
Federal Republic of Germany	1961	12.8	72.6	95.7	93.9	98.9	88.7
Hungary	1960	13.1	76.7	85.8	88.9	86.9	75.8
Italy	1961	5.6	54.3	82.2	91.2	92.1	80.5
Luxembourg	1960	9.2	63.7	80.9	86.3	86.2	71.8
Netherlands	1960	8.5	72.0	90.5	93.0	93.5	81.3
Norway	1960	13.7	66.4	87.6	90.9	92.1	81.3
Sweden	1950	15.€	71.3	88.7	92.3	92.4	79.4
Sweden	1960	10.9	73.8	89.0	92.9	94.3	87.2
Switzerland	1960	7.6	63.2	86.2	90.6	92.0	82.4
Australia	1961	11.4	70.1	86.7	89.6	88.1	80.1

SOURCE: National population censuses.

exceeds that for the more developed by 9.4 per cent. Curiously enough, for the age group 65 and over, the differences narrow to only 2.5 per cent.

Per capita income grouping

Table 42 shows unweighted average sex-age specific household headship rates for three groups of countries classified by income level.[6] As far as the male rates are concerned, a typical unimodal curve is observed in each of the three groups of countries. It is noted that intergroup variations are small in the age groups 45–54 and 55–64, with rates in the vicinity of 90 per cent, whereas

[6] The 31 countries and territories for which data are available have been classified as follows:

(*a*) High *per capita* income (13 countries): Australia, Belgium, Canada, Denmark, Federal Republic of Germany, Finland, France, Luxembourg, Netherlands, Norway, Sweden, Switzerland and United States of America;

(*b*) Medium *per capita* income (10 countries): Argentina, Austria, Czechoslovakia, Greenland, Hungary, Italy, Japan, Puerto Rico, Singapore and Trinidad and Tobago;

(*c*) Low *per capita* income (8 countries): Brazil, Costa Rica, El Salvador, Guatemala, Haiti, India, Nicaragua and Panama.

TABLE 40b. AGE-SPECIFIC HEADSHIP RATES FOR FEMALES: CURRENT AND PAST CENSUSES
(Percentage of heads among female population of given age group)

Country or territory and year of census		Age group (years)					
		15–24	25–34	35–44	45–54	55–64	65+
Argentina	1960	0.6	2.2	4.5	7.2	9.0	8.5
Brazil	1950	0.9	4.2	9.8	17.1	24.7	28.7
Canada	1961	1.6	3.7	6.1	11.7	20.0	33.3
Costa Rica	1950	1.0	5.1	12.9	23.7	33.6	38.7
Costa Rica	1963	1.3	6.3	12.9	20.4	28.3	34.1
Dominican Republic (Común de San Cristobal)	1950	5.7	13.8	21.0	30.5	41.5	53.3
Greenland	1960	1.5	6.2	10.1	19.3	29.5	31.2
Guadeloupe	1961	4.3	16.8	26.4	35.1	48.1	58.5
Guatemala	1950	2.1	7.0	15.6	24.8	31.9	36.4
Haiti	1950	2.6	10.7	20.5	34.0	44.7	54.8
Martinique	1961	4.0	15.4	26.2	34.3	45.2	55.9
Nicaragua	1950	2.2	8.9	18.2	29.8	39.8	45.0
Panama	1950	2.8	9.8	17.5	25.4	29.6	28.0
Panama	1960	3.6	12.3	20.5	29.1	37.2	38.3
Puerto Rico	1960	2.6	9.2	14.7	20.2	29.5	36.3
Trinidad and Tobago	1960	2.3	10.5	19.8	30.4	41.1	46.1
United States	1930	1.0	3.8	8.0	13.7	20.7	27.4
United States	1940	0.9	4.3	9.6	15.1	22.4	32.7
United States	1950	1.5	4.4	8.6	14.5	21.3	31.8
United States	1960	2.7	6.9	10.0	15.3	24.0	36.3
India (West Bengal)	1951	1.9	5.6	10.4	11.9	12.5	9.8
Japan	1955	0.7	3.6	12.7	14.9	13.2	9.4
Japan	1960	1.0	3.3	10.5	17.5	14.4	10.4
Japan	1965	2.3	4.1	8.9	17.6	16.1	12.1
Singapore	1966	1.1	5.3	11.5	22.6	28.3	24.7
Austria	1961	2.4	4.9	14.1	27.4	29.7	46.3
Belgium	1947	0.9	4.3	7.3	13.2	23.8	41.7
Belgium	1961	1.0	3.4	6.4	12.6	22.5	38.7
Czechoslovakia	1961	2.1	4.5	7.7	14.5	24.9	34.4
Denmark	1960	2.6	6.5	9.3	15.7	27.8	46.9
Finland	1960	8.8	11.8	14.1	23.3	32.8	38.3
France	1947	0.3	2.8	6.0	14.5	32.1	59.3
France	1962	2.6	5.5	8.5	16.2	26.5	45.0
Federal Republic of Germany	1961	4.2	6.1	12.1	24.0	31.0	44.1
Hungary	1960	3.1	8.4	11.0	10.3	8.0	11.5
Italy	1961	0.6	2.6	6.9	13.4	21.7	30.6
Luxembourg	1960	1.0	3.0	6.5	12.5	21.6	32.2
Netherlands	1960	2.1	3.6	5.6	11.5	21.0	35.4
Norway	1960	6.1	7.4	7.0	13.1	23.4	38.2
Sweden	1950	8.6	8.5	10.0	16.3	25.8	35.8
Sweden	1960	5.1	8.6	10.2	15.8	27.5	47.3
Switzerland	1960	2.2	5.5	8.8	15.3	26.0	41.4
Australia	1961	1.5	4.1	7.4	13.7	24.3	38.4

SOURCE: National population censuses.

variations are large in the age group 65 and over, and particularly so at ages 25–34. At ages from 25–64, rates were higher in the countries with higher income and lower in the lower income countries. In the age group 15–24, on the other hand, rates for low-income countries are higher than for countries with high or medium income. And, at ages 65 and over, low-income countries show higher rates than medium-income countries. It must be emphasized, however, that the countries with medium and low income for which data are available are probably not very representative of these groups as a whole.[7] The countries here included in the medium-income group are, unlike the high-income group, geographically and culturally heterogeneous. If the 31 countries are classified by regions, the averages for all age groups except for the age group 15–24, are arrayed from high to low in the following order: Europe and North America (18 countries), Latin America (10 countries) and Asia (3 countries).

For females the pattern is generally opposite to that for males. Except for the youngest age group, 15–24, and the oldest age group, 65 and over, low-income countries show higher headship rates than high-income countries.

In each income group, peak female headship rates

[7] They include only 3 countries in Asia and none in Africa.

TABLE 41. UNWEIGHTED AVERAGE SEX-AGE SPECIFIC HOUSEHOLD HEADSHIP RATES IN THE COUNTRIES WITH AVAILABLE HEADSHIP DATA CLASSIFIED ACCORDING TO THE LEVEL OF DEVELOPMENT AROUND 1960

(Percentage of heads among population of given sex-age group)

Sex and level of development	*Age (years)*					
	15–24	*25–34*	*35–44*	*45–54*	*55–64*	*65+*
			Males			
More developed countries[a]	10.8	68.5	87.4	91.3	90.6	79.0
Less developed countries[b]	13.3	59.6	81.3	87.0	87.3	77.5
			Females			
More developed countries[a]	2.7	5.4	8.8	15.5	23.3	34.5
Less developed countries[b]	2.4	8.5	15.9	24.6	32.7	37.0

SOURCE: *Study on Size and Structure of Households and Families*, to be issued as a United Nations publication.

[a] Includes data for 20 countries.

[b] Includes data for 11 countries. Of the 13 developing countries included in the study, Guadeloupe and Martinique are here excluded, partly because of their rather abnormal age patterns and partly because of their small populations.

TABLE 42. UNWEIGHTED AVERAGE SEX-AGE SPECIFIC HOUSEHOLD HEADSHIP RATES FOR 31 COUNTRIES CLASSIFIED ACCORDING TO THE THREE MAJOR LEVELS OF *PER CAPITA* INCOME, AROUND 1960[a]

(Percentage of heads among population of given sex-age groups)

Age group	*High* per capita *income group*[b] *(13 countries)*	*Medium* per capita *income group*[c] *(10 countries)*	*Low* per capita *income group*[d] *(8 countries)*
	Males		
15–24	11.9	9.2	14.4
25–34	71.3	62.8	58.9
35–44	88.4	84.9	80.5
45–54	91.5	90.6	86.1
55–64	92.1	87.8	87.1
65+	82.3	73.5	78.5
	Females		
15–24	3.2	1.7	2.5
25–34	5.9	5.7	8.6
35–44	8.6	11.1	16.1
45–54	15.5	18.3	24.7
55–64	25.3	23.6	32.6
65+	39.8	28.0	37.6

SOURCE:
Headship rate: population censuses for each country.
Per capita income: *Statistical Yearbook, 1968* (United Nations publication, Sales No. 69.XVII.1), pp. 585–589.

[a] The headship data only available for these 31 countries. For six countries headship data available only for years around 1950.

[b] $800 and over.

[c] $400–799.

[d] Under $400.

occur at ages 65 years and over. A particularly sharp increase in rates between the age group 54–64 and the oldest age group studied is found in the high income group. Regionally, the high female headship rates in Latin America above age 25 are noteworthy.

CORRELATION ANALYSIS OF HEADSHIP RATES

The United Nations Secretariat has assembled a collection of headship rate data for more than 40 country schedules including some developing countries in Asia and Latin America. A close examination of these data and the removal of some abnormal cases shows that sex-age specific data are available for 38 country schedules on headship rates, economic activity rates, percentage of the labour force engaged in non-agricultural industries, and marital status distribution. On the basis of these data, computations were made to obtain correlation and regression coefficients by sex and age between the headship rate, on the one hand, and three socio-economic indices, namely (*a*) the degree of industrialization in terms of the percentage of the economically active population engaged in non-agricultural industries; (*b*) the economic activity rate; (*c*) the marital status composition of the population in terms of the percentage married for males and in terms of the percentage not currently married for females, on the other hand. Table 43 shows those zero-order correlation coefficients. From an examination of this table several observations may be made.

Correlation between the headship rate and the degree of industrialization

In general, the headship rate for males is positively and moderately correlated with the degree of industrialization, which is expressed by the percentage of the economically active population engaged in the non-agricultural industries, at all age groups except the youngest age group, 15–24. The positive correlation can be well understood, since higher headship rates are normally found in urban and high-income areas where non-agricultural activities are naturally more prevalent, bringing a relatively larger number and smaller size of households. Among the age groups, correlation becomes higher in the age span from the very young to the middle age groups, with the age group 35–44 having the highest correlation, then begins to decline towards older age groups. However, because of the relatively small sample of countries, it cannot be asserted that differences are very significant.

The negative correlation coefficient of -0.4035 for age group 15–24 is interesting and would call for some study of the variations in the headship rate at this particular age

TABLE 43. ZERO-ORDER CORRELATION COEFFICIENTS BETWEEN THE HEADSHIP RATE, ON THE ONE HAND, AND THE PERCENTAGE OF LABOUR FORCE ENGAGED IN NON-AGRICULTURAL ACTIVITIES, ECONOMIC ACTIVITY RATE AND PERCENTAGE MARRIED OR NOT MARRIED, ON THE OTHER, FOR 12 SEX-AGE GROUPS ON THE BASIS OF 38 COUNTRY SCHEDULES, AROUND 1960

Age group	*Zero-order correlation coefficients between the headship rate and*			
	the percentage of labour force engaged in non-agricultural activities[a]	*the economic activity rate*	*the percentage married for males and the percentage not married for females*[b]	*the percentage of labour force engaged in non-agricultural activities for all age groups*[c]
		Males		
15–24	−0.4035	0.1696	0.7971	−0.3083
25–34	0.4102	−0.0648	0.4641	0.4065
35–44	0.5687	−0.0417	0.2405	0.5329
45–54	0.5366	−0.1837	0.2924	0.5306
55–64	0.3613	0.0228	0.4111	0.4791
65+	0.2012	−0.2917	−0.0304	0.2173
		Females		
15–24	0.1599	0.2159	0.0675	0.0314
25–34	0.1725	−0.0213	0.2406	−0.3367
35–44	−0.0519	−0.0473	0.4347	−0.5258
45–54	0.0624	−0.1024	0.7424	−0.3780
55–64	0.3795	−0.1915	0.4691	−0.1997
65+	0.3934	−0.3443	−0.1685	0.1707

[a] The percentage of labour force in non-agricultural activity is expressed in terms of the percentage of the economically active population engaged in the secondary and tertiary industries, excluding agriculture, forestry, fishery and related industries. On this column, correlations were made between the two indices specific for each sex and age.

[b] The percentage of the ever married persons in the case of males and the percentage of the not currently married persons in the case of females.

[c] The percentage of labour force engaged in non-agricultural activities for all the age groups is expressed by the percentage of the economically active population engaged in the secondary and tertiary industries. In this column, correlations were made between the headship rate for each sex-age group, on one hand, and the percentage of the total economically active population engaged in the secondary and tertiary industries common for all the 12 sex-age groups.

group. A tentative explanation may be given: first, the variation in the headship rate at this age group is more susceptible to the variation in the percentage married, which is presumably more influenced by social and cultural than by economic factors; secondly, it is more related to differences in school enrolment ratios, especially in colleges and universities where young men up to 25 years of age are enrolled. A higher school enrolment ratio is often found in cases where these young men either live together with their parents or live in group quarters with great financial dependence upon their parents, thus largely limiting the chances of their becoming heads of households. Thirdly there are questions of concept definition that are most acute in the younger age group, since many bachelors tend to live in the homes of other families as lodgers and boarders and it is most difficult to distinguish between those terms.[8] This fact may have considerably blurred a positive correlation between the headship rate and the degree of industrialization.

As for females, their correlation coefficient in general is substantially lower than that for males. It is worth noting that coefficients are higher in both age groups 55–64 and 65 and over, than in the younger groups, and that they are even higher than those for males, although their statistical significance is doubtful.

[8] In many countries, lodgers are regarded as constituting own households, while boarders are not.

Partial correlation coefficients as shown in table 44 were computed between the headship rate and the percentage of the economically active population engaged in non-agricultural activities, holding constant the effect of marital status structure in each age group. According to this table, partials are generally similar to but somewhat smaller in value than their corresponding zero-order correlation coefficients. Controlling the marital status factor does not improve values of correlation coefficients between the headship rate and the degree of industrialization.

The above correlation coefficients were computed for each of 12 sex-age groups, therefore, each sex-age group had not only its own headship rate but its own particular percentage employed in non-agriculture activities. Different results are obtained when each sex-age specific headship rate is correlated with the total economically active population engaged in non-agricultural activities. The result which is shown in the last column of table 43 indicates that the pattern among females is considerably changed: first, changes occur from positive to negative correlations in the three age groups 25–34, 45–54 and 55–64, and, secondly, while in the former series of correlations lower correlations are found in the central age groups and higher correlations are observed in the older age groups, the pattern is now being reversed in the latter series.

TABLE 44. PARTIAL CORRELATION COEFFICIENTS BETWEEN THE HEADSHIP RATE AND THE PERCENTAGE EMPLOYED IN NON-AGRICULTURAL ACTIVITIES, HOLDING CONSTANT MARITAL STATUS, FOR 12 SEX-AGE GROUPS ON THE BASIS OF 38 COUNTRY SCHEDULES, AROUND 1960

Age group	*Partial correlation controlling the marital status structure*	*Original zero-order correlation coefficients*
	Males	
15–24	−0.0249	−0.4035
25–34	0.4062	0.4102
35–44	0.5401	0.5687
45–54	0.4898	0.5366
55–64	0.3248	0.3613
65+	0.2104	0.2012
	Females	
15–24	0.1474	0.1599
24–34	0.1348	0.1725
35–44	0.0481	−0.0519
45–54	0.3025	0.0624
55–64	0.5692	0.3795
65+	0.3659	0.3934

SOURCE: computed by the Population Division of the United Nations Secretariat.

Correlation between the headship rate and the economic activity rate

Correlation with age-specific economic activity rates is generally low and negative both for males and females, indicating that their association is relatively insignificant. Partial correlation coefficients controlling the marital status structure are also generally low. It is difficult to find any meaningful and useful relationship between them for the development of model headship rates.

Correlation between the headship rate and the marital status structure

The marital status structure in each sex-age group of the population is expressed here by the percentage ever married for males and by the percentage currently not married (that is, single, widowed and divorced) for females. It was considered that for males the population ever married would have a stronger tendency to become heads of households, whereas for females the population currently not married would show a greater likelihood of being household heads than otherwise. This marital status index is in general moderately correlated with the headship rate in the middle ages of both males and females, and highly correlated in young males aged 15–24 and in females aged 45–54. These results might partly bear out a long-held demographic notion that household headship is very closely related to the marital status structure of population,[9] whether ever married or single in the case of males and whether currently married or not in the case of females. Indeed, as observed in part two, chapter IV above from the data for various countries, headship rates are definitely and universally higher among married than among non-married males, and among single, widowed and divorced than among currently married females. Accordingly, correlation becomes higher where there are larger variations concerning the percentage married among countries and where there are correspondingly larger variations in the headship rate.

Correlation between the headship rate and the per capita *income and the degree of urbanization*

The ability of the individual or family to afford the type of household arrangement it desires is also important. While this depends mainly on the income level of the family or individual, it is also related to the level of living in the country or region and to the housing market, which governs the relative levels of rentals, prices of houses and mortgages. *Per capita* income may be a good indicator of the average economic ability of a country.

It was not possible to obtain data on *per capita* income or urbanization by sex and age for countries. Accordingly, correlations were calculated between the sex-age specific headship rate and both the over-all national figure of *per capita* income and the degree of urbanization. Table 45 shows their correlation coefficients.

In correlation with the *per capita* income, coefficients are generally not high. But it is interesting to note that correlation is negative for all the female groups, while it is positive in four out of six cases for males. Correlation with the degree of urbanization is again not high except in age group 25–34, which shows a coefficient of +0.57 that is statistically significant. All positive correlations for males and negative correlations for females in the middle age groups present tendencies similar to the correlation with the *per capita* income. In both series of correlations, positive correlation for males and negative correlation for females seem to be complementary and suggest an intervening effect of the marriage factor upon the female sex-age specific headship rate.

USE OF REGIONAL MODEL HEADSHIP RATES

The above preliminary analyses by two approaches, that is, a cross-sectional approach and a correlation analysis, have been made in order to find certain patterns and relationships between the headship rate and the level of economic development. The original purpose of these

[9] See, for example, H. V. Muhsam, "Population data and analyses needed in assessing present and future housing requirements" (E/CN.9/CONF.2/L.10), paper submitted to the *United Nations Seminar on Evaluation and Utilization of Population Census Data in Asia and the Far East, 20 June–8 July 1960*, Bombay, India, pp. 18–27; J. B. Cullingworth, *Housing Needs and Planning Policy* (London, Routledge and Kegan Paul, 1960), pp. 39–55; The Netherlands Central Directorate of Housing and Building, *Monograph on the Housing Situation in the Netherlands* (The Hague, 1964), pp. 27–48; *Principles and Recommendations for the 1970 Housing Censuses*, Statistical Papers Series M., No. 45 (United Nations publication, Sales No. 67.XVII.4), para. 354, tabulation (2); Shigemi Kono, "Changes in households and family structure in Japan", in International Union for the Scientific Study of Population, *International Population Conference, London 1969*, vol. III, pp. 2223–2233.

TABLE 45. ZERO-ORDER CORRELATION COEFFICIENTS BETWEEN HEADSHIP RATE AND *PER CAPITA* INCOME AND THE DEGREE OF URBANIZATION, FOR 12 SEX-AGE GROUPS ON THE BASIS OF 38 COUNTRY SCHEDULES, AROUND 1960

Age group	*Correlation between headship rate and per capita income*	*Correlation between headship rate and the degree of urbanization*[a]
	Males	
15–24	−0.4729	0.1134
25–34	0.0045	0.5698
35–44	0.3103	0.4112
45–54	0.4656	0.2501
55–64	0.2734	0.3115
65+	−0.2089	0.3875
	Females	
15–24	−0.0955	0.1824
25–34	−0.3597	−0.1478
35–44	−0.3569	−0.4591
45–54	−0.2824	−0.3750
55–64	−0.3968	−0.0877
65+	−0.2863	0.3228

SOURCE: computed by the Population Division, United Nations Secretariat.

[a] The degree of urbanization is expressed in terms of the percentage of the population in localities of 20,000 and over.

preparatory studies was to derive model schedules of headship rates which could be graded according to different levels in the economic development of countries and which could be applied to those countries without adequate household headship data.[10]

Unfortunately, the correlation analysis approach did not produce significantly high correlation results and, therefore, it is not possible to construct model schedules of headship rates directly applicable to those countries lacking the necessary data. Several other different economic variables have been tried, but the results are much the same and are not greatly promising. Coefficients of multiple determination, that is squares of multiple correlation coefficients, computed at the same time, seldom exceed 0.5, thus mostly failing to explain more than half the total variance of the headship rate, even if marital status structure and economic activity rate are controlled.

The reasons why these analyses did not show very strong correlations between the household headship rate and the level of economic development may stem from the following factors:

(*a*) The number of countries with available data was limited to about 40, mostly European, Northern American and Latin American countries. Asia and Africa are greatly under-represented;

(*b*) The definition of the household still differs substantially among countries and regions, blurring some presumably intrinsic associations between the headship rate and economic indicators;

(*c*) Cultural and regional differences, which are not always parallel with levels of economic development, may strongly affect the level of the headship rate as much as do economic factors. Such cultural and regional variations may sometimes be considered as disturbing the direct bearing and influence of economic factors, if any, upon the headship rate.

Therefore, at the present stage of statistical development among the countries of the world, it would be a little too premature a judgement to rule out possibilities of constructing model schedules of headship rates. Perhaps the returns of the 1970 round of censuses might increase the number of countries that have useful household headship data for the present purpose.

On the other hand, some meaningful results have been obtained from cross-sectional comparisons of headship rates by levels of economic development and *per capita* income groups. By this approach, it is possible to assume the approximate future course of the change in the headship rate for a country with medium or low income, and to set up approximate target levels of headship rate which may be achieved by a given country group or level of economic development in a certain number of years from the base year of projection. For example, if a medium-income country group at present may be assumed to attain in 20 years from 1965 approximately the same level of *per capita* income as is now enjoyed by the high-income country group, then an estimation of the levels of headship rates for every fifth year between the target year and the base year for projection can be made by interpolation. Again, this type of estimation is not very precise for individual countries, but it would serve to set some guidelines for the course of country groups of medium or low income.

Because it is difficult to determine very precisely the future levels of headship rates by the correlation and regression method, it would be reasonable not to try at this stage an interregional, unified system of model headship rates, but rather to look into regional models which may be constructed on or borrowed from the experience of countries within the same region with similar cultural background or similar demographic and economic conditions.

Table 46 presents comparisons of sex-age specific headship rates for the countries in Middle America (mainland) and Western and Northern European regions where the availability of household data is good, with those for the United States of America, Australia, Japan and India (West Bengal) which are outside the above-mentioned regional groups. First of all, this table demonstrates that, while the "in-group" similarities and the relatively small variations between countries within each of the three regions, Middle America, Western and Northern Europe, differentiate each from the other, the distinction is far more marked between these three regions taken together and, for example, India or Japan.

For both males and females, the differences in the patterns of headship rates in Northern Europe, Western

[10] On the analogy of model life tables and stable populations, the idea of model headship rates for estimating and projecting households and families in statistically underdeveloped countries is not new to demographers and statisticians. Siegel suggested that if the data on heads by sex and age were lacking, model schedules of headship rates by sex and age might be employed. See Jacob S. Siegel, "Projections of urban and rural population and other socio-economic characteristics", background paper for the United Nations World Population Conference, Belgrade, 30 August–10 September 1965, p. 38.

TABLE 46a. COMPARISON OF SEX-AGE SPECIFIC HEADSHIP RATES FOR MIDDLE AMERICA (MAINLAND) AND WESTERN AND NORTHERN EUROPEAN COUNTRIES WITH THOSE FOR UNITED STATES OF AMERICA, AUSTRALIA, JAPAN AND INDIA, AROUND 1960: MALES

(Percentage of heads among male population of given age group)

Region and country	Year	Age group					
		15–24	25–34	35–44	45–54	55–64	65+
Middle America (mainland)							
Costa Rica . . .	1963	12	65	83	87	86	76
Guatemala . . .	1950	19	66	85	91	92	86
Nicaragua . . .	1950	9	47	69	80	83	77
Panama	1960	15	63	81	86	86	80
Unweighted average of the above 4 . . .		14	60	80	86	87	80
Western Europe							
Austria	1961	9	65	88	91	90	78
Belgium	1961	14	77	89	92	93	83
Federal Republic of Germany .	1961	13	73	96	94	99	89
France	1962	7	68	86	92	94	86
Luxembourg . .	1960	9	64	81	86	86	72
Netherlands . .	1960	9	72	90	93	94	81
Switzerland . .	1960	8	63	86	91	92	82
Unweighted average of the above 7 . . .		10	69	88	91	92	82
Northern Europe							
Denmark . . .	1960	9	71	91	91	93	86
Finland	1960	16	72	88	93	92	76
Norway	1960	14	66	88	91	92	81
Sweden	1960	11	73	88	92	93	86
Unweighted average of the above 4 . . .		12	71	89	92	93	83
United States of America	1960	20	80	89	91	90	83
Australia	1961	11	66	81	84	83	75
Japan	1960	4	52	82	93	91	63
India (West Bengal)	1951	23	52	72	76	76	60

SOURCE: National population census results. See also tables 40a and 40b.

Europe and the United States of America are relatively small, except in the age group 15–24, for both sexes, whereas disparities between the above European regions and the United States of America, on the one hand, and Middle America, India and Japan, on the other, are large. Australian males show somewhat lower rates than European countries in all age groups except for the age group 15–24. It should also be noticed that India and Japan are quite different in age patterns and levels of headship rates for males. This table therefore suggests some use in applying regional schedules of headship rates to those countries within the same region, or the same cultural region, which lack their own sex-age specific headship rate data.

ILLUSTRATION BY USE OF REGIONAL MODEL RATES

When making projections of households and families for a country, the first step is to estimate a schedule of sex-age specific headship rates for the country at the base year of the projection. When the country concerned lacks its own schedules, use may be made of schedules of headship rates for countries within the same region that have cultural similarities and are at much the same level of economic development. These borrowed rates from adjacent countries are taken as the standard weights, multiplied by population sizes in the corresponding age groups to get at first the estimated number of household heads by sex and age, which are then adjusted by prorating to give the number of total households observed or estimated for the base year.

Adjusted numbers of household heads by sex and age are then divided by the corresponding population to get the adjusted headship rates for the country at the base year.

To estimate the number of total households for the base year of the projection (in this case 1 July 1965), a simple ratio of the number of total households to the population aged 20–64 is first estimated for the base year by extrapolation of previous trends on the basis of past census results, and is then applied to the 1965 population.[11] If the ratio is

[11] For individual countries with a population of 250,000 or more, population projections by sex and age have been prepared by the United Nations Population Division for the years 1965–2000. See *World Population Prospects as Assessed in 1968* (United Nations publication, Sales No. 72.XIII.4).

TABLE 46b. COMPARISON OF SEX-AGE SPECIFIC HEADSHIP RATES FOR MIDDLE AMERICA (MAINLAND) AND WESTERN AND NORTHERN EUROPEAN COUNTRIES WITH THOSE FOR UNITED STATES OF AMERICA, AUSTRALIA, JAPAN AND INDIA AROUND 1960: FEMALES

(Percentage of heads among female population of given age group)

Region and country	Year	Age group					
		15–24	25–34	35–44	45–54	55–64	65+
Middle America (mainland)							
Costa Rica	1963	1	6	13	20	28	34
Guatemala	1950	2	7	16	25	32	36
Nicaragua	1950	2	9	18	30	40	45
Panama	1960	4	12	21	29	37	38
Unweighted average of the above 4		2	9	17	26	34	38
Western Europe							
Austria	1961	2	5	14	27	30	46
Belgium	1961	1	3	6	13	23	39
Federal Republic of Germany	1961	4	6	12	24	31	45
France	1962	3	5	8	16	27	44
Luxembourg	1960	1	3	6	12	22	32
Netherlands	1960	2	4	6	11	21	35
Switzerland	1960	2	6	9	15	26	41
Unweighted average of the above 7		2	5	9	17	26	41
Northern Europe							
Denmark	1960	3	6	9	16	28	41
Finland	1960	9	12	14	23	33	38
Norway	1960	6	7	7	13	23	38
Sweden	1960	5	9	10	16	27	47
Unweighted average of the above 4		6	9	10	17	28	43
United States of America	1960	3	7	10	15	24	36
Australia	1961	1	4	7	13	23	36
Japan	1960	1	3	11	18	14	10
India (West Bengal)	1951	2	6	10	12	11	10

SOURCE: as for table 40b.

available for two censuses or more, it is extrapolated on the basis of these more than two points and normally has an increasing trend. But if the ratio is available only for one census year, it is assumed to remain constant.

As has already been understood in previous chapters, the two most important steps in making household projections are: first to estimate levels of sex-age specific headship rates for the base year; secondly, to make an assumption on the timing and speed of changes in sex-age specific headship rates from one level to another. The second step is concerned with an assumption of how fast a schedule of sex-age specific rates at the base year will evolve and move into the next level of the headship schedule, which may be adopted from some more developed countries as a target level of projection. The first step involves finding similar countries and borrowing their headship rates, and the second step, estimating the timing pattern and speed of headship rate changes over time. This estimation may be made on the basis of comparative studies of the present and past levels of headship rates in relation to the degree of industrialization, the *per capita* income, and the degree of urbanization of countries, as well as their regional characteristics and cultural similarities.

As examples, two countries have been selected, El Salvador in Middle America (mainland) and New Zealand in Oceania, for which no breakdowns of heads of households by sex and age have been readily available.[12]

The case of El Salvador

El Salvador has had two population censuses since the end of the Second World War, in 1950 and 1961. As already mentioned, however, these censuses did not tabulate the number of household heads by sex and age. The ratio of the number of total households to the population aged 20–64 was 0.43720 for 1950 and 0.43098 for 1961.[13]

[12] The recent publication of the New Zealand census reports for 1966 includes some information on household heads by sex and some broad age groups.

[13] The household figure for 1950 was taken from United Nations, *Demographic Yearbook, 1955* (United Nations publication, Sales No. 55.XIII.6), table 9, p. 218 and that for 1961 from El Salvador, Ministerio de Economía, Dirección General de Estadística y

(Continued on next page)

According to general observations made on it,[14] however, it appears very doubtful that the ratio would continue to decrease, so that it is assumed for the present purpose that by 1965 it would come back to the same level as in 1950. Thus, the estimation of the number of total households for 1965 is made by applying the 1950 ratio as constant to the 1965 population aged 20–64 as follows:

1,183,000 (population aged 20–64) × 0.43720
= 517,200 (households)

As the next step, the estimation of sex-age specific headship rates for 1965 is made by taking as the model schedule the unweighted sex-age headship rates of four Middle American countries, namely Costa Rica (1963), Guatemala (1950), Nicaragua (1950) and Panama (1960) for which the headship rates are available by sex and age. The schedules of headship rates for these four countries have already been shown in table 40.

Table 47 shows the computational steps for estimating sex-age specific headship rates for El Salvador for 1965 by proration, on the basis of the average headship rate for the above four Middle American countries. In columns (4) and (5) of table 47, it should be noticed that the hypothetical number of heads of households for El Salvador for 1965, obtained by multiplying the population by sex and age for El Salvador by the average headship rates for the four Middle American countries, gives a slight edge to the estimated total number of household heads for the same year by the simple households-to-population ratio. Thus, it is necessary to make an adjustment by prorating the heads of households by a deflating correction factor of 0.98066.

In table 47, a special assumption is made so that the headship rates for male age groups 35–44, 45–54 and 55–64 should not reach unreasonably low levels. The assumption was made because, as discussed earlier, these three age groups usually show the highest headship rates among the age groups in practically all countries and also have relatively large populations, so that the prorating method used here gives the largest numbers of additions to and subtractions from the heads of households at these age groups. At the same time, as seen in table 40a and elsewhere, these three age groups for males generally show the smallest inter-country variations among all the sex-age groups, perhaps reflecting the fact that these ages are the prime years of life for men in headship as well as in economic activity. Accordingly, these age groups for El Salvador are assumed to maintain high rates similar to the average rates for the four countries and smaller by just 0.5 per cent than those for the four countries at each of the three age groups. After predetermining the rates for these age groups, the rest of the age groups were prorated. The steps are explained by columns (7), (8) and (9) in table 47. The last column of this table, column (9), indicates such series of headship rates, adjusted to the total estimated number of households for 1965.

(Footnote 13 continued)
Censos, *Tercer Censo Nacional de Población, 1961* (San Salvador, 1965), cuadro 44, p. 828.

[14] This point has already been fully discussed in chapter IV above.

TABLE 47. COMPUTATIONAL STEPS FOR ESTIMATING HEADSHIP RATES FOR EL SALVADOR, 1965

(1) Age group	(2) Average headship rates for the four Middle American countries (percentage)	(3) Population estimates for El Salvador, 1965	(4) Expected number of heads of households (2) × (3) (thousands)	(5) Prorated number of heads of households (4) × 0.98066[a]	(6) First adjusted headship rates (5)/(3) (percentage)	(7) Assumed headship rates for age groups 35–64 only (2) − 0.5 (percentage)	(8) For age groups 35–64: (3) × (7) for the other age groups: (4) × 0.97050[b] (thousands)	(9) Second adjusted headship rates (8)/(3) (percentage)
				Males				
15–24	13.8	265	36.6	35.9	13.5		35.5	13.4
25–34	60.4	191	115.4	113.2	59.3		112.0	58.6
35–44	79.6	136	108.3	106.2	78.1	79.1	107.6	79.1
45–54	85.9	89	76.5	75.0	84.3	85.4	76.0	85.4
55–64	86.7	55	47.7	46.8	85.1	86.2	47.4	86.2
65+	79.9	44	35.2	34.5	78.4		34.2	77.7
				Females				
15–24	2.3	262	6.0	5.9	2.3		5.8	2.2
25–34	8.6	192	16.5	16.2	8.4		16.0	8.3
35–44	16.8	137	23.0	22.6	16.5		22.3	16.3
45–54	26.0	92	23.9	23.4	25.4		23.2	25.2
55–64	34.3	58	19.9	19.5	33.6		19.3	33.3
65+	38.4	48	18.4	18.0	37.5		17.9	37.3
TOTAL for all ages in both sexes		2 928	527.4	517.2			517.2	

SOURCE:
Headship rates for the four Latin American countries (Costa Rica, 1963, Guatemala, 1950, Nicaragua, 1950 and Panama, 1960), taken from table 40a.
Population by sex and age for El Salvador, 1965, estimated by the Population Division of the United Nations Secretariat.

[a] The number 517.2 (thousand) in column (5) represents the estimated number of households for 1965 on the basis of the ratio of number of households to the population aged 20–64 in 1950. Dividing 517.2 by 527.4 (column (4)) gives the correction factor of 0.98066.

[b] The correction factor 0.97050 is obtained by (517.2 − 231.0) divided by (527.4 − 232.5). In this equation, the value 231.0 is the total estimated number of heads of households for the three age groups 35–44, 45–54 and 55–64 in column (8). The value 232.5 is the total estimated number of heads of households for the three age groups in column (4).

TABLE 48. COMPUTATIONAL STEPS FOR ESTIMATING FUTURE HEADSHIP RATES FOR EL SALVADOR
(*Percentage*)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Age group	*Headship rate for*				*Headship rates for El Salvador*						*Headship rates for El Salvador*				
	United States of America, 1966	*El Salvador, 1965*	(2) − (3)	(4) × $\frac{2}{15}$	*1970* (3) + (5)	*1975* (5) + (6)	*1980* (5) + (7)	*1985* (5) + (8)	*1990* (5) + (9)	(4) × $\frac{1}{15}$	*1995* (10) + (11)	*2000* (11) + (12)	*2005* (11) + (13)	*2010* (11) + (14)	*2015* (11) + (15)
								Males							
15–24. .	18.6	13.4	5.2	0.7	14.1	14.8	15.5	16.2	16.9	0.3	17.2	17.5	17.8	18.1	18.4
25–34. .	79.9	58.6	21.3	2.8	61.4	64.2	67.0	69.8	72.6	1.4	74.0	75.4	76.8	78.2	79.6
35–44. .	88.2	79.1	9.1	1.2	80.3	81.5	82.7	83.9	85.1	0.6	85.7	86.3	86.9	87.5	88.1
45–54. .	91.2	85.4	5.8	0.8	86.2	87.0	87.8	88.6	89.4	0.4	89.8	90.2	90.6	91.0	91.4
55–64. .	88.3	86.2	2.1	0.3	86.5	86.8	87.1	87.4	87.7	0.1	87.8	87.9	88.0	88.1	88.2
65+ . .	85.7	77.7	8.0	1.1	78.8	79.9	81.0	82.1	83.2	0.5	83.7	84.2	84.7	85.2	85.7
								Females							
15–24. .	3.2	2.2	1.0	0.1	2.3	2.4	2.5	2.6	2.7	0.1	2.8	2.9	3.0	3.1	3.2
25–34. .	9.4	8.3	1.1	0.1	8.4	8.5	8.6	8.7	8.8	0.1	8.9	9.0	9.1	9.2	9.3
35–44. .	11.4	16.3	−4.9	−0.7	15.6	14.9	14.2	13.5	12.8	−0.3	12.5	12.2	11.9	11.6	11.3
45–54. .	16.0	25.2	−9.2	−1.2	24.0	22.8	21.6	20.4	19.2	−0.6	18.6	18.0	17.4	16.8	16.2
55–64. .	26 7	33.3	−6 6	−0 9	32.4	31.5	30.6	29.7	28.8	−0.4	28.4	28.0	27.6	27.2	26.8
65+ . .	41.5	37.3	4.2	0.6	37.9	38.5	39.1	39.7	40.3	0.3	40.6	40.9	41.2	41.5	41.8

SOURCE: headship rates for the United States of America, 1966 based on the United States Bureau of the Census, "Summary of demographic projections", *Current Population Reports*, Series P-25, No. 388 (Washington, D.C., United States Government Printing Office, 14 March 1968), table 2, pp. 37–39 and table 13, pp. 62–63; headship rates for El Salvador, 1965 taken from column (9), table 47.

The second major step of the calculation is to estimate sex-age specific headship rates for El Salvador for future years. This portion of the calculation is methodologically by far the most difficult, therefore it is necessary to take some bold and speculative assumptions. In the case of El Salvador, the United States schedules of rates estimated for 1966 are used as the target rates to be reached by El Salvador in 50 years by the year 2015. A time lag of 50 years behind the United States of America has been assumed for El Salvador in respect to the development of headship rates by sex and age, when considering their respective current and future *per capita* income levels, degrees of industrialization in terms of the percentage of labour force engaged in non-agricultural activities, and degrees of urbanization.

Comparing their age patterns of headship rates, it may be noted that except in some middle age groups among women, sex-age specific rates are higher in the United States of America than in El Salvador. This point is in full conformity with previous observations that, first, developed countries with higher income *per capita* have generally higher headship rates than developing countries with lower income *per capita*; and secondly, among the countries where historical data are available, headship rates have increased almost in all age groups except for females in the middle age groups.[15] By making an inter-regional comparison, it was found that the age patterns of headship rates for Middle America are more similar to those of the United States of America than to those of European countries. This is why the United States of America rates rather than the European ones were taken as the target rates.

Table 48 represents such a sequence of computations for estimating the future levels of headship rates. In this table, it is assumed that a faster increase in headship rates will take place in the early stage of transition during the first 25 years to 1990, narrowing two thirds of the gap estimated for the base year between the headship rates for El Salvador and the United States of America and that for the following 25 years between 1990 and 2015 the slope of increase will be less steep, closing the remaining one third of the gap. It is considered that in El Salvador the family nuclearization process is already on the way, but the rate of its increase will eventually taper off when reaching the levels the United States of America has now. The final stage of household projections is illustrated in table 49. It is obtained by multiplying the sex-age headship rates by the corresponding population and by summing up the cross-products.

The case of New Zealand

In the projection of households for New Zealand, two country schedules of headship rates are taken as models in different ways. For estimating sex-age specific headship rates in New Zealand for the base year 1965, the schedule for Australia in 1961 is taken as the model and for projecting future headship rates from 1965 through 1985, use is made of the rates estimated for the United States of America in 1966.

There are, of course, great demographic, economic and social similarities between New Zealand and Australia. As for New Zealand and the United States of America, a closer resemblance is found between these two former frontier countries with small population density and high

[15] The main reason for the relatively low headship rates in the United States of America among middle-aged women is their relatively low widowhood, which is, in turn, attributable to a relatively high rate of survival among their husbands.

TABLE 49. COMPUTATIONAL STEPS FOR PROJECTING HOUSEHOLDS FOR EL SALVADOR, 1970–1985

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Age group	*Estimated headship rate (percentage)*				*Population projections (thousands)*				*Household projections*			
	1970	*1975*	*1980*	*1985*	*1970*	*1975*	*1980*	*1985*	*1970* (2) × (6)	*1975* (3) × (7)	*1980* (4) × (8)	*1985* (5) × (9)
						Males						
15–24 . . .	14.1	14.8	15.5	16.2	321	381	461	566	45.3	56.4	71.5	91.7
25–34 . . .	61.4	64.2	67.0	69.8	216	252	307	366	132.6	161.8	205.7	255.5
35–44 . . .	80.3	81.5	82.7	83.9	152	178	202	238	122.1	145.1	167.1	199.7
45–54 . . .	86.2	87.0	87.8	88.6	105	120	138	162	90.5	104.4	121.2	143.5
55–64 . . .	86.5	86.8	87.1	87.4	65	74	89	103	56.2	64.2	77.5	90.0
65+ . . .	78.8	79.9	81.0	82.1	50	59	69	85	39.4	47.1	55.9	69.8
						Females						
15–24 . . .	2.3	2.4	2.5	2.6	318	377	456	559	7.3	9.0	11.4	14.5
25–34 . . .	8.4	8.5	8.6	8.7	215	251	306	365	18.1	21.3	26.3	31.8
35–44 . . .	15.6	14.9	14.2	13.5	153	179	203	239	23.9	26.7	28.8	32.3
45–54 . . .	24.0	22.8	21.6	20.4	108	123	141	165	25.9	28.0	30.5	33.7
55–64 . . .	32.4	31.5	30.6	29.7	69	78	94	108	22.4	24.6	28.8	32.1
65+ . . .	37.9	38.5	39.1	39.7	55	67	80	97	20.8	25.8	31.3	38.5
				TOTAL	3 454	4 107	4 922	5 929	604.5	714.4	856.0	1033.1
Average household size									5.71	5.75	5.75	5.74

SOURCE: estimated headship rates from table 48; Population projections prepared by the Population Division of the United Nations Secretariat

industrialization, than between New Zealand and the Western European countries. In spite of these similarities, however, it is assumed here for statistical purposes that the United States of America is ahead of New Zealand by about 20 years in terms of industrialization, urbanization and *per capita* income.

According to the three recent population censuses, the number of households, the population aged 20–64 and the ratio between them are shown in the following table:

(1) Year	(2) Households	(3) Population aged 20–64	(4) Ratio (2)/(3)
1956	563 052	1 135 598	0.49582
1961	633 707	1 221 174	0.51893
1966	716 104	1 336 060	0.53598

SOURCE:
Households: New Zealand Department of Statistics, *New Zealand Official Yearbook*, 1970, 75th issue (Wellington, 1970), p. 549.
Population: New Zealand Department of Statistics, *New Zealand Census of Population and Dwellings, 1966*, Ages and Marital Status (Wellington, 1968), table 1, p. 11.

TABLE 50. COMPUTATIONAL STEPS FOR ESTIMATING HEADSHIP RATES FOR NEW ZEALAND, 1965

(1) Age group	(2) Headship rates for Australia, 1961 (percentage)	(3) Population estimates for New Zealand 1965	(4) Expected number of heads of households (2) × (3) (thousands)	(5) Prorated number of heads of households (4) × 1.09043[a]	(6) Adjusted headship rates (5)/(3) (percentage)
		Males			
15–24	10.673	220	23.5	25.6	11.636
25–34	65.817	159	104.6	114.1	71.761
35–44	81.426	164	133.5	145.6	88.780
45–54	84.132	139	116.9	127.5	91.727
55–64	82.717	108	89.3	97.4	90.185
65+	75.208	90	67.7	73.8	82.000
		Females			
15–24	01.414	210	3.0	3.3	1.571
25–34	03.806	153	5.8	6.3	4.118
35–44	06.955	156	10.8	11.8	7.564
45–54	12.827	140	18.0	19.6	14.000
55–64	22.822	108	24.6	26.8	24.815
65+	36.092	124	44.8	48.8	39.355
TOTAL			642.5	700.6	

SOURCE: headship rates from the Australian 1961 population census report.
[a] The correction factor 1.09043 is derived by dividing the already estimated number of households (700.6) by the expected number of total households using the Australian rates (642.6).

TABLE 51. COMPUTATIONAL STEPS FOR ESTIMATING FUTURE HEADSHIP RATES FOR NEW ZEALAND, 1965–1985
(*Percentage*)

(1) Age group	(2) Headship rates for United States of America 1966	(3) Headship rates for New Zealand 1965	(4) Target headship rates for 1985	(5) (4) − (3)	(6) (5) × 1/3	(7) Headship rates for New Zealand 1970 (3) + (6)	(8) Headship rates for New Zealand 1975 (6) + (7)	(9) (5) × 1/6	(10) Headship rates for New Zealand 1980 (8) + (9)	(11) Headship rates for New Zealand 1985 (9) + (10)
				Males						
15–24	18.858	11.636	18.858	7.222	2.407	14.043	16.450	1.204	17.654	18.858
25–34	79.936	71.761	79.936	8.175	2.725	74.486	77.211	1.363	78.574	79.937
35–44	88.217	88.780	91.000[a]	2.220	0.740	89.520	90.260	0.370	90.630	91.000
45–54	91.239	91.727	93.562[b]	1.835	0.612	92.339	92.951	0.306	93.257	93.563
55–64	88.337	90.185	92.440[a]	2.255	0.752	90.937	91.689	0.376	92.065	92.441
65+	85.705	82.000	85.705	3.705	1.235	83.235	84.470	0.618	85.088	85.706
				Females						
15–24	3.205	1.571	3.205	1.634	0.545	2.116	2.661	0.272	2.933	3.205
25–34	9.421	4.118	9.421	5.303	1.768	5.886	7.654	0.884	8.538	9.422
35–44	11.432	7.564	11.432	3.868	1.289	8.853	10.142	0.645	10.787	11.432
45–54	16.025	14.000	16.025	2.025	0.675	14.675	15.350	0.338	15.688	16.026
55–64	26.706	24.815	26.706	1.891	0.630	25.445	26.075	0.315	26.390	26.705
65+	41.533	39.355	41.533	2.178	0.726	40.081	40.807	0.363	41.170	41.533

SOURCE: headship rates for the United States of America computed from the figures in United States Bureau of the Census, "Summary of demographic projections", *Current Population Reports — Population Estimates*, Series P-25, No. 388 (Washington, D.C., United States Government Printing Office, 1968); headship rates for New Zealand, 1965 from column (6), table 50.

[a] Obtained by multiplying the corresponding New Zealand rates by 1.025.
[b] Obtained by multiplying the corresponding New Zealand rates by 1.02.

The 1961 census was taken on 18 April 1961 and the 1966 census on 22 March 1966. According to the assumption that the rate of increase between 1 July 1965 and 22 March 1966 was the same as the annual average rate of increase between April 1961 and March 1966, the ratio of households to the population aged 20–64 was estimated as 0.53319 for 1 July 1965. Therefore, multiplying the population aged 20–64, namely 1,314,000, by 0.53319 would yield approximately 700,600 as the number of households for mid-year 1965.

Using the Australian model rates, the estimation of headship rates for New Zealand for 1965 is shown in table 50. Table 51, on the other hand, shows the computational steps used to derive the future schedule of headship rates, applying the United States 1966 rates as the target levels to be realized by 1985. Before proceeding with the estimation, however, an adjustment is necessary. It is noted that in columns (2) and (3), table 51, the male headship rates for three age groups 35–44, 45–54 and 55–64 for the United States of America in 1966 are lower than the corresponding rates estimated for New Zealand in 1965 and, as mentioned earlier in this manual, it is considered unreasonable to assume that the rates for these three age groups will decrease rather than increase. On the basis of the time-series data of age-specific headship rates available for developed countries shown in table 40a, it is noted that among six age groups of males the percentage increase has been substantially large at both ends, namely at young age groups of 15–24 and 25–34 and at the oldest age group 65 and over, but it has been relatively small at the middle age groups, namely 35–44, 45–54 and 55–64. Thus, in accordance with the experience of developed countries as shown in table 40a where percentage increases for these three middle age groups are generally found somewhere between 1 and 2 per cent for ten years, it has been assumed in table 51 that for the age group 45–54 the headship rate estimated for New Zealand in 1965 will increase by 2 per cent in 20 years by 1985 and similarly for each of the age groups 35–44 and 55–64 it will increase by 2.5 per cent. Accordingly, the headship rates for these three age groups, 35–44, 45–54 and 55–64, have been assumed to attain, respectively, the levels of 91.000, 93.562 and 92.440. The assumed rates for 1985 are given in column (4) of table 51.

In estimating headship rates for the period 1965–1985 by five years, it has been assumed that, as in the previous cases, there will be a steeper slope for the first ten years, narrowing the two thirds of the difference between the United States of America and New Zealand, but a less steep slope for the second decade, closing the remaining one third of the gap in ten years. The procedures are much the same as in the previous examples. Table 52 shows the last stage of household projections.

TABLE 52. COMPUTATIONAL STEPS FOR PROJECTING HOUSEHOLDS FOR NEW ZEALAND, 1970–1985

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Estimated headship rates				Population projections				Household projections			
Age group	1970	1975	1980	1985	1970	1975	1980	1985	1970	1975	1980	1985
	(percentage)				(thousands)				(2) × (6)	(3) × (7)	(4) × (8)	(5) × (9)
									(thousands)			
					Males							
15–24	14.043	16.450	17.654	18.858	254	286	314	321	35.7	47.0	55.4	60.5
25–34	74.486	77.211	78.574	79.937	177	216	257	289	131.8	166.8	201.9	231.0
35–44	89.520	90.260	90.630	91.000	161	161	179	216	144.1	145.3	162.2	196.6
45–54	92.339	92.951	93.257	93.563	148	160	158	156	136.7	148.7	147.3	146.0
55–64	90.937	91.689	92.065	92.441	120	124	132	142	109.1	113.7	121.5	131.3
65+	83.235	84.470	85.088	85.706	102	114	127	135	84.9	96.3	108.1	115.7
					Females							
15–24	2.116	2.661	2.933	3.205	244	275	301	309	5.2	7.3	8.8	9.9
25–34	5.886	7.654	8.538	9.422	174	210	247	277	10.2	16.1	21.1	26.1
35–44	8.853	10.142	10.787	11.432	152	156	174	212	13.5	15.8	18.8	24.2
45–54	14.675	15.350	15.688	16.026	149	155	151	154	21.9	23.8	23.7	24.7
55–64	25.445	26.075	26.390	26.705	123	132	140	146	31.3	34.4	36.9	39.0
65+	40.081	40.807	41.170	41.533	136	148	164	179	54.5	60.4	67.5	74.3
TOTAL for all ages in both sexes					2 860	3 120	3 420	3 760	778.9	875.6	973.2	1 079.3
Average household size									3.67	3.56	3.51	3.48

SOURCE: headship rates from table 51; Population projections prepared by the Population Division of the United Nations Secretariat.