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POPULATION OF THE PHILIPPINES

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Preface

AN ANALYSIS of the population situation in the Philippines was first undertaken in 1965 utilizing available census information and inadequate vital statistics. Since then, the country has undertaken two demographic surveys on a nationwide scale, the first in 1968 and the second in 1973. These surveys were carried out by the University of the Philippines Population Institute (UPPI) with the collaboration of the then Bureau of the Census and Statistics—now known as the National Census and Statistics Office (NCSO)—with funds provided by the Ford Foundation and the United States Agency for International Development (USAID) respectively. Based on these data, several country reports have been written for various purposes. The latest attempt, which appears in subsequent pages, was prepared as a contribution to furthering the objectives of World Population Year, 1974.

The authors of the individual chapters are all staff members of the Population Institute. Their contributions represent a concerted effort in putting together data from various sources and interpreting them in the light of the peculiar setting that is the Philippine archipelago. Other monographs will no doubt be written in the future as data sources expand and provide more accurate information on the dynamics of human numbers.

It is hoped that the present analysis will introduce the reader to Philippine population facts and figures and lead him to an understanding of their implications for overall development.

As is usual in any group endeavor, acknowledgment is made to all the authors and to their research assistants for the analyses presented in this monograph and to Mrs. Socorro Garcia-Roque whose devotion to the Institute's concerns has made this printed version a reality.

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THE GROWTH OF POPULATION

AURORA E. PEREZ

THE PHILIPPINES, a cluster of islands strung 500 miles off the southeast coast of Asia, has Japan, Korea, and Taiwan to the north, Vietnam and Thailand to the west, and Borneo to the south. The China Sea lies on the west and north, the Sea of Celebes and the coastal waters of Borneo on the south, and the Pacific Ocean along the eastern seaboard. The archipelago's 7,100 islands (approximate) are scattered over 1,152 miles from north to south and measure 688 miles at the widest point, from east to west. Philippine territorial jurisdiction extends over 300,000 square kilometers or 116,000 square miles.

A glance at current distribution maps shows a heavy concentration of people in the two largest major islands, Luzon (central and northern areas), and Mindanao far down south. Each has an area of more than 1,000 square miles, and their individual populations geographically present a pattern of population built-up areas, resulting in population densities exceeding the national level.

Compared to other countries, the Philippines has a very high density. As of 1975, around 140 persons were found in every square kilometer, and in mid-1975, the National Census and Statistics Office (NCSO) estimated that density will be between 239 and 322 persons per square kilometer at the turn of the century.

Geographical Structure. Despite territorial fragmentation and great diversity in size among the islands, a common geographical structural foundation is evident. A mountainous spine, from 3,600 to 6,000 feet high, extends longitudinally through the country. Flanking the mountain ranges are zones of rolling uplands and foothills that descend toward the sea. Narrow sprawling lowlands parallel the coasts. This explains the agricultural base of the nation's economy. (Of the total employed, more than half are found performing agricultural activities while close to two-fifths are engaged in non-agricultural tasks.) However, abundant natural resources have yet to be tapped; of 17.2 million hectares of arable land, only 41 percent is farmed. As a country well endowed with natural resources, the Philippines has still to realize its vast potential.

Climate. The climate is tropical, marked by mild temperatures varying from 60°F to 100°F. It seems that an opportune combination of warm-sea insularity and low latitude has blessed the archipelago with mild and uniform temperature. There are two marked seasons—the dry and the wet--which generally vary in duration. Common observation pegs the dry season from March to June while the wet season, abetted by the monsoon, extends from July to October. The most agreeable time of year is from November through February with pleasant sunny days and cool nights.

Administrative Divisions. The country's basic political geography reflects the reorganization of population distribution directly attributable to Spanish missionary efforts in colonial times. Ordinarily, there is a spatial hierarchy of at least three or four levels of magnitude for the areal subdivisions (usually administrative units) for which population data are derived and published. As established by the Spanish conquerors, the pyramid of

areal units consists of the following, in ascending order: *barrios, poblaciones* (or city districts), municipalities, cities, provinces, and regions.[1] At the top of the pyramid is the primary civil division, the region, and the pyramid is subdivided further until it reaches the broad base, the small locality.

These units still survive today and have increased in number. As of May 6, 1970 the entire country had 67 provinces, 59 cities, 1,445 municipalities or towns grouped into 11 regions. Changes in physical boundaries and annexations in recent times, however, have increased the number of provinces to 73 and cities to 60 (NCSO, 1975).

Population before 1900

Pre-Colonization. Traditional Filipino villages dotted the narrow island coasts in pre-colonial times, a legacy of Malay sea migration into the country. Most of the smaller islands remained uninhabited, as the native population was very sparse. Plasencia (1909) notes that most villages were nothing more than 30 to 100 houses, with populations that commonly varied between 100 to 500 persons (Plasencia, 1909).

[1]The areal units which constitute the spatial hierarchy are defined as follows: a *barrio* is the smallest recognizable political area; a *poblacion* is usually the center of a municipality and is commonly the site of the administrative government agencies; the city and the municipality are the autonomous units that make up a "province," derived from the Spanish word *provincia.* The province is the larger administrative subdivision, which when grouped together based on geographic proximity and socio-economic integration, form a "region."

[2]"Barangay" is a small kinship group of 30 to 100 families which was the basic unit of political and social organization in the pre-Hispanic period. It was also used to identify a slender boat, tapered at both ends and held together by wooden pegs. Its revival as a basic unit of organization today was effected through a reformatory movement of the country's New Society under martial law. There are approximately 42,000 *barangay* units in the country today.

Spanish narratives, however, reveal a tremendous range in *barangay* [2] size; some were tiny hamlets of only 20 to 30 people. Most communities rimming the narrow Visayan coasts then were merely villages of eight to ten houses (Loarca, 1909). A handful were "giants." Manila had about 2,000 inhabitants and Cebu was only slightly smaller. The settlement of Cainta, located east of Manila, had 1,000 persons. Several agglomerations of 700 to 1,000 members were also reported in Mindanao.

Period of Colonization. At the start of the Spanish conquest, total Philippine population exceeded three-quarters of a million. The first census of Spanish *tributos* (taxpayers) totaled 166,903. It was estimated that each *tributo* represented the taxpayer and three dependents. Based upon an average family size of four persons, a total of 667,612 souls were registered in the "Relación de las Encomiendas"[3] in 1591. At the time of enumeration, Spanish sovereignty was confined to the lowlands of Luzon and the Visayas. Early chroniclers estimated an additional 75,000 to 150,000 persons in the heavily forested mountains of the islands north of Mindanao.

The war between Spain and Holland, forced labor, and epidemics of cholera, smallpox, and influenza then raging through the Islands severely slashed Philippine populations in the early part of the 17th century. The earliest cholera epidemic recorded was in Manila (about 1628); by 1655, population was estimated at 510,000. The 1880s witnessed another tragic epidemic that claimed about 1,300 lives a day. Worcester (1899)

[3]This is a report to King Philip II of Spain executed by Gov. Gomez Perez Dasmariñas. An *encomienda* was defined as a privilege from the Spanish Crown to deserving colonists to collect taxes or tributes from the population residing within the specific area. In return these grantees were charged with the spiritual and temporal care of their wards. The *encomienda* system generated our first moderately accurate reports, as taxes were assessed according to population.

reported 15,000 to 20,000 deaths caused by epidemic diseases. The country, however, experienced increments to its population during the succeeding years.

The first official enumeration of the population was taken in 1877. Royal decrees issued at decennial intervals instructed that similar censuses be taken. The census enumeration of 1877 recorded the population at 5,567,685. Following counts until the beginning of the 20th century registered minimal increments. A notable decrease from the initial census enumeration of 1877 was observed in 1897. Estimates of population were placed at 5,490,229. History states that the last of the Spanish civil censuses was only partially completed and the returns ruined during the troubled years that followed.

Population after 1900

Since the beginning of the twentieth century, seven population enumerations have been undertaken.

After Spain ceded the Philippines to the Americans at the close of the nineteenth century, the U.S. government conducted three enumerations: the first in 1903, the second in 1918, and the last in 1939. Following independence and upon installation of its own government, the country carried out its first official census in 1948, followed by the one in 1960 and another in 1970. The most recent enumeration, in May 1975, for the first time sought data on the people's means of livelihood--an important factor in development.

In 1903, the Philippines had 7,635,426 persons. Comparing this figure with that of 1877, an increase of about 37 per cent was recorded for the interval of 26 years. The annual growth rate then was about 1.3 per cent. Completion of the second census in 1918 revealed

an incremental 1.9 per cent in the annual rate of increase over that of the previous census. By 1939, population reached a total of 16,000,303, indicating an accelerated rate of increase attributable mainly to improved health and sanitary conditions, increased food production, better diets, and in general, the widespread education of the people. The data on population in 1939 indicated a 2.2 per cent annual rate of increase.

After 1939, population growth declined somewhat, as a result of the internal disorder that characterized the period. There was the war fought against the Japanese in the early 1940s; the ensuing years of struggle resulted in substantial loss of manpower. Two years after gaining independence in 1946, the country's population numbered 19,234,182. The annual growth rate for the period 1939-1948 was 1.9 per cent, a level wrought by the war's destruction.

In 1960, some 7,853,503 persons, were added to the 1948 count, an increase which was more than twice the increase of the preceding census years. Even more pronounced was the growth which occurred during the following intercensal period 1960-1970 (see Table 1). The average annual growth rate of 3.01 per cent during the decade, representing an additional 9.6 million persons, gave the Philippines the 16th largest population in the world, ranking her 7th in Asia (Figure 1).

Like most developing countries in the Southeast Asian region, the Philippines today has not yet resolved the problem of rapid population growth. In a preliminary report on the census held May 1, 1975, the NCSO estimated the total population at 41,831,045. Based on this estimate, the annual growth rate may have decreased to 2.7 per cent per year but has not, as yet, gone down to a level that would ensure minimum growth, least of all attain a level of replacement. As with other social problems, the solution to this runaway population growth will not be difficult as long as

recognition of the problem and the necessary action is taken right now.

Table 1. Population Growth in the Philippines: 1591-1975

Year	Population	Absolute Change	Per cent Change	Average Annual Growth
1591	667,612			
1800	1,561,251	893,639	133.86	4.073
1877	5,567,685	4,006,434	256.62	1.667
1887	5,984,727	417,042	7.49	0.725
1896	6,261,339	276,612	4.62	0.503
1903	7,635,426	1,374,087	21.95	2.875
1918	10,314,310	2,678,884	35.08	1.897
1939	16,000,303	5,685,993	55.13	2.219
1948	19,234,182	3,233,879	20.21	1.906
1960	27,087,685	7,853,503	40.83	3.057
1970	36,684,486	9,596,801	35.43	3.012
1975	41,831,045[1]	5,146,559	14.03	2.660

SOURCE: Censo de las Islas Filipinas, 1903. Tomo 1; Bureau of Census and Statistics, "Census of the Philippines: 1960," Vol. II; Bureau of the Census and Statistics, "Total Population of the Philippines and Each Province, Municipality and Municipal District: 1970"; National Census and Statistics Office, Preliminary Report of 1975 Census.

[1]Preliminary figures based on hand tallies.

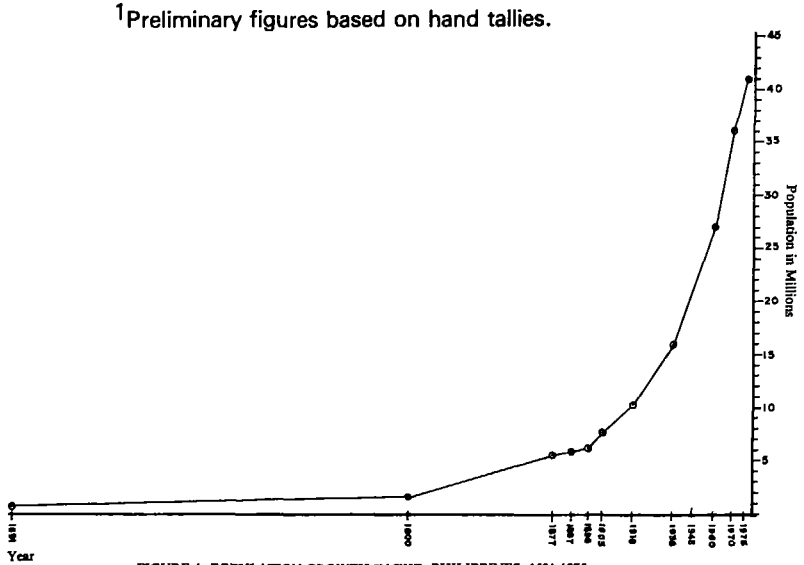

FIGURE 1: POPULATION GROWTH IN THE PHILIPPINES: 1591-1975

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COMPONENTS OF GROWTH

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POPULATION GROWTH in the Philippines stems mainly from the interaction between the level of fertility and the level of mortality. While data on international migration are scarce, available information shows that emigration and immigration are as yet inconsequential elements in the nation's population growth rate.

The determination of fertility and mortality trends and levels in the country is greatly hampered by the inadequacy of birth and death statistics. Despite efforts to improve the present civil registration system, government agencies still report suspiciously low birth and death rates. Severe under-registration renders vital statistics of little value in the analyses of national or regional levels and trends of fertility and mortality.

In contrast to a decade ago, a large amount of rather detailed fertility information has become available in the country, brought about by a number of fertility surveys conducted on the national as well as local level. Unfortunately, this has not happened in the case of data on mortality. Most of the plausible mortality estimates that exist are on the national level; there is very little information on sub-national populations.

In the absence of accurate vital statistics, fertility and mortality parameters are estimated from census data by applying indirect methods of estimation. Local and national demographic surveys like the 1968 and 1973

National Demographic Surveys permit a more detailed analysis of fertility, and sometimes of mortality, levels and trends on the national and regional levels as well as for other sub-groups of the population.

Fertility

Available estimates of the birth rate show that Philippine fertility has been and still is characteristically high—well above the level of pre-industrial Europe and probably above that of many Asian countries. The high level of fertility allowed population to grow at a gradually rising pace during the 19th century, even with the very slow progress achieved in the control of diseases. It is possible that improvements in health care during the last half-century brought a slight rise in the numbers of children born alive per woman living through the fecund years by lowering the proportion of young widows and pre-natal losses.

Crude birth rate. As a measure of fertility, the crude birth rate has certain limitations since it is affected by the age composition of the population. For lack of data, however, the fertility in the Philippines for early dates can only be assessed by computing the crude birth rate.

The earliest period for which serious fertility estimates at the national level are available covers the years immediately preceding and just following the Philippine-American military conflict (1899-1902). Crude birth rates as high as 53.7 per thousand were registered and "the rates are probably very nearly accurate for the populations represented" (Smith, 1975).

Undoubtedly, the birth rate fluctuated under different circumstances in the past. The birth rate was fairly constant during the first five decades of the present

century as evidenced by the range of crude birth rates between 1903 and 1948 (50 to 56 per 1000 population). There may have been some reduction of fertility during the second World War. The proportion of children reported as under five years of age in 1948 (15.5 per cent) was 1.2 points less than in 1960 (16.7 percent). This apparent rise from 1948 to 1960 may have been due in part to a reduction in the level of infant mortality.

Estimates of the crude birth rate for the early sixties range from 42.0 per thousand to 45.6 per thousand population. The birth rate was estimated to lie between 40.0 and 42.7 per thousand in 1970.

Fertility ratios. The most important direct information on fertility is provided by the number of children ever born to ever-married women of specified ages prior to

Table 1. Estimates of the Crude Birth Rate, 1903-1970

Estimate	Period	Crude Birth Rate (Per Thousand)
de Guzman	1903-1948	50.0-55.8
Adams, **et. al.**	1939-1948	45.6-52.7
de Guzman	1948-1960	46.8-51.9
Madigan-Avanceña	1954-1960	44.2
Lorimer	1960	45.6
Smith	1960	42.0-43.4
de Guzman	1960	42.7-44.0
	1960-1970	40.8-45.2
	1970	40.0-42.7

SOURCES: Adams, Edith, "New Population Estimates for the Philippines, 1948-1962," *The Philippine Statistician* 7:134-166; de Guzman, Eliseo A., "Estimates of the Philippine Birth Rate: A Census Analysis," *Research Note No. 58,* University of the Philippines Population Institute, 1975; Lorimer, Frank, "Analysis and Projections of the Population of the Philippines," *First Conference on Population, 1965,* Quezon City, 1966; Smith, Peter, C., "Philippine Regional and Population Differentials in Marriage and Family Building: 1960," *Philippine Sociological Review* 19 (3-4): 159-181.

the time of an inquiry. Data of this type are available from censuses and national surveys. Table 2 shows the average number of children ever born per ever-married woman for selected age groups for various years.

It is evident that the data for most years are subject to error. With the exception of the 1956 and 1958 results, the numbers of children reported as ever born to the older ever-married women at each successive age are lower than those reported by women in the ages 40-44.

If it is assumed that the cumulative fertility ratios for the age group 40-44 are equal or nearly equal to the completed level, then there is no evidence of fertility decline among married women in recent years. Decrease in fertility is reflected in the children ever born per married woman only when a downward trend is well established.

Table 2. Average Number of Children Ever Born Per Ever-Married Woman, 1939-1973

Age Groups	1939	1948	1956	1958	1960	1963	1968	1973
15-19	*	*	*	*	0.87	*	1.11	0.84
20-24	*	*	*	*	1.87	*	1.84	1.85
25-29	3.99	3.91	3.44	3.4	3.27	3.23	3.18	3.14
30-34			4.76	5.1	4.68	4.56	4.58	4.48
35-39	6.12	5.91	6.02	6.3	5.69	5.94	5.68	5.68
40-44			6.93		6.45		6.24	6.54
45-49	6.49	6.38	7.30	7.3	6.38	*	6.22	6.41
50-54					6.18	*	5.85	5.98
55-59	6.23	6.35	7.22		5.93	*	5.83	6.36
60-64					5.99	*	6.06	5.77
65+	5.84	6.15	6.87		*	*	*	5.89

*Not available

SOURCES: 1939: Bureau of the Census and Statistics, 1939 Census; 1948: Bureau of the Census and Statistics, 1948 Census; 1956: Lorimer, Frank, "Analysis and Projections of the Population of the Philippines," *First Conference on Population, 1965;* 1958: Bureau of the Census and Statistics, 1960 Census; 1963: BCS, May, 1963, May 1963 PSSH; 1968: 1968 National Demographic Survey; 1973: 1973 National Demographic Survey.

Age-specific fertility rates. The overall age-specific fertility rates and the age-specific marital fertility rates for the five-year periods 1958-62, 1963-67 and 1968-72 from the 1973 National Demographic Survey are shown in Table 3.

The age-specific fertility rates for all women (Cols. 2-4) show an indication of a declining fertility. When the rates for 1958-62 are compared with those for 1968-72, all age groups exhibit declines in the number of births per 1000 women with the first two and the last groups experiencing the greatest percentages of decline. The total fertility rate or completed family size followed a downward path, going down by nine per cent over the 15-year period. Such a decline may have been exaggerated due to errors in reporting dates of birth in the five or more years previous to the time of enumeration. This phenomenon, known as event dis-

Table 3. Fertility Indices for Three Five-Year Periods, 1958-1972

Age of Women	Age-Specific Fertility Rates (per thousand women)			Age-Specific Marital Fertility Rates (per thousand women)		
	1958-62	1963-67	1967-72	1958-62	1963-67	1968-72
(1)	(2)	(3)	(4)	(5)	(6)	(7)
15-19	84	74	56	396	430	449
20-24	260	254	227	428	434	443
25-29	313	313	302	384	388	378
30-34	290	281	272	325	314	307
35-39	211	216	199	233	237	217
40-44	107	101	100	117	110	108
45-49	27	20	22	29	21	24
Total Fertility Rate	6.46	6.30	5.89			
Total Marital Fertility Rate				9.56	9.67	9.63

SOURCE: Concepcion, M.B., "Changes in Period Fertility as Gleaned from the 1973 NDS," *Research Note No. 13,* University of the Philippines Population Institute, 1974.

placement, is frequently present in data peculiarly subject to recall errors.

A different pattern is noted when the age-specific marital fertility rates (births per 1000 ever-married women) are examined (Cols. 5-7). Marital births among the younger age groups have increased and the increases were not sufficiently offset by decreases among the older age groups to reduce the total fertility rate to the 1958-62 levels. The total fertility rate for married women was still rising as late as 1963-67 when the total fertility rate was 9.67. It fell slightly (0.41 per cent) during the next five-year period, 1968-72. Again, the suggested decline may have been brought about by event displacement.

Two observations can be made from Table 3. While enough evidence points to an increasing age at marriage among Filipino women, they start having their children early in marriage. Secondly, they continued having children up to the end of their childbearing period.

Cohort fertility rates. The fertility indices in Table 3 measure the partial fertility performance of women belonging to various age cohorts at different periods. The data in this section refer to the fertility experience of individual cohorts through time. The rates, called cohort rates, have the advantage of separating short-term fluctuations in established fertility patterns from long-range changes.

Table 4 gives the age-specific marital fertility rates for birth cohorts of women aged 15-59 years of age at the time of the survey. It also gives the total fertility rates or completed family size for women who had reached the end of their childberaing period by 1973. These women were born in 1913-17, 1918-22 and 1923-27 .The fertility rates demonstrate a declining trend when proceeding from the oldest to the youngest birth cohorts.

Table 4. Age-Specific Marital Fertility Rates For All Women of Various Birth Cohorts (Rates Per 1000 Married Women as of 1973)

Year of Birth of Woman	Age of Mother at Time of Survey	Age of Mother at Birth-Event							
		15-19	20-24	25-29	30-34	35-39	40-44	45-49	TMFR
1953-57	15-19	449							
1948-52	20-24	430	443						
1943-47	25-29	396	434	378					
1938-42	30-34	394	428	388	307				
1933-37	35-39	376	403	384	314	217			
1928-32	40-44	316	381	369	325	237	108		
1923-27	45-49	333	322	332	309	233	110	24	8.32
1918-22	50-54	360	344	315	307	243	117	21	8.54
1913-17	55-59	336	365	324	258	254	144	29	8.55

SOURCE: 1973 National Demographic Survey

For all women below age 45 at the time of the 1973 National Demographic Survey, no decline in fertility performance is evident for the earliest reproductive ages (15-24). Although insubstantial (1.8-3.4 per cent), declines in the birth rates were displayed by the older cohorts of women between the ages 25-44. It is very apparent that such declines, if they be true, have just started to happen (see rates with underscoring). These declines in the peak and later childbearing ages have occurred at the time when the country embarked on a family planning program.

The marital fertility rates cumulated up to age 34 of those women who have not completed their reproductive period in 1973 are shown in Table 5. The average numbers of children born after marriage to women 34-44 years old in 1973 were higher than the women 15 to 25 years their senior. Women in the older reproductive ages (35-49) manifested declining fertility during the period 1968-72.

Table 5. Average Number of Marital Live Births Before and After Age 35 for Birth Cohorts of Ever-Married Women Aged 35-59: Philippines, 1973

Age at Time of Survey	Age at Time of Childbirth	
	15-34	35-49
35-39	7.38	—
40-44	6.96	—
45-49	6.48	1.84
50-54	6.63	1.90
55-59	6.42	2.14

SOURCE: 1973 National Demographic Survey

It is evident from Tables 4 and 5 that throughout their reproductive life time, the younger cohorts reported higher birth rates than the older cohorts (aged 45 and over at the time of the survey). Two explanations have been advanced by Flieger (1975) to explain this phenomenon. The older birth cohorts started their childbearing during the Second World War, which undoubtedly had a depressing effect on overall fertility performance. The younger birth cohorts (aged 15-44) became the beneficiaries of improved health and living conditions brought about by the national development process. Such conditions led to a decrease in mortality in general, and maternal and infant deaths in particular.

Marriage patterns. Shifts in the proportions single and a rise in the age at marriage among women have measurable impact on the overall level of fertility, unless counterbalanced by changes in fertility behavior within marriage.

The per cents single among females by age groups and the singulate mean ages at marriage (SMAM) from the national censuses and the 1973 National Demographic Survey are provided in Table 10 of Chapter 3. Per cents single have increased steadily for all, except the oldest

age groups from 1903-73. The per cent single at age group 15-19 increased from 73.6 per cent to 91.5 per cent, a gain of 17.9 points over the period, while the per cent single at ages 20-24 rose by 22.6 points. In 1903, about one in four women aged 15-19 was married while in 1973 only one in twelve women in the same age group was married. Among women aged 20-24, two in three were married in 1903, in contrast to just over four in ten in 1973.

Significant delays in female age at marriage is evident over the 1903-60 period. An acceleration of the trend during the 1960s is revealed by the 1970 census. Moreover, data from the 1973 National Demographic Survey indicate a further acceleration of the trend during the 1960s shown by the 1970 census. Furthermore, data from the 1973 National Demographic Survey indicate a further acceleration over 1970-73. The mean age at marriage for females in 1973 was 23.7, an increase of 2.8 years between 1903 and 1973. The comparative figure for males for the same year was 25.7 years. For both males and females, higher mean ages at marriage have been observed in the urban sector than in the rural areas. Residential differences were a little over nine per cent for males and about 12 per cent for females.

Smith (1975) analyzed provincial, urban-rural, and regional differences utilizing a special index of marriage pattern (I_m) calculated from census data. Over the 1903-39 period the female ages at marriage declined in 20 out of 45 provinces (see Table 6). In postwar years to 1960, all provinces except three experienced delayed marriage. During the 1960s, all provinces underwent substantial delay, especially those which had lagged behind before 1960.

In 1903, Isabela had the highest I_m (.893), while Bohol had the lowest (.625). In 18 provinces, I_m exceeded .800 while only three had indices below 0.700.

Table 6. Indices of Marriage Pattern (I_m) for Females, 1903, 1939, 1960 and 1970: 45 Provinces

Province	I_m					
	1903	1939	1960	1970		
				Total	Urban	Rural
1. Abra	.755	.731	.719	.599	.497	.623
2. Albay	.735	.751	.683	.621	.490	.656
3. Antique	.745	.713	.635	.574	.465	.594
4. Bataan	.809	.765	.760	.616	.540	.639
5. Batangas	.760	.697	.669	.575	.487	.591
6. Bohol	.625	.678	.651	.572	.466	.590
7. Bulacan	.755	.675	.614	.576	.562	.589
8. Cagayan	.868	.756	.750	.665	.544	.687
9. Capiz	.721	.724	.698	.608	.473	.631
10. Camarines	.788	.791	.717	.634	.518	.688
11. Cavite	.809	.758	.651	.575	.539	.615
12. Cebu	.670	.683	.632	.572	.516	.615
13. Cotabato	.847	.867	.758	.680	.553	.704
14. Davao	.832	.869	.771	.662	.555	.706
15. Ilocos Norte	.773	.603	.633	.581	.489	.614
16. Ilocos Sur	.726	.593	.629	.587	.498	.607
17. Iloilo	.776	.691	.606	.538	.451	.578
18. Isabela	.893	.801	.802	.728	.648	.741
19. Laguna	.811	.773	.702	.599	.567	.633
20. La Union	.755	.609	.667	.572	.475	.587
21. Leyte	.713	.768	.737	.661	.538	.696
22. Manila	.797	.670	.492	.470	.470	—
23. Marinduque	.688	.766	.747	.663	.499	.690
24. Masbate	.782	.862	.787	.716	.559	.749
25. Mindoro	.845	.834	.800	.696	.591	.724
26. Misamis Occ.	.743	.790	.669	.578	.444	.607
27. Misamis Or.	.792	.785	.705	.606	.507	.637
28. Mt. Province	.813	.858	.763	.662	.517	.700
29. Negros Occ.	.860	.798	.683	.599	.510	.649
30. Negros Or.	.699	.753	.694	.625	.486	.650
31. Nueva Ecija	.840	.761	.695	.631	.556	.654
32. Nueva Vizcaya	.907	.820	.782	.678	.569	.714
33. Palawan	.758	.837	.817	.724	.622	.750
34. Pampanga	.761	.704	.659	.595	.572	.606
35. Pangasinan	.873	.722	.676	.592	.509	.614
36. Quezon	.815	.827	.772	.681	.573	.730
37. Rizal	.812	.727	.574	.533	.528	.635
38. Romblon	.804	.772	.728	.660	.525	.682
39. Samar	.796	.806	.772	.712	.585	.711
40. Sorsogon	.783	.807	.734	.649	.525	.693
41. Sulu	.827	.853	.746	.648	.603	.658
42. Surigao	.765	.805	.724	.669	.580	.707
43. Tarlac	.873	.748	.700	.616	.525	.636
44. Zambales	.844	.785	.688	.603	.570	.641
45. Zamboanga	.768	.830	.761	.681	.555	.707
PHILIPPINES	.770	.705	.647	.614	.528	.662

SOURCE: Peter C. Smith, "Provincial and Urban-Rural Differences . . ." *Research Note No. 49,* UPPI, 1975.

During the years prior to 1939, the I_m values plunged downward in 20 provinces, the rates of decline ranging from 22 per cent (Ilocos Norte) to 11 per cent (Marinduque). By 1939, provincial I_{ms} ranged from 0.869 in Davao to 0.603 in Ilocos Norte. Between 1939 and 1970, only four provinces had I_m values above 0.700; and seventeen below 0.600.

Over a period of seventy years, the national I_m had fallen by 20 per cent. Downward shifts of 30 per cent or more were noted for five provinces.

The urban areas everywhere took the lead in all these changes. The overall urban I_m in 1970 was 31 per cent below the 1903 national level. Manila which demonstrated early marriage in 1903 had by 1970 the lowest index, 29 per cent below the 1970 rural value and 39 per cent below the national value in 1903.

Smith (1975) summarized the regional nuptiality patterns and differences as follows: 1) internal migration has a complex impact upon marriage patterns in areas of destination and origin, depending upon the marital status of migrants at the time of migration and the timing of marriage after migration, the sex selectivity of migration, and age, sex and marital differentials between early and late-migration streams; 2) areas of heavy in-migration showed increases in I_m (shifts to earlier marriage) before 1939 and delayed marriage thereafter; and 3) the Philippines' core region (Manila Region consisting of five provinces and the remainder of Central Luzon) has exhibited a major shift toward later marriage.

Differentials in fertility. The study of differentials in fertility has become increasingly important in recent years. This is because differentials provide valuable information on the relative contribution of different groups in any given population to the overall level of fertility, and hence, indicate probable changes.

Fertility is determined by an elaborate set of diverse factors. In general, important biological, geographic, socio-economic, and psycho-religious elements contribute to the determination of fertility. However, these fertility determinants do not act in isolation. Each of the factors is connected with a whole spectrum of various other factors.

Table 7. Fertility Ratios of Women 45-54 by Selected Characteristics, 1968 and 1973

Characteristics	1968	1973
A. Education		
College 1-4 and over	4.78	4.65
High School 1-4	5.76	6.22
Grades 5-7	6.40	6.27
Grades 1-4	6.46	6.69
No Schooling	5.59	5.75
B. Occupation		
White Collar	5.29	4.44
Proprietors and Saleswomen	6.32	6.44
Blue Collar	6.64	6.00
Farmers	6.69	6.34
C. Labor Force Participation		
In the Labor Force	6.10	5.88
Not in the Labor Force	6.08	6.14
D. Family Income		
₱1000 and over	6.08	5.30
Under ₱1000	6.60	6.79
E. Age at Marriage		
Under 15 years old	7.90	7.84
15-19	7.09	7.25
20-24	6.05	6.24
25-29	4.68	4.60

SOURCE: Eliseo A. de Guzman, *Trends in Differential Fertility . . .*," 1975

Education and fertility. In general, available data point to an inverse relationship between fertility and education. The higher the educational attainment, the smaller is the mean number of children per woman. For example, in 1958, women who reported having received some college education had about a third less the

number of children (4.30), on the average, than persons with no schooling (7.15), or those with primary school education alone (7.56). The same observation of decreasing fertility with increasing education holds true for women of childbearing ages and of completed fertility in 1968 and in 1973.

Wife's occupation. Occupation is one of the most frequently used indices of socio-economic status in the analysis of fertility differentials. Relatively high fertility has been associated with farming and other low ranking occupations while lower fertility has been associated with the professional and white collar occupations.

Data from the Philippine Statistical Survey of Households (PSSH) of 1958 and the National Demographic Surveys of 1968 and 1973 clearly show the inverse relationship between fertility and occupational categories; however, there is an important exception to the pattern in the 1973 data. Fertility ratios calculated from the 1958 and 1968 data monotonically decreased from one occupational level to the next higher level when ranked in terms of status. In the case of the 1973 data, proprietors and sales women in the post-childbearing ages had a higher average number of children ever born than blue-collar workers and farmers, except among other urban women aged 55-64.

Work status. Research undertaken in various settings seem to point to the dependence of the female labor force participation/female reproductive behavior relationship on the nature of the economic activity and the setting in which this activity takes place. In addition, the presence or absence of conflict between mother and worker roles seems to influence the emergence of a fertility-employment relationship.

Available data show that the cumulative fertility ratios of women who constitute part of the working population

were, in all cases, lower than the ratios for women not economically active. In 1958, working women living in Manila in the post-childbearing ages tended to have about one child less, on the average, than those not working. In other urban areas, the difference was 0.51; whereas in the rural areas, the difference was only 0.08 in favor of those in the labor force. This signifies that economic activity only assumes importance as a contributing factor to fertility differences in the truly urban places.

Among women aged 35-44 at the time of the 1968 National Demographic Survey, there was a gradient of low to high fertility proceeding along the following lines: urban-working, urban-nonworking, rural-working, rural-nonworking. Consistent with the 1958 results, this pattern seems to suggest that it is only labor force participation in urban-industrial pursuits which results in low fertility levels. Work-related activities in the rural areas, on the other hand, are such as to promote very little, if any, conflict between the work role and the mother role. Consequently, working women in the rural areas exhibit fertility levels higher than those of nonworking women in the urban areas.

Income status. In general, fertility is negatively associated with income level. Existing data show that this inverse association between the two variables is more marked among women in the childbearing ages than those in the post-childbearing period.

In 1956, women in households reporting annual income of less than 2,000 pesos had higher fertility than women living in households with annual incomes of 2,000 pesos or more. In Metropolitan Manila, the higher income group consistently demonstrated lower fertility with the exception of women aged 35-39.

The negative relationship between family size and income, however, is found only to a certain point.

There are instances within the higher income groups in which family size is positively associated with income. Women in families having annual incomes of 3,000 pesos or more reported higher average numbers of children than women in families receiving incomes of less than 500 pesos yearly. The lowest income groups were also observed to exhibit very low levels of family size. It can be argued that very low economic status adversely affects the physiological capacity of women in these groups to bear children.

Age at marriage. The effect of the woman's age at marriage on her marital fertility is well-established. By marrying early in the reproductive period, all other things being equal, a woman will produce more children than one who marries later and who spends only a portion of that period in marriage.

Philippine data point to a systematic decrease in the mean number of children per woman with increasing age at marriage. In all cases, women who married below the age of 15 produced the greatest number of children. For example, the data for 1956 revealed that women aged 45-49 and who married at age 30-34, had 71 per cent less children than those who married before reaching their 15th birthday. In 1968 and 1973, the differences were 51 per cent and 58 per cent, respectively.

Concepcion, Flieger, Pascual, and Stinner (1975) observed that among women married less than five years, postponement of marriage to over 20 years of age reduced fertility by at least one child. Among those married for 5-9 years, postponement of marriage beyond the middle twenties resulted in a reduction of just about half a child. Postponement of marriage to the early twenties resulted in a similar fertility reduction among those married for 10-19 years.

Urban-rural differentials. One of the more widespread contentions in differential fertility studies has been that urban populations show lower fertility than rural populations. Various reasons advanced include the declining utility of children as productive assets, and their increasing financial liability; the increased levels of educational attainment among the urban female population and the variegated opportunity structure in the urban area, which provides alternative roles other than that of mother and childbearer; increased opportunity for social mobility as well as increased aspirations for such mobility.

The difference in fertility between city and non-city dwellers in the Philippines is substantial and in favor of the latter. In 1956, for women between the ages of 25 and 30, the city versus village difference was 0.70 children; for the next older group of women, it was 1.03 children. Corresponding differences in cumulative fertility ratios for 1973 were 1.15 and 1.09, respectively. Rural-urban differences in mean number of children born to women persisted even when the effects of education, income, work status, age at marriage, occupation and current age were held constant.

Mortality

Increased food production, higher educational level reached by members of the population, better medical and health facilities, widespread hygiene and sanitation practices and other improvements in socio-economic conditions have contributed largely to the decline of the Philippine death rate. With a high level of births, these dramatic reductions in mortality have boosted the growth of the Philippine population.

Mortality trends and levels. The crude death rate for the Philippines declined by about 85 per cent between 1903 and 1960 as presented in Table 8. Aromin's (1961) estimates show that the death rate dropped from a high level of 58 per 1000 population in 1903 to 14.5 during the five-year period, 1956-60. The 1971 crude death rate for the Philippines, based on data from the National Census and Statistics Office (NCSO) sample registration areas, was 11.6 for both sexes combined (Flieger, 1975). Lorimer (1966) assumed that the death rate would be in the neighborhood of 11.8 for the period 1965-70. A life table for the Philippines for 1970, prepared by Engracia (1974), implies a death rate of 11.73 for both sexes combined.

Analyses have demonstrated that death registration on the sectoral level is a function of development. A higher degree of under-registration has been displayed by the more rural and less affluent provinces. To illustrate, registered data for the City of Manila, which enjoys a relatively high level of living, pointed to the highest mortality level (15.5 deaths per 1000 population). In comparison, a crude death rate of 0.53 deaths per 1000 was recorded for the province of Lanao de Sur, which is one of the most underdeveloped areas.

The crude death rates for the major geographic regions in 1973 estimated by Zablan (1975) are listed in Table 9. Five out of 12 regions were estimated to have crude death rates lower than the Philippine figure of 9.2 deaths per 1000 population. These are Southern Mindanao (8.0), Southern Luzon (8.1), Central Luzon (7.6), Metropolitan Manila (7.2), and Bicol (6.8). Four regions appear to be disadvantaged in that their crude death rates were higher than the national average. They are Western Visayas (9.9), Cagayan Valley-Batanes (10.2), Northern Mindanao (10.8), and Eastern Visayas (11.2).

Despite the decline of the crude death rate, infant mortality remains high. In 1971, infant mortality for the

Philippines as a whole was estimated at 80 deaths per 1,000 live births. By 1973, the level of infant deaths was about 68 per 1,000 live births, a decline of 15 per cent from the previous level. It must be noted that these figures represent the averages which mask the actual situation existing in the different regions. Infant mortality in some of the regions was very high in 1971, ranging from 116 in Southern Luzon to 182 in the Cagayan Valley (Flieger, 1975). The opposite is gradually becoming true; infant mortality rates in 1973 were between 50.3 in Central Luzon to 90.3 in Northern Mindanao (Zablan, 1975). Substantial declines in infant mortality have been observed in the Ilocos and Mt. Province, Cagayan Valley-Batanes, Eastern Visayas, and Western Visayas.

Table 8. Estimated Crude Death Rates for the Philippines, 1903-1971

Estimate	Period	Crude Death Rate (per thousand)
Aromin [1]	1903	58.0
	1904-1905	26.8
	1911-1915	25.3
	1931-1935	23.5
	1946-1950	21.8
	1951-1955	17.9
	1956-1960	14.5
Lorimer [2]	1965-1970	12.0
Flieger [3]	1971	11.6

SOURCES:

[1]Basilio B. Aromin, "The Trend of Mortality in the Philippines: 1903 to 1960," *The Statistical Reporter* (Manila), Vol. V, No. 3, July 1961, p. 5. Estimates are by "Method II" which assumes a constant birth rate and a constant degree of completeness of the registration of deaths. Annual rates were estimated by this method for 1903-35 and 1946-60.

[2]Frank Lorimer, "Analysis and Projections of the Philippine Population," in *First Conference on Population,* 1965, Quezon City: U.P. Press

[3]Wilhelm Flieger, "Some Comments on Current Mortality Information in the Philippines," *Philippine Population Research,* Rodolfo A. Bulatao, ed., Makati, Rizal, Population Center Foundation.

Together with decreases in the number of deaths is the increase in years of life expectancy at birth. A set of life tables constructed by Hizon and de Castro in 1965 showed a life expectancy at birth of 53.3 years for 1960 for Filipinos. The corresponding rate estimated by the Bureau of Census and Statistics was 56.3 years. The life expectancy at birth rose steadily from a low 37.5 years in 1918 to 40 years in 1938; by 1948, life expectancy hovered between 42.5 and 53.3 years (Aromin, 1961; Madigan-Avanceña, 1965; Hizon-de Castro, 1965).

The expectation of life at birth for males in 1970 was 55 years; that for females was 61 years (Engracia, 1974). The life expectancy is expected to lengthen further although it is unlikely to exceed 70 years by the year 2000.

Zablan (1976) observed that, in general, the decline in mortality as demonstrated by increasing life expectancy at birth was characterized by three phases: 1) a period of moderate increases (1918-39), during which the

Table 9. Crude Death Rates by Major Regions: 1973

Region	Crude death rate (per 1000)
PHILIPPINES	9.17
I. Ilocos and Mt. Province	9.39
II. Cagayan Valley-Batanes	10.24
III. Central Luzon	7.64
IV. Southern Luzon	8.07
V. Bicol	6.76
VI. Western Visayas	9.94
VII. Central Visayas	9.27
VIII. Eastern Visayas	11.19
IX. Western Mindanao	9.36
X. Northern Mindanao	10.81
XI. Southern Mindanao	8.01
XII. Metropolitan Manila	7.22

SOURCE:

[1]Zelda C. Zablan, "Regional Differentials in Mortality: Philippines, 1973," *Research Note No. 64,* UPPI, 1975.

yearly increment averaged 0.42 years; 2) a period of rapid increase (1948-68), when the annual increases averaged 0.76 years; and, finally, 3) a period of slow growth (1968-73), with increases of 0.36 per year.

Reduction in the death rate—particularly in the younger age groups—tend to augment population growth in two ways: 1) by slowing the attrition of the existing population; and 2) by increasing the number of women who survive through their childbearing years. For instance, in 1903, only about 19,000 females out of 100,000 could be expected to survive to the age of 45. However, in 1960, about 69,000 females could be expected to reach the same age. Coupled with high birth rates, this new pattern of survival offers a powerful impetus to continued rapid population growth.

Causes of deaths. A review of mortality trends by causes of death is essential in order to find out if the observed improvements in general mortality have been accompanied by a shift in the relative importance of some causes of death. The trend in leading causes of death is revealed in Table 10. When all causes were grouped into three broad categories, deaths attributed to communicable diseases declined; those from malignant neoplasms and diseases of the heart and the vascular system increased. While there was a noticeable shift from communicable to degenerative diseases, deaths due to communicable diseases continued to dominate, and constituted about 40 per cent of total deaths in 1972.

Pneumonia and tuberculosis, the two major killers, accounted for 27.1 per cent of total deaths in the same year. The declines in deaths from communicable diseases were greatest in the latter half of the 1950s until the late 1960s and coincided with the peak increases in the life expectation at birth. The early 1970s showed more modest declines in deaths by these causes. Deaths due to degenerative disorders had been observed to increase

steadily, but the levels were considerably lower than those of the communicable diseases.

The problem diseases are of the kind not easily controlled by direct spraying and inoculation. Their roots lie deep in poverty, abetted by inadequate knowledge of preventive medicine and environmental hygiene. Not only is the present health care system inadequate to meet these problems, but there has also been maldistribution in health facilities; Department of Health statistics point to a declining rather than to an increasing doctor-population ratio. Hospitals are heavily concentrated in the Metropolitan Manila area. Official expenditure on health is decreasing, shown by its proportionate share of the total government budget.

Table 10. Death Rates by Leading Causes: 1946-1972

Cause of Death	Death Rate per 100,000 Population						
	1946	1950	1955	1960	1965	1970	1972
Pneumonia	197.4	136.7	106.6	100.4	121.2	118.2	125.1
Respiratory Tuberculosis	167.2	135.5	97.6	92.1	83.4	77.0	73.3
Gastroenteritis	58.7	57.7	56.7	60.5	46.0	35.0	44.0
Heart Disease	—	18.7	34.7	27.6	33.6	34.0	43.5
Ill-defined disease of early infancy	—	—	—	32.5	—	19.1	39.9
Accidents	—	—	17.4	14.6	23.2	24.8	37.0
Disease of Vascular System	—	—	—	20.6	27.9	35.8	32.9
Nutritional Deficiency	145.7*	113.6*	92.8*	54.4*	49.9	25.5	31.4
Malignant Neoplasms	—	8.6	11.7	18.2	22.2	25.6	26.3
Bronchitis	129.7	100.6	73.9	57.2	43.1	27.9	23.7
Tetanus	6.6	5.9	7.4	9.4	10.4	10.1	9.3
Influenza	51.3	26.1	14.1	7.1	7.3	7.2	8.4
Measles	91.0	38.3	15.6	3.7	8.7	4.5	5.3
Dysentery	34.7	7.0	3.9	1.4	3.7	2.4	2.2
Malaria	11.8	4.1	2.8	5.0	5.0	1.8	1.7

* from Beri-beri only.

SOURCE: Disease Intelligence Center, *Philippine Health Statistics Reports, 1960-72,* Department of Health, Manila.

A related problem to health concerns the high rate of malnutrition. Department of Health estimates showed that 80 per cent of children under six were malnourished. The incidence of such cases will probably rise in the near future unless drastic steps are taken to improve nutrient intake at all ages.

Mortality differentials. As in the case of fertility, analysis of mortality by subgroups of the population permits the identification of mechanisms which underlie differential mortality. Isolation of high and low mortality subgroups can be useful in ascertaining specific target populations for mortality improvement endeavors. Furthermore, knowledge of the mechanisms in operation can provide a framework and a rationale in which to base policies directed at the disadvantaged sub-populations.

Urban-rural differentials. Higher mortality rates have been noted for the rural than the urban sector. In 1968, the average crude death rate for the rural areas was estimated at 9.3 deaths per thousand as against 8.4 deaths among urbanites, a difference of 11 per cent.

Recent mortality estimates show that in 1968 the level of deaths among rural infants was approximately 30 per cent higher than among their urban counterparts. A slight narrowing of the differential (24 per cent) was observed in 1973. In terms of life expectancy at birth, the urbanite was expected to live longer than his counterpart from the rural area by about an average 2.5 years in 1968 and 2.4 years in 1973.

Occupation. Various studies (Lotka and Spiegelman, 1949; Moriyama and Guralnick, 1955; Hauser and Kitagawa, 1973) indicate an inverse relationship between occupational level and mortality. Lower mortality has been associated with higher-ranking occupational classes. In 1973, those who held professional, administrative and managerial posts had the highest life expectancy at

birth (67.3 years). This was 15 per cent higher than that for the white collar workers (58.4 years) and 20 per cent higher than farm workers (55.0). The disparity in mortality experience is more marked when infant mortality rates are compared by occupation of mother. The level of infant mortality among farm workers was 195 per cent higher than that of professionals and about twice as high as those who have no occupation at all.

Marital status differences. Mortality differences by marital status in the Philippines are consistent with international findings. Married persons have lower death rates than those who are single. Data for 1960 revealed that married females aged 15-19 expected to live about eight years longer than single females and about a year longer than divorced ones. In 1970, a slight decrease in the mortality differential between married and single women was noted. Married males in the same age group had an average life expectation at birth 14 years greater than that for single males. These differences, however, continued till the older ages with a slight contraction.

Education. Life expectancy increases linearly with educational attainment. College education means an increase in life expectancy by about 13 years, from a life expectancy of approximately 57 years with no schooling to about 70 years with at least a year in college. One year of schooling increases life expectation by about two years (59.3 years for grades 1-4 vs. 57.3 years for no schooling). Also, those who spent more years in school had relatively lower crude death rates and infant mortality rates. This situation is expected since increasing education is associated with increased awareness of better health and sanitation, nutrition, preventive care, and the recognition of important morbidity symptoms. In addition, higher educational attainment usually implies higher income and occupational status, which are both conducive to low mortality.

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POPULATION COMPOSITION

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MOST BASIC of all demographic attributes is the sex composition of a population, with its direct influence on fertility, mortality and nuptiality. The ratio between the sexes affects rates of migration, labor force and occupational structure, and almost all other population characteristics. The sex structure is conveniently described by the sex ratio defined as the number of males per 1000 females.

Sex Structure.

The male and female populations of the Philippines for various censuses, as well as the corresponding sex ratios, are shown in Table 1. Both the male and female populations have been steadily increasing and since 1903, the greatest gains were recorded between 1918 and 1939, the male population gaining by 36 per cent and the female population by 35 per cent. A deceleration in intercensal gains, percentage-wise, seems apparent starting with the 1960s. Except for 1903 and 1970, the males have always outnumbered the females. In 1903, the females were 582 more than the males; the difference in 1970 was 183,784. Changes in the sex ratio were greatest by 1970. In 1960 the sex ratio was 1018, this went down to 990 in 1970. A general trend of the sex ratio above 1000 makes the 1970 figure suspect. Analysis of the 1970 results is being made to determine the cause of such sex imbalance.

Table 1. Enumerated Male and Female Populations of the Philippines and Sex Ratios for Census Years

Census	Male	Per Cent Change	Female	Per Cent Change	Sex Ratio	Per Cent Change in the Sex Ratio
1903	3,817,422	—	3,818,004	—	1000	
1918	5,177,567	26.3	5,163,743	26.1	1003	0.30
1939	8,065,281	35.8	7,935,022	34.9	1016	1.30
1948	9,651,195	16.4	9,582,987	17.2	1007	-.89
1960	13,662,869	29.4	13,424,816	28.6	1018	1.10
1970	18,250,351	25.1	18,434,135	27.2	990	-2.83

SOURCES: Bureau of the Census and Statistics Office, Census Report of 1960; National Census and Statistics, Census Report for 1970.

Differences in the sex ratio by age group can be seen from Table 2. In all census years, the sex ratios at the early ages exceed 1000, indicating a preponderance of males over females in these ages. This is primarily due to a sex ratio at birth that is biased in favor of males. This advantage, however, is diminished gradually with advancing age, so that in the intermediate ages, the females are greater in number than the males. It can be noted from the table that there was generally an excess of males at ages 40 and over.

Table 2. Sex Ratio of the Population by Age Group, 1903-1970

Age Groups	1903	1918	1939	1948	1960	1970
0-4	1018	1011	1044	1060	1061	1028
5-14	1054	1015	1052	1057	1062	1035
15-29	874	950	964	934	1382	941
30-39	1101	990	1968	980	967	963
40-59	1053	1067	1026	1018	1029	972
60+	1007	1080	1023	1025	908	985

SOURCES: Bureau of the Census and Statistics Office, Census Reports Reports for 1903, 1918, 1939, 1948, 1960; National Census and Statistics Office, 1970, 1975.

Regional variations in the sex ratio by age group are displayed in Table 3. The variations may be attributed to various factors such as the sex ratio at birth, mortality differentials, and sex-selectivity in migration. For example, the preponderance of males in in-migration streams to Cagayan Valley, Bicol Region, and the two Mindanao regions have resulted in sex ratios well above 1000. It is believed that the disappearance of frontier areas and the easing up of migratory movements have caused a gradual decline in the sex ratios. The slight excess of males in the Eastern Visayas region may be partly due to the larger number of females out-migrating from the area.

Table 3. Sex Ratio by Regions and by Broad Age Groups, 1970

Regions	0-4	5-14	15-29	30-39	40-49	50-69	70+	TOTAL
Ilocos Region	1033	1087	940	963	861	774	790	959
Cagayan Valley	1086	1066	994	1067	935	956	982	1029
Central Luzon	1032	1059	922	1007	880	838	935	980
Southern Luzon	1061	1054	876	1058	956	876	946	994
Bicol Region	1037	1060	955	1017	948	978	1124	1016
Western Visayas	1014	1023	910	1002	848	875	963	967
Central Visayas	1034	1055	905	976	887	848	938	961
Eastern Visayas	1034	1055	985	1019	930	971	1044	1014
Western Mindanao	1006	1045	889	1052	1010	1083	1192	996
Northern Mindanao	1020	1051	928	1109	1053	1066	1150	1020
Southern Mindanao	1029	1066	945	1177	1102	1170	1126	1049
Metropolitan Manila	1054	1013	825	979	947	903	865	933

SOURCE: NCSO, Census Report for 1970.

On the other hand, the low sex ratios in the other regions have been due to predominantly male out-migration, except Metropolitan Manila and Southern Luzon, where an increasing number of young female in-migrants have been recorded (note the very low sex ratios in the age group 15-29).

That the urban areas are predominantly female is depicted in Table 4. In 11 out of 12 regions, the females

exceeded the males by as much as 11 per cent. Again migration provides the most important reason for the femininity of the urban areas where the growth of service industries and the proliferation of jobs for women have increasingly attracted rural females. In general, the rural areas are male-dominated.

Table 4. Sex Ratios by Regional Divisions and by Residence, 1970

Regions	Residence		
	Urban	Rural	Total
I. Ilocos Region	892	975	959
II. Cagayan Valley-Batanes	989	1036	1029
III. Central Luzon	941	996	980
IV. Southern Luzon	956	1025	994
V. Bicol Region	960	1030	1016
VI. Western Visayas	912	988	967
VII. Central Visayas	931	973	961
VIII. Eastern Visayas	955	1029	1014
IX. Western Mindanao	933	1008	996
X. Northern Mindanao	976	1032	1020
XI. Southern Mindanao	1002	1063	1049
XII. Metropolitan Manila	932	—	932

SOURCE: NCSO, Census Report for 1970.

Age Structure

The age composition of the Philippine population reflects the effects of past levels and trends of births and deaths. Though there is paucity of data on international migration, reliable sources have shown that immigration or emigration has not reached a magnitude large enough to alter the age structure of the population.

The distribution of the population by broad age groups is shown in Table 5. A high level of fertility and a declining mortality level resulted in an increasing proportion of 0-14 year-olds, reported to be a little over 39 per cent in 1903. By 1970, the proportion rose to about 46 per cent. The reverse is true in the broad age groups, 15-64 and 65 years and over. The proportion of

the population in the economically productive ages, 15-64 years, which was 57.2 per cent at the beginning of the century declined to about 52 per cent by 1970. Likewise, the relative share of the population in the oldest age group, 65 and over, decreased from 3.3 per cent to 2.9 per cent over the same period. All of these point to the fact that the Philippine population is not only young, but also getting younger. In 1903, the median age of the population was 20.2 years. By 1970, the median age had dropped to 17.9.

Table 5. Percentage Distribution by Age Group, Philippines 1903-1970

Age Groups	Census Years					
	1903	1918	1939	1948	1960	1970
All	100.0	100.0	100.0	100.0	100.0	100.0
0-4	15.1	16.9	16.3	15.6	16.9	16.9
5-14	24.4	27.3	26.8	28.6	28.8	28.8
15-24	18.0	19.2	19.8	19.9	19.5	19.7
25-49	30.9	27.1	26.9	27.0	26.1	25.1
50-64	8.3	7.1	6.8	5.8	6.0	6.7
65+	3.3	2.4	3.4	3.1	2.7	2.8
0-14	39.5	44.2	43.1	44.2	45.7	45.5
15-64	57.2	53.4	53.5	52.7	51.6	51.7
65+	3.3	2.4	3.4	3.1	2.7	2.8
Median Age	20.2	18.5	18.3	17.7	17.1	17.9

SOURCE: Bureau of the Census and Statistics, Census Reports for 1903-1970.

The 1970 distribution of the population by sex and urban-rural residence is presented in Table 6. When the male and female distributions are compared, three main differences emerge:

- a relatively greater share of the male population in the younger ages 0-14;
- a greater proportion of the female population in the working ages 15-64; and
- a slightly higher share of the female population in advanced age group 65 and over.

Regardless of sex, the rural population has a higher percentage of young children in the ages 0-14 and old persons aged 65 and over than is found in the urban population. Conversely, the urban sector has more of its population concentrated in the ages 15-64. This situation gives rise to a higher dependency, of the young and the old, in the rural areas.

Table 6. Population of the Philippines by Age and Sex as Reported in 1960 and 1970 Censuses and Per Cent Change (Population in Thousands)

Age Groups	Total		Per Cent Change	Male		Percent Change	Female		Per Cent Change
	1960	1970		1960	1970		1960	1970	
All Ages	27088	36684	35.4	13663	18250	33.6	13425	18434	37.3
0-4	4572	6212	35.9	2354	3149	33.8	2218	3063	38.1
5-9	4369	5529	26.5	2254	2826	25.1	2115	2708	28.1
10-14	3435	5030	46.4	1766	2549	44.3	1669	2481	48.6
15-19	2814	4083	45.1	1385	1984	43.3	1429	2099	46.8
20-24	2459	3153	28.2	1194	1527	27.9	1264	1626	28.6
25-29	1953	2462	26.0	952	1190	24.9	1001	1272	27.1
30-34	1556	2073	33.2	765	1008	31.9	791	1065	34.5
35-39	1428	1900	33.6	702	941	34.0	726	959	32.1
40-44	1099	1486	35.2	546	732	34.0	552	754	36.4
45-49	1033	1283	24.3	525	626	19.4	508	657	29.3
50-54	710	1016	43.1	362	502	37.5	345	514	49.1
55-59	488	808	65.6	252	403	59.7	236	405	72.0
60-64	431	614	42.5	232	311	34.4	199	303	52.0
65+	739	1034	39.9	369	506	37.2	370	528	42.7

SOURCES: Bureau of the Census and Statistics Office, Census Report of 1960; National Census and Statistics, Census Report for 1970.

The sex-age distributions of the population in the censuses of 1960 and 1970 are provided in Table 6. Overall, the number of persons in each group increased substantially, the smallest increase being 26 per cent reported for the age group 25-29 years. Increases of more than 40 per cent were registered in the age groups 10-14, 15-19, 50-54, 55-59 and 60-64. Similar increases were also noted in the same age groups among females. The amount of increase for these same age groups is less sharp among males. Regardless of sex, the age group 55-59 years exhibited a dramatic increase. In general, the

observed increments may be due to reductions of infant and child mortality in the case of the younger ages and to better reporting of population in the advanced ages in the later census. Further analysis of the enumerated figures is limited by possible errors in the censuses.

For example, in the 1960 census, irregularities in the reported numbers of the population, caused by "heaping" and "scooping" have been found in the middle range ages and thereafter in all age groups beginning with zero, although the distortions at late ages are rather short range.[1] The irregularities were largely due to errors in age reporting and possibly caused in part by differential under-enumeration in the case of males. Errors in the 1970 census may have arisen through selective under-enumeration, misreporting of ages, and coding errors.[2] Irregularities were noted especially in the age groups 15-24 where there was a deficit of about 450,000 males as compared to females, resulting from an apparent under-statement of ages particularly among women in the middle ages.

Table 7. Percentage Distribution of the Philippine Population by Sex and Residence, 1970

Age Groups	Male			Female		
	Total	Urban	Rural	Total	Urban	Rural
All Ages	100.0	100.0	100.0	100.0	100.0	100.0
0-4	17.2	16.2	17.7	16.6	14.8	17.5
5-14	29.5	27.8	30.2	28.1	25.7	29.4
15-24	19.3	21.0	18.5	20.2	23.8	18.5
25-49	24.6	25.7	24.1	25.6	26.3	25.1
50-64	6.6	6.6	6.7	6.6	6.6	6.6
65+	2.8	2.7	2.8	2.9	2.8	2.9
0-4	46.7	44.0	47.9	44.7	40.5	46.9
15-64	50.5	53.3	49.3	52.4	56.7	50.2
65+	2.8	2.7	2.8	2.9	2.8	2.9

SOURCE: National Census and Statistics Office, Census Report for 1970

[1]See analysis of sex and age distribution by Frank W. Lorimer in his "Analysis and Projections of the Population of the Philippines, *"First Conference on Population, 1965*, Quezon City: Population Institute, 1966, pp. 243-249.

[2]Evidences of such errors were discovered by Yun Kim and others in their analysis of the 1970 census for projection purposes. See "Population Projections for the Philippines by Province, 1970-2000," *Population Dimension of Planning,* Vol. II, National Census and Statistics Office, 1975.

The age composition of the population by geographical divisions is displayed in Table 7. Metropolitan Manila has the smallest proportion of the population in the ages 0-14 and the greatest in the ages 15-64. This region also has the oldest population, with a median age of 19.1 years, well above the national figure. The Bicol Region which has the largest proportion of the population in the age group 0-14 (49 per cent) is the youngest region, with a median age of 15.5 years. It is very obvious that the Mindanao regions form a very homogeneous group with uniform proportions for the various functional age groups.

Dependency burden. The level and change in the burden of dependency easily influences various social and economic decisions. It provides a glimpse into the amount of financial pressure on the potential earner. The dependency burden or load, which is the ratio of the population aged 0-14 and 65 + to the population of economically-productive ages (commonly defined as the ages 15-64), has followed an upward trend since the start of the present century, a phenomenon consistent with the high level of fertility in this country and with the dramatic decline in infant and child deaths.

Table 8. Age Structure of the Population by Region, 1970

Regions	All Ages	0-4	5-14	15-24	25-49	50-64	65+	0-14	15-64	65+	Med. Age
Ilocos Region	100.0	14.3	28.3	18.4	25.3	8.8	4.9	42.6	52.5	4.9	18.6
Cagayan Valley	100.0	17.0	31.0	18.0	24.6	6.7	2.7	48.0	49.3	2.7	16.3
Central Luzon	100.0	16.0	29.3	20.2	24.3	7.0	3.2	45.3	51.5	3.2	17.1
Southern Luzon	100.0	16.4	29.5	19.7	25.1	6.4	2.9	45.9	51.2	2.9	16.9
Bicol Region	100.0	17.1	31.9	18.6	23.0	6.5	2.9	49.0	48.1	2.9	15.5
Western Visayas	100.0	15.3	30.3	19.2	24.8	7.2	3.2	45.5	51.3	3.2	17.0
Central Visayas	100.0	15.3	29.3	18.9	25.0	7.7	3.8	44.6	51.6	3.8	17.5
Eastern Visayas	100.0	16.2	31.5	17.1	24.5	7.4	3.3	47.7	49.0	3.3	16.2
Western Visayas	100.0	16.2	31.7	19.2	25.8	5.4	1.7	47.9	50.4	1.7	16.0
Northern Mindanao	100.0	16.6	31.3	19.2	25.7	5.5	1.7	47.9	50.4	1.7	16.0
Southern Mindanao	100.0	17.1	30.8	19.7	25.4	5.3	1.7	47.9	50.4	1.7	16.0
Metro Manila	100.0	14.4	25.3	24.6	27.8	6.0	1.9	39.7	58.4	1.9	19.1

SOURCE: National Census and Statistics Office Census Report for 1970.

The dependency burden reached a record high of 943 dependents for every 1000 persons in the ages 15-64 in 1970. The corresponding ratio was 750 in 1903, 872 in 1918, 861 in 1939, 898 in 1948, and 939 in 1960. It has been observed that decreases in the aged dependency burden have not sufficiently offset the increases in the child dependency burden.

Pre-school and school-age population. In the Philippines, the minimum age of entrance in school is seven years, so persons aged 0-6 comprise the pre-school population. In the 1960 census, this group formed 23.8 per cent of the total population. Among males, the proportion is 12.3 per cent, while among females it is 11.5 per cent. In the 1970 census, this group represented 23.6 per cent of the total population, indicating a slight decline in the relative share of this group by 0.2 percentage points over the 10-year period. However, these figures tend to conceal the real situation because the number of persons in this age group, in absolute terms, actually increased by 34 per cent during the intercensal period.

In 1970, the percentage of the population in the ages 7-20 was 35.3 per cent while the percentage of the same ages a decade earlier was 34.3 per cent. This means that the relative share of the population in this group has barely changed. Male and female differentials are also insubstantial. But the absolute number of the school-age population increased by a little over 39 per cent between 1960 and 1970. The persistent problem of providing educational opportunities for all is thus quite understandable.

Female population in the reproductive ages. The important segment of the female population which influences the level of the birth rate is the number of women in the reproductive or childbearing ages, 15-49

years. In 1970, the proportion of female population in these ages was 46 per cent. The corresponding proportion in 1960 was 47 per cent, which means a decrease of one percentage point in this group within the ten-year interval. Nevertheless, it has been observed that the absolute number of these women has been increasing and the 1970 census shows a rise by 40 per cent since 1960. Such rise is attributable to high fertility and lowered mortality rates which insure an increasingly larger number of women reaching the childbearing ages.

Table 9a. Percentage Distribution of Persons Aged 15 and Over By Age, Sex, and Marital Status: Philippines, 1960

Age and Sex	Marital Status				
	Total	Never Married	Currently Married	Widowed	Divorced/ Separated
MALE					
All Ages	100.0	35.5	60.8	3.3	0.4
15-19	100.0	97.0	2.9	0.0	0.1
20-24	100.0	65.5	33.9	0.3	0.3
25-29	100.0	27.1	71.6	0.8	0.5
30-34	100.0	11.4	86.8	1.3	0.5
35-39	100.0	6.1	91.3	2.1	0.5
40-44	100.0	4.1	92.1	3.3	0.5
45-49	100.0	3.2	91.9	4.4	0.5
50-54	100.0	3.0	89.7	6.8	0.5
55-59	100.0	2.6	88.1	8.7	0.6
60-64	100.0	2.4	84.0	13.0	0.6
65+	100.0	2.4	73.1	24.0	0.5
FEMALE					
All Ages	100.0	31.1	60.3	7.8	0.7
15-19	100.0	87.3	12.4	0.1	0.2
20-24	100.0	44.3	54.5	0.6	0.6
25-29	100.0	19.5	78.2	1.4	0.9
30-34	100.0	11.6	84.8	2.7	0.9
35-39	100.0	8.1	86.4	4.6	0.9
40-44	100.0	7.6	83.2	8.3	0.9
45-49	100.0	7.0	80.2	11.8	0.9
50-54	100.0	7.7	72.2	19.1	0.9
55-59	100.0	6.9	68.3	23.9	0.8
60-64	100.0	6.8	54.6	37.8	0.9
65+	100.0	6.1	39.5	53.9	0.6

SOURCE: Bureau of the Census and Statistics, Census Report for 1960.

Marital Status

Recent findings from the 1973 National Demographic Survey disclosed the proportions of single and married males, 15 years and over, to be 35.5 per cent and 60.8 per cent, respectively (see Tables 9a and 9b). The comparable figures for females were 31.1 per cent single and 60.3 per cent married. When compared with the 1960 figures, it can be gleaned that the proportions for

Table 9b. Percentage Distribution of Persons Aged 15 and Over by Age, Sex, and Marital Status: Philippines, 1973

Age and Sex	Marital Status				
	Total	Never Married	Currently Married	Widowed	Divorced/ Separated
MALE					
All Ages	100.0	37.8	59.5	2.3	0.4
15-19	100.0	97.3	2.4	0.0	0.3
20-24	100.0	72.2	27.3	0.2	0.4
25-29	100.0	32.3	66.7	0.4	0.6
30-34	100.0	13.4	86.0	0.6	0.1
35-39	100.0	7.0	91.6	1.2	0.2
40-44	100.0	5.3	92.5	1.8	0.4
45-49	100.0	3.9	93.9	1.8	0.4
50-54	100.0	3.6	92.1	3.8	0.5
55-59	100.0	2.1	92.1	5.3	0.6
60-64	100.0	2.4	90.1	6.9	0.7
65+	100.0	2.5	76.2	20.2	1.0
FEMALE					
All Ages	100.0	34.7	57.3	6.6	1.3
15-19	100.0	91.5	8.3	0.1	0.1
20-24	100.0	55.9	42.8	0.1	1.2
25-29	100.0	24.8	73.2	0.5	1.5
30-34	100.0	13.7	82.7	2.0	1.7
35-39	100.0	7.3	86.3	5.1	2.6
40-44	100.0	5.9	85.8	5.8	2.6
45-49	100.0	6.8	82.5	7.9	2.8
50-54	100.0	7.3	76.6	14.6	1.5
55-59	100.0	6.8	73.4	17.6	2.3
60-64	100.0	7.9	66.0	24.9	1.2
65+	100.0	6.7	40.9	51.6	0.7

SOURCE: 1973 National Demographic Survey

single persons increased whereas the proportions for those married decreased, irrespective of sex. The percentage single among males showed a gain of 2.3 percentage points, while the percentage married decreased by 1.3 percentage points between 1960 and 1973. Among females, the proportion single rose by 3.6 percentage points, while the proportion married diminished by 3.0 percentage points.

The proportions widowed increased with advancing age. In general, these proportions reflect the higher incidence of widowhood among females and the improvement in mortality conditions over time.

Table 10. Percents of Females Single by Age, and Singulate Mean Ages at Marriage, 1903-1973

Age Group	Year					
	1903	1939[a]	1948	1960	1970	1973
	Per Cent Single					
15-19	73.6	80.3	85.1	87.3	89.2	91.5
20-24	33.3	36.2	40.7	44.3	50.3	55.9
25-29	15.6	15.7	18.8	19.5	21.5	24.8
30-34	15.6	15.7	12.6	11.6	11.7	13.7
35-39	9.4	7.4	9.5	8.1	8.0	7.3
40-44	9.4	7.4	8.7	7.6	7.3	5.9
45-49[b]	7.8	5.4	6.9	7.0	6.7	6.8
Singulate Mean Age at Marriage	20.9	21.9	22.1	22.3	22.8	23.4

[a]Women with marital status not reported have been removed from the total.

[b]45-54 in 1903 and 1939

SOURCE: Peter C. Smith, "Evidence of Continuing Nuptiality Change: New National Data on Marital Status from the 1970 Census and the 1973 NDS," *Research Note No. II,* UPPI, 1974.

The changes in the per cents single among females and the singulate mean ages at marriage (SMAM) for the period 1903-1973 are recorded in Table 10. A substantial delay in female age at marriage occurred during the 1903-1973 period with an acceleration of the trend during the 1960s and a further acceleration between 1970 and 1973. In 1903, about one out of four women in the ages 15-19 was married, but in 1973 one

out of twelve women in the same ages was married. Marriage before age 20 is becoming rarer among Filipino females. Consequently, the mean age at marriage has risen from 20.9 years in 1903 to 23.4 years in 1973, showing an increase of some 2.5 years over the 70-year period. Evidently, much of the change in the marital status of those aged 15-19 occurred prior to 1948, whereas the shift involving the women in the age group 20-24 and 25-34 occurred just recently.

Nevertheless, marriage in the Philippines remains almost universal. In 1973, only about seven per cent of all women who had reached age 45-49 remained single. The corresponding percentage for 1903 (about 8 per cent) shows no substantial change in the proportion of women who choose to remain single.

In an analysis of urban-rural differences in marriage pattern, Smith (1975) found that the index in marriage pattern, I_m, in the urban sector experienced greater downward shifts than in the rural area. The 1970 urban index of marriage pattern in 1970 (0.531) is 31 per cent below the 1903 national level (0.770). Manila, which was characterized by early marriage at the beginning of the present century, emerges with the lowest index (0.470), by 1970, almost a third lower than the 1970 rural figure and about two-fifths below the 1903 national index.

Regional patterns in the proportion single among the population and in singulate mean age at marriage (SMAM) by age and sex in 1973 can be seen in Table 11. Among females, the highest SMAM was registered in the Bicol Region (24.6 years), but almost all women in this region married. Only one per cent of women, 45-54 years of age in this region, remained single. In contrast, Western Visayas reported 15 per cent of their women in the same age group who remained single.

Mean age at marriage was also high in Metropolitan Manila (24.5 years). In the ages 15-19, only one out of 25 women was married, and among women five years

Table 11. Proportion Single and Singulate Mean Age at Marriage (SMAM) by Age, Sex, and by Region, 1973

Regions	Per Cent Single at Ages							Singulate Mean Age At Marriage
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Female								
I. Metropolitan Manila	95.6	74.2	35.5	23.1	12.1	10.1	12.5	24.5
II. Ilocos & Mt. Province	90.8	47.7	20.3	9.1	6.2	2.9	4.6	22.6
III. Cagayan Valley-Batanes	84.4	38.5	25.0	0.9	9.8	4.5	10.8	20.1
IV Central Luzon	96.1	61.3	22.7	20.9	7.1	11.0	7.8	24.4
V. Southern Luzon	90.5	54.0	31.8	15.8	11.5	6.1	8.1	24.0
VI. Bicol	94.7	63.9	16.2	19.3	1.6	4.2	1.3	24.6
VII. Western Visayas	93.4	57.2	31.4	18.9	6.3	4.7	14.8	23.1
VIII. Eastern Visayas	90.3	53.7	19.0	9.9	5.7	4.6	6.1	22.7
IX. Northern Mindanao	83.4	52.2	13.3	3.0	4.8	1.9	1.2	22.3
X. Southern Mindanao	89.8	41.7	21.2	5.1	5.6	3.5	3.4	22.5
Male								
I. Metropolitan Manila	98.1	80.4	45.7	20.6	11.3	8.5	8.2	27.6
II. Ilocos & Mt. Province	98.1	78.0	17.7	18.3	8.6	4.0	5.9	24.9
III. Cagayan Valley-Batanes	96.3	66.1	11.7	1.7	8.4	0.0	8.3	23.5
IV. Central Luzon	97.8	78.4	35.6	11.9	10.1	6.6	2.2	26.0
V. Southern Luzon	96.0	67.2	34.5	12.3	3.9	3.2	5.4	25.2
VI. Bicol	99.5	75.2	37.1	5.9	2.5	2.8	0.0	26.1
VII. Western Visayas	98.1	73.4	34.0	22.1	9.5	6.6	5.9	26.2
VIII. Eastern Visayas	96.4	66.0	28.4	17.6	8.6	5.4	4.6	25.2
IX. Northern Mindanao	95.6	65.1	30.2	11.7	2.5	6.7	0.6	25.2
X. Southern Mindanao	97.4	69.7	30.0	6.8	5.5	5.5	1.8	25.1

SOURCE: Peter C. Smith, "Distribution of Population by Age, Sex, and Marital Status, May, 1973: Urban-Rural and Regional Patterns," *Research Note No. 19,*

older, only about one out of four was married. In contrast, Cagayan Valley and Batanes, recording the lowest mean age at marriage (20.1 years), had about one out of 10 women in the ages 15-19 and almost one out of two women aged 20-24, married. The Mindanao regions, forming a homogeneous group, exhibited very minor variations.

In general, women married men three years their senior (Panel B, Table 11). The highest mean age at marriage among men was recorded in Metropolitan Manila (27.6 years) and the lowest in Cagayan Valley and Batanes (23.5 years). The SMAM for males was 2.0 years higher than that for females. The overall male-female difference was 8.4 per cent.

Urban-rural differentials in the singulate mean age at marriage by regional groupings and by sex were analyzed by Smith (1974) using the data from the 1973 National Demographic Survey. He demonstrated that the urban age at marriage exceeded the rural by 2.9 years for females and by 2.5 years for males. In addition, there were substantial regional differences for males and females within urban and rural sectors. He observed that the urban females had higher singulate mean ages at marriage than the rural females in the Bicol Region, Western Visayas, and Southern Mindanao. The urban-rural difference was relatively slight in the Cagayan Valley and Batanes area, Central Luzon, and Eastern Visayas. For males, the urban-rural difference was highest in the Ilocos and Mt. Province. The sex difference was slightly greater in the rural (11.2 per cent) than in the urban (8.3 per cent) sector in favor of the males. Across regions, the urban male-female differences in SMAM ranged from 2.7 per cent to 15.4 per cent, while the rural sex difference varied from 7.1 per cent to 27 per cent.

Household Composition

In the Philippines, a **household** is defined two ways: as an entire group of persons living together, sharing common housekeeping arrangements, or a person living by himself and having separate and distinct housekeeping arrangements. A household then may consist of one or more than one family, or of non-related persons, or of just one person. A **household head** is one who reports himself as such or is so reported by another member of the household.

In 1973, there were 6.75 million households as against 5.36 million in 1968. This means that the number of households rose by 26 per cent over the five-year period. Nine out of 10 households were headed by males, both in 1968 and in 1973. In 1973, the number of rural households (4.72 millions) exceeded the number of urban households (2.02 millions) by 134 per cent.

Table 12. Percentage Distribution of Households by Number of Persons, 1968 and 1973

No. of Persons	1968	1973
All	100.0	100.0
1	0.6	1.4
2	4.3	5.1
3	8.3	9.2
4	12.6	13.2
5	13.8	14.0
6	14.2	14.6
7	11.2	12.9
8	10.6	11.2
9	6.5	7.4
10 or more	11.5	10.9
No Information	6.3	—
Mean Household Size	5.8	6.1

SOURCES: 1968 National Demographic Survey
1973 National Demographic Survey

Rapid declines in mortality in the absence of substantial fertility declines such as those occurring in most developing Asian societies have been causing increases in family and household size in the Philippines. The average household expanded in size from 5.8 persons in 1968 to 6.1 persons in 1973. Table 12 shows the percentage distribution of households by number of persons for 1968 and 1973. The relationship starts with a direct one as the number of household members increases from one to six persons, beyond this the proportions decline uninterruptedly. A comparison of the 1968 and 1973 data reveals an increase in the number of large-sized households (six persons or more). In 1973, more than one-half of all households were large-sized. Increases in the number of households made up of six members or more were accompanied by increases in the number of small-sized households (one to three persons). Between 1968 and 1973, the number of one-person households more than doubled and those with two or three members rose from 12.6 per cent to 14.3 per cent.

Table 13. Percentage Distribution of Households by Family Type and Residence, 1968 and 1973

Family Type	Year and Residence					
	1968			1973		
	Total	Urban	Rural	Total	Urban	Rural
One-Person Household	0.7	0.5	0.7	1.3	1.2	1.5
Nuclear Family	78.1	71.0	81.1	78.0	69.1	81.8
Stem Family	17.1	21.7	15.2	13.6	18.2	11.7
Joint/Stem-Joint Family	3.9	6.4	2.8	6.5	10.4	4.9
Household of Related Persons	0.1	0.2	0.1	0.2	0.3	0.1
Household of Unrelated Persons	0.1	0.2	0.1	0.3	0.8	—
Total	100.0	100.0	100.0	100.0	100.0	100.0

SOURCES: 1968 National Demographic Survey
1973 National Demographic Survey

Households are predominantly nuclear. About eight out of 10 households consist of nuclear families (see Table 13). The incidence of nuclear families is more prevalent in the rural than in the urban areas, and the data indicate a widening of the differential. Quite interestingly, this is the opposite of what has been observed in some developing Asian countries such as Thailand (1972), South Korea (1972), and Taiwan (1972), where nuclear families predominate in urban places. The stem family definition was found to be the more common extension than the joint or stem-joint family. The former numbered over four times larger than the latter. However, a decrease was noted in the proportion stem with a corresponding increase in the proportion joint/stem-joint, irrespective of residence. Households of related persons and of unrelated persons remain small, but increases in these types were registered in 1973.

As shown in Table 14, the median age of households heads more or less remained constant overall between 1968 and 1973. Increases in the number of households headed by persons aged 15-24 have been noted, but these were counterbalanced by increases in the proportions of households headed by individuals aged 45-54 and 65 +. Very slight changes in the median ages were exhibited when residence is controlled, with the urban heads getting a bit younger and their rural counterparts becoming older.

Using the data from the 1968 National Demographic Survey, Lim (1973) compared nuclear and extended households according to demographic and socio-cultural characteristics of household members. Extended households had more members than their counterparts. The median number of members for extended households was 6.4 persons, while that for nuclear households was about five persons. Nuclear households were made up of younger individuals. A relatively large proportion of

Table 14. Percentage Distribution of Households By Age and Place of Residence of Household Heads. 1968- and 1973

Age	Residence and Year					
	1968			1973		
	Total	Urban	Rural	Total	Urban	Rural
15-24	2.7	3.2	2.9	4.7	3.9	5.1
25-34	23.2	21.0	24.2	22.4	20.8	23.2
35-44	28.7	28.2	28.9	27.5	29.0	26.9
45-54	21.3	23.4	20.3	21.7	20.5	22.0
55-64	15.1	16.3	14.6	14.3	15.5	13.7
65+	9.0	8.8	9.0	9.4	10.2	9.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Median Age	42.9	44.0	42.4	42.8	43.2	42.6

SOURCES: 1968 National Demographic Survey
1963 National Demographic Survey

their members consisted of children aged 0-14. In comparison, extended households had older members, about 58 per cent in the ages 15-64, against 49 per cent in the same ages for nuclear households. This older composition among extended households is beneficial for economic reasons. Extended households were discovered to have higher per capita income, on the average, than nuclear households.

Nartatez (1975) examined household size differentials using the household head's demographic and socio-economic characteristics. More than 50 per cent of married heads were at the helm of large-sized households (six persons or more), regardless of sex and place of residence. Household size was positively related with the education of the head. Relatively more one-person households were headed by unschooled persons. Heads belonging to the professional and white-collar occupations had bigger households than those in the blue-collar and farm occupations.

The growth in household size may be expected to cease eventually, with family size starting to contract, after fertility declines have overtaken mortality declines. As a response to development, average household size

increases simply because the average number of surviving children increases. One would then expect the family to decrease in size as the level of fertility falls in response to lower levels of mortality and improved living conditions (Burch, 1967).

Literacy, Education, and School Enrollment

In 1970, over 8 out of every 10 Filipinos (83 per cent), aged 10 years and over, could read and write a simple message. This means a gain of about four per cent in literacy over the 1960 figure. Expectedly, the proportion literate among males was higher than females in 1970 (85 per cent vs. 82 per cent). The situation in that same year showed that the gains achieved since 1960 were greater for females than for males, inasmuch as 71 per cent of all females, 10 years and older in 1960, were literate. The corresponding proportion for males was 74 per cent.

The urban literacy rate is higher than the rural rate. About one out of three persons in the urban area was literate against one out of four in the rural sector. The rural population manifested a greater male-female differential than the urban population.

International comparison of enrollment ratios and of graduates to total population showed that the Philippines educates as high a proportion of its people as the advanced countries in the world. In terms of higher education enrollment per 100,000 population, the country ranked second to the United States and compared favorably with other advanced countries in terms of enrollment ratios for both elementary and secondary education.

More than half of the population, aged 25 years and over, completed at least a year of elementary education as of 1970,

but only 14 per cent finished high school. Only one out of 10 has gone through college. About one-fifth have not completed any grade at all. The urbanites were better educated than their rural counterparts. In the urban areas, 24.0 per cent have had high school education and 21 per cent entered college. The corresponding figures for the rural population were nine per cent and four per cent, respectively.

Table 15. Percentage Distribution of Population with College Degrees by Sex and By Major Field of Study, 1970

Field of Study	Both Sexes	Male	Female
Humanities	3.7	5.1	2.5
Education	44.2	23.7	60.6
Fine Arts	1.1	1.8	0.6
Law	4.0	8.2	0.7
Social Science	24.2	30.1	19.2
Natural Science	0:6	0.6	0.6
Engineering	7.9	16.9	0.8
Medical Science	8.1	5.2	10.5
Agriculture	1.6	3.2	0.3
Course, Not Stated	4.6	5.2	4.2
Total	100.0	100.0	100.0

SOURCE: NCSO, Census Report for 1970.

In the 1970 census, only three per cent of the total population reported themselves as having graduated from college. Of this number, 44.3 per cent were males and 55.7 per cent were females. As is apparent in Table 15, education is the most popular area of study, with more than two-fifths of all professionals holding degrees in this field. There is a dearth in the number of professionals in the more development-oriented courses, with only one out of 12 having graduated in the medical sciences, and about the same number in engineering courses. Surprisingly, only about two per cent had a degree in agriculture, despite the country having a predominantly agricultural economy. Other seemingly unattractive fields were the natural sciences (0.6 per cent), fine arts (1.1 per cent), and the humanities (3.7 per cent).

The field of education is the female's preserve, claiming more than three out of every five female professionals, as compared to less than one out of four male professionals. In the medical sciences, the proportion for females was twice that for males. In contrast, relatively more males were in engineering (16.9 per cent) and the social sciences (30.1 per cent). The corresponding figures for females were 0.8 per cent and 19.2 per cent, respectively. The other courses dominated by males were law, humanities, and fine arts.

In the Philippines, compulsory elementary education is provided by law. Children are required to attend school from ages seven to 13. In fact, not infrequently, children aged five to six are enrolled in school, if not in the elementary school, in the kindergarten. In less than five years between 1972 and 1975, the number of children enrolled in elementary schools increased by 11.4 per cent, to reach a level of 7.53 million.

The number of students enrolled in high school in 1972 was 1.7 million. Showing the highest rate of growth among all educational levels (22 per cent), high school enrollment rose to 2.1 million in 1975, signifying a better holding power of the schools.

Colleges and universities in the Philippines had an enrollment of 0.69 million in 1972. By 1975, college attendance increased to 0.83 million.

While the number of students in all three levels (elementary, secondary, and college) has been increasing rapidly in absolute terms, the proportion attending school has not changed greatly during the period 1972-1975. Total school enrolment in 1972 was 9.2 million, representing 23.5 per cent of the total population. Three years later, 10.5 million students attended school, merely a little over 25 per cent of the 1975 population.

Ethnicity

Ethnic groups are identified by the first local language or dialect spoken (mother tongue). More than 75 dialects were listed in the 1970 census.

The most numerous are the Tagalogs, making up 24.4 per cent of the total population in 1970. The Cebuanos ranked next with 24.1 per cent. More than one-fifth of the population were Ilocanos (11.3 per cent) and Hiligaynons (10.2 per cent). One out of 14 Filipinos was a Bicolano and one out of 20 was a Waray speaker. The proportion speaking Pampango and Pangasinan were 3.3 per cent and 2.3 per cent respectively. The remaining ethnic groups represented 12.8 per cent of the entire population.

Religion

As is apparent in Table 16, the Philippines is predominantly Roman Catholic. Exactly 17 out every 20 inhabitants professed this religion in 1970. A very poor second is Islam with only 4.3 per cent, followed by Aglipayan (3.9 per cent). Protestants numbered a little over three per cent and 1.3 per cent reported themselves as affiliated with the Iglesia ni Kristo.

Table 16. Distribution of Population by Religion and Per Cent Change: 1960 and 1970

Religion	1960		1970		Per Cent Change 1960-1970
	Population	Per Cent	Population	Per Cent	
All	27,087,685	100.0	36,684,486	100.0	—
Roman Catholic	22,686,096	83.8	31,169,488	85.0	+37.4
Protestant	785,399	2.9	1,122,999	3.1	+43.0
Iglesia ni Kristo	270,104	1.0	475,407	1.3	+76.0
Aglipayan	1,414,431	5.2	1,436,688	3.9	+1.6
Islam	1,317,475	4.9	1,584,963	4.3	+20.3
Buddhist	39,631	0.1	33,639	0.1	-15.1
Others	574,549	2.1	863,302	2.3	+50.2

SOURCE: NCSO, Census Report for 1970.

All religious denominations experienced increases between 1960 and 1970, with the exception of Buddhists. The Iglesia ni Kristo swelled in number by 76 per cent since 1960. Roman Catholics increased by 37.4 per cent and Protestants by 43 per cent. The Moslems increased by one-fifth, while persons reporting no religious affiliations and those belonging to other religious groups altogether rose by more than a half. Conversely, the number of adherents to Buddhism fell by 15.1 per cent. In sum, minor changes occurred in the relative shares of each type of religion.

Aliens

Of the total number of inhabitants in the Philippines in 1970, only 219,438 were registered as aliens, a mere 0.6 per cent. These foreigners were mostly Asians (161,151 persons). Chinese led all other nationalities with 86,855, followed by the Japanese who numbered 51,692. There were 19,192 Americans and 12,402 South Koreans.

Europeans, as a whole, numbered 4,044. Aliens from Africa and Central America reached about 2,000. South America was the region least represented with only 263 persons.

The number of males exceeded that of females (52.6 per cent as against 47.4 per cent). More than 34 per cent were aged below 15 years. About a fifth was found in the age group 15-24 and another fifth in the age group 25-44. Old persons (65 years and over) were counted to comprise 4.9 per cent.

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POPULATION DISTRIBUTION

AURORA E. PEREZ

OWING to the country's geographical structure—characterized mainly by territorial fragmentation and great diversity in land areas—the population of the Philippines is unevenly distributed; simultaneous forces have also contributed to areal differentiation in population size and growth. These forces are generally accepted as the major determinants of regional differences in economic potential and growth; they include the basic physical and climatic conditions, the natural resources, market systems, employment opportunities, transportation facilities and basic demographic traits.

While some areal units are larger than others in size, some incongruencies in growth rates exist. Larger areas sometimes display growth rates lower than smaller areas. There is an interplay of the above-mentioned forces, leading to areal differentiation in population-related aspects of development.

An easy way of presenting the variegated size of the country's population is by comparing densities of the component areal units. Although misleading in some ways, this crude index of distribution bears important implications in drawing the country's population geography. Other indicators of population distribution are (1) the urban-rural configuration of the population, and (2) the place of birth and /or past residence-current residence statistics. Taken altogether, these indices—

population size differences, differential growth rates, density variations, urban-rural configuration and place-of-birth and/or past residence/current residence statistics—form a pool of suggestive evidences of the underlying socio-demographic phenomenon that is internal migration.

Often, the changes in the proportional share of the country's total population in fixed areal units is equated with mobility over space and the resultant redistribution of population. This chapter focuses on the spatial aspect of population with special emphasis on inter-regional population movements. Data, as of 1970, are mostly on the regional level. It should be noted that in some cases the City of Manila, because of its unique socio- economic stature, forms a twelfth region.

Population Distribution and Size

Regional level. The irregular apportionment of the country's total population over its 11 regional divisions substantiate the regional similarity/dissimilarity in growth rates and density (see Table A).

In 1970, a little over one-fifth of the nation's 36.7 million inhabitants settled in the Southern Tagalog Region situated at the central portion of the country. Central Luzon, a neighboring region lying north of the Southern Tagalog region, with a population of 5.1 million, ranked second. Two regions in the Visayan group of islands, Western and Central Visayas, ranked third and fifth, respectively. Each had a proportionate share of 9.7 and 8.3 per cent of the national population. One region of the tripartite Mindanao islands, Southern Mindanao, had a share of 8.4 per cent of the country's population, thus, ranking fourth in regional size of population.

Provincial level. Of the 67 provinces in 1970, Rizal province with a population of 2.8 million was superior

in size to Cebu (the second largest province,) by 42.6 per cent. It even surpassed Manila's population by 53.2 per cent. It is a well known fact that the province of Rizal had, during the 60s, a swelling population due to (a) its reception of the population spilling from the 38.3 square kilometer confines of the City of Manila, and (b) its increasing attractiveness by reason of growing industrialization and expansion of manufacturing activities. Other large provinces, though not as industrialized as Rizal, are Negros Occidental, Pangasinan, Iloilo, Cotabato, Leyte, Zamboanga del Sur, and Camarines Sur. Most of these are located in the Visayas and Mindanao regions possessing agricultural potential which may be subject to development. This potential serves as a magnetic force drawing in contingents of in-migrants from the agriculturally depressed areas.

If the population of these ten largest provinces were to be combined, well over one-third of the total population would be accounted for in the country's population geography.

Differential Growth Rates

Regional level. Regional differences in fertility rates and mortality rates as well as migration rates are the main sources of differential growth rates. During the decades of the sixties, Southern Mindanao region, which is the second largest region in land area, grew fastest (at the rate of 4.72 per cent), followed by the Southern Tagalog region, containing the largest province (Rizal), growing at a rate of 4.14 per cent. The growth of these two regions are illustrative examples of two giant forces affecting population growth, outside the natural increase equation of births minus deaths, namely (1) the "agricultural potential" pull and (2) the "urban" pull. The first is commonly equated to the availability of land for agricultural development, while the second pull

usually refers to the industrial structure of urban areas which accommodates further employment. Four other regions, two in Luzon and two down south in Mindanao, grew at rates exceeding the national growth rate of 3.01 per cent.

In a study of inter-regional migration flows (Smith, 1975; Perez 1975), the same regions mentioned earlier exhibited the highest in-migration rates in 1970. One may derive the correlation between differential growth rates and in-migration rates from such an observation.

Provincial level. As is commonly observed and which holds true for the regions, growth rates at the provincial level during the 1960-70 decade indicate an interplay of forces of varying intensity that is in accord with a wide scale of rates ranging from 0.37 per cent in Catanduanes to 7.70 per cent in Bukidnon. The growth registered for Bukidnon implies a rate of change of 113.4 per cent over its 1960 population. The repercussions of change have to be dealt with wisely. Likewise, the growth assimilated by the province of Rizal incurred a relatively high rate of change, 95.3 per cent, within the ten-year period. A policy implication of interest for both public and private sectors of the country is how to cushion the impact and consequences of such tremendous population growth so as to keep the adverse effects on the socio-ecomic structure of such areas to the minimum.

Density

Regional level. At a glance (see Figure 1) the densities of the geographic regions of the Philippines point out the importance of how population concentration greatly affects the formulation of the nation's regional development policies. The density of the Philippines in 1970 was found to be 122.3 persons per square kilometer, assuming the population of 36.7 to be evenly distributed. Of the 11 regions, six had densities below

the national average and the remaining five were found to be densely populated. Region III (Central Luzon) located at the central portion of the country and Region VII (Central Visayas) down in the south, had densities twice the national figure. Population pressure is greatly felt in Central Visayas since it is the smallest geographic region, occupying only 5.0 per cent of the country's land area. Sharp contrast is obtained when the density of Southern Mindanao (Region XI) is compared. This region is the second largest in land area, yet its density is three times smaller than that of Central Luzon or of Central Visayas.

Provincial level. Manila, considered a separate province since the Spanish era, remains the primate city. Being the center of trade and commerce as well as the seat of the national government, it has remained the most densely populated province. In 1970, it had 34,764.4 persons per square kilometer in its 38.3 sq. km. total land area. Rizal province, gaining in population through substantial in-migration, ranked second with its density of 1,529.7 persons per square kilometer. A sharp contrast is obtained for Palawan, the least densely populated of the country's 67 provinces. With a vast land area of 14,896.3 square kilometers goes an extremely low density of 15.9 in 1970, despite a 45.5 per cent change in population during the decadal period 1960-70.

Urban-Rural Distribution

In many developing countries, most national policies are geared toward the simultaneous development of the urban and rural sectors. While the process of urbanization may proceed at faster rates in the more modernized areas of a country, urbanization **in toto** for the country, manifests a two-fold aspect: a faster rate of population growth in the rural sector, which upsets the growth of

the urban sector; and a tremendous growth of some selected urban areas, resulting in what is commonly referred to as "pseudo-urbanization."

In 1970, the Philippines was said to be 31.8 per cent urban and 68.2 per cent rural. This only means that during the 20th century, one out of three Filipinos lived in urban areas. Among the 12 regions, Region IV (Southern Tagalog Region) is the most urbanized, with little less than half of its total population considered urban. Central Visayas ranked second with almost one third of its regional population identified as urban.

As expected, there were more females than males in the urban sector, only because of the formally organized employment structure of the urban sector which absorbs female skills, especially in the service industry. In the two regions mentioned earlier, the sex ratios were about 96.5. The differences in sex ratios are especially sharp in the working age group and the age of retirement, as shown below.

Table 1. Sex Ratios By Broad Age-Groups and Locale, 1970

Locale	Age Group			All Ages
	0-14	15-64	65+	
Urban	1,029	889	875	945
Rural	1,034	993	1,000	1,012
Both Sectors	1,033	956	960	990

SOURCE: National Census and Statistics Office, 1970 Census Report.

Note: For a graphic presentation of the Philippines' urban-rural population distribution over these broad age groups, please see Figure 2.

In a study of Philippine urbanization, Pernia (1975), identified three paces in the overall trend: a period of relatively moderate growth of the urban sector during the first four decades of the 20th century, a period of rapid growth during the 40s and the 50s and a slackening of growth during the decade of the 60s. An exception to

this slowing down in urban growth, however, was the increasing concentration of population in the Metropolitan Manila Area.

Should the pace and tempo of urbanization continue the slow and moderate tempos suggest a near tripling of the country's 1970 urban population by the year 2000.

Residence Data

The major sources of migration data are birthplace statistics and residence data for the years 1960, 1965, and 1970 recorded during the 1970 census of population and housing. Census tabulations of birthplace/past residence-current residence show that in 1960, 12.8 per cent of the population of all ages was living in a region different from that of birth. This proportion increased to 13.5 per cent during the latter census enumeration. According to the 1960 census, about 3.5 million persons were enumerated in a place other than the place of birth. In the following censal count, these persons numbered 4.9 million, 71.2 per cent of which negotiated inter-provincial transfers, and 53.1 per cent accounted for inter-regional shifts of population.

Clearly, the population continues to be mobile at relatively significant levels. Doubtless, the consequences and impact of these changes in residence remain matters of import confronting local policy makers as well as urban planners.

Internal Migration

Social scientists of late have shown considerable concern about the relatively neglected role of spatial mobility in the socio-economic development of a country. The demographer's preoccupation has included internal migration as (1) a key factor effecting population change; (2) a variable inducing population redistribution

and residential relocation in different geographic areas; and (3) an adjustive mechanism concomitant to growth and development. It is in the light of the second and third attributes that this chapter on population distribution and internal migration is essayed. A fair attempt is made at establishing the link between population movement and the process of urbanization here viewed as an index of development affecting population distribution.

Volume

Migration is definitely not a rare experience among Filipinos. As was stated earlier one individual, out of eight, was living in a region in 1960 other than that of birth. In 1970, this proportion rose to one out of seven. And for a much shorter migration interval—from 1960 to 1970—one person in twelve, approximately 8.3 per cent of the population aged 10 years old and over, had moved to another region.

Generally speaking, there is supposedly an inverse relationship between distance and migration. Table B substantiates this common assertion as it provides some differences in the volume of migration by region of residence in 1970 and by distance of the moves, defined by transfers across migration-defining areas in the country. The net lifetime migration rate among the enumerated population in 1970 varies according to the migration-defining area referred to.

As gleaned from the table, the inverse relationship between geographical distance and migration is reflected by the differential rates:

- 24.8 per cent in terms of transfers across municipal boundaries (column 1);
- 17.6 per cent when based on movements across provincial borders (column 2); and

• 13.6 per cent (column 3) when migration is defined in terms of regional boundaries.

But this observation is nevertheless further qualified by a central observation derived by comparing the columns of the same table—the dominance of long-distance movements involving either inter-provincial or inter-regional transfers. Thus, if the total of lifetime migrants is regarded as composed of those who negotiated transfers across municipal borders, 71.2 per cent (column 6), moved to another province while 53.1 per cent (column 7), moved to another region. Of the total lifetime inter-provincial migrants in 1970, 76.7 per cent (column 9), changed their regions of residence.

Similar information is obtained for migrants during the decade of the 60s among those aged 10 years old and over in 1970. During this period, 16.5 per cent (column 4) of the population experienced relocation of municipal residences while a lower proportion, 11 1 per cent (column 5), changed provincial addresses. Of the total inter-municipal migrants during the decade, some two-thirds, roughly 66.1 per cent (column 10), moved into another province.

Factors motivating individuals to move may have changed and directions of these movements might have altered considerably; however, the dominance of long-distance movements that prevailed before 1960 (Pascual, 1966; Smith, 1973) continue to be a major migratory trait of the population in the 1960s.

Broad Inter-Regional Flows

The more significant flows as pointed out by Smith (1975) from a historical perspective, are those across considerable distances. Prevailing regions of destination are areas defining three broad regional divisions of the country: Luzon (regions I to V and XII); Visayas (regions VI-VIII); and Mindanao (regions IX to XI).

The data below summarizes the difference in volume

between earlier and more recent migration across regional boundaries (all numbers are in thousands):

	Birth-to-1960 (All Ages)	1960-to-1970 (Popn. 10+)
Number enumerated	27,007	25,076
Total 12-region flow [1]	3,452	2,092
Flow over broad regional boundaries	1,715	922
Per cent of inter-regional flow which is over broad regional boundaries	49.7	44.1

SOURCE: 1970 Census Migration Tables.

[1]The City of Manila is treated as an independent region.

A detailed description of the inter-regional migration streams and counterstreams is in itself cumbersome. Figures 3 and 4 lay out the volume of in-migration and out-migration for each of the regions in the country during two migration intervals: birth-to-1960 and 1960-to 1970.

The salient features of Philippine inter-regional migration are the following:

- Dominance of long-distance movements;
- Frontier settlement of the Mindanao area and a response to the "pull" forces in more urbanized areas before 1960;
- A simultaneous suburban movement from the core of the metropolitan region (Manila) to contiguous areas economically linked with the metropolitan center after 1960; and
- Decreasing stream effectiveness after 1960.

Long-distance Movements

Of special interest among the lifetime inter-regional migrants in 1960 is the preferred destination of the

mobile Visayan (regions VI-VIII) population. There were more who settled in any one of the tripartite Mindanao area (regions IX-XI) than in any other surrounding Visayan island. Percentages of out-migrants headed for Mindanao before 1960 contrast sharply with the much less significant flow of inter-regional movement within the Visayas area composed of Western, Central, and Eastern Visayas. In fact, the percentage distribution of the Visayan migrants, especially those coming from Western Visayas show preference for the Southern Tagalog region and the City of Manila than the nearby Visayan towns.

Percent of migrants from the Visayas going to	Period		Percentage Point Difference
	Birth-to-1960	1960-to-1970	
WESTERN VISAYAS			
IV. Southern Tagalog	17.6	27.4	+9.8
VII & VIII. Central & Eastern Visayas	5.5	8.3	+2.8
IX to XI. Tripartite Mindanao Region	62.4	50.2	-12.2
XII. City of Manila	10.5	8.6	-1.9
CENTRAL VISAYAS			
IV. Southern Tagalog	4.4	11.3	+6.9
V. Bicol	3.0	2.7	-0.3
VI & VIII. Western & Eastern Visayas	8.9	10.1	+1.2
IX to XI. Tripartite Mindanao Region	79.7	69.6	-10.1
EASTERN VISAYAS			
IV. Southern Tagalog	23.0	36.5	+13.5
V. Bicol	2.4	2.2	-0.2
VI & VII. Western & Central Visayas	8.2	6.8	-1.4
IX to XI. Tripartite Mindanao Region	44.6	31.7	-12.9
XII. City of Manila	18.4	14.3	-4.1

SOURCE: 1960 and 1970 Census Migration Tables.

Another illustrative example is the long-distance movement made by the Ilocanos.[1] Out-migrants from the Ilocos region were found in Southern Luzon and the nearby Cagayan Valley region. Between these two destination areas, however, there were more migrants flocking to the farther of the two, Southern Tagalog, than in the neighboring region, as shown below.

Trend of Movement

Before 1960. It has been documented in past research and studies that a bulk of the geographic mobility was induced. An examination of regional net migration rates underscores the settlement of the frontier areas, mostly of Mindanao, via government intervention. In reality, this was a national policy that had for its aim accelerated growth of the once-neglected region.

[1]A cultural group originating from the Ilocos region located in the northern tip of the country- well known for their love of adventure.

Percent of Migrants from the Ilocos Going to	Birth-to-1960	1960-to-1970	Percentage Point Difference
II. Cagayan Valley	25.0	20.0	-5.0
III. Central Luzon	15.4	14.2	-1.2
IV. Southern Luzon	26.2	37.1	+10.9
IX to XI. Tripartite Mindanao Region	19.2	15.3	-3.9
XII. City of Manila	13.7	9.7	-4.0

SOURCE: 1960 and 1970 Census Migration Tables.

Table 2. Rates (percentages) and Rank-Order of In-Migration, Out-migration, and Net Migration Birth-to-1960, in the Philippines, by Regions

Region	In-Migration Rates	Rank	Out-Migration Rates	Rank	Net Migration Rates	Rank
I. Ilocos	3.50	8	13.94	4	-11.44	9
II. Cagayan Valley	15.77	6	6.65	9	10.28	5
III. Central Luzon	4.09	7	13.83	5	-10.70	8
IV. Southern Tagalog	19.41	4	4.72	10	16.70	4
V. Bicol	3.48	9	8.39	8	-5.22	7
VI. Western Visayas	2.27	11	14.26	3	-13.07	11
VII. Central Visayas	3.15	10	24.35	2	-24.58	12
VIII. Eastern Visayas	1.82	12	13.20	6	-11.58	10
IX. Western Mindanao	29.30	3	6.87	11	30.65	2
X. Northern Mindanao	16.65	5	12.71	7	5.61	6
XI. Southern Mindanao	37.80	2	4.08	12	43.91	1
XII. City of Manila	45.44	1	11.25	1	18.63	3

SOURCE: 1960 Census Migration Tables.

The rates particularly present a cancelling of the net effects of the heavy influx of persons to the City of Manila. Thus, even if it had the highest volume in terms of in-migration rates, it only ranked third in terms of net migration rate. The opposite trend however, stands true and of comparative advantage to the Mindanao regions, especially for Southern Mindanao.

The Southern and Western Mindanao regions drew more settlers than sent migrants elsewhere. Movements before 1960 were primarily pioneer settlement types. This is congruent with the idea that agricultural potential is a migration-inducing factor. This was the case for Mindanao's vast lands that were still uninhabited before 1960.

After 1960. An outstanding feature of recent social change is the relatively rapid development of urban areas. Corollary to this process is the sustained massive in-migration to major urban centers. The exodus of population from rural areas to urban centers has been commonly viewed as an explanatory variable in the phenomenal growth of city population.

Attendant to the fast tempo of social change in the decade of the 60s was the shift of movement from an urban center, exemplified by the City of Manila, to the geographically contiguous areas within commuting distance, mostly located in the Southern Tagalog region. During the 1970 census, there was a general decrease in the flow of people to Manila accompanied by a substantial outflow of population from its crowded districts. There occurred a 44.9 per cent increase in the outflow of population from the densely inhabited urban center and a corresponding 16.1 per cent change in the inflow of population to the "once attractive" central city.

Table 3. Rates (percentage) and Rank- Order of In-Migration, Out-Migration, and Net Migration 1960-to-1970, in the Philippines, by Regions

Region	In-Migration Rates	Rank	Out Migration Rates	Rank	Net Migration Rates	Rank
I. Ilocos	3.84	10	9.61	4	-6.18	8
II. Cagayan Valley	5.78	6	4.35	10	1.50	5
III. Central Luzon	4.88	7	6.88	7	-2.12	6
IV. Southern Tagalog	14.83	2	3.50	12	12.47	1
V. Bicol	3.86	9	7.64	6	-4.01	7
VI. Western Visayas	2.27	12	8.73	5	6.83	9
VII. Central Visayas	4.02	8	12.76	2	-9.54	11
VIII. Eastern Visayas	2.88	11	11.57	3	-9.36	10
IX. Western Mindanao	7.84	5	4.82	9	3.22	4
X. Northern Mindanao	10.93	4	5.42	8	6.00	3
XI. Southern Mindanao	14.57	3	4.30	11	11.34	2
XII. City of Manila	21.66	1	34.07	1	-17.20	12

SOURCE: 1970 Census Migration Tables.

Southern Tagalog region, on the other hand, ranked second, twelfth, and first in terms of in- out- and net migration rates during the decade. These rankings are additional evidence for the accepted and established trend that the City of Manila has been losing population through out-migration as early as the 50s (Pascual, 1972; Zosa, 1973).

Of the total loss of 453,925 persons, Southern Tagalog received 65.8 per cent representing some 298,708 persons. Of this number, 78.16 per cent were to be found in the urban sector of the region, while 20.81 per cent were residing in the rural sector of the region (Perez, 1975).

These data indicate the spread of progress to the periphery of the fast developing and expanding Metropolitan Manila Area. Meeting the ever increasing demands of the population for urban services and facilities has resulted in a thinning out of green land within the region.

Stream Effectiveness

It is often desirable to calculate indices that permit comparisons of migratory flows. One such measurement is the *Index of Effectiveness* which relates net migration to turnover.

In an analysis of inter-regional migration from census data, Smith (1975) observed that flows before 1960 were characterized by a fair degree of effectiveness whereas flows in the 1960s tended to cross-cancel and are therefore, of lower effectiveness. Several indicators of over-overall effectiveness were calculated, as shown in the following page.

The 12-region system frame indicates that 12.8 per cent of the population changed region between birth and 1960 with a net displacement effect (measured by the index of dissimilarity) of 7.9 per cent. Index of Effectiveness was at a high of 63. In the 1960s, 8.3 per cent of all persons, 10 years old and over, changed region of residence yet the net displacement generated by such transfers was only 3.8 per cent. Inter-regional migration during the decade yielded a comparatively low stream effectiveness of 46. A similar pattern was likewise observed for the three-broad region system.

	Birth to 1960	1960 to 1970 (Pop 10+)
Twelve region system		
2. Per cent changing region	12.8	8.3
2. Index of Displacement [a]	7.9	3.8
3. Index of Effectiveness [b]	63.0	46.0
4. Index of Exchange Migration [c]	1.62	2.18
Three broad regions		
1. Per cent changing regions	6.4	3.7
2. Index of Displacement [a]	5.2	2.2
3. Index of Effectiveness [b]	82.0	59.0
4. Index of Exchange Migration [c]	1.23	1.68

[a]This is the Index of Dissimilarity comparing distributions across areas of population by residence at two points in time

$$[b]\text{Index of Effectiveness} = \frac{\text{net in-migrants}}{\text{Total inter-area migrants}} \times 100$$

$$[c]\text{Index of Exchange} = \frac{\text{per cent changing region}}{\text{Index of Displacement}}$$

The high stream effectiveness that characterized the pre-1960 flows reinforces the dominance of long distance movements in an era of pioneer settlement. The following table reveals that the stream effectiveness is reduced greatly by the distance involved in the movement.

Table 4. Index of Effectiveness of Selected Migration Streams Before and After 1960

	Before 1960	After 1960
Long-Distance Movements		
Western Visayas (VI) to Southern Mindanao (XI)	990	960
Central Visayas (VII) to Southern Mindanao (XI)	971	941
Short-Distance Movements		
Northern Mindanao (X) Southern Mindanao (XI)	383	316
Central Visayas (VII) Western to Visayas (VI)	298	138

Clearly, migration flows after 1960 reflect the negative effect of stream-counterstream ratio on stream effectiveness. The ratio of stream to counterstream linking Regions VI and XI, for instance, declined from 200 to 1 (birth-to-1960) to 12:1 (1960-to-1970). For short-distance movements like the interchange of population within the Visayan group of islands, the ratio is much less lopsided because of the cancelling effect of the substantial counterflow, as indicated by the stream-counterstream ratio of 2:1 in 1960 and equality in 1970.

In a separate analysis of inter-regional migration using data from the National Demographic Survey of 1973 (Pernia, 1976), a more detailed analysis of stream effectiveness was presented. The origins and destinations of the flows were taken into account. It was found that rural-to-metropolitan streams were by far more effective than rural-to-urban streams. Both flows were female dominant after 1965 when differentiated by sex.

Table 5. Index of Effectiveness of Migration Streams Birth-to-1965 and 1965-to-1973, By Sex and Type of Migration Flow.

Type of Migration Flow and Sex	Migration Interval		
	Birth-to-1965	1965-to-1973	Difference
Rural-to-Urban			
Both Sexes	517	394	-123
Males	509	322	-187
Females	252	447	+195
Rural-to-Metropolitan [a]			
Both Sexes	777	491	-286
Males	777	397	-380
Females	776	554	-222

SOURCE: 1973 National Demographic Survey Migration Tables.

[a]Metropolitan is a close approximation of the National Economic Development Authority's (NEDA) definition of Manila Metropolitan Area which includes the cities of Manila, Caloocan, Pasay and Quezon, the suburban municipalities of Makati, Mandaluyong, Navotas, San Juan, Marikina, Malabon, Parañaque, Pasig, and Taguig located in the province of Rizal; and the municipality of Valenzuela in Bulacan province. This definition is now in current use in a research consortium "Population, Resources, Environment, and the Philippine Future" (PREPF).

Overall, there was a reduction of stream effectiveness after 1965 which may be interpreted thus: that developments since the 60s induced greater propensities for return movement; a second view may be that developments in transportation and communication increased favorable circumstances for return movement, as suggested by Lewis (1971) and Simkins and Wernstedt (1971). Still a third view may be postulated with particular reference to the 2.9 percentage points gain of the Metropolitan to rural flow after 1965 (see Table 7). It may be that the increasing housing density in the already overcrowded metropolitan center stimulated substantial return movement. Viewed in the light of some "dispersal" policies implemented thus far, it could mean the relocation or establishment of industrial concerns outside but within commutable distance from the metropolitan area.

The underlying sociological significance of these population movements is open for exploration and further study.

Internal Migration and Development

There are at least two ways by which the course of the country's growth and development is affected by the volume and direction of migratory movements. These two processes—stemming partly from spatial mobility—are, the suppuration of the frontier settlement and, the accentuated tempo of urbanization, a vehicle of economic transformation. While the former ends the era of an agriculturally based "pioneer settlement," the latter begins the era of an industrially based "urban trek."

Within the context of the commonly accepted rural-urban dichotomy, the National Demographic Survey of 1973 provides an overview of the rural/urban patterns of internal migration in the country.

A graphic presentation of the types of migration

streams before and after 1965 is contained in Figure 5. The working definition of rural-urban[1] used during the survey is a variant of the established census definition. It elevated the level of national urbanization in 1970 to 39.1 per cent, a level 6.2 and 7.3 per cent higher than the 1963 and 1970 census level of national urbanization.

As gleaned from special tabulations (Table 7) pre-1965 movers were more conservative[2] than innovative.[3] A slightly larger proportion—32.6 per cent—of the pre-1965 movers with rural origins were headed for another rural area. Only 29.9 per cent moved into urban areas as revealed in Figure 5. This observation reflects the preponderance of males in the pioneering kind of migration streams. A sharp contrast in the age-specific sex ratios recorded in the accompanying table is obtained for the conservative and innovative movers.

Table 6. Age-Specific Sex Ratios by Type of Stream for Lifetime Migrants, Birth-to-1965

Type of Migration Stream	Age Group				
	15-24	25-34	35-49	50 +	Total
Rural-to Rural	106.7	100.7	97.5	148.8	110.4
Rural-to-Urban	73.5	98.0	83.1	106.2	89.5
Rural-to-Metro Manila	90.3	73.9	92.8	129.2	95.7

SOURCE: 1973 National Demographic Survey Migration Tables.

The large differences in the age-specific sex ratios identify a differential in the structure of employment opportunities between urban and rural destinations.

[1]The survey considered the areal sub-units of Metropolitan Manila, chartered cities, and all poblaciones as urban; all barrios were treated as components of the rural area.

[2]Conservative migration refers to mobility which involves movement within the traditional or within the modern sector, and movement from the modern to the traditional sector.

[3]Innovative migration is that spatial mobility involving movement from the traditional (rural) sector to the modern (urban) sector with goals of achieving the new.

With the proliferation of service industries in the urban areas, especially in the Metropolitan Manila Area, the resultant sex ratio for the age group 25-34 is particularly low.

The more recent flows, however, present evidence counter to the earlier frontier settlement. During the period 1965-73, rural-to-urban migrants were the most significant in volume. One-fourth of the total streams were of this type, as shown in Table 7.

Table 7. Percentage Distribution and Rank-Order of Migration Streams for two Intervals: Lifetime, Birth-to-1965 and Period, 1965-to-1973

Type of Stream	Birth-to-1965	Rank	1965-to-1973	Rank	Percentage Point Difference
Conservative	49.9		44.0		-5.9
Rural-Rural	32.6	1	19.7	2	-12.9
Urban-Rural	9.5	4	11.2	5	1.7
Manila-Rural	1.7	7	4.6	7	2.9
Urban-Urban	6.1	6	8.5	6	2.4
Innovative	50.1		55.9		5.8
Rural-Urban	29.9	2	25.7	1	-4.2
Rural-Manila[a]	13.6	3	13.5	4	-0.1
urban-Manila	6.6	5	16.7	3	10.1

SOURCE: 1973 National Demographic Survey Migration Tables

[2]Manila here refers to the PREPF definition of Metropolitan Manila area, as explained in Table 5.

Concomitant with preceding observations, period migration streams were more innovative than conservative. A significant 55.9 per cent of the total streams in 1973 involved one of two destinations—urban or Metropolitan Manila. This change in direction of migratory flows conforms to Zelinsky's (1971) structural and spatial mobility transition which states that there is an upward mobility, i.e. innovative movement, as development processes like urbanization, modernization, or industrialization are taking place. This upward mobility partially results from the rising socio-economic aspirations which accompany development.

The percentage share of rural-urban migratory flows decreased in volume but remained a majority bulk of the total flows. An interesting trend during the period 1965-73 elucidates the argument regarding the emergence of an inter-urban system of movement from which a system of urban centers through migration may be generated. Attention should be drawn to the fact that development of better transportation and communication facilities established linkage of smaller urban areas contiguous to the urban center. For instance, the percentage share of urban-Metro Manila flow was twice larger than the inter-urban (excluding Metro Manila) in 1973 (Table 7).

Apparently, the urban-Metro Manila streams were more female-dominant. Sex ratios of urban-urban streams were even higher. But sex ratios for rural-urban migrants still remain the lowest, as attested by Table 8.

Table 8. Age-specific Sex Ratios of Migration Streams for Period Migrants, 1965-to-1973

Type of Migration Stream	Age Group				
	15-24	25-34	35-49	50+	Total
Rural-urban	45.2	79.7	94.1	117.2	67.1
Urban-urban	51.7	94.7	117.3	132.9	84.2
Urban-Metro Manila	65.0	82.3	91.4	94.0	78.1

SOURCE: 1973 National Demographic Survey Migration Tables.

The terms "rural-urban," "urban-urban," or "urban-metropolitan" migration usually connote development. Indeed, the direction of migratory flows focuses on the phenomenon of distressed areas, and underscores the urban trek, which to most migrants often proves to be economically rewarding and personally gratifying.

Though it may be a case of oversimplifying the phenomenon, the analysis of population movement between and among "richer" (more developed) and "poorer" (less developed) regions in the Philippines underlines the distinctively integral function of internal migration to development. In a study of migration, using Philippine census data, Zachariah (1975) pointed out the inverse relationship between migration and level of economic development and the higher level of spatial mobility among the more developed regions as measured by the volume of migration. Using data on Family Income Expenditures in 1971, the regions were classified as "poor" (less developed) and "rich" (more developed).[1]

For present purposes, movements may either be inter-movement or intra-movement,[2] confined to the exchange of population between and among the regions as classified. Data presented in Table C indicate the following:

- Of the total movements in 1960, 48.7 per cent accounted for transfers between the LDRs and the MDRs while 51.3 per cent were movements within the LDRs and the MDRs;
- A higher level of mobility within the MDRs, as it accounted for 90.9 per cent of total intra-movements; and
- A greater interchange of population from the LDRs to the MDRs. This flow amounted to 85.0 per cent of total inter-movements. The counter stream was six times smaller in size and volume.

[1] "Poor" or "less" developed regions (LDR) are those with annual family income of less than ₱2,000; "rich" or "more developed regions" (MDR) are those with annual family income above ₱2,000.

[2] "Inter-movement" refers to population transfers between an MDR and an LDR, while "intra-movement" refers to population transfers within an LDR or an MDR.

The same trend is obtained during the period 1960-70. As was true before 1960, the more dominant stream was the outflow from the LDRs to the MDRs. Roughly, the ratio was three streams to an MDR to every stream flowing to an LDR. With regard to intra-movements, a higher level of mobility was still pronounced for the MDRs. While movement between LDRs was only 7.4 per cent, migration between MDRs soared to 92.6 per cent.

Overall, the data yield the following general observations descriptive of the direction of migratory flows in the Philippines:

- A concentration of in-migrants among the more developed regions and a corresponding massive outflow of people from the less developed regions;
- A higher level of mobility among the more developed regions; and
- A more significant exchange of population, in terms of volume, between the more developed regions. All these are characteristics of developing nations.

The last observation is of particular interest to researchers devoted to urban structure in relation to mobility between the more developed regions. Definitely, there exist strong links between the two processes, which to some extent, determine whether or not such mobility promotes the interests of the economy. More so, because these processes are basic to a properly grounded perspective of future regional development.

Conclusion

As a whole, the various data presented herein indicate substantial spatial mobility in the Philippines. The volume and direction of migratory movements bespeak socio-economic changes concomitant to national development. And the evaluation of these changes entails knowledge and perception of population redistribution as it has proven to be a matter of consequence.

The implications of such observed trends are addressed to policy-makers as well as planners in relation to significant aspects such as the effect of population movements on the shape of urban growth; the meaning of migration from the "less developed" regions to the "more developed" regions on regional policy; and the generated cost-benefits of movement among the individuals who move on one hand and those who elect to stay, on the other.

The broad policy issue, however, is not whether geographic mobility of the country's population should be encouraged or discouraged, but rather how its effectiveness can be strengthened and its adverse effects both at origin and destination be reduced to the minimum.

Table A. Population, Land Area and Density of the Philippines by Region: Censal Years 1960 and 1970

Region	Population		Per Cent Distribution		Inter-Censal Growth Rate (%)	Land Area (In sq. km.)	Density	
	1960	1970	1960	1970			1960	1970
I. Ilocos	1,303,437	1,604,418	4.81	4.37	2.05	16,200.3	80.46	99.04
II. Cagayan Valley	1,202,066	1,691,459	4.44	4.61	3.40	36,403.1	33.02	46.46
III. Central Luzon	3,690,996	5,100,095	13.63	13.90	3.22	23,646.0	156.09	215.69
IV. Southern Tagalog	5,502,240	8,325,247	20.31	22.69	4.14	47,513.1	115.80	175.22
V. Bicol Region	2,362,707	2,966,881	8.72	8.09	2.25	17,632.5	134.00	168.26
VI. Western Visayas	3,078,305	3,618,326	11.36	9.86	1.59	20,223.2	152.22	178.92
VII. Cental Visayas	2,522,802	3,032,719	9.31	8.27	1.82	14,951.5	168.73	202.84
VIII. Eastern Visayas	2,040,966	2,381,409	7.53	6.49	1.52	21,431.7	95.23	111.12
IX. Western Visayas	1,350,731	1,869,014	4.99	5.10	3.23	18,685.1	72.29	100.03
X. Northern Mindanao	2,111,291	3,016,865	7.79	8.22	3.55	39,844.9	52.99	75.72
XI. Southern Mindanao	1,922,142	3,078,053	7.10	8.39	4.72	43,468.0	44.22	70.81
Total, All Regions	27,087,685	36,684,486	99.99	99.99	3.01	300,000.0	90.29	122.28

SOURCE: Bureau of the Census and Statistics, Special Report No. 3, 1972.

Table B. Indicators of Migration Volume and Pattern by Region of Residence in 1970

	Percent of Total Population Born . . .			Percent of Population 10+ living in 1960 . .		Percent of Total Migrant Population Migrated . . .		Percent of Inter-Provincial Migrants . . .		Percent of Migrants 10+ Remaining within Province of Residence in 1960
	in same municipality	in same province	in same region	in same municipality	same province	within same province	within same region	remaining within region	moving to another region	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
I. Ilocos	86.5	91.4	94.8	90.9	93.6	36.1	64.0	41.0	59.0	30.0
II. Cagayan Valley	77.8	84.7	87.2	86.8	92.1	31.1	43.1	16.9	83.1	40.3
III. Central Luzon	83.9	90.0	93.9	89.1	92.5	38.0	63.9	39.9	60.1	31.6
IV. Southern Tagalog	67.2	73.2	78.4	76.6	81.7	18.3	35.5	19.6	80.4	21.9
V. Bicol	80.7	90.6	95.3	87.1	93.6	51.2	76.3	50.8	49.2	50.7
VI. Western Visayas	81.4	92.5	96.9	88.4	95.3	59.7	84.3	60.1	40.0	59.4
VII. Central Visayas	83.3	93.1	95.1	89.1	94.8	58.9	72.3	30.2	69.8	52.2
VIII. Eastern Visayas	86.6	94.5	96.6	80.7	95.7	59.2	75.1	37.9	62.1	53.9
IX. Western Mindanao	71.4	78.4	80.9	83.2	90.0	24.4	33.8	11.7	88.3	40.3
X. Northern Mindanao	70.2	76.5	82.3	78.7	84.2	21.2	40.9	24.6	75.4	25.8
XI. Southern Mindanao	59.0	64.6	67.6	74.4	80.9	13.6	21.5	8.6	91.4	25.2
XII. Manila	53.7	55.0	62.1	72.2	73.3	2.8	30.6	18.1	81.9	40.2
Philippines	75.2	82.4	86.4	83.5	89.1	28.8	46.9	23.3	76.7	33.9

SOURCE: 1970 Census, Tables IV-9 and IV-11, and unpublished tabulations.

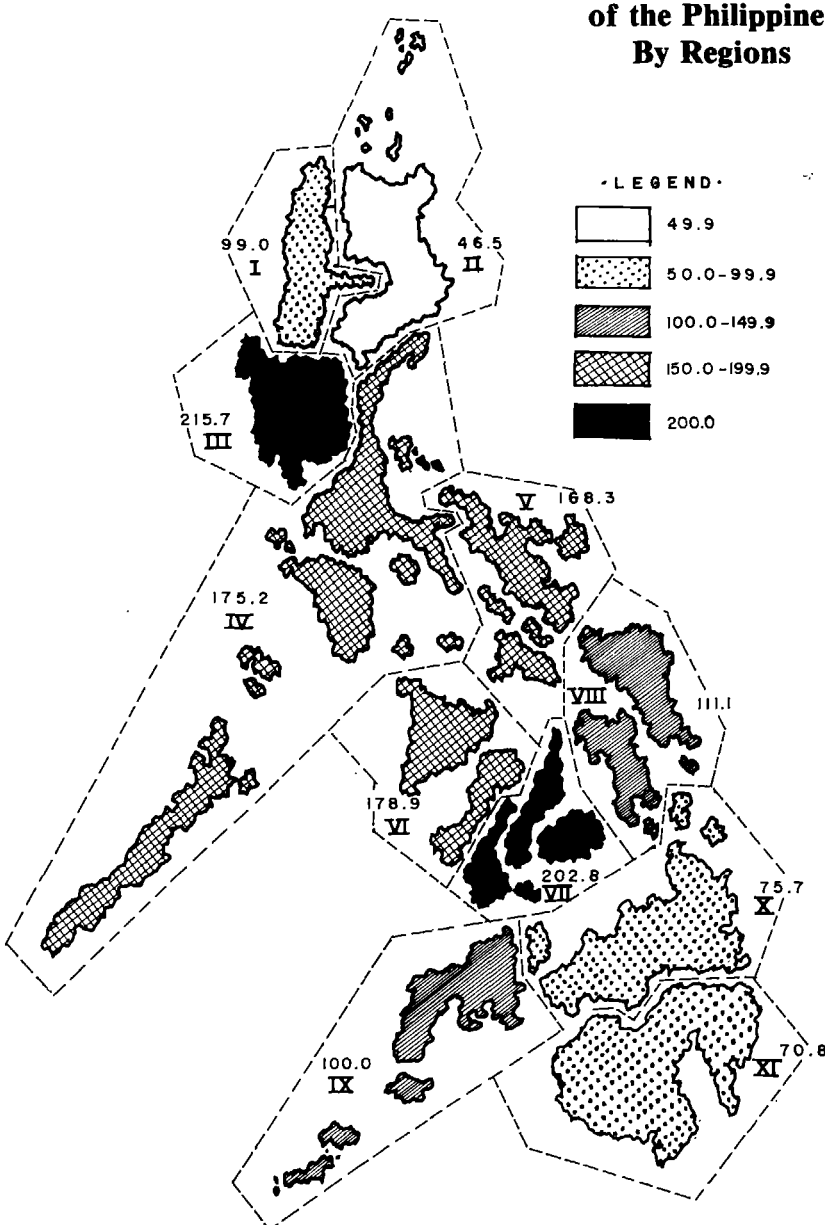
Table C. Lifetime and Period Migration Between Less Developed and More Developed Regions in the Philippines: Birth-to-1960 and 1960-to-1970

Region	1960			1960-1970		
	Number	Per Cent	Per Cent	Number	Per Cent	Per Cent
			OUT-MIGRATION			
LESS DEVELOPED REGIONS						
Total inter-regional move ments for all LDR's	1,589,385	46.05	100.00	824,419	39.42	100.00
From LDR's to MDR's	1,428,017	85.02	89.85	741,445	76.01	89.94
Between LDR's	161,368	9.11	10.15	82,974	7.43	10.06
MORE DEVELOPED REGIONS						
Total inter-regional move- ments for all MDR's	1,862,358	53.95	100.00	1,267,184	60.58	100.00
From MDR's to LDR's	251,562	14.98	13.51	234,035	23.99	18.47
Between MDR's	1,610,796	90.89	86.49	1,033,149	92.57	81.53
TOTAL OUT-MIGRATION	3,451,743	100.00	100.00	2,091,603	100.00	100.00
TOTAL INTER-MOVEMENTS [a]	1,679,579	100.00	48.66	975,480	100.00	46.64
TOTAL INTRA-MOVEMENTS [b]	1,772,164	100.00	51.34	1,116,123	100.00	53.36
			IN-MIGRATION			
LESS DEVELOPED REGIONS						
Total inter-regional move- ments for all LDR's	412,930	11.96	100.00	317.009	15.16	100.00
From LDR's to MDR's	251,562	14.98	60.92	234,035	23.99	73.83
Between LDR's	161,368	9.11	39.08	82,974	7.43	26.17
MORE DEVELOPED REGIONS						
Total inter-regional move- ments for all MDR's	3,038,813	88.04	100.00	1,774,594	84.84	100.00
From MDR's to LDR's	1,428,017	85.02	46.99	741,445	76.01	41.78
Between MDR's	1,610,796	90.89	53.01	1,033,149	92.57	58.22
TOTAL IN-MIGRATION	3,451,743	100.00	100.00	2,091,603	100.00	100.00
TOTAL INTER-MOVEMENTS	1,679,579	100.00	48.66	975,480	100.00	46.64
TOTAL INTRA-MOVEMENTS	1,772,164	100.00	51.34	1,116,123	100.00	53.36

NOTE: a-refers to population transfers from an LDR to an MDR
b-refers to population transfers between LDRs or between MDRs.

SOURCES: Bureau of the Census and Statistics, Housing and Population Census, 1970; Bureau of the Census and Statistics, Annex Table on Migration, Housing and Population Census, 1960.

Figure 1.
Density Map of the Philippines By Regions



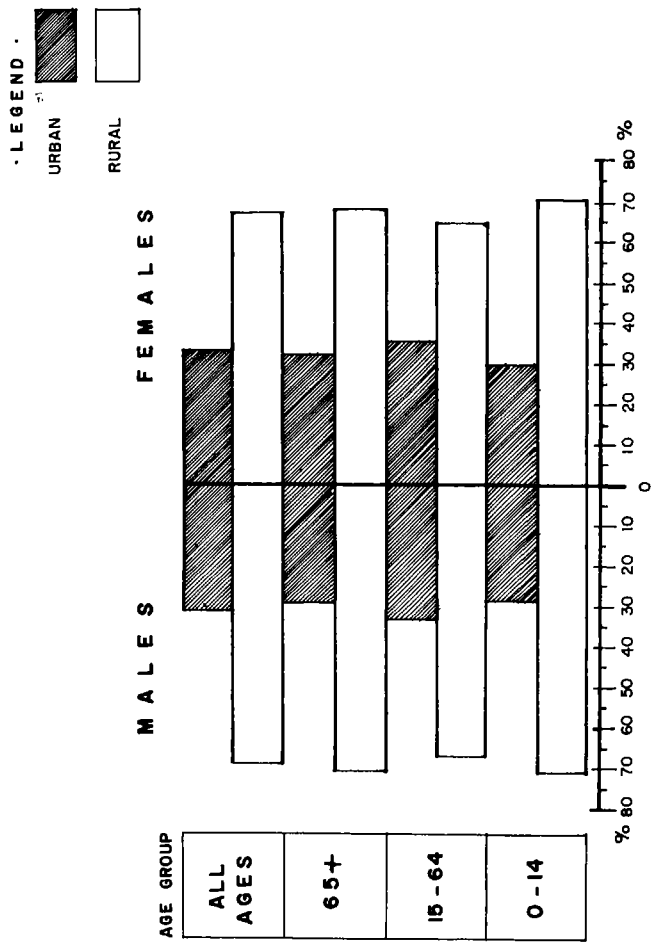


Figure 2. Age-Sex Distribution of Philippine Population in the Urban and Rural Sectors, 1970

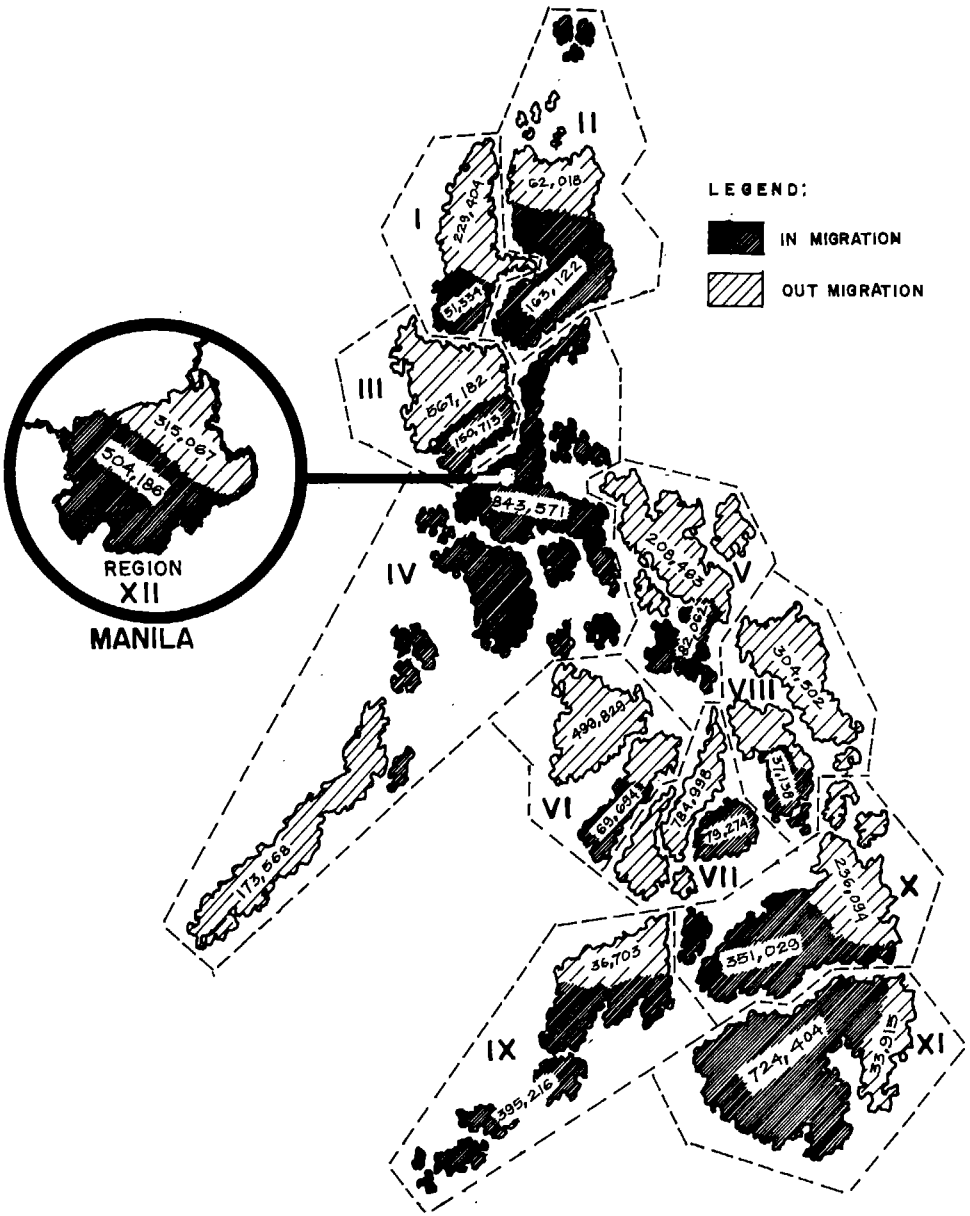


Figure 3. Volume of Lifetime Migration, Birth-to-1960 in Philippine Regions: 1960 Census

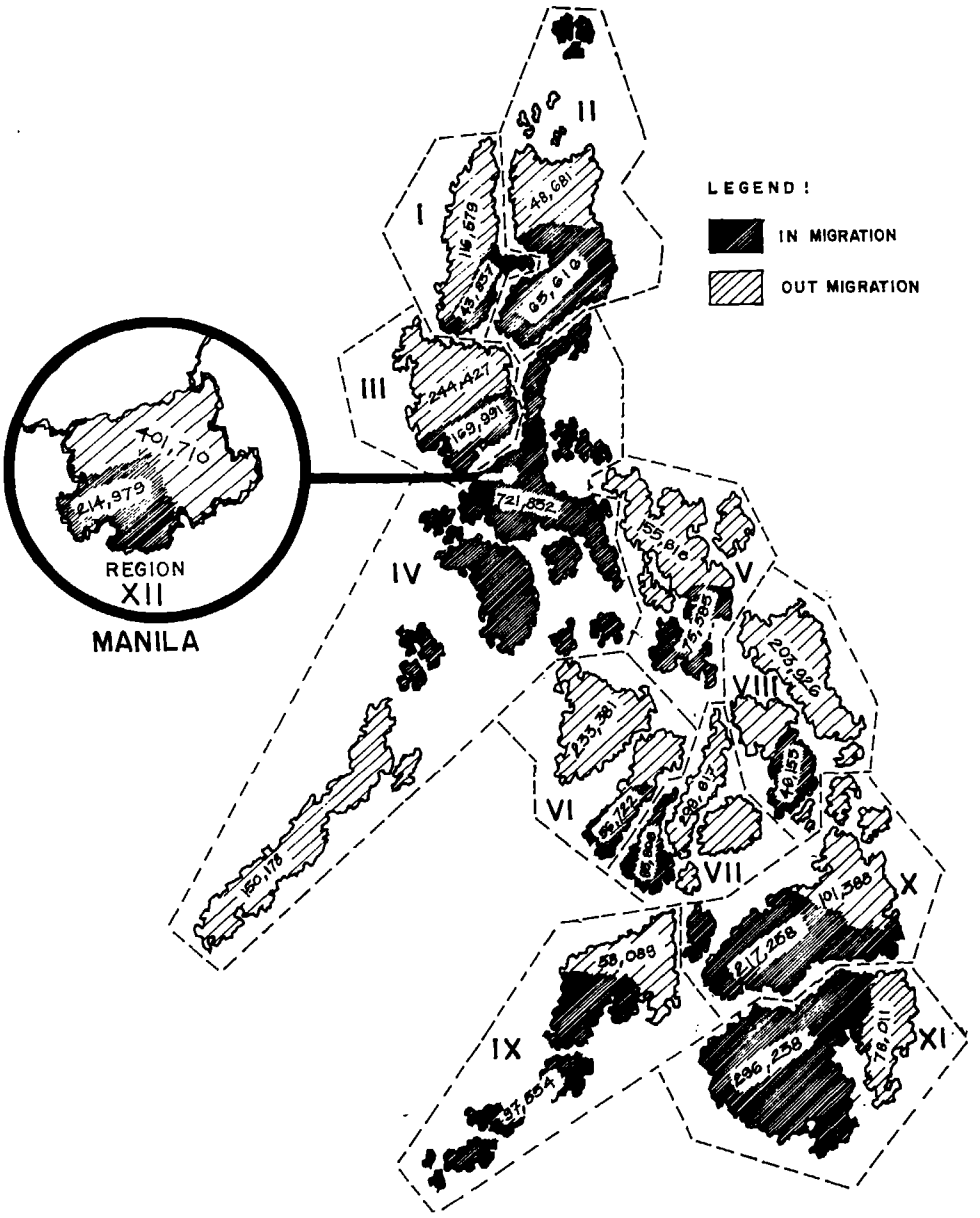


Figure 4. Volume of Period Migration, 1960-to-1970 in Philippine Regions: 1970 Census

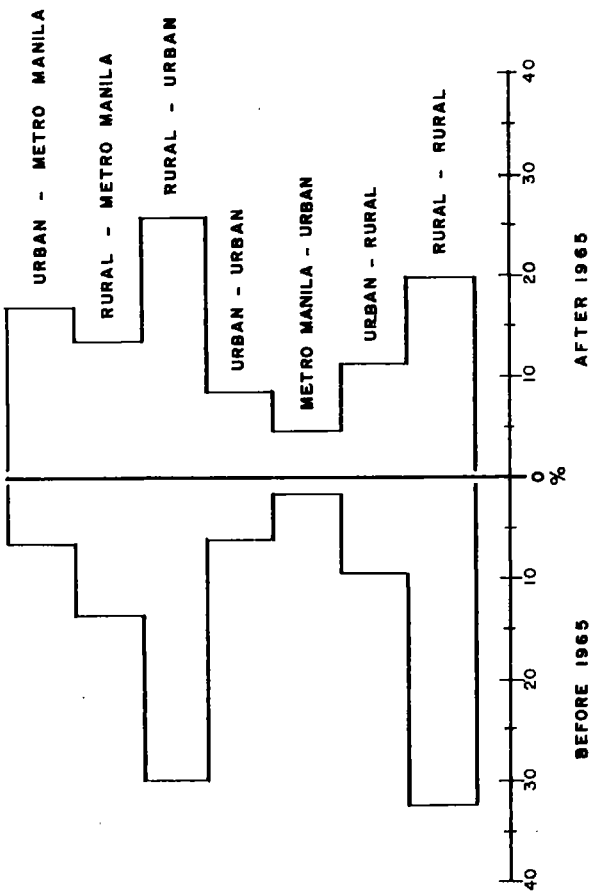


Figure 5. Types of Migration Streams in the Philippines Before and After 1965

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LABOR FORCE

IMELDA A. ZOSA

PHILIPPINE labor force statistics can be obtained from two main sources: censuses conducted since 1960[1] and regular household surveys begun in 1956. This discussion makes use of census results from 1960 and 1970 only.[2] Although some enumeration procedures varied, basic definitions used in these two censuses are similar. Using as reference period the week before enumeration, all persons 10 years old and over were categorized according to labor force status. Those categorized as employed and unemployed were members of the labor force while housekeepers, students, the disabled and the retired were non-labor force members.

Persons working for wages, salaries, profits or commissions, as well as without pay in a family or farm enterprise, constituted the employed. However, this group also included those with jobs but not working either because they were temporarily absent or on leave, or still due to report for a definite assignment or work. Classified mainly as unemployed were those not working but wanting and looking for work. Those not working and not looking for work but indicating the desire for employment were also grouped among the unemployed.

[1]Earlier censuses utilized the "usual occupation" approach. Please refer to the 1939 and 1948 publications listed at the end of the text.

[2]The 1960 and 1970 data used in the discussion are taken from the corresponding census volumes.

Size of the Labor Force

Data from the 1960 census show that about 31.5 per cent of all persons in the country were categorized as labor force members (Table 1). The proportion for 1970 was slightly higher (33.5 per cent). The number in the labor force actually swelled from 8,536,000 in 1960 to 12,300,435 in 1970. This increment of nearly 4,000,000 workers indicated a decadal change of about 44.1 per cent, a level slightly higher than the 35.4 per cent change of the total population.

Table 1. Population and Labor Force in 1960 and 1970

Year	Total Population (1)	Population 10 Years and Over (2)	Population 10 Years and Over in Labor Force (3)	Activity Rates		Refined Dependency Ratio (1-3) ÷ (3)
				Crude (3) ÷ (1)	Refined (3) ÷ (2)	
1960	27,087,685	17,873,060	8,536,000	31.5	47.8	*217
1970	36,684,486	25,122,640	12,300,435	33.5	49.0	198

These increases in the labor force have to be interpreted in the light of varied dates when these two censuses were taken. While the 1960 census was taken in February, the latter was conducted in May, a summer month when possibly a number of youngsters on vacation entered the labor force.

With the increase in the proportion of labor force members in the Philippine population, the dependency ratio also declined. In 1960, every 100 workers supported 217 dependents. The 'dependent' population is composed of the very young and the old as well as non-labor force members from ages 10 and above. With increased labor force participation in 1970, the burden decreased to 198.

As a proportion of those 10 years old and above, those in the labor force made up nearly half of this

sub-population in 1970 and slightly less in 1960 (about 47.8 per cent). This change has to be studied relative to changes occurring in the age-sex composition of the labor force.

The Labor Force by Sex and Age

The male labor force numbered nearly 6.4 million in 1960 and 8.4 million in 1970. Females in the labor force comprised a considerably smaller number with 2.2 million in 1960 and over 3.9 million in the latter year (Table 2). Converted into labor force sex ratios, for every 100 female workers in 1960 there were 291 male workers. The 1970 ratio dropped to 213, implying either an increase in female participation, a decrease among male workers or both patterns occurring simultaneously.

Actually, over two-thirds of the total male population 10 and over in both years were members of the labor force. However, the proportion declined in 1970 from 71.1 per cent to 68.1 per cent. The reverse can be noted among females.

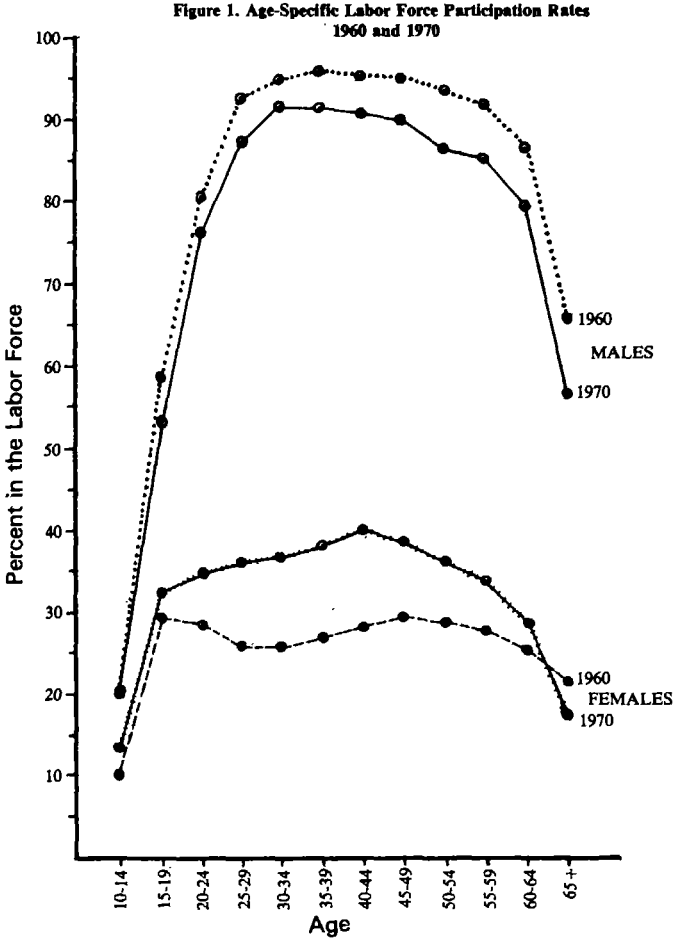
Table 2. Male and Female Labor Force Participation

Sex and Year	Total Population	Population 10+	Labor Force Population 10+	Activity Rates	
				Crude	Refined
Males					
1960	13,662,869	8,931,180	6,352,420	46.5	71.1
1970	18,250,351	12,287,332	8,370,760	45.9	68.1
Females					
1960	13,424,816	8,941,880	2,183,580	16.3	24.4
1970	18,434,135	12,835,308	3,929,675	21.3	30.6

The graph on age-sex labor force participation rates shows in detail this trend (Figure 1). Male rates by age group followed the universal pattern for both years. Participation rates start at low levels in the younger ages, increase rapidly in the 20s, reach their peak at ages 30-49 with rates exceeding 90 per cent, and decline slowly in the subsequent ages. However, declines in participation rates occurred for almost all ages in 1970. The only exception is the first age group, an effect of entry or increased participation of the young during vacation time.

Unlike those for males, female participation rates do not follow a defined pattern. In 1960, the highest levels of participation can be found among females 15-24 and around 45 years of age while lower rates can be noted among those aged 25-39. These initial findings suggest a close relationship between marital and maternal status and labor force participation in 1960. However, the pattern may have changed in 1970. As anticipated, the pattern of gradually increasing participation could be noted for those in the first age groups. However, the peak ages of participation had shifted to the middle age groups especially within and around the age group 40-44. In addition to such shifts, increased participation occurred in all age groups except among females 65 and over. While still being much lower than the rates for males, the pattern of female participation rates in 1970 somewhat resembled the prevailing age pattern for males.

This difference in age-sex composition of the labor force in the 1960-1970 period can be summarized as follows: as expected, males comprised the majority in the labor force although it appears that there is decreasing male labor force participation. Female labor force participation appears to have increased, most notably in the last census, although it was still significantly much lower than the level for males.



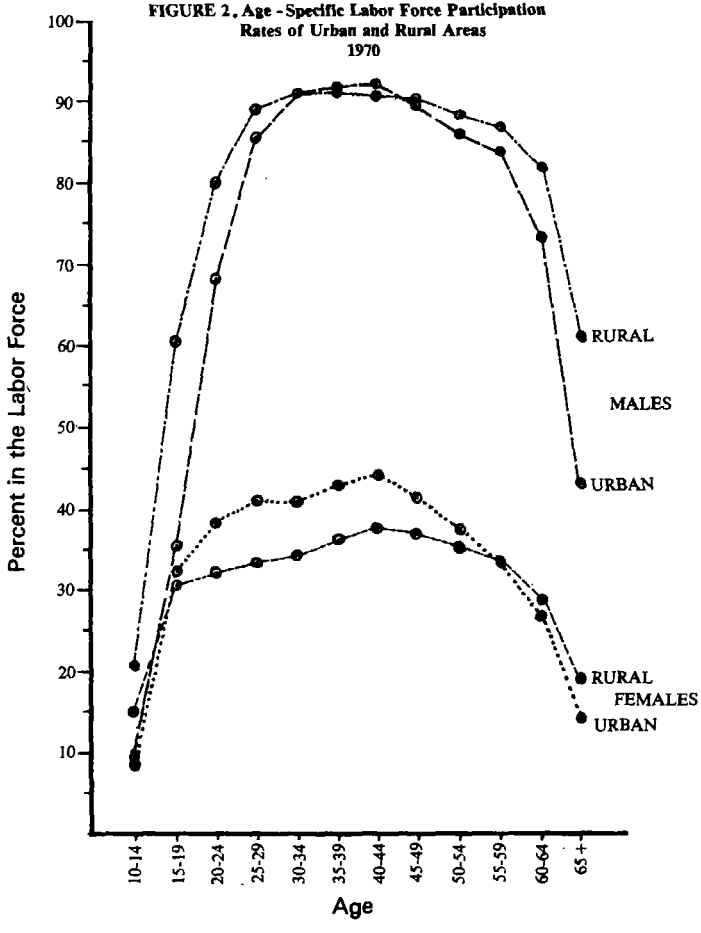
Urban-Rural Labor Force Participation Rates in 1970[1]

In 1970, both urban and rural areas manifested age-sex participation patterns relatively similar to levels prevailing for the country as a whole: low proportions were economically active in the youngest and oldest ages while peak participation occurred within the late 30s and early 40s (Figure 2).

[1]Due to differences in the definition of "urban" in 1960 and 1970 only the 1970 figures are given.

Compared to urban males, males in rural areas appeared to have higher rates of participation for almost all ages. The greatest differences occurred especially among those in the youngest age group (10-19) and among those 65 and over. The only exceptions were urban males aged 40-44 with their participation rate of 90 per cent registering the highest level of economic activity among all groups in the male population.

FIGURE 2. Age - Specific Labor Force Participation Rates of Urban and Rural Areas 1970



A divergent pattern occurred in each locale among females. Economic participation of urban females belonging to the broad age group, 15-54, notably exceeded participation of rural women within the same ages. It appears that the urban milieu may offer more "plus" factors, making it easier for more women to join the labor force. In contrast, rural females who belonged to extreme age groups tended to be more economically active than their urban counterparts. This was noted even for males. The very young and the elderly, regardless of sex considerations, may find economic participation in the rural communities easier than in an urban context.

Employment Status in 1960 and 1970

Of the total 8,536,000 labor force members in 1960, 7,944,450 were estimated as either employed for wages or salaries, working for profits or commissions, or participating as unpaid family workers. The number categorized as employed rose to 11,358,326 in 1970, representing an increase of about 43.0 per cent (Table 3). Viewed as proportions of the labor force, the employed comprised 93.1 per cent in 1960 and 92.3 per cent in 1970, signifying a decrease in shares despite the increase in actual numbers.

The employed in the male labor force numbered almost 6,000,000 in 1960 and 10 years later, 7,893,260. The increment amounted to nearly 2,000,000, although the number of employed males grew by 31.8 per cent. The percentage increase in the number of employed females was much more substantial. From 1,954,320 employed females in the earlier year, the number swelled to 3,465,066 in 1970. While the increment amounted to 1,510,746, the implied increase in the number employed was 77.3 per cent, a growth much larger than that for males.

Despite the considerable increase in the number

employed among females, the female employment rate declined slightly from 89.5 per cent in 1960 to 88.2 per cent in the latter census year. A comparison with rates for males reveals that female employment rates were always lower than those for males, and, unlike those for females, male employment rates did not change across the years.

Table 3. The Labor Force 10 Years Old and Over Who Were Employed and Unemployed, 1960-1970

Sex and Employment Status	Labor Force (N)		Difference Between 1960 & 1970	Per Cent Increase
	1960	1970		
BOTH SEXES	8,536,000	12,300,435	3,764,435	44.1
Employed	7,944,456	11,358,326	3,413,876	43.0
Unemployed	591,550	942,109	350,559	59.3
MALES	6,352,420	8,370,760	2,018,340	31.8
Employed	5,990,130	7,893,260	1,903,130	31.8
Unemployed	362,290	477,500	115,210	31.8
FEMALES	2,183,580	3,929,675	1,746,095	80.0
Employed	1,954,320	3,465,066	1,510,746	77.3
Unemployed	229,260	464,609	235,349	102.7
Sex and Employment Status	**Labor Force (%)**		**Difference Between 1960 & 1970**	**Per cent Increase**
	1960	**1970**		
BOTH SEXES				
Employed	93.1	92.3	-.8	-86.9
Unemployed	6.9	7.7	+.8	11.6
MALES				
Employed	94.3	94.3	.0	.0
Unemployed	5.7	5.7	.0	.0
FEMALES				
Employed	89.5	88.2	-1.3	12.4
Unemployed	10.5	11.8	1.3	12.4

The remaining portion of the labor force is made up of the unemployed. From 1960 to the summer of 1970, the unemployed rose by over 350,559, a numerical growth relatively higher than the growth among those employed. This can be noted as a phenomenon that affects females more acutely. Females who were unemployed as of 1970 were 102.7 per cent more than

those unemployed in 1960, a stark contrast to a figure of 31.8 per cent for males. Further compounding the problem is the relatively higher unemployment rate for females. Male unemployment rates in 1960 and 1970 did not exceed six per cent and appeared to have been relatively unchanged across the years. Those for females exceeded 10 per cent, with the 1970 rates surpassing the 1960 level by about 12.4 per cent.

The problem of unemployment in 1970 can be better observed if one looks at how it affects definite groups in the population. The rural and urban labor force displayed equal rates of unemployment although the notably high rates among females persist in both areas. On the whole, rural males had the lowest level of unemployment, 5.3 per cent, compared to urban males or to females of both sectors. However, it appears that female labor force members are disadvantaged in the rural areas; the over-all rate of unemployment is 13.3 per cent (Figure 3).

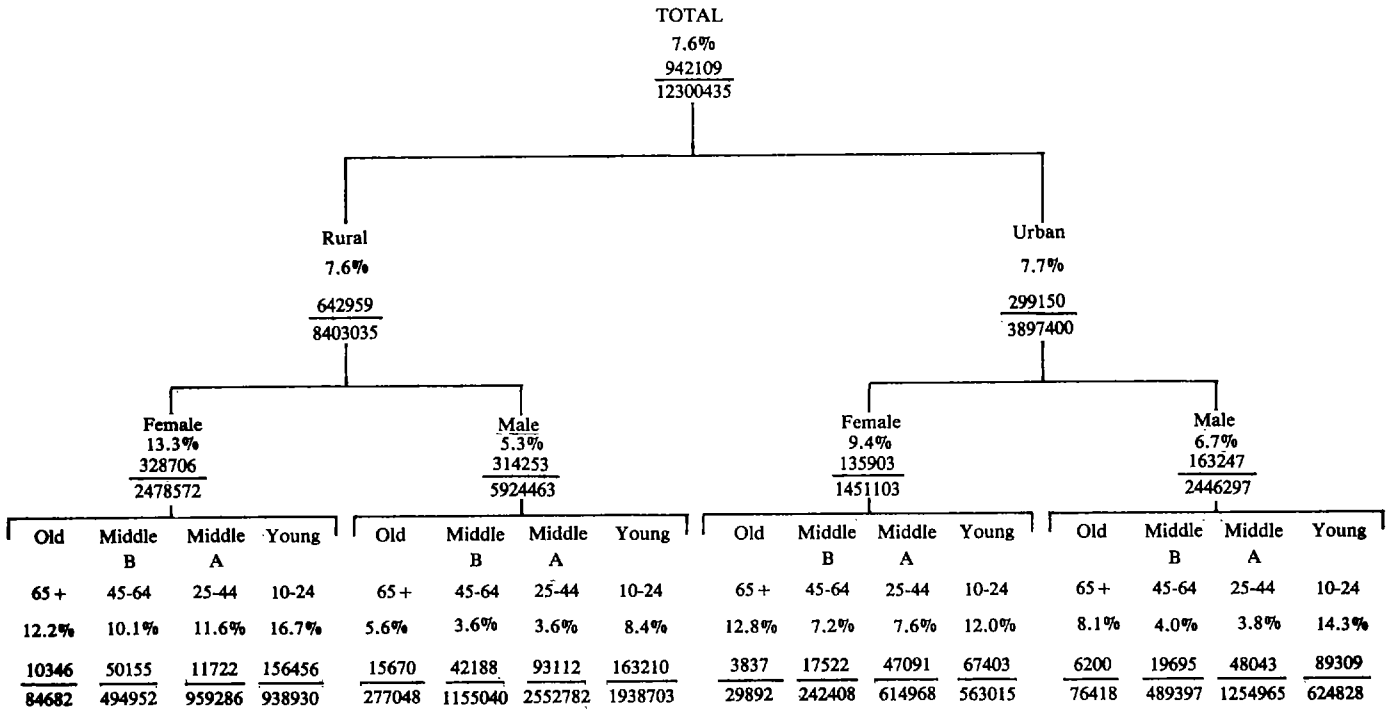
Other disadvantaged groups are the young and the elderly, although sex-areal differentials and time modified observations. The young displayed the highest rates of unemployment for each sex and locale. This can be expected considering the particular period that the 1970 census was taken. Among those aged 10-24, rural females had the highest rate (16.7 per cent) while urban males and females had slightly lower levels.

Trend in the Industrial Structure

About two-thirds of the 7,944,450 employed workers in 1960 belong to the agricultural sector. A shift toward non-agricultural activities appears to have occurred, and in 1970 the proportion of workers in agriculture declined to slightly over one-half of the total employed (Table 4).

May 1970 Census, Philippines [1]

Fig. 3. The Structure of Unemployment, May 1970 Census Philippines



[1]The detailed unemployment and labor force data do not always add up to the grand totals due to "not stated" entries.

However, it should be noted that agriculture persists as the major industry of most workers even as late as 1970.

Table 4. Trends in Industry of the Employed Labor Force, Philippines, 1960-1970

Industry	Number		Per Cent		Per Cent Change
	1960	1970	1960	1970	
Total	7,944,450	11,358,326	100.0	100.0	—
1. Agriculture, Hunting, Forestry & Fishing	5,162,060	6,099,866	65.0	53.7	-17.4
2. Mining & Quarrying	23,610	51,203	0.3	0.4	50.0
3. Manufacturing	837,710	1,353,878	10.5	11.9	13.1
4. Electricity, gas, water, & sanitary services	12,770	32,907	0.2	0.3	81.2
5. Construction	177,030	438,242	2.2	3.9	73.1
6. Commerce	505,690	838,461	6.4	7.4	15.9
7. Transportation, Communication & Storage	201,210	497,874	2.5	4.4	73.1
8. Services	911,050	1,861,667	11.5	16.4	42.9
9. Industries not adequately described	113,320	184,228	1.4	1.6	14.0
(1) Agriculture	5,162,060	6,099,866	65.0	53.7	-17.4
(2-8) Non-Agriculture	2,669,070	5,074,232	33.6	44.7	33.0

For both years, two sectors — services and manufacturing — ranked as the country's predominant industries next to agriculture. Service industries, with their generally marginal character and loosely structured entry requirements, registered the highest increase in proportion employed among the three major industries of the Philippines.

The slowest growth in employment occurred in the manufacturing sector. Notwithstanding the pace, the total number of manufacturing workers reached 1,353, 878 in 1970. The change in the commercial industry, the fourth largest sector, resembled the change in manufacturing. On the other hand, the remaining industries employed lower proportions of workers across the years, but registered substantial increases during the decade.

Taking males and females separately, the largest group of workers employed in specific industries in the 1960-70 period were found in agriculture, although the trend of decline in agricultural employment held true for

each sex (see Tables 5 and 6). Among males, only this sector registered negative change in relative proportion to total employment. The proportions in the larger industries like the commercial, manufacturing and service sectors appeared to have increased although these increases could not match the more ample increases in employment in the smaller sectors like transportation and communication.

Table 5. Trends in Industry Groups of the Employed Male Labor Force, 1960-1970

Industry	Number		Per Cent		Per Cent Change
	1960	1970	1960	1970	
Total	5,990,130	7,893,260	100.0	100.0	—
1. Agriculture, hunting, Forestry & fishing	4,396,960	4,929,510	73.4	62.4	-14.9
2. Mining & quarrying	22,630	48,599	0.4	0.6	63.2
3. Manufacturing	385,810	620,799	6.4	7.9	22.0
4. Electricity, gas, water & sanitary services	11,870	31,569	0.2	0.4	95.2
5. Construction	174,980	435,010	2.9	5.5	88.7
6. Commerce	263,150	379,659	4.4	4.8	9.6
7. Transportation, communication & storage	197,250	487,064	3.3	6.2	87.5
8. Services	445,070	823,497	7.4	10.4	40.4
9. Industries not adequately described	92,410	137,553	1.5	1.7	13.0
(1) Agriculture	4,396,960	4,929,510	73.4	62.4	-14.9
(2-8) Non-agriculture	1,500,760	2,826,197	25.5	35.8	43.0

Aside from decreased agricultural employment the proportion of females in manufacturing had also gone down. Among the industries that employed relatively large proportions of females, only the service and commercial sectors increased. Even these increases appeared to be moderate, if compared to those for males.

The more striking difference in industrial employment between males and females can be observed if industries would be broadly grouped into two: agricultural and non-agricultural (see lower portion of Tables 5 and 6). Females were predominantly non-agricultural workers;

the proportions for 1960 and 1970 were 59.8 and 64.9 per cent, respectively. Males were mainly agricultural workers with 73.4 and 62.4 per cent noted for the respective years under discussion. Despite such disparities, the decline in agricultural employment among males was slightly higher compared to that for females. Correspondingly, male employment in non-agricultural work has increased more substantially.

Table 6. Trends in Industry Groups of the Employed Female Labor Force, 1960-1970

Industry	Number		Per Cent		Per Cent Change[a]
	1960	1970	1960	1970	
Total	1,954,320	3,465,066	100.0	100.0	—
1. Agriculture, hunting, Forestry & fishing,	765,100	1,170,356	39.2	33.8	-13.7
2. Mining & quarrying	980	2,604	0.0	0.1	60.0
3. Manufacturing	451,900	733,079	23.1	21.2	-8.5
4. Electricity, gas, water & sanitary services	900	1,338	0.1	0.0	-20.0
5. Construction	2,050	3,232	0.1	0.1	18.2
6. Commerce	242,540	458,802	12.4	13.2	6.7
7. Transportation, communication & storage	3,960	10,810	0.2	0.3	50.0
8. Services	465,980	1,038,170	23.8	30.0	25.7
9. Industries not adequately described	20,910	46,675	1.1	1.4	26.2
(1) Agriculture	765,100	1,170,356	39.2	33.8	-13.7
(2-8) Non-agriculture	1,168,310	2,248,035	59.8	64.9	8.5

[a]Figures were taken from unrounded values for 1960 and 1970.

Trends in Occupational Structure

Accompanying the shifts in industrial structure are similar changes occurring in the specific types of activities done by workers (Table 7). Farmers, comprising the largest segment of workers for both years, decreased from 65.6 to 53.0 per cent of the total employed for both years.

Among all non-farm workers, the largest proportion employed in the 1960-1970 period were craftsmen,

service and sales workers. However, these groups did not increase considerably. Of all blue-collar workers, only transportation and communication workers attained large increases in employment.

The entire blue-collar group expanded by 35.6 per cent. This figure was lower compared to the 44.3 per cent growth among white-collar workers brought about by positive changes for each constituent major occupational category, more significantly among professionals.

Table 7. Trends in Occupation of the Employed Labor Force, Philippines, 1960-1970

Occupation	Number		Per Cent		Per Cent Change
	1960	1970	1960	1970	
Total	7,944,450	11,358,326	100.0	100.0	—
1. Professional, technical and related Workers	233,390	648,469	2.9	5.7	94.2
2 Administrative, executive and managerial workers	48,630	137,714	0.6	1.2	100.0
3. Clerical workers	179,270	369,493	2.3	3.2	43.8
4. Sales workers	486,080	774,962	6.1	6.8	11.4
5. Farmers, fishermen, hunters, loggers, & related workers	5,214,160	6,022,386	65.6	53.0	-19.2
6. Miners, quarrymen, and related workes	16,620	32,612	0.2	0.3	38.1
7 Workers in transport & comm.	177,560	500,333	2.2	4.4	96.4
8. Craftsmen, production, process workers, & laborers, NEC	869,770	1,639,209	11.0	14.4	31.8
9. Service, sports & related' workers	485,640	860,407	6.1	7.6	24.1
10. Stevedores & related freight handlers & laborers, NEC	181,520	243,365	2.3	2.1	-6.1
11. Occupation unidentifiable, members of the Armed Forces	51,810	65,155	0.6	0.6	-12.3
12. Not stated	-	64,221	-	0.6	-
(1-4) White-collar	947,370	1,930,638	11.9	17.0	44.3
(6-8,10) Blue-collar	1,245,470	2,415,519	15.7	21.3	35.6
(9) Service	485,640	860,407	6.1	7.6	24.1
(5) Farm	5,214,160	6,022,386	65.6	53.0	-19.2

The results on occupational structure by sex agree with the above findings on industrial structure. The majority of males held agricultural occupations across the years, although the proportion also went down from 74.2 per cent in 1960 to 61.6 per cent in 1970. Despite such reductions, the number of male farmers were still close to five million in 1970.

The proportions of males employed in all non-agricultural occupations increased positively. Large increases occured in occupations employing smaller proportions of males (as in the professional administrative group) as well as those in the larger group of craftsmen.

Viewed in terms of occupational classes of workers, most non-agricultural male workers were in the blue-collar category which increased by 61.2 per cent and swelled to 1,698,884 in 1970. Another noteworthy aspect is the slow expansion registered in the white collar segment; the rate was slower compared to those in the blue-collar and service categories.

The changes occurring in the types of activities performed by employed females resembled those for

Table 8. Occupations of Employed Males, 1960-1970

Occupation	Number		Per Cent		Per Cent Change
	1960	1970	1960	1970	
Total	5,990,130	7,893,260	100.0	100.0	—
1. Professionals, technical and related workers	114,140	283,124	1.9	3.6	88.0
2. Proprietors, managers, administrators & officials	41,600	98,658	.7	1.2	81.2
3. Clerical office & related workers	138,070	231,259	2.3	2.9	27.4
4. Salesmen & related workers	239,760	334,416	4.0	4.2	6.0
5. Farmers, farm laborers, fisherman, hunters, lumberman & related workers	4,444,500	4,859,572	74.2	61.6	-17.0
6. Workers in minequarry & related occupations	16,270	32,185	.3	.4	51.8
7. Workers in operating transport occupations	174,060	492,744	2.9	6.2	114.4
8. Craftsmen, factory operations & workers in related occupations	435,320	942,329	7.3	11.9	64.2
9. Manual workers & laborers, NEC	173,890	231,626	2.9	2.9	1.0
10. Service & related workers	164,460	294,397	2.8	3.7	35.6
11. Occupation not reported (occupation unidentified members of AFP)	48,060	58,475	.8	.7	-7.5
12. Not stated	—	34,475	—	.4	—
(1-4) White-collar	533,570	947,457	8.9	12.0	34.8
(6-9) Blue-collar	799,540	1,698,884	13.4	21.5	61.2
(5) Farmers	4,444,500	4,859,572	74.2	61.6	-17.0
(10) Services	164,460	294,397	2.8	3.7	35.6

males, **first**, in the decline of the group of farmers and related workers. But it should be pointed out that this particular group employed the largest number of female workers in a single category: 769,660 in 1960 compared to 1,162,814 in 1970. **Second**, the proportion in white-collar occupations increased in almost the same degree as did those for males. This was the only broad group that registered an increase; the proportions in all other categories declined, although not as considerably as did the farmer category.

Table 9. Occupations of Employed Females, 1960-1970

Occupation	Numbers		Per Cent		Per Cent Change
	1960	1970	1960	1970	
Total	1,954,320	3,465,066	100.0	100.0	—
1. Professional, technical and related workers	119,250	365,345	6.1	10.5	72.8
2. Proprietors, managers, administrators & officials	7,030	39,056	.4	1.1	213.9
3. Clerical office & related workers	41,200	138,234	2.1	4.0	89.1
4. Salesman & related workers	246,320	440,546	12.6	12.7	.9
5. Farmers, farm laborers, Fishermen, hunters, lumberman & related occupations	769,660	1,162,814	39.4	33.6	-14.8
6. Workers in minequarry & related occupations	350	427	.0	.0	-50.0
7. Workers in operating transport occupations	3,500	7,589	.2	.2	22.2
8. Craftsmen, factory operations & workers in related occupations	434,450	696,880	22.2	20.1	-9.5
9. Manual workers & laborers, NEC	7,630	11,739	.4	.3	-12.8
10. Service & related workers	321,180	566,010	16.4	16.2	-.6
11. Occupation not reported (occupation unidentified members of AFP)	3,750	6,680	.2	.2	.0
12. Not stated	—	29,746	—	.9	—
(1-4) White collar	413,800	983,181	21.2	28.4	34.0
(6-9) Blue-collar	445.930	716,635	22.8	20.7	-9.4
(5) Farmers	769,660	1,162,814	39.4	33.6	-14.8
(10) Services	321,180	566,010	16.4	16.3	-.6

Trends in the Status of Workers

The status of workers in the various economic activities indicate the extent of organization involved in the pursuance of these activities. The presence of wage and salary workers imply the existence of defined recruitment and termination arrangements and the relative regularity of income throughout a period. In 1960, less than 30 per cent of all employed workers

Table 10. Trends in Class of Workers of the Employed Labor Force, Philippines, 1960-1970

Class of Worker	Number		Per Cent		Per Cent Change
	1960	1970	1960	1970	
Total	7,944,450	11,358,326	100.0	100.0	—
Wage and salary worker					
Private employee	1,914,730	3,895,364	24.1	34.3	42.3
Government employee	407,560	822,038	5.1	7.2	41.1
Own-account workers					
Self-employed	3,610,810	4,200,867	45.4	37.0	-18.6
Employer	43,590	154,699	0.6	1.4	147.3
Unpaid family worker	1,959,690	2,241,337	24.7	19.7	-20.0
Not reported	8,070	44,021	0.1	.4	290.0
Male	5,990,130	7,893,260	100.0	100.0	—
Wage and salary worker					
Private employeee	1,346,380	2,695,461	22.5	34.2	51.9
Government employee	293,670	486,638	4.9	6.2	25.7
Own-account workers	3,055,500	3,366,275	51.0	42.6	-16.4
Employer	33,930	103,562	0.6	1.3	129.8
Unpaid family worker	1,254,660	1,220,190	21.0	15.5	-26.2
Not reported	5,990	21,134	0.1	0.3	170.0
Female	1,954,320	3,465,066	100.0	100.0	—
Wage and salary workers					
Private employee	568,350	1,199,903	29.1	34.6	19.1
Government employee	113,890	335,400	5.8	9.7	66.0
Own-account workers					
Self-employed	555,310	834,592	28.4	24.1	-15.2
Employer	9,660	51,137	0.5	1.5	202.0
Unpaid family worker	705,030	1,021,147	36.1	29.5	-18.3
Not reported	2,080	22,887	0.1	0.7	500.0

belonged to this category with the private sector apparently the main employer of such workers (24.1 per cent). Wage and salary workers increased markedly to make up 41.5 per cent of total workers in 1970. Growth in proportional employment was parallel in both private and government institutions (Table 10).

Those working on their own account comprised the largest group in 1960 (46.0 per cent). The majority were mainly working without employing other persons. In 1970, the proportion of own-account workers lessened to about 38.3 per cent of the total with the decline occurring only among the non-employing self-employed while the number and proportion of employers more than doubled.

Unpaid family workers belong to loosely defined organizations with home or clan arrangements dictating the structure of such activities. As of 1960, one out of every four workers in the country were unpaid family workers. These workers actually constitute a declining minority: one out of five workers belonged to the same category in 1970.

The status of male and female workers varied. Female workers in 1960 were concentrated in the two extreme status groups; over two-thirds were either wage and salary or unpaid workers with the latter comprising the larger group. About ten years later, female wage and salary workers swelled to 44.3 per cent while those in the latter group diminished to 29.5 per cent. The bulk of employed males for both years could be found as working on their own account (51.6 per cent and 43.4 per cent in 1960 and 1970, respectively). This group, however, contracted in size due to a decrease in the proportion self-employed without workers under their pay. A similar pattern could also be noted for females although the proportion of own account workers among employed females for the two successive periods comprised only 28.9 and 25.5 per cent, respectively.

Summary

This chapter's examination of the country's population reveals that one out of every three persons in the Philippines is a member of the labor force. However, being a labor force member does not warrant absorption; open unemployment across the 1960-70 period appeared to have increased slightly, although the figures involved are affected by seasonal changes. Moreover, most Filipino workers are still in the traditional sector although a shift toward non-agricultural activities appears to have occurred.

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POPULATION POLICY AND FAMILY PLANNING

MERCEDES B. CONCEPCION

History of Population Concern

ALTHOUGH a United Nations-commissioned study of manpower growth in the Philippines in 1957 indicated a much higher rate of population increase than that evident from the 1948 population census, a result which was later confirmed by the 1960 enumeration results, nothing much was done until late 1962 when a population and development mission visited Manila under the auspices of the Ford Foundation. The mission had as one of its objectives the establishment of national institutes to study population in all its aspects. Negotiations between the University of the Philippines and the Ford Foundation ultimately led to the establishment in 1964 of a Population Institute at the University (UPPI) with initial support from the Ford Foundation. The Institute began to train demographers, initiated a research program on population matters significant for planning and administrative purposes and served as a focal point for data dealing with population.

In 1965, during the first Conference on Population which took place under the joint auspices of the University of the Philippines Population Institute (UPPI) and the National Science Development Board (NSDB), a study made by Dr. Frank W. Lorimer of the UPPI indicated that maintaining the current fertility rate

till the end of the century would result in a Filipino population of some 111 million persons. It was not till October 1968, however, that the Philippine government set up a Project Office on Maternal and Child Health in the Department of Health with overall responsibility for administering a population planning program.

Although family planning had been quietly promoted by Protestant missionaries since the 1920s, it was only in 1965 that two family planning associations were organized: the Planned Parenthood Movement of the Philippines and the Family Planning Association of the Philippines. These two associations merged to become the Family Planning Organization of the Philippines in 1969. Meanwhile, the Manila City Health Department, with financial assistance from the Population Council, introduced family planning services in seven health centers throughout the city. These clinics, named pre-pregnancy clinics, steadily grew in number until all 40 health centers in Manila were involved.

While the private sector pioneered in the family planning movement, the government's commitment expressed through Executive Order Nos. 171 (February, 1969) and 233 (May, 1970) accelerated the expansion and growth of the movement. The first Executive Order established a Commission on Population to undertake studies of the Philippine population in all its aspects and to formulate policy and program recommendations on population as it relates to economic and social development. The group submitted its recommendations in September 1969 and President Marcos approved the Commission's recommended statement on population policy and program in December 1969. The second Executive Order empowered the Population Commission to coordinate and direct the national population program as an integral part of the national development strategy. An Executive Director was appointed in June 1970 with responsibility for program operation.

The Population Act (Republic Act No. 6365), establishing a national policy on population was signed into law on 15 August 1971. The Philippine Congress declared "that for the purpose of furthering national development, increasing the share of each Filipino in the fruits of economic progress and meeting the grave social and economic challenge of a high rate of population growth, a national program of family planning which respects the religious beliefs of the individuals involved shall be undertaken."

With the proclamation of martial law in September 1972, Republic Act No. 6365 was revised through Presidential Decree No. 79 (December 1972) which explicitly involved public and private sectors in the national family planning program. The role of the Commission was also expanded by authorizing it to distribute contraceptives through commercial channels and paramedic personnel. Presidential Decree Nos. 166 (March 1973) and 803 (September 1975) recognized the private sector's role in the formulation and implementation of population policy by granting them representation in the Commission's Board of Commissioners.

Since the promulgation of the Population Act of 1971 and its subsequent amendments, the following measures have been adopted:

- Family planning became an important part of the Four-Year Development Plan.
- The government's share in the family planning budget rose from zero in FY 71 to 61 per cent in FY 76.
- More government agencies became involved in the family planning program.
- A population education program was initiated at the elementary and secondary school levels.
- Courses in family planning and population dynamics were integrated in the curricula of all schools of medicine, nursing, midwifery, allied medical professions, and social work.

- Tax exemptions for dependents were limited to only four dependents.
- Maternity leave benefits were reduced to the first four deliveries only.
- Establishments required by law to maintain a clinic or infirmary were enjoined to provide free family planning services to their employees.
- Importation of contraceptives was legalized and subsequently, distribution of contraceptives was allowed not only at duly licensed drugstores and pharmacies but in all other commercial channels of distribution.
- All collective bargaining agreements were required to contain a provision for family planning services to all workers covered by such agreements before these could be certified.
- Modern surgical techniques of contraception were deemed acceptable provided these methods did not involve abortion.

The Philippine Family Planning Program

The national family planning program operates from a broad and multi-sectoral base. It has identified four major areas of activity: (a) delivery of family planning services through clinics situated all over the country; (b) training of all types and levels of personnel in the program; (c) information, education and communication; and (d) research and evaluation.

The original goal in FY 1970-71 was to reduce the intercensal population growth rate from 3.01 per cent in the 1970s to 2.47 per cent in FY 1977 by the phased involvement of family planning clinics and by the recruitment of an average of 50,000 acceptors monthly. The program is voluntary and non-coercive, featuring a wide selection of contraceptive methods.

The primary role of the Commission on Population is that of central coordinator, orchestrating the development and administration of individual programs. As the policy-making, planning and funding agency of the government for population matters, it refrains from direct implementation of projects.

In fulfilling its role, the Commission follows a strategy of "integration" and "multi-agency participation." Aware that the population problem cannot be isolated from other problems of development, it has integrated family planning into existing programs in health, education, social welfare and community development. To make full use of existing resources, it has drawn a good number of public and private agencies into its program.

In all its activities, the Commission recognizes the right of every couple to choose their own method of family planning, in accordance with their moral convictions and religious beliefs.

Although organized family planning services had been provided by various agencies since 1964, it was only in mid-1970 that a nationwide family planning program was started. From then on, the expansion of the program has been impressive as can be seen from Table 1. At the end of fiscal year 1970 there were only 248 clinics mostly concentrated in large cities; now there are 2,719 clinics spread all over the country.

As a result of clinic expansion, the annual number of new acceptors has grown from the initial 56,000[1] in FY 1970 to 546,300 in FY 1975, adjusting for over-reporting and transferees. Correspondingly, adjusted cumulative acceptors increased from 56,000 in FY 1970 to 2.4 million at the end of FY 1975. These figures together with the unadjusted number of acceptors are shown in Table 1. During FY 1975 there were some 728,400 reported new acceptors; of these, however, 30 per cent

[1]Covers the period January to June 1970 only.

were estimated to be cases of over-reporting and transferees. The adjusted number of acceptors recruited for FY 1975, therefore, was much less than the target of 889,400 for that year. Assuming the adjusted number to be correct and allowing for an annual mortality and

Table 1. Eligible Population, Number of Acceptors and Users, 1970-1977

Period[a] (1)	Eligible Population[b] (00 s) (2)	Actual Number of New Acceptors[c] (3)	Adjusted No. of Acceptors[d] (000 s) (4)	Target No. of Acceptors[e] (000 s) (5)	Adjusted Target No. of Acceptors[f] (6)	No. of Continuing Users[g] (000 s) (7)
1970	4,339.3	72.2	56.1	—	—	47.6
1971	*4,471.6	298.5	237.0	345.0	—	226.9
1972	4,640.6	536.1	428.4	576.0	—	505.4
1973	4,805.3	701.3	552.6	665.3	439.1	786.9
1974	4,976.5	802.4	619.5	804.7	515.0	1013.4
1975	5,154.3	728.4	546.3	889.4	551.4	1122.3
1976	5,380.7	—	—	1224.0	911.2	1259.2
1977	5,614.3	—	—	816.0	607.5	1316.5

[a] 1970 : covering the period January—June
1971-1975: covering the Fiscal Year (July-June) period
1976 : covering 1 July 1975 to 31 December 1976
1977 : covering the calendar year (January-December) period.

[b] Currently married women aged 15-44. The proportions married (Smith, 1974) Projected Median Series were applied to the projected population NCSO Median Series (Monograph No. 2).

[c] Data taken from POPCOM Report. 1976 and 1977 were based on the assumption of 68,000/month turn-out. June 1975 method mix was assumed to prevail until 1977.

[d] Adjusted for over-reporting and transferees (rates from NAS 1974) as well as for 4 per cent mortality and sterility.

[e] 1971 to 1975 figures were obtained from the "Four Year Development Plan, FY 1974" prepared by NEDA. 1976 and 1977 figures were based on assumed 68,000 monthly turn-out of new acceptors and June 1975 method mix to prevail until 1977.

[f] Adjusted for over-reporting and transferees (rates from NAS 1974).

[g] UPPI estimates of prevalence were utilized. First and All Method Continuation rates were applied to adjusted number of acceptors. For period subsequent to 1972, continuation rates for the year were applied.

sterility rate of four per cent, the number of cumulative users at the end of FY 1975 would appear to be in the order of 1,122,300. This is around 21 per cent of all eligible women, defined as all married women between the ages 15-44 years.

The degree of government concern over population growth is indicated by the amount of funds devoted to family planning. Prior to 1971, population programs had no national budget. During the years 1972-1975, the government allocation rose from ₱8.2 million to ₱60.8 million. At the same time, these amounts were augmented by substantial additional funds from external sources. Assistance from the U.S. Agency for International Development started in FY 1968 with funds for private organizations that were providing services to a small but growing number of acceptors. Through 1975, AID inputs into the program have been estimated at over ₱200 million. Another contributor of growing importance is the United Nations Fund for Population Activities which signed a five-year agreement with the Philippines in 1972 for projects amounting to $5 million. In the list of private donors may be cited the International Planned Parenthood Federation, the Pathfinder Fund, the Family Planning International Assistance, the Population Council, and the Ford and Rockefeller Foundations.

Family Planning Program Impact

The success of the program depends a lot on the types of contraceptive methods used as well as the continuation and pregnancy rates. These rates appear in Table 2. It can be seen that two years following acceptance, 53 per cent of the women who initially accepted the pills were still using some form of contraception, although

only 42 per cent remained with pills. As expected, the IUD had the highest continuation rates followed by the pills, rhythm, and other methods. It is encouraging to note that in comparison with other family planning programs in Asia, the first-method continuation rates of the IUD and pill acceptors in the Philippines appear favorable.

While the pills are clinically superior to the IUD, under actual social conditions in the Philippines both have practically the same effectiveness. The reason is that factors such as motivation, negligence, and forgetfulness affect the actual effectiveness of the pills. The IUD, on the other hand, once in use is very much less affected by these factors. It is clear from the same table that IUD and pills are the most effective methods with a 24-month failure rate of about seven per cent. As can be

Table 2. Two Year First Method and All-Method Continuation Rates and Failure Rates, Philippines 1970-1972

Method	Year of Acceptance	2-Year Continuation Rates		2-Year Failure Rates	
		First Method	All Methods		All Methods
Pills	1970	42	53.0	4.7	10.6
	1971	37	43.7	5.2	11.9
	1972	32	40.8	8.8	18.6
	All Years	35	43.7	6.8	15.0
IUD	1970	65	78.1	4.8	8.1
	1971	57	68.5	6.1	7.1
	1972	53	67.8	6.8	9.4
	All Years	58	70.3	*	8.4
Rhythm	1970	(51)	—	28.4	(28.4)
	1971	(38)	42.3	35.9	36.1)
	1972	(36)	45.9	27.8	27.9
	All Years	41	46.9	30.5	31.3
Condom	1970	—	—	—	—
	1971	—	—	—	—
	1972	(11)	24.7	15.0	(29.3)
	All Years	(15)	29.9	15.0	(27.8)

Note: Figures within parentheses denote rates based on more than 10 but less than 50 cases.

* Weighed data not available.

SOURCES: Philips, J.F. and Z.C. Zablan, "Trends in First Method Continuation and Pregnancy Rates for the Philippine Program Over the 1970-1972 Period," University of the Philippines Population Institute *Research Note No. 28,* 1974, and, "Trends in All-Method Continuation and Pregnancy Rates for Women Who Accepted Over the 1970-1972 Period, 1974, NAS," University of the Philippines Population Institute *Research Note No. 30,* 1975.

expected, the worst method is rhythm, with a 31 per cent two-year failure rate.

Because of differential failure rates among contraceptive methods, it should be obvious that the effectiveness of the family planning program in reducing births willl depend, among other things, on the method distribution of acceptors. As far as new acceptors are concerned, the method mix clearly favors the highly effective ones. It is unfortunate, however, (see Table 3) that over time the trend in the mix has been going against the IUD and that, until very recently, the proportion of new pill acceptors had also dropped. Furthermore, analysis of method changes and reacceptance clearly indicates a net movement toward less effective methods.

Findings from the 1968 and 1973 National Demographic Surveys taken in conjunction with program statistics revealed that the early years of the program affected attitudes toward contraception and family size, knowledge about high quality methods and use of contraception, especially pills. However, none of these effects were large enough. The median number of children in 1973 was still about four, nearly twice what it should be to reduce population growth to the replacement level through purely voluntary means. Unconditional approval for contraception was held by only 60 per cent of the married women of reproductive ages, although unconditional disapproval had declined markedly. Nearly

Table 3. Trend in Contraceptive Method Mix: FY 1971–1975 (Adjusted Figures)

	Pills	IUD	Rhythm	Comdom	Others
	Per Cent				
FY 1971	59.9	25.5	8.8	2.9	2.9
FY 1972	64.0	19.0	6.8	8.1	2.1
FY 1973	60.6	16.3	6.1	15.0	2.0
FY 1974	57.7	13.6	5.4	19.7	3.6
FY 1975	57.8	9.6	5.3	20.5	6.8

SOURCE: Commission on Population.

three-fourths (72 per cent) of the married women of reproductive age said that they had not yet tried any method of contraception, and less than one-fifth (18 per cent) said they were using a method at the time of the survey. Only 10 per cent were using the most highly effective program methods (pills and IUD). The changes in prevalence and method mix were estimated to have reduced marital fertility by about five per cent, although the decline in overall fertility was probably somewhat greater.

The extent of the program's influence by 1973 was better seen in the urban sectors where two-thirds to three-fourths of respondents knew of a family planning clinic. The effect of program clinics on current practice varied slightly across all places of residence.

A positive association existed between educational level and knowledge of family planning clinic. Spectacular increases in knowledge were recorded for women with primary education as compared to those wives who had not gone to school. While no direct relationship could be traced between current use of a clinic method and educational attainment, it was very evident that current use of a clinic method nearly doubled among married women with college education when contrasted to unschooled wives. These findings argue for a change in program strategy to overcome increasing resistance to the recruitment of new acceptors and to motivate those couples who are unwilling to practice family planning.

In June 1974, a survey of program acceptors for the years 1970-72 showed that four factors hampered program effectiveness: (1) acceptance levelled off particularly for those clinics in operation for a long period of time; (2) greater proportions of acceptors chose the less effective methods; (3) women who switched methods selected methods less effective than the first method; and (4) continuation rates for the effective methods had declined.

The study disclosed that women who accepted early in the program were likely to be more highly motivated to practice family planning than women accepting after the program had been functioning for several years. The performance of any family planning program is a function of the numbers of women who accept, and of the continuation and failure rates of the methods adopted. Although numbers of acceptors increased, the mean performance of clinics declined over time. Moreover, the proportionate distribution of the acceptors enrolled in the program in the first quarters of FY 1970 to 1975 indicated that increasing proportions of women accepted condoms, while declining proportions accepted the IUD. Consequently, the decreasing protection afforded acceptors was more serious than the reduction in absolute numbers of acceptors.

Available data from the 1973 National Demographic Survey indicated a drop of 0.57 children or nine per cent in the fertility level since 1958-62. When restricted to marital births only, it was apparent that marital fertility was still rising as late as 1963-67. However, the trend was reversed during 1968-72, when the rate declined by 0.41 per cent from 1963-67 to 1968-72. Later studies (Cabigon, 1976) suggest that the decline in marital fertility may have been caused by event displacement which would tend to show a drop when none actually occurred. On the other hand, the reduction in completed family size disclosed by the data, may have been exaggerated due to the same phenomenon of event displacement.

When fertility rates pertaining to the period 1958-62 through 1968-72 were contrasted, all age groups from 15 years onward showed consistent declines for the nation as a whole. The largest declines (as much as 33 per cent for the 15-19 years old) were manifested by the two youngest age groups, 15-24 years. Turning to age-specific marital fertility rates, a declining trend was evident only

for age groups above 25 years for the period 1963-67 to 1968-72. Again, such a decline may have been produced by event displacement which is characteristically found in those age groups. Turning to married women below 25 years, their births reflected steady increases over the 15-years interval—13 per cent for wives in their late teens and four per cent for married women in their early 20s. It could be speculated that these younger women were producing children early in their childbearing years with the intention of completing their family size well before the onset of menopause. Being younger, these women would be less subject to memory lapse and would report their births correctly and without bias.

In general, the peak childbearing ages were 25-34 years. Nearly half (49 per cent) of the average number of children born to all women by the end of their childbearing period was contributed by these age groups. Although women married later, they begin producing children early in the marriage. Five out of every 11 births during marriage occurred to girls 15-24 years old, thereby offsetting the influence of delayed marriage on marital fertility.

Outlook for the Future

The combination of an organized family planning program and increasing social and economic development in the past five years have produced a significant number of contraceptive users and a drop in fertility. Despite the rise in continuing users and the perceived declines in birth rate, a further increase in population is almost inevitable because: a) the fertility of the younger women remains high; b) the number of women in the younger ages of childbearing has been increasing; and c) attitudinal studies in 1974 indicate that more than half

(54 per cent) of women are really more predisposed toward larger family size than they expressed at first choice.

It is clear that the way to accelerating declines in birth rate is through: (1) further reduction of preferred family size, (2) wider spacing of births, (3) later marriage, (4) effective communication on the more efficient contraceptive measures, and (5) greater involvement at all levels of the administrative structure.

In an attempt to overcome these shortcomings, the following activities have been initiated;

a. Barrio resupply points (BRP) have been established in a number of communities to bring the supplies closer to the acceptors and thus lessen the drop-out rate owing to limited clinic outreach.

b. The Department of Education and Culture is actively involved in the promotion of population education and has authorized all educational institutions whose faculty members had received population education training to offer a three-unit undergraduate course in population starting school year 1975-1976.

c. A new program orientation was put into effect in seven provinces in July 1975. As a development philosophy, the Total Integrated Development Approach involves two major areas of concern:

   1. **Integration** down to community level of all Commission on Population-funded and coordinated population program-related services; and
   2. **Participation** by the implementing agencies and the communities themselves in the planning, organization, management, funding and provision of these services.

d. Feasibility studies on local manufacture of pills and IUDs to pave the way for the eventual phase out of commodity assistance from abroad.

e. Commercial distribution of condoms and later of pills.

f. Several experimental studies—a combined approach involving food production, nutrition and family planning; a study on the value of children; incentive schemes of various kinds; rural outreach program; an institutional development program—are being carried out to accelerate program impact.

To what extent the crude birth rate in the Philippines can be reduced significantly by these efforts is still unknown. It is clear, however, that provision of services alone is insufficient to reduce the nation's still high rate of increase. The country has been tackling the task of serving the highly motivated and ready-to-accept group. But what remains is the task of reducing the total family size and of spacing births at longer intervals. The task is formidable but not impossible.

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POPULATION PROJECTIONS

DIONISIA R. DE LA PAZ

THE CURRENT SITUATION in the Philippines has both government and private sectors engaged in social and economic development efforts on a more massive and pervasive scale than in the past. Connected with this is an increasing demand for population projections for planning purposes as well as for a clearer understanding of demographic phenomena and the changes that they undergo. Various agencies are increasingly turning to projections to be able to ascertain the social and economic implications of demographic changes. Information on the future trend of population size and age-sex distribution is directly useful in anticipating requirements for food, housing, transportation, health services, recreation, communication, and other consumer goods and services. Specialized projections indicate the regional distribution of the population, the number of households and families, school population and the size and sex-age distribution of the labor force.

Some attempts had been made to project the Philippine population before the 1970 census (United Nations, 1960; Lorimer, 1966; Bureau of the Census and Statistics, 1969). However, these projections are of little use in satisfying the demands of public and private planning agencies. More recently, the National Census and Statistics Office (NCSO) prepared a series of projections based on the 1970 census of population

(National Census and Statistics Office, 1975). The projections presented in this chapter were prepared by the University of the Philippines Population Institute (UPPI) also using the 1970 census figures. Although these two latest projections followed the same methodology, the component method, they differ in their fertility and mortality assumptions. Furthermore, in the NCSO projections, the medium series is the average of the high and low series, while in the UPPI projections, the medium series was generated based on a separate assumption.

Assumptions of Population Projections

Base Population. The base population used for this set of population projections is the adjusted age and sex distribution of the 1970 census population (National Census and Statistics Office, 1975). These figures were then brought forward to midyear, 1 July 1970, by applying the exponential growth formula.

Mortality. Earlier, it was stated that mortality statistics in this country as obtained from the registration system are grossly inadequate. Thus, age-sex-specific mortality rates required for population projections cannot be computed from available mortality statistics. To meet this need, model life tables based on the experiences of other countries were used.

Several investigators have made estimates of the average expectation of life at birth for different periods (Zablan, 1975). For the year 1970, the estimates ranged from 57.6 (Engracia, 1974) to 59.6 (Zablan, 1975). Adopting a level of 58 years for both sexes as a reflection of the true mortality conditions obtaining that year, probabilities of surviving were computed using the "West" family of model life tables.

The pattern of improvement in life expectancy was assumed to occur uniformly throughout the projection period with quinquennial increments amounting to 1.9 years or an annual increment of 0.38 year (Zablan, 1975). Thus, with an initial expectation of life at birth for both sexes of 58 years in 1970, life expectancy is expected to reach a level of 67.5 years by the end of the century. This assumption is based on the results of the analysis made on the trends in mortality since 1918.

The chapter on Components of Growth drew attention to the trend in average expectation of life at birth over the period 1918-1970. The trend suggests a threshold level of mortality has been reached at a level of 58 years since minimal improvements in life expectancy have been observed and can be expected in the near future (Zablan, 1975).

Fertility. In the absence of accurate birth statistics, estimates of fertility levels, trends and age patterns using census and survey data, were used.

The National Demographic Survey of 1973 provides information on fertility levels and patterns by age from data collected in the form of pregnancy histories, which records the date of birth, sex and type of termination of each pregnancy in the order of occurrence. The resulting age-specific fertility rates for the period 1968-72 centering in the year 1970 were utilized for the projections.

With respect to the future course of fertility, three alternative assumptions were made (Solis, 1975).

a. *High series:* In this assumption, the schedule of age-specific fertility rates observed in 1970, resulting in a total fertility rate of 5.89, was assumed to remain constant throughout the projection period.

b. *Medium series:* This series assumed a moderate decline in age-specific fertility rates, with the

annual rates of decline following Leibenstein's formulation as modified by Lorimer in 1965. It was further assumed that the decline in total fertility rate took effect during the middle of the first quinquennial period, 1970-75, from a level of 5.89 in 1970 to 5.44, indicating a decline of 0.45 birth or eight per cent. The total fertility rate was assumed to decline further to 5.00, 4.60, 4.23,3.90 in the following quinquennial periods. By the turn of the century, the projected total fertility rate was assumed to have declined to 3.59, implying an overall decline of 39 per cent.

c. *Low series:* This series assumed an accelerated decline in fertility over the 30-year projection period, starting from 1970, with a doubling of the assumed annual rates of decline in accordance with the Leibenstein-Lorimer formulation. According to this assumption, the total fertility rate observed in 1970 would have declined to 4.96 by the *middle* of the first quinquennial and was assumed to decline further to 4.19 by the period 1975-1980, to 3.56 by the third quinquennial period, to 3.03 and 2.58 in the following two five-year periods, and finally, to 2.21 by the end of the century.

Migration. It was assumed that net international migration would remain negligible throughout the projection period in view of the fact that the government has discouraged migration to and from the country.

Sex Ratio at Birth. From the birth registration statistics of 1970, the sex ratio at birth was estimated to be 110 males per 100 females. However, this ratio is believed to be too high for the country. For projection purposes a sex ratio of 105 was utilized.

Projected Population by Age and Sex

Based on assumptions regarding the future course of each of the components of population change, namely, fertility, migration and mortality, and the estimated midyear population by age and sex as of 1970, the Philippine population was projected to the year 2000 by five-year intervals using the component method of projection. The results are presented in Table. 1.

Table 1. Projected Male and Female Population by Five-Year Age Group and by Five-Year Intervals, 1970-2000 (000 s)

Age Group	Base Population	1975			1980		
		High	Medium	Low	High	Medium	Low
Male							
0 - 4	3,162	3,690	3,415	3,126	4,506	3,847	3,255
5 - 9	2,832	3,071	3,071	3,071	3,600	3,332	3,050
10-14	2,560	2,803	2,803	2,803	3,043	3,043	3,043
15-19	1,992	2,531	2,531	2,531	2,774	2,774	2,744
20-24	1,534	1,959	1,959	1,959	2,492	2,492	2,492
25-29	1,195	1,503	1,503	1,503	1,923	1,923	1,923
30-34	1,013	1,168	1,168	1,168	1,472	1,472	1,472
35-39	945	986	986	986	1,140	1,140	1,140
40-44	736	914	914	914	956	956	956
45-49	629	703	703	703	877	877	877
50-54	504	591	591	591	664	664	664
55-59	405	462	462	462	544	544	544
60-64	313	356	356	356	408	408	408
65-69	192	258	258	258	296	296	296
70-74	151	145	145	145	196	196	196
75+	164	166	166	166	164	164	164
Female							
0 - 4	3,077	3,574	3,307	3,027	4,358	3,721	3,148
5 - 9	2,721	2,997	2,997	2,997	3,496	3,235	2,961
10-14	2,493	2,694	2,694	2,694	2,971	2,971	2,971
15-19	2,109	2,444	2,444	2,444	2,653	2,653	2,653
20-24	1,633	2,078	2,078	2,078	2,413	2,413	2,413
25-29	1,278	1,604	1,604	1,604	2,045	2,045	2,045
30-34	1,070	1,252	1,252	1,252	1,575	1,575	1,575
35-39	964	1,044	1,044	1,044	1,225	1,225	1,226
40-44	757	936	936	936	1,018	1,018	1,018
45-49	660	731	731	731	907	907	907
50-54	516	630	630	630	700	700	700
55-59	407	484	484	484	593	593	593
60-64	304	370	370	370	443	443	443
65-69	198	263	263	263	322	322	322
70-74	142	158	158	158	211	211	211
75+	190	183	183	183	194	194	194

Table 1. Projected Male and Female Population by Five-Year Intervals, 1970-2000 (000's) (Continued)

Age Group	1985			1990		
	High	Medium	Low	High	Medium	Low
Male						
0- 4	5,416	4,274	3,348	6,363	4,622	3,343
5- 9	4,416	3,770	3,190	5,328	4,204	3,294
10-14	3,572	3,305	3,025	4,386	3,745	3,168
15-19	3,016	3,016	3,016	3,544	3,280	3,002
20-24	2,738	2,738	2,738	2,980	2,980	2,980
25-29	2,452	2,452	2,452	2,699	2,699	2,699
30-34	1,889	1,889	1,889	2,414	2,414	2,414
35-39	1,442	1,442	1,442	1,855	1,855	1,855
40-44	1,109	1,109	1,109	1,407	1,407	1,409
45-49	921	921	921	1,072	1,072	1,072
50-54	831	831	831	877	877	877
55-59	613	613	613	772	772	772
60-64	484	484	484	549	549	549
65-69	342	342	342	409	409	409
70-74	227	227	227	265	265	265
75+	200	200	200	239	239	239
Female						
0- 4	5,233	4,130	3,235	6,141	4,460	3,226
5- 9	4,281	3,655	3,092	5,161	4,073	3,191
10-14	3,471	3,212	2,940	4,257	3,634	3,075
15-19	2,941	2,941	2,941	3,449	3,192	2,921
20-24	2,624	2,624	2,624	2,915	2,915	2,915
25-29	2,380	2,380	2,380	2,594	2,594	2,594
30-34	2,013	2,013	2,013	2,348	2,348	2,348
35-39	1,545	1,545	1,545	1,981	1,981	1,981
40-44	1,198	1,198	1,198	1,515	1,515	1,515
45-49	989	989	989	1,167	1,167	1,167
50-54	872	872	872	954	954	954
55-59	662	662	662	828	828	828
60-64	545	545	545	612	612	612
65-69	388	388	388	482	482	482
70-74	261	261	261	318	318	318
75+	240	240	240	301	301	301

Growth of the Total Population. The projections reveal the considerable growth of the Philippine population even under the assumption of a rapid fertility decline. This can be explained by the fact that under favorable mortality conditions, more of the younger members of the population would survive in far greater numbers by the time they reach the childbearing ages than ever before.

Table 1. Projected Male and Female Population by Five-year Age Group and by Five-Year Intervals, 1970-2000 (000 s) (Continued)

Age Group	1995			2000		
	High	Medium	Low	High	Medium	Low
Male						
0—4	7,394	4,872	3,213	8,663	5,070	2,984
5—9	6,282	4,563	3,300	7,325	4,826	3,183
10—14	5,297	4,180	3,275	6,253	4,542	3,285
15—19	4,356	3,720	3,147	5,268	4,157	3,257
20—24	? 508	3,246	2,971	4,319	3,688	3,120
25—29	2,944	2,944	2,944	3,472	3,213	2,941
30—34	2,664	2,664	2,664	2,912	2,912	2,912
35—39	2,377	2,377	2,377	2,628	2,628	2,628
40—44	1,816	1,816	1,816	2,334	2,334	2,334
45—49	1,366	1,366	1,366	1,769	1,769	1,769
50—54	1,025	1,025	1,025	1,311	1,311	1,311
55—59	819	819	819	962	962	962
60—64	695	695	695	742	742	742
65—69	468	468	468	597	597	597
70—74	319	319	319	369	369	369
75+	286	286	286	348	348	348
Female						
0- 4	7,128	4,697	3,097	8,341	4,882	2,873
5- 9	6,077	4,414	3,192	7,077	4,663	3,075
10-14	5,137	4,054	3,176	6,057	4,399	3,182
15-19	4,235	3,616	3,059	5,115	4,037	3,162
20-24	3,423	3,168	2,900	4,211	3,595	3,042
25-29	2,888	2,888	2,888	3,398	3,145	2,878
30-34	2,566	2,566	2,566	2,862	2,862	2,862
35-39	2,317	2,317	2,317	2,538	2,538	2,538
40-44	1,947	1,947	1,947	2,284	2,284	2,284
45-49	1,480	1,480	1,480	1,908	1,908	1,908
50-54	1,130	1,130	1,130	1,437	1,437	1,437
55-59	909	909	909	1,081	1,081	1,081
60-64	769	769	769	850	850	850
65-69	545	545	545	690	690	690
70-74	398	398	398	454	476	476
75+	375	375	375	476	476	476

SOURCE: Paz, Dionisia R. dela, "Philippine Population Projections, 1970-2000", *Research Note No. 60*, University of the Philippines Population Institute, 1975.

Table 2 shows the projected population totals and per cent increases according to the various assumptions. Under the high series, the projections indicate a near doubling of the 1970 population by the year 1990. By 1995, the population would have more than doubled,

representing an increase of 125 per cent since 1970. By the year 2,000, the projected population shows an increase of 166 per cent over the previous three decades. The medium series of projections shows that the population will nearly double by the year 1995, representing a 92 per cent increase over the base period. By the end of the 20th century, this assumption generated a total population 114 per cent larger than that found in 1970. The low series manifested slower growth of the population. According to this assumption, the population is expected to grow by only 78 per cent over the next three decades.

Table 2. Projected Total Population and Per Cent Increase Philippines, 1970-2000

Year	Projected Population	% Increase
High		
1965-1970	36,849,229	—
1970-1975	42,747,280	16
1975-1980	50,182,690	36
1980-1985	59,313,458	61
1985-1990	70,184,290	90
1990-1995	82,942,738	125
1995-2000	98,050,629	166
Medium		
1965-1970	36,849,229	—
1970-1975	42,205,782	14
1975-1980	48,358,063	31
1980-1985	55,272,428	50
1985-1990	62,766,418	70
1990-1995	70,634,322	92
1995-2000	78,767,905	114
Low		
1965-1970	36,849,229	—
1970-1975	41,636,299	13
1975-1980	46,636,255	26
1980-1985	51,756,601	40
1985-1990	56,775,336	54
1990-1995	61,434,873	67
1995-2000	65,534,492	78

SOURCE: Paz, Dionisia R. dela, "Population Projections: 1970-2000" *Project Report, PREPF Phase I.* University of the Philippines Population Institute, 1975.

Concomitant with the increase in population size is the increase in population density. A glance at Table 3 shows that under the high series, from an average of 123 persons per square kilometer in 1970, the population density is expected to double by 1990 (234) and nearly triple by the year 2000 (327). Assuming a moderate decline in fertility, population density would more than double in the year 2000 with 262 inhabitants per square kilometer. Under the low assumption, the resultant population density would be 218.

Table 3. Population Density as Estimated from the Various Population Projections: Philippines, 1970-2000

Year	High	Medium	Low
1965-1970	123	123	123
1970-1975	142	141	139
1975-1980	167	161	155
1980-1985	198	181	172
1985-1990	234	209	189
1990-1995	276	235	205
1995-2000	327	262	218

SOURCE: Paz, Dionisia R. dela, "Population Projections: 1970-2000", *Project Report, PREPF Phase I.* University of the Philippines Population Institute, 1975.

Changes in the Age Structure. The proportion of the total population in broad age groups is shown in Table 4. According to the high series, the proportion of the total population under 15 years of age is expected to decline slightly from 47.5 per cent in 1970 to 44.6 per cent in the year 2000. Under the assumption of a moderate decline in fertility, the proportion in this same age group will drop by almost 10 points from 47.5 to 36.0 at the end of the century. Under the low assumption, the proportion of the population below 15 by the year 2000 will be reduced to nearly half its level in 1970.

The proportion of the population in the working ages, 15-64 years, will remain constant at about 52 per cent from 1970 to the end of the projection period, according

to the high series. Under the medium assumption, this proportion will increase from 51.5 per cent in 1970 to 60.3 per cent in the year 2000. Under the low series, the proportion of the population aged 15-64 will increase by nearly 16 percentage points, from 51.5 to 67.2.

Table 4. Structure of the Philippine Population (In Percentages) By Broad Age Groups, 1970-2000

Year	0-14	15-64	65+	Total
High				
1965-1970	45.7	51.5	2.8	100.0
1970-1975	44.1	53.2	2.7	100.0
1975-1980	43.8	53.4	2.8	100.0
1980-1985	44.5	52.7	2.8	100.0
1985-1990	45.1	52.0	2.9	100.0
1990-1995	45.0	52.1	2.9	100.0
1995-2000	44.6	52.4	3.0	100.0
Medium				
1965-1970	45.7	51.5	2.8	100.0
1970-1975	43.3	53.9	2.8	100.0
1975-1980	41.7	55.4	2.9	100.0
1980-1985	40.4	56.6	3.0	100.0
1985-1990	39.4	57.4	3.2	100.0
1990-1995	37.9	58.7	3.4	100.0
1995-2000	36.0	60.3	3.7	100.0
Low				
1965-1970	45.7	51.5	2.8	100.0
1970-1975	42.6	54.6	2.8	100.0
1975-1980	39.5	57.5	3.0	100.0
1980-1985	36.4	60.4	3.2	100.0
1985-1990	34.0	62.4	3.6	100.0
1990-1995	31.3	64.8	3.9	100.0
1995-2000	28.3	67.2	4.5	100.0

SOURCE: Paz, Dionisia R. dela, "Population Projections: 1970-2000" *Project Report, PREPF Phase I.* University of the Philippines Population Institute, 1975.

The proportion of the population above 64 will follow the trend exhibited by the working age population. The proportion of the aged population is expected to remain constant at 2.8 per cent throughout the projection period, as shown by the high series. The medium series show a slight increase from 2.8 per cent in 1970 to 3.7

per cent in the year 2000. The low assumption manifested a rise of almost two percentage points, from 2.8 per cent to 4.5 per cent at the turn of the century.

Dependency Burden. Linked with the expected changes in the age structure is a change in the dependency ratio. The dependency ratios computed from the various population projections are presented in Table 5. The child dependency ratio (the ratio of the number of children below age 15 to the number of persons in the ages 15-64) was 89 in 1970. This ratio is expected to

Table 5. Dependency Ratios According to Various Population Projections for the Philippines, 1970-2000

Year	Child Dependency Ratio	Aged Dependency Ratio	Total Dependency Ratio
High			
1965-1970	89	5	94
1970-1975	83	5	88
1975-1980	82	5	87
1980-1985	84	5	89
1985-1990	86	6	92
1990-1995	86	6	92
1995-2000	85	6	91
Medium			
1965-1970	89	5	94
1970-1975	80	5	85
1975-1980	75	5	80
1980-1985	71	5	76
1985-1990	69	6	75
1990-1995	64	6	70
1995-2000	60	6	66
Low			
1965-1970	89	5	94
1970-1975	78	5	83
1975-1980	69	5	74
1980-1985	60	5	65
1985-1990	54	6	60
1990-1995	48	6	54
1995-2000	42	7	49

SOURCE: Paz, Dionisia R. dela, "Population Projections: 1970-2000" *Project Report, PREPF Phase I.* University of the Philippines Population Institute, 1975.

decline slightly to 85 in the year 2000 according to the high series. Under the assumptions of moderate and rapid declines in fertility, the ratio will drop to 60 and 42, respectively, by 2000 A.D. The aged dependency ratio (the ratio of the number of persons 65 years old and over to the number of persons in the ages 15-64) show very little change over the 30-year period for all three sets of projections. According to the high assumption, the total dependency ratio would mean one working Filipino supporting one other dependent. If the medium assumption were to be realized, the total dependency would be much lighter, with three working Filipinos supporting two dependents. Under the low series, two persons in the working ages would support only one dependent.

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SOCIAL AND ECONOMIC IMPLICATIONS OF POPULATION GROWTH

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THE IMPLICATIONS of population growth are conceivably many and complex. This chapter attempts to merely sketch out the broad implications with a view to providing a perspective for policy. It seems logical to start with the more obvious and proceed to the less perceptible implications.

Size, Density, and Structure

The preceding chapter on population projections revealed the direct demographic effects that would emerge from three different regimes to population growth. The variations are considerable and bear recasting here. The three different streams of population size resulting from a continuation of the latest observable trend (high), moderately diminishing (medium), and rapidly falling growth rate are as follows (in thousands):

Year	High	Medium	Low
1975	42,747	42,206	41,636
1980	50,183	48,358	46,636
1990	70,184	62,766	56,775
2000	98,051	78,770	65,534

The corresponding population densities per square kilometer would be the following:

Year	High	Medium	Low
1975	142	141	139
1980	167	161	155
1990	234	209	189
2000	327	262	218

The third direct demographic consequence of population growth is on the age structure, which may be expressed in socio-economic terms by the dependency burden (in per cent), to wit:

Year	High	Medium	Low
1975	87.9	85.6	83.0
1980	87.1	80.3	73.9
1990	92.1	74.3	60.1
2000	90.8	66.0	48.9

All three demographic features (size, density, and dependency burden) manifest exponentially widening divergencies over time. This is because of the momentum inherent in the growth process (see Keyfitz, 1971). It is significant, for example, that the burden of dependency would mount slightly if the growth rate of the 1960s predominates, but would be cut by nearly a quarter or over two-fifths if the growth rate slows down moderately or dramatically. The rise in old-age dependency due to declining fertility would be minimal, that is, aging would be no problem as yet by the end of the century.

Distribution

The process of urbanization or rural-urban transformation would also be affected by the rate of population growth. Past trends reveal that this transformation proceeded more rapidly before the post-war acceleration of population growth (Pernia, 1976). This is because such acceleration was much greater in the rural sector than in the urban sector, and because the heavier dependency burden stemming from high fertility in rural areas tended to retard movement to urban areas. Additionally, to the extent that rapid population growth hampered economic development, rural-urban restructuring was also slowed down.

Assuming, nonetheless, that the pace of urbanization would pick up, we can estimate, for illustrative purposes, the possible sizes of rural and urban population by 2000 A.D. Here, we split the broad urban category into the population living in big cities (100,000+) and those in smaller urban places. The results, based on the three population projection series, would be the following (in thousands):

Rural	High	Medium	Low	Per cent (constant)
1975	27,700	27,349	26,980	64.8
2000	51,771	41,591	34,602	52.8
Small Urban				
1975	7,011	6,914	6,828	16.4
2000	13,923	11,217	9,306	14.2
Big City				
1975	8,036	7,943	7,828	18.8
2000	32,357	25,962	21,626	33.0

Thus, the prospect to be especially reckoned with is the phenomenon of citification. City population would grow annually at 5.7 per cent under high population growth, 4.8 per cent under medium, and 4.1 per cent under low growth. About one-half of the end-of-the-century city population would constitute the Manila megalopolis even assuming a tapering of its growth. Yet, the growth of rural populations cannot be ignored. The estimates suggest that citification, urbanization, and rural development would be more manageable if fertility declines. Although it is not shown with the foregoing estimates, it must be noted again that the decline in rural proportion and corresponding increases in urban and city proportions can proceed faster, while the absolute sizes would be smaller, under a regime of slow population growth.

National Income

Perhaps, the most obvious economic consequence of population growth is that on income per capita. Changing population growth trends would mean different levels of income per capita. We can appreciate these variations by relating the three projected population series to the medium projections of real gross national product (at 1967 prices), which are based on the post-war annual growth rate of 6.5 per cent (Barlis, 1975). The prospective GNPs per capita (in pesos) would be as follows:

Year	High	Medium	Low
1975	1,013	1,026	1,040
1980	1,182	1,227	1,272
1990	1,587	1,774	1,961
2000	2,132	2,654	3,190

Thus, the high series would imply a real GNP per capita in 2000 A.D. of just over double the 1975 level. On the other hand, the medium series would mean a 160 per

cent increase, and the low series a tripling of GNP per capita in 25 years. The income differential between the high and the low series would be some ₱1,058 per capita, an amount bigger than the 1975 level; likewise, the differential between the high and medium would be about half this amount. The implied annual growth rates of real income per capita are 3.0 per cent, 3.9 per cent, and 4.6 per cent, respectively, for the high, medium, and low series.

As is well recognized, these are at best crude measures of economic well-being. However, it is not possible to illustrate here the income distribution pictures that might be associated with different population futures. We can only suggest two things. First, since the first survey of family income in 1956, income distribution (as measured by Gini coefficient) does not seem to have improved; if any, it appears to have worsened (Mangahas, 1975). And, second, to the degree that the fertility of low-income groups is higher than other groups, it seems logical to suppose that a persistence of high fertility would worsen rather than improve income inequity. Furthermore, population growth tends to raise land values and rents while it depresses wages. There are, of course, other more subtle effects of demographic factors on income distribution, which are discussed lengthily elsewhere (see e.g., Boulier, 1975; Mangahas, 1974).

At the micro level, growth in the size of the family would, after a time lag of 10 to 15 years, lead to an increase in the number of family workers and, in turn, to an increase in family income. But it appears that this marginal effect on income diminishes with the increase in number of family workers (Mangahas, 1974). Moreover, the time lag during which the additional member is a dependent must be reckoned with and the availability of productive employment upon maturity is another matter to consider. The attainment of real

maturity may be a negative function of family size in that child health and family size are inversely correlated (see, e.g., Corsa and Oakley, 1971).

Food, Housing and Employment

Poverty as measured conservatively by the food threshold has deteriorated markedly over the past decade (Abrera, 1975). The trend has been worse in rural areas than in urban areas. On the whole, the number of persons below the food threshold swelled from about 11.6 million in 1965 to 16.6 million in 1971. This means that the growth in number of poor people has been much more rapid than the overall growth of population.

Again, we do not have sufficient basis for relating the food problem to the population projections above. But it seems foolhardy to remain sanguine about the future if one thinks in terms of unrelenting population growth. A similar comment may be made concerning the problems of housing and employment. A continuation of the recent trend would imply an increase in the number of families from 7.5 millions to 17.8 millions, and the number of households from 6.9 to 16.0 millions over the next quarter century (Cabigon, 1975). At the same time, the size of the work force would double to some 30.0 millions if current participation rate is assumed to prevail and applied to the medium population projection (Domingo, 1975).

Government Expenditures

Population growth would have a bearing on the government budget. The faster population expands, the greater will be the strain on the government's fiscal capacity for such public services as education, health,

social welfare, national defense, maintenance of peace and order. Budgetary problems would be more serious still in view of the growth of cities where public services would be required to a greater extent. Conversely, declining fertility would enable the government not only to improve the quality of public services but also to allocate more public funds for infrastructures and other capital investments that enhance the productive capacity of the economy. In short, rapid population growth entails a social cost to a country with limited capital resources.

Bautista (1974) has developed a model for projecting government expenditures on education and health under moderate versus slow population growth assumptions. Annual and total savings in education (elementary and secondary) and health expenditures due to reduced population growth are estimated (Bautista, 1974:230) to be as follows:

Year	Savings (in million 1967 pesos)
1975	5
1980	92
1990	1,105
2000	2,514
Total: 1971-2000	**23,295**

Note that the estimates assume decreasing enrollment rates in government general secondary schools, increasing enrollment rates in government vocational secondary schools, and rising government health expenditures per capita, to take into account recent policy directions. The savings are relatively small in the first few years because of the lagged effects of fertility reduction, but become increasingly substantial over time. By the year 2000, the aggregate saving would be from 67 to 73 per cent of real

gross national product in 1970. Bautista (1974:222) concludes that "these figures should be regarded as reflecting only the minimum quantitative effect of population growth on government expenditures since there are components of the public budget other than education and health that are also population-dependent."

Trade and Aid

Other areas on which population growth impinges, indirectly perhaps but importantly nonetheless, are foreign trade and aid. It is logical to suppose that trade and aid requirements would be greater the faster population expands, other things being equal. Chances for future financial independence would be slimmer than if fertility were declining (see Pearson, 1969). The extent, nature, and direction of trade and aid depend one way or another on the size and composition of the population.

Concluding remarks

The underlying assumption of the discussion has been that the social and economic consequences of rapid population growth tend to be negative. There are those, of course, who continue to argue otherwise, who keep on hoping that rapid population growth may lead to or be accompanied by technological breakthroughs or other quasi-miracles. But historical and recent evidence continue to nullify their arguments. It seems more reasonable to expect that "miracles" are more likely to occur where the conditions have been set than otherwise.

We have attempted to project our vision to 2000 A.D. because the long-run implications of population growth are more momentous than the short-run. The consequences of demographic processes cumulate exponen-

tially over time (as shown by the data), while the prospects for development crucially hinge on the quality of the next generation. Deservedly, therefore, the year 2000 has become the new focus of research and, hopefully, of policy as well.

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