HOUSEHOLD STRUCTURE VARIATION AND URBANIZATION IN THE PHILIPPINES*

by
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Introduction

The size and composition of household are strongly influenced by the level of urbanization or by the degree of modernization of the area. There are demographers who believe that the incidence of extended family is inversely related to the level of industrialization and urbanization (Davis, 1963; Kirkpatrick, 1963; Kephart, 1966). Others argue that actual family structure has been rather similar in societies at all times and places, regardless of structural ideals even with the presence of discrepancy between ideal and actual household configurations (Levy, 1965; Burch, 1967).

The conventional view on the relationship between household structure and urbanization is that rural households tend to be more complex than urban households. Many studies, however, claim that the extended family tends to be replaced by nuclear family as the typical urban form. On the other hand, the classic extended family, according to this view, is the typical rural household. The latter type of household is composed of three or more generations of kin in a direct line plus a variety of collateral relatives all living "under one roof" (United Nations, 1980). Further research have presented evidences to show that the image of the rural household as an extended family household is not typical (United Nations, 1980). In a review of international data on households, the nuclear family (husband-wife-children) is said to be the "predominant living arrange-

*The authors wish to thank the National Census and Statistics Office for allowing the use of the 1975 census data. They are, however, solely responsible for any error of fact or interpretation contained in this article.

ment almost everywhere in the world". It speaks of the contrary view as "a sociological tradition more than a statistical reality" (Bogue, 1969). Burch, in a study using a variety of contemporary census data on household size and composition, shows support of Levy's thesis (1965). The view that the rural households are complex has been partially replaced by the view that households are virtually the same, with no important differences in household composition between urban and rural populations.

Since size is a simpler variable to define and measure, studies on household size are more common than household composition and variation. The study on variation in household is centered on the extent to which adults other than husbands and wives tend to share a residence with one another. Moreover, the relationship between household structure and the level of urbanization is not clear. In the context of a growing and fast urbanizing population as the Philippines, issues relating these two dimensions need to be addressed.

In the Philippines, the interest in the study of household structure and composition may be found in policy statements and discussions as the country attempts to formulate plans, develop strategies and implement programs for the improvement of human settlement patterns. It is of special interest to the government given the rapid growth of the population, its unacceptable population distribution and uncontrolled urbanization, all of which have contributed to unreasonable strains on the government's efforts to provide adequate and acceptable shelter to its population.

In response to research needs in this field, this paper aims to estimate the household size and the sizes of the household components in different areas of the Philippines, categorized to reflect different levels of urbanization. Moreover, the variations in the household components are to be analyzed in each area and later on be compared to and contrasted with those of other areas to ascertain patterns and trends.

Literature Review

Empirical examination of household size information have been carried out in the last decade or two. Several analyses include cross-

cultural studies by Collver (1963), Burch (1967), Blumberg and Winch (1972), Concepcion and Landa-Jocano (1975) and the United Nations (1980); and cross-sectional research within societies by Arriaga (1968), Handwerker (1973), Van der Tak and Gendell (1973), Laslett (1975), Paydarfar (1975), National Census and Statistics Office of the Republic of the Philippines (1982). Most of these studies have been largely spurred by Levy's (1965) belief that co-residential kinship groupings have, in practice, varied minimally in size and composition. Levy argues that actual family structure has been similar in societies at all times and places, regardless of structural ideals. Classifying areas by level of modernization, Levy believes that in what he calls as Type I societies, high mortality has limited or restricted kin proliferation to a greater extent than expected from accounts of ideal structure. In what he calls Type II societies, characterized by high levels of modernization and modern medical technologies, minimal variation in household size is also expected since the nuclear family had become nearly universal both in ideal terms and in practice. However, in Type III societies called 'transitional' societies, characterized by the availability of some medical technologies but having no stable high levels of modernization, substantial variation in actual family or household structure is expected, albeit in the short run.

Studies using cross-sectional or longitudinal data lend support to the contention that initial stages of modernization is associated with a rise in household size (United Nations, 1973 and 1980; Burch, 1967; Paydarfar, 1975). Increases in household size in the early stages of modernization may be attributed to increasing number of surviving children (Levy, 1965: 56; Burch, 1967:360). Relationships, however, between modernization and household size within a nation are influenced by patterns and composition of internal migration in addition to changes in the number of surviving children (Stinner, 1977:378).

Studies dealing with household size and structural variations in the Philippines are few and quite limited in scope. However, from these few studies it is found that since the turn of the century to the early seventies, the Philippines has been experiencing increases

in average household size. From various sources, the estimated average size of household in the Philippines circa 1903 is 4.7 persons. From censuses and sample surveys, it is observed that the average household size has been monotonically increasing over time and reaches 6.1 persons in 1973. However, in 1975, as may be observed from Table 1, the average household size in the Philippines declines to 5.9 persons.

Stinner (1977) provides a more detailed analysis of the 1970 census of population of the Philippines. He reports that fifty-eight (58) percent of the population were in households of seven or more persons, while less than 40 percent were in 3-6 person households. Stinner notes a slight positive relationship between household size and urbanization after observing that the average household size of 6.15 persons is found in Manila, 6.17 persons in provincial urban areas and 5.84 persons in the rural areas of the country (1977: 380). From such observation, Stinner concludes that larger household size is an initial response to modernization – a conclusion in close agreement with Levy and Burch's propositions.

Moreover, Stinner (1977:381) presents the components of the differentials in the household sizes of different areas. Accordingly, the non-relative[1] component of household size is largest in Manila (forming 5.2 percent of the average household size), followed by other urban areas (with 4.1 percent) and rural areas (with 0.9 percent). Similarly, the extended family component[2] is largest in Manila forming 15.6 percent of the average household size, forming 12.8 percent of the average household size of the urban areas, and only 8.9 percent of that of the rural areas.

Other studies support the general finding that the average size of household in the urban areas is larger than the average size of household in the rural areas (Concepcion and Landa-Jocano, 1974; Castillo, 1979; Stinner, 1975). This pattern persists inspite of the general observation of lower fertility in urban areas than in rural areas. Concepcion and Landa-Jocano (1974) offered two apparent

[1]Including boarders, lodgers, servants and the like.
[2]Includes spouse of child, grandchildren, parents and other relatives.

reasons for the trend towards extended households in the urban areas:

1) The possibility of urban families being economically better off than rural relatives and the tendency for the kinsmen to gravitate towards the more affluent members; and
2) The possible flow of rural family members to the urban areas to study or work, in which case they seek their kinsmen and join their household.

TABLE 1.

TRENDS OF AVERAGE HOUSEHOLD SIZE IN THE PHILIPPINES: 1903-1975

Year	*Average Household Size*
1903	4.7
1918	5.1
1939	5.1
1948	5.5
1957	5.7
1960	5.8
1968	5.9
1970	5.9
1973	6.1
1975	5.9

Source: National Census and Statistics Office, "The Household Size in the Philippines – A Provincial Comparison: 1970-1975", in *Journal of Philippine Statistics 33* (First Quarter 82), p. x.

The National Census and Statistics Office study (1982) deals with the variations in the provincial average size of households in the Philippines in 1970 and 1975. Included also in the analysis is the household size distribution in the urban and rural segments of each province. The study reveals that during the 1970-1975 period, the household size decreased minimally – from 5.94 to 5.93 persons. Provincial variations, however, reveal that the range of the

changes is wide. Moreover, the average urban provincial household size decreases drastically while the rural provincial household size increases during the period. Although both areas exhibit variations in the changes, wider variations may be observed in the rural than in the urban areas. The study also points to the possible sources of changes in the household size of both the urban and rural areas. Aside from the patterns of urban and rural household sizes, the study identifies the provinces with the largest and smallest average household sizes.

The United Nations study (1980:97) states that one of the best documented findings in household demography relates to the association between urbanization and household size. In general, urban residence is associated with smaller residential groupings (households or residential families). Moreover, the same study observes that:

1) In contemporary international comparisons, highly urbanized countries have appreciably smaller households, on the average, than do less urbanized countries;
2) For those countries where long time series of data are available, household size tends to decline as urbanization occurs (along with the closely intertwined processes of industrialization and modernization);
3) Within contemporary populations, average household size among the urban segments tends to be smaller than among the rural segments.

These general findings, however, are not supported by the Philippine data. Even the average household size of developing countries (5.2 persons) to which the Philippines is classified, is very small compared to about 5.9 persons of the latter. In contrast with the general observations, the Philippine data indicate that households in its rural areas tend to be smaller than households in its urban areas. Although the rural-urban differential is observed to be narrowing during the 1970-1975 period, the exceptional character of the Philippine household demography is rather glaring. This departure from expected pattern needs exploration and research.

Thus, using the data of the 1975 census of the Philippines, this study aims to analyze the household structure and composition in

the different areas, representing a gradient of most to least urbanized areas, of the Philippines. This categorization of areas is aimed at obtaining a dimension of urbanization to enable the analysis of household structure variation vis-a-vis different or increasing levels of urbanization.

Data and Methods

The set of data used in the study is based on the 1975 Integrated Census of the Population and Its Economic Activities. In the said census, the definition of household, which is the unit of analysis used in the study, is as follows:

> A household usually consists of a group of people who sleep in the same dwelling unit and have common arrangements for the preparation and consumption of food. A person who lives alone is considered as one separate household. Although in most cases a household consists of a related family group, some household members may have no relationship to the central group. Boarders and servants, for instance, are counted as part of a particular household if they take their meals with the household and sleep in the same dwelling unit. Persons who sleep with a household but individually cook their meals or eat elsewhere are considered as separate households (NCSO, 1978:xiii).

Persons living in welfare institutions, penal and corrective institutions, hospitals, religious institutions, lodging houses, military camps and the like are not considered to be living in the households.

As of Census Day in 1975, there are 42,070,660 Filipinos. A total of 41,958,365 persons, or 99.73 percent of the total population reside in private households. They belong to 7,079,128 households obtaining an average of 5.9 persons per household.

Five percent of the total households enumerated in the 1975 census are selected for use in the study. Only households with head are included in the sampling frame since absence of a household head is observed in very few cases. Using systematic sampling with a random start, a total of 360,523 households with a population of 2,133,375 individuals are segregated to comprise the five percent sample household file.

Out of the 360,523 households, 197 households with a total population of 1,741 individuals are observed to have discrepancies in the total persons variable and the actual number of individuals in the household. The said households are excluded from the study. Thus, only 360,326 households are used for the purpose of studying household structure variations.

Household size and its components are said to be related to the degree of urbanization. To obtain a dimension of increasing urbanization, the cities and municipalities are classified into five areas, namely, (1) Metropolitan Manila, (2) entirely urban with population of 100,000 and over, (3) entirely urban with population between 50,000 and 100,000, (4) entirely urban with population less than 50,000, and (5) others. The cities and municipalities in each category are presented in Appendix A.

The analysis of the variations in household size and structure is divided into two parts. The first part is an analysis of household size and its component by area using percentage distribution and descriptive statistics.

The second part utilizes simple linear regression to determine the extent to which a particular component of household size contributes to changes in the household size. In addressing this particular issue, one person households are excluded from the sample since there is no variation in their household composition, the head being the only person in the household. Furthermore, the household size refers to the number of members of the household excluding the head. The head, as the initial member among the various components of household size, is not affected by any unit change in the household size.

The simple linear regression analysis estimates a set of regression equations, one for each component of household. The equations are of the form:

$$Y_i = a_i + b_i X$$

where a_i, b_i are fitted constants for components of household, i; X *is the household size* less the head; and Y_i denotes the size of the household component, i. Using the least-squares regression

technique, it can be shown that except for rounding errors

$$\Sigma\, b_i = 1 \qquad \Sigma\, a_i = 0$$

provided all relationships between component of household and household size less the head are linear (see Appendix B for the proof). The set of b_i's is considered as the best single indicator of the variation in household structure since the predicted change summed over all i must equal 1 per unit change in household size X, thus a change in the size of household can be attributed directly to its individual components.

For the regression analysis, a subsample of 10,000 households each for Metropolitan Manila (Area 1) and others (Area 5) are selected using systematic sampling with a random start. All the households classified in the entirely urban cities/municipalities (Area 2, Area 3 and Area 4) are used for the regression analysis.

Findings

Table 2 presents the percentage distribution of population and households by number of persons and area. Based on the five percent sample household, the average household size for the Philippines in 1975 is 5.92 persons. This is way above the average household size of 5.2 persons reported for developing countries (United Nations, 1980). The modal household size for the country in 1975 is five persons representing 13.97 percent of the households. About 21 percent of the households, or one out of five households, have three or less persons. On the other hand, about 11 percent of the households have ten or more persons.

Fifty-seven percent of the population are residing in households with seven or more persons. A little over forty percent of the population are living in households of 3-6 persons.

Households in the urban areas are larger than those in the rural areas (National Census and Statistics Office, 1982: xxix). Among the five areas, the entirely urban cities/municipalities with population between 50,000 and 100,000 (Area 3) have the highest average household size, which is 6.00 persons. Entirely urban cities/municipalities with population less than 50,000 (Area 4) follows with

TABLE 2. PERCENTAGE DISTRIBUTION OF POPULATION AND HOUSEHOLDS, BY NUMBER OF PERSONS IN THE HOUSEHOLD AND AREA, PHILIPPINES: 1975

Household Size	*Philippines*	*Metro Manila (1)*	*Entirely urban cities/municipalities with population*			*Others (5)*
			100,000 & over (2)	*50,000–100,000 (3)*	*Less than 50,000 (4)*	
			POPULATION			
TOTAL POPULATION	100.00	100.00	100.00	100.00	100.00	100.00
Size 1	0.38	0.30	0.48	0.30	0.31	0.39
2	2.47	2.28	2.53	2.30	2.07	2.52
3	5.82	5.93	6.04	5.75	6.04	5.80
4	9.16	9.61	8.98	9.35	9.76	9.09
5	11.81	12.24	11.29	11.78	11.85	11.76
6	13.34	13.39	13.15	13.48	12.80	13.34
7	13.64	12.82	12.78	13.62	12.19	13.80
8	12.58	11.84	11.23	11.48	12.52	12.77
9	10.23	9.23	10.08	8.73	10.41	10.41
10 and over	20.56	22.31	23.44	23.21	22.05	20.12
N (Population)	2,131,634	245,906	62,473	48,016	19,876	1,755,363

Table 2(Continued)

Household Size	*Philippines*	*Metro Manila (1)*	*Entirely urban cities/municipalities with population*			*Others (5)*
			100,000 & over (2)	*50,000–100,000 (3)*	*Less than 50,000 (4)*	
			HOUSEHOLD			
TOTAL HOUSEHOLDS	100.00	100.00	100.00	100.00	100.00	100.00
Size 1	2.23	1.78	2.83	1.79	1.87	2.29
2	7.35	6.81	7.53	6.91	6.20	7.44
3	11.48	11.80	11.98	11.50	12.03	11.41
4	13.54	14.36	13.36	14.02	14.59	13.41
5	13.97	14.63	13.44	14.14	14.17	13.89
6	13.15	13.33	13.04	13.49	12.76	13.13
7	11.53	10.94	10.87	11.67	10.41	11.64
8	9.31	8.84	8.35	8.61	9.36	9.42
9	6.73	6.16	6.67	5.82	6.92	6.83
10 and over	10.72	11.34	11.93	12.05	11.70	10.54
N (Households)	360,326	41,158	10,497	8,001	3,324	297,346
Average Household Size	5.92	5.97	5.95	6.00	5.98	5.90

5.98 persons. Metropolitan Manila (Area 1) and entirely urban cities/municipalities with population 100,000 and over (Area 2) rank third and fourth with average household size of 5.97 and 5.95 persons, respectively. Other urban and rural areas (Area 5) have an average household size of 5.90 persons.

Larger urban households than rural households were observed in a few cases in a recent compilation of data on household size by the United Nations (1980). The differences between the two are small, typically less than 10 percent. In the Philippines, the differences between Area 1 to Area 4 and Area 5 are at most two percent. The large households in the urban areas can be considered typical in developing countries like the Philippines since migrants form a large fraction of the urban population.

About 56 percent of the population in Metropolitan Manila are residing in households containing seven or more persons. For the four other types of areas, about 57 percent of the population reside in households of the same size. Between 22 and 23 percent of the Metropolitan Manila and entirely urban cities/municipalities (Areas 1 to 4) are living in households with 10 or more persons as compared to only about 20 percent only in other urban and rural areas (Area 5). On the other hand, the proportion of persons living in households containing 3 to 6 persons are about 41 percent for Metropolitan Manila, and about 40 percent for Area 2 and Area 5.

The variation in the household size observed in the Philippines lend support to the statements of Levy and Burch that larger household size may be an early response to modernization. In developing Asian countries, increases in household size have been observed to be due to rapid declines in mortality in the absence of substantial fertility declines. If the demographic transition will have its parallel in family and household structure, it is expected that these increases will eventually stop and "family size will begin to decrease after fertility declines have overtaken mortality declines" (Concepcion and Landa-Jocano, 1975). However, the narrowing differences in household size and distribution of household and population by number of persons in the household in the five areas studied imply that the factors affecting household size may be different from other developing countries.

Table 3 presents the components of household size for the Philippines by area. The average household size for the Philippines in 1975 is 5.92 persons while the size of the average nuclear family[3] is 5.17 persons. The largest component of the nuclear family is children (3.32 persons). The average size of the extended family is 0.64 person. Other relatives (0.36 person) comprise more than half of the average extended family component. The average size of non-relatives is 0.11 person.

When the components of household size are examined by area, it is observed that the size of the nuclear component of the household decreases steadily with increasing level of urbanization. For Area 5, the size of the nuclear household is 5.24 persons. It decreases to 5.15 for Area 4 to 5.12 for Area 3 to 4.92 for Area 2 and to 4.70 for Area 1. From Area 5 to Area 1, a decline of about 10 percent is observed in the size of the nuclear component of the household. More than 60 percent of the nuclear family size are accounted for by children. The average number of children decreases as an area becomes urban. For Area 5, the average number of children is 3.38 persons. It decreases to 3.31 for Area 4, 3.29 for Area 3, 3.11 for Area 2 and 2.88 for Area 1. From Area 5 to Area 1, a decline of 9 percent is observed for average number of children.

The average size of extended family members and non-relatives, on the other hand, increases with increasing levels of urbanization. For Area 5, the average number of extended family is 0.59 person. This increases to 0.94 person for Area 1. The largest proportion of extended family members are other relatives. They also increase as the level of urbanization increases. For Area 5, the average number of other relatives is 0.32 person, the size generally increasing over increasing levels of urbanization to reach 0.68 person for Area 1. From Area 5 to Area 1, the average number of other relatives in the household more than doubled. Moreover, the number of non-relatives increases with increasing urbanization. Their average size is 4.7 times higher in Area 1 (0.33 person) than in Area 5 (0.07 person).

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[3]The nuclear family refers to the family of the head. It is composed of the head, spouse and children of the head regardless of the latter's marital status.

TABLE 3. COMPONENTS OE HOUSEHOLD SIZE BY AREA: PHILIPPINES, 1975

Relationship to Household Head	*Philippines*	*Metro Manila (1)*	*Entirely urban cities/municipalities with population*			*Others (5)*
			100,000 & over (2)	*50,000 100,000 (3)*	*Less than 50,000 (4)*	
			SIZE			
Household	5.92	5.97	5.95	6.00	5.98	5.90
Nuclear Family*	5.17	4.70	4.92	5.12	5.15	5.24
Head	1.00	1.00	1.00	1.00	1.00	1.00
Spouse	0.86	0.82	0.81	0.84	0.84	0.86
Children	3.32	2.88	3.11	3.29	3.31	3.38
Extended Family	0.64	0.94	0.76	0.76	0.73	0.59
In-Law	0.06	0.06	0.06	0.09	0.07	0.06
Grandchildren	0.16	0.15	0.16	0.21	0.18	0.17
Parents	0.05	0.05	0.05	0.05	0.05	0.05
Other relatives	0.36	0.68	0.50	0.41	0.42	0.32
Non-relatives	0.11	0.33	0.27	0.12	0.10	0.07

Table 3. (Continued)

Relationship to Household Head	*Philippines*	*Metro Manila (1)*	*Entirely urban cities/municipalities with population*			*Others (5)*
			100,000 & over (2)	*50,000 100,000 (3)*	*Less than 50,000 (4)*	
			PERCENTAGE			
Household	100.00	100.00	100.00	100.00	100.00	100.00
Nuclear Family	87.38	78.75	82.57	85.37	86.21	88.84
Head	16.90	16.74	16.80	16.66	16.73	16.94
Spouse	14.45	13.72	13.59	13.95	14.14	14.62
Children	56.03	48.29	52.18	54.76	55.34	57.28
Extended Family	10.82	15.67	12.83	12.63	12.15	10.01
In-Law	1.00	1.02	0.94	1.43	1.22	0.98
Grandchildren	2.79	2.48	2.67	3.48	3.01	2.81
Parents	0.86	0.82	0.84	0.82	0.87	0.88
Other relatives	6.17	11.35	8.38	6.90	7.05	5.34
Non-relatives	1.79	5.59	4.59	2.02	1.71	1.17

*The nuclear family refers to the family of the head.

Table 3 also presents the percentage of the components of household size to the total household size. Approximately 88 percent of the household are nuclear family members. Children alone comprise 56 percent of the total household size. About 11 percent of the household size are family extension and about 2 percent are non-relatives.

When the percentages are examined over the urbanization continuum, contrasting relationships are noted. The percentage of nuclear component decreases steadily from 89 percent for Area 5, to 86 for Area 4, 85 for Area 3, 83 for Area 2 and 79 for Area 1. Children accounts for 57 percent of the household in Area 5 and it decreases to about 48 for Area 1. Except in Area 1, the size of the nuclear families comprises more than 80 percent of the household size. Furthermore, it shows that less than one-fifth of the household members are persons other than the head, his spouse and own children.

The relative size of extended family members and non-relatives, on the other hand, increases as the level of urbanization of an area increases. The percentage of extended family members increases by more than 50 percent from Area 5 (10 percent) to Area 1 (16 percent). The relative size of non-relatives is almost five times more in Area 1 than Area 5. A little over one percent of the household members in Area 5 are non-relatives as compared to over 5 percent in Area 1.

The differentials in the components of household size reflect a number of things. The nuclear family size, specifically that of the children, is larger in Area 5 than in Metropolitan Manila or Area 1 and the other entirely urban areas. The higher average household size in Metropolitan Manila reflects the prevalence of extended family members, particularly other relatives, as well as non-relatives.

The following discussion presents a different issue. Given the current household structure in each type of area, how would each component of the household react to, say, a unit change in household size? Stated differently, how would a unit change in the household size be distributed among the various components of the household? Obviously, among the various components, the head of

the household is not affected as the head is the initial member of the household. Moreover, there can only be one head in a household. Thus, in addressing this particular issue, the household size refers to the number of members of the household excluding the head.

Table 4 presents the linear regression coefficients relating each of the component of the household to the household size net of the head. One person households are excluded from the sample since being the only person in the household, no variation in the household composition is expected. The linear regression coefficients are considered indicators of the variation in household structure. The regression coefficient for a particular component may be interpreted as the proportion of the unit change in household size that is attributed to the particular component. The coefficients of correlation and intercepts of the corresponding regression equation relating the components of household to the household size are presented in Appendix C.

As may be observed, children compose the largest component of a unit change in the household size for all of the areas considered. On the other hand, the parents of the head comprise the smallest component of change.

The spouse, in-laws and parents of the head are pretty stable components of household. The relative sizes of these components are similar across the different types of areas. Thus, even under changing or increasing levels of urbanization, the contributions of these components to a unit change in household size remain the same.

Children compose the largest component of change in household size. This item accounts for 77 percent of unit change in the household size in Area 5. This relative size declines to 73 percent in Area 4, 69 percent in Area 3 and 67 percent in Area 2. Children accounts for only 58 percent of a unit change in the household size in Area 1 or Metro Manila. Thus, the relative contribution of the children component to a unit change in household size decreases monotonically from the least urbanized areas (Area 5) to the most urbanized areas (Area 1).

However, the grandchildren component of change in the household size exhibits less discernable pattern over the increasing gradient

TABLE 4. LINEAR REGRESSION COEFFICIENTS RELATING THE COMPONENTS OF HOUSEHOLD TO THE HOUSEHOLD SIZE BY AREA, PHILIPPINES: 1975

Component of Household Size	*Metro Manila (1)*	*Entirely urban cities/municipalities with population*			*Others (5)*
		100,000 & over (2)	*50,000-100,000 (3)*	*Less than 50,000 (4)*	
Spouse	0.02	0.03	0.02	0.02	0.02
Children	0.58	0.67	0.69	0.73	0.77
In-Laws	0.03	0.03	0.04	0.03	0.02
Grandchildren	0.08	0.08	0.09	0.07	0.06
Parents	0.01	0.01	0.01	0.01	0.01
Other Relatives	0.17	0.11	0.11	0.11	0.09
Non-Relatives	0.10	0.08	0.03	0.03	0.03

*Household size is net of the head

of urbanization. Grandchildren accounts for 6 percent of a unit change in the household size in Area 5, 7 percent in Area 4, 9 percent in Area 3, and 8 percent in Area 2 and Area 1.

Other relatives form the largest portion of the extended family component of the household size. This component of change shows a generally increasing relative size with increasing level of urbanization – 8 percent in Area 5, 11 percent in Area 4, Area 3 and Area 2, and 17 percent in Area 1. Thus, this component almost doubled its relative importance in a unit change in household size from the least to the most urbanized area.

As observed in the previous table, the non-relative component of the average household size increases with the increasing gradient of urbanization. The same may be observed of the non-relative component of change in household size. The non-relative component accounts for only 3 percent of a unit change in the household size in Area 5, Area 4 and Area 3. The same accounts for 8 and 10 percent of a unit change in the household size of Area 2 and Area 1, respectively. Thus, this component of the household structure more than tripled in importance in accounting for the unit change in the average household size from the least to the most urbanized areas.

DISCUSSION

In 1975, the average household size of 5.92 persons reported for the Philippines is much larger than the household size in most of the developing countries cited in the studies of Burch (1967) and the United Nations (1980). Classifying areas to represent increasing levels of urbanization, the data indicate that average household size shows an erratic pattern among these types of areas. Metropolitan Manila (Area 1) has an average household size of 5.97 persons while Area 5, which includes rural areas and all semi-urban cities and municipalities, has 5.90. Given these two information it may be surmised that average household size increases with increasing levels of urbanization. However, Area 2 registers an average of 5.95 persons, Area 3 – 6.00 persons while Area 4 – 5.98 persons, reflecting some deviations from the pattern of monotonic increase in household size over increasing levels of urbanization. These results, however, need to be

interpreted in the light of the relationship between modernization and household size, which, in a given country, is also influenced by patterns of migration, in addition to the number of surviving children and the extent to which the norm with respect to providing shelter and sustenance to migrating kin is adhered to (Stinner, 1977).

To the extent the classification of cities and municipalities reflects the dimension of increasing level of urbanization, the data suggest that a relationship exists between household size and urbanization – household size generally increases with increasing levels of urbanization. Given, however, the arbitrariness of the criteria used in classifying cities and municipalities and the lack of observation for other time periods, advancing definitive explanation for the findings are rather premature. It must be noted, though, that Levy hypothesized that in what he referred to as 'transitional' societies, which are characterized by the availability of some medical technologies but having no stable high levels of modernization, substantial variation in household structure is expected.

Differentials in the actual and relative sizes of household components by degree of urbanization are revealed in this study. In all types of areas, the nuclear family still compose the largest component of household size. However, this component decreases in absolute and relative sizes with increasing level of urbanization. The size of the nuclear family is 5.24 persons (or 88.8 percent of total household size) in Area 5 decreasing monotonically to register 4.70 persons (or 78.8 percent of total household size) in Area 1. Given similar living arrangements of members of the nuclear family in the different areas, then the reduction in the actual size of nuclear family in areas with higher levels of urbanization reflects reduction in the size of family as may have been effected by lower fertility. This seems to be the case as the absolute average size of the children component of the household monotonically decreases from 3.38 persons (representing 57.3 percent of household size) in Area 5 to 2.88 persons (representing 48.3 percent of household size) in Area 1. Caution, however, needs to be taken with this particular interpretation as the figures do not take into account differential living arrangement of children among different types of areas, and also differential patterns of migration between types of areas.

The absolute and relative sizes of the extended family and the non-relative components of the household show declining trend over increasing levels of urbanization. The size of the extended family increases from 0.59 person (representing 10 percent of the household size) in Area 5 to 0.94 person (representing 15.7 percent of the household size) in Area 1. It must be noted, moreover, that of the elements of the extended family component, only the other relatives exhibit a definite increasing trend over increasing levels of urbanization – from 0.32 person (representing 5.3 percent of the household size) in Area 5 to 0.68 person (11.4 percent of the household size) in Area 1.

The non-relative component of the household size shows definite increasing trend over increasing levels of urbanization – 0.07 person (representing 1.1 percent of household size) in Area 5 to 0.33 person (5.6 percent of household size) in Area 1.

These results somehow confirm earlier ideas about the changing composition of household and levels of urbanization or modernization. These also somehow tie the findings to other studies in the field of migration. In the country, migration flows from the less urbanized areas to cities and metropolis. It may be surmised, in agreement with Carroll (1970), and Concepcion and Landa-Jocano (1975) that migrants seek their kinsmen in the areas of destination thus relatively increasing the extended family size in areas of destination (Areas 1 thru 4). Stinner (1977) also indicated, that households in more urbanized areas would benefit from the presence of relatives in the household to assist in household chores as childrearing activities. The hiring of househelp or 'katulong' has been a pretty common practice in the urban areas. Most commonly, these 'katulong' are relatives of the household members. However, these members of the household are classified as non-relatives in the census of population as the economic activity is given a greater importance (the 'katulong' are considered as employee of the household) in the classification of individuals with respect to the relationship to the head of household. Thus, there is a sudden increase in the relative importance of the non-relative component of the household in areas with higher levels of urbanization.

It is also recognized that the cost of housing is higher in the urban areas. The same generally holds for food, and other household amenities. To somehow offset these costs, families accept boarders in their household. This could also help explain the increasing importance of the non-relative component of the household with increasing level of urbanization. It may also be surmised that majority of these boarders are students, who once in a while go home and take their vacation. This is true as majority of the institutions offering at least undergraduate degrees are found in the more urbanized areas as Metropolitan Manila (Area 1) and other big cities and municipalities. Moreover, "later age at marriage combined with housing shortages and lack of kin in the urban areas, could result in the doubling up of unrelated single individuals" (Stinner, 1977: 384).

This study finds therefore, that household size generally increases with increasing levels of urbanization. However, the sources of these increases are not the children. The relative size of this component, on the contrary, decreases drastically with increasing levels of urbanization. The sources of increases in household size are the other relatives and non-relative components of the household, of which the explanation may lie in the growing complexity of living, coupled with housing shortages in the urban areas.

To complement the changing structure of household over increasing levels of urbanization, this study also addresses the issue of the composition of a unit change in household size. The findings support those observed in the first part of this study. Children compose the largest portion of a unit change in household size. The relative importance, however, monotonically decreases over increasing levels of urbanization – 77 percent in Area 5 to 58 percent in Area 1. Second largest component of change is the other relatives. The importance of this component however is quite opposite that of the children. It increases in relative size over increasing levels of urbanization from 9 percent in Area 5 to 17 percent in Area 1. Although the importance of the non-relative component of change in household size is not consistent, its growing importance is quite noticeable from 3 percent in Area 5 to 10 percent in Area 1. Thus, again certain

patterns are clear. If the classification of areas reflects increasing levels of urbanization, then it may be stated that the importance of the children as a source of change in the household size decreases as the level of urbanization of an area increases. Two components, moreover, gain importance – other relatives and non-relatives. These findings are consistent with the previous observations. Comparably, more relatives and non-relatives are absorbed in the households of areas with high levels of urbanization than in areas with low levels of urbanization.

APPENDIX A

Classification of Cities/Municipalities

Area 1. Metropolitan Manila or Area 1, is an integrated community created under Presidential Decree No. 824. It is a highly urbanized area composed of Manila and its contiguous cities and municipalities. It encompasses four cities and thirteen municipalities, namely:

1. City of Manila
2. Quezon City
3. Pasay City
4. Caloocan City
5. Makati
6. Mandaluyong
7. San Juan
8. Las Pinas
9. Malabon
10. Navotas
11. Pasig
12. Pateros
13. Paranaque
14. Marikina
15. Muntinlupa
16. Taguig
17. Valenzuela

Area 2. Six cities are categorized as entirely urban with a population of 100,000 and over or Area 2. They are:

1. Baguio City, Benguet
2. Angeles City, Pampanga
3. Olongapo City, Zambales
4. Iloilo City, Iloilo
5. Bacolod City, Negros Occidental
6. Cebu City, Cebu

Area 3. The fourteen municipalities and cities under the classification entirely urban with population between 50,000 and 100,000 or Area 3 are:

1. Dagupan City, Pangasinan
2. Malolos, Bulacan
3. Baliuag, Bulacan
4. Meycauayan, Bulacan
5. San Fernando, Pampanga
6. Cavite City, Cavite
7. Bacoor, Cavite
8. Lucena City, Quezon
9. Santa Cruz, Laguna
10. Biñan, Laguna
11. Naga City, Camarines Sur
12. Lapu-Lapu City, Cebu
13. Marawi City, Lanao del Sur
14. Mandaue City, Cebu

Area 4. Fourteen municipalities are classified as entirely urban with population less than 50,000 or Area 4. They are:

1. Vigan, Ilocos Sur
2. Bocaue, Bulacan
3. Kawit, Cavite
4. Noveleta, Cavite
5. Rosario, Cavite
6. Paete, Laguna
7. Santa Rosa, Laguna
8. Cainta, Rizal
9. Tagbilaran City, Bohol
10. Cordoba, Cebu
11. Jolo, Sulu
12. Bacolod Grande, Lanao del Sur
13. Madamba, Lanao del Sur
14. San Pedro, Laguna

Area 5. All areas not covered in the above categories are included in Area 5.

APPENDIX B

MATHEMATICAL PROOF FOR $\Sigma b_i = 1$ AND $\Sigma a_i = 0$

Consider the variable X being composed of several additive components, Y_i's, such that

$$(1) \quad X_j = Y_{1j} + Y_{2j} + \ldots + Y_{pj} \text{ or}$$

$$(2) \quad X_j = \sum_{i}^{P} Y_{ij}$$

For this particular case, X_j may be considered as the household size net of the head of the jth observation, while Y_{ij} is the size of the ith component of the household size of the jth observation. Moreover, for a particular household component, i, consider the model

$$(3) \quad Y_i = \alpha_i + \beta_i X + \epsilon_i$$

β_i and α_i may be estimated by the least squares method to obtain

$$(4) \quad b_i = S_X Y_i / S_X{}^2$$

$$(5) \quad a_i = \bar{Y}_i - b_i \bar{X}$$

It can be shown that $\sum_{i}^{P} b_i = 1$ and $\sum_{i}^{P} a_i = 0$

$$(6) \quad \sum_{i}^{P} b_i = \sum_{i} (S_X, Y_i / S_X{}^2)$$

$$= \sum_{i} \left[\sum_{j} (X_j - \bar{X})(Y_{ij} - \bar{Y}_i) / \sum_{j} (X_j - \bar{X})^2 \right]$$

$$= \frac{\sum_{j}(X_j - \bar{X}) \sum_{i} (Y_{ij} - \bar{Y}_i)}{\sum_{j} (X_j - \bar{X})^2}$$

$$(7) \qquad \text{but } \sum_i (Y_{ij} - \bar{Y}_i) = \sum_i Y_{ij} - \sum_i \bar{Y}_i$$

$$\text{but by (2), } \Sigma\, Y_{ij} = X_j$$

If there are N observations,

$$(7a) \qquad \bar{Y}_i = \sum_j Y_{ij}/N$$

$$\sum_i \bar{Y}_i = \sum_i \sum_j Y_{ij}/N = \sum_j (\sum_i Y_{ij})/N$$

$$(7b) \qquad = \sum_j X_j/N = \bar{X}$$

$$(8) \qquad \sum_i (Y_{ij} - \bar{Y}_i) = X_j - \bar{X}$$

Substituting (8) in (6)

$$\sum_i b_i = \frac{\sum_j (X_j - \bar{X}) \left[\sum_i (Y_{ij} - \bar{Y}_i)\right]}{\sum_j (X_j - \bar{X})^2}$$

$$(9) \qquad = \frac{\sum_j (X_j - \bar{X}) \quad (X_j - \bar{X})}{\sum_j (X_j - \bar{X})^2} = 1$$

Now,

$$\sum_i a_i = \Sigma_i \left[\bar{Y}_i - b_i \bar{X}\right] = \sum_i \bar{Y}_i - \bar{X} \sum_i b_i$$

$$= \bar{X} - \bar{X} \qquad \text{by 7b and 9}$$

$$= 0$$

APPENDIX C

COEFFICIENTS OF CORRELATION AND INTERCEPTS OF SIMPLE LINEAR REGRESSION RELATING THE COMPONENTS OF HOUSEHOLD TO THE HOUSEHOLD SIZE BY AREA, PHILIPPINES: 1975

Components of Household Size	*Metro Manila* (1)		*Entirely urban cities/municipalities with population*						*Others* (5)	
			100,000 and over (2)		*50,000-100,000* (3)		*Less than 50,000* (4)			
	R	a_i	R	a_i	R	a_i	R	a_i	R	a_i
Spouse	0.17	0.72	0.22	0.69	0.19	0.73	0.19	0.74	0.20	0.77
Children	0.73	–0.02	0.79	–0.20	0.81	–0.19	0.82	–0.31	0.85	–0.41
In-laws	0.33	–0.10	0.31	–0.08	0.35	–0.11	0.30	–0.08	0.25	–0.06
Grandchildren	0.32	–0.25	0.31	–0.22	0.34	–0.27	0.27	–0.18	0.23	–0.14
Parents	0.13	a	0.13	a	0.10	0.01	0.12	a	0.11	a
Other relatives	0.34	–0.17	0.28	–0.06	0.27	–0.12	0.27	–0.15	0.24	–0.10
Non-relatives	0.30	–0.18	0.25	–0.12	0.17	–0.05	0.14	–0.03	0.15	–0.06

[a]Less than .01

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