Aging of Population and Labor Force for World, More Developed and Less Developed Areas and Their Regions: Population Aging 1970·2025; Labor Force Aging 1970·2000

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This study presents and analyses population estimates and projections of United Nation's population data and International Labour Office data. The population data cover the period 1970 to 2025 and the labor force data 1970 to 2000. Statistics are presented for the world as a whole, for the More Developed Country areas (MDCs) and the Less Developed Country areas (LDCs), for the ten regions within the MDCs and for the fourteen regions within the LDCs. The geographical areas utilized are those as defined by the United Nations. Population aging and extension of life are relatively new phenomena in the human experience. They generate unprecedented problems which call for new policies and programs, both in the private and public sectors.

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EXECUTIVE SUMMARY AND CONCLUSIONS

This study presents and analyses population estimates and projections of United Nations population data and International Labour Office labor force data. The population data cover the period 1970 to 2025 and the labor force data 1970 to 2000. Statistics are presented for the world as a whole, for the More Developed Country areas (MDCs) and the Less Developed Country areas (LDCs), for the ten regions within the MDCs and for the fourteen regions within the LDCs. The geographical areas utilized are those as defined by the United Nations (see Appendix 1). Except for some text tables all the statistics are given at the end of the text in Tables 1 to 10 (see Tables in Appendix).

Since the ILO data are calculated within the framework of the United Nations estimates and projections of population as assessed in 1973, population statistics are given from 1970 to 2000 as assessed in 1973. Because the United Nations has recently issued new population projections from 1980 to 2025 assessed in 1980, the statistics for 2000 are presented for both assessments. This has been done so as better to relate the labor force statistics to their population base, while making available the new projections for 2000 to 2025. In general the new projections for 2000 show greater aging than the old projections for 2000, because they take into account the decreases in fertility which have occurred since 1973, especially in the LDC areas.

The aging of the population is measured by the percentage of persons 65 years old and older, median age, the total dependency ratio, the youth dependency ratio, the aged dependency ratio, the aging index (the number of persons 65 and over to each 100 persons under 15) and the proportion of the "old-old", that is, the proportion of those who are 75 years old and older of those persons 65 years old and older. The aging of the labor force is measured by the proportion of workers 65 years old and over, 45 years old and over, and 55 years old and over. Also presented are the median ages of persons in the labor force and the "dependency burden" (the number of non-workers per worker), and the "youth dependency burden" (the number of persons under 10 years old per worker). Absolute numbers are also contained in the tables where it seems appropriate.

Methodological notes in respect of the labor force data are given in Appendix 2.

A. Findings

1. Population

The World The proportion of persons 65 years old and older, 5.5 percent in 1970 and 5.8 percent in 1980, is projected to rise to 6.6 percent by 2000 and 9.3 percent by 2025 (Table 1). Median age is projected to increase from 22.6 years in 1980 to 26.1 years in 2000 and to 30.8 years in 2025. Total dependency ratios and youth dependency ratios would decrease, but aged dependency ratios are projected to increase from 10.0 in 1980 to 14.1 in 2025. The world aging index will almost double, as the aging index is projected to rise from 16.4 in 1980, to 21.5 in 2000 and to 37.1 in 2025. The data show that the proportion of the old-old will remain about the same at about one-third of all those 65 and over.

These indications of population aging for the world as a whole obscure, of course, the great differences in aging between the MDCs and the LDCs, the differences by sex, and the differences among the ten regions within the MDC areas and the fourteen regions within the LDC areas. This study does not include individual national data except that the statistics for China and Japan are considered as UN regions.

Expectation of life at birth in the world as a whole was in 1980, 57.5 years. By 2000 it would increase by 6.4 years to reach 63.9 years and by 2025 it would increase by an additional 6.5 years to reach 70.4 years (Table 3).

MDCs & LDCs The measurements of population aging examined are without exception considerably greater for the MDC areas than for the LDC areas. By 2025 the proportion of persons 65 years old and over in the MDCs in the aggregate would be more than double that in the LDCs in the aggregate, 16.7 compared with 7.8 percent. Since this ratio was 3 to 1 in 1980, it is evident that aging trends will narrow the gap between the MDCs and the LDCs in the coming decades. In 1980 median age in the MDCs at 31.7 years was 11.8 years above that in the LDCs at 19.9 years. By 2000 median age of the MDCs at 35.8 years will be 11.7 years above that in the LDCs; and in 2025 at 38.2 years the difference will narrow to 8.7 years above that in the LDCs.

The aged dependency ratio in 1980 in the MDCs at 17.0 was almost 2-1/2 times that in the LDCs at 7.0. By 2025, at 26.4, it will still be more than twice that of the LDCs at 11.8. The aging index in the MDCs in 1980 at 46.3 was more than four times that in the LDCs at 9.8; and by 2025 this gap will have narrowed when the MDC aging index will be 83.9, whereas that in the LDCs will be 29.8. Finally the old-old, 36.3 percent of the total persons 65 and over in 1980, compared with 27.4 percent, will, by 2025, reach 38.9 percent in the former compared with 29.8 percent in the latter.

By reason of the fact that fertility declined in the MDCs much before fertility decreases in the LDCs, MDC population aging has preceeded that in the LDCs. The LDCs, however, are in the aggregate beginning to experience population aging so that the gap in aging between the MDCs and the LDCs may be expected to diminish between 1980 and the end of the first quarter of the 21st century.

Life Expectancy Life expectation at birth in 1980 was, for the combined sexes, 71.9 years in the MDCs and 55.1 years in the LDCs. By 2025 life expectancy is projected to rise to 75.4 years in the former as compared with 69.6 years in the latter. The gap in expectation of life at birth between the MDCs and the LDCs, 16.8 years in 1980, is projected to shrink to 5.8 years by 2025 (Table 3).

Sex Differences In 1980, in the world, 5.0 percent of the males were 65 years old and older, compared with 6.7 for females. By 2000 this proportion will rise to 5.6 percent for males and to 7.1 percent for females. The proportion of older women will continue to exceed that of men because of their lower mortality. Moreover, women will have higher indexes of aging than men in each of the measurements of population aging presented in this report. The median age of women in the world in 1980 was 23.1 years as compared with 22.2 years for men. By 2000 the median age of women will be 24.8 years compared with 24.1

years for men. In 1980 the aging index of women in the world was 19.1 vs. 13.8 for men; and by 2000 these indexes will be, respectively, 22.2 and 17.0. Finally, for the world as a whole, 34.1 percent of the women were old-old compared with 29.1 percent of men. By 2000 these percentages will be, respectively, 35.9 percent and 30.1 percent.

In the world, in 1980, females had an expectation of life at birth of 58.8 years compared with 56.3 years for males. By 2025, the gap between the sexes in life expectancy would increase as women achieve an expectation of 72.6 years, compared with 68.2 years for men.

The sex differences in aging persist, of course, in the MDCs and LDCs and in their regions. In general the differences in the aging of the sexes is more pronounced in the MDCs than in the LDCs.

By 2025 expectation of life at birth is projected in the MDCs to be 79.0 years for women and 72.0 years for men. In contrast, in the LDCs the comparable figures will be 71.7 years and 67.7 years.

The Regions In almost all the measurements of population aging, the populations in the ten regions within the MDC areas were older than those in the LDC regions. There was relatively little overlap, except for Southern Africa. The United Nations has classified Southern Africa as a region within the MDCs, but in most aging characteristics it resembles more closely the LDC regions than the other MDC regions.

In 1980, considering the proportion of population 65 years old and over, there was only one LDC region with a percentage as high as 5.9 percent, China. But there was only one MDC region with a proportion of persons 65 and over as low as China's level, Southern Africa with 3.7 percent. By 2025 China will be the only LDC region with a proportion of persons 65 and over as high as 13.3 percent, but there were only two of the MDC regions below this level, Southern Africa at 5.4 percent and Temperate South America at 12.1 percent.

In respect of expectation of life at birth, in 1980, only three of the ten MDC regions were below 70.0 years: Southern Africa, Temperate South America and the USSR, whereas all of the fourteen LDC regions were below this level. By 2025 the projections show only three MDC regions with life expectancy below 75.0 years, Southern Africa, Temperate South America and by a very little, the USSR. In contrast, not a single one of the fourteen LDC regions is projected to have a life expectation as high as 75.0 years, although China comes close, 74.6 years.

In general, the MDC regions experiencing and projected to experience the greatest aging are Japan, Northern Europe and Western Europe. The MDC regions with the lowest evidences of population aging and the lowest projections of aging, in addition to Southern Africa and Temperate South America, are: the USSR and Australia and New Zealand, Northern America, Eastern Europe and Southern Europe are the MDC regions that tend to be intermediate between the regions with the highest and lowest evidences of aging.

Among the LDC regions, those showing and projecting the greatest evidences of population aging were China, Other East Asia and the

Caribbean, with Middle America and Micronesia and Polynesia giving similar evidences for some indexes. The LDC regions with the least manifestations of aging were consistently: Eastern Africa, Western Africa and Middle Africa.

2. Labor Force

The patterns described above for general population aging, on the whole held for the aging of the labor force. But it is clear that the labor force will not age as rapidly as the general population. This results from a number of factors differentially affecting the various areas: the possibility of retirement above varying given ages; the differences in labor force participation by sex and age; and differences in the proportions of the labor force in agricultural and non-agricultural pursuits.

The World In 1980, in the world as a whole, 3.1 percent of all persons in the labor force were 65 years old or older, 26.8 percent were 45 and over and 11.3 percent were 55 and over. The median age of workers was 26.8 years. There were 1.44 non-workers for each person in the labor force (the "dependency burden") of whom 0.61 or 42.4 percent, were under 10 years of age (the "youth dependency burden"). These indexes are compared with the conventional dependency ratios based on population age structure alone and are found to show similar directions of change and patterns of differences. This similarity tends to validate the use of the conventional dependency ratios as proxies for dependency based on actual labor force information.

By 2000 it is projected that the percentage of workers 65 and over will diminish to 2.6 percent, the percentage of workers 45 and over will increase slightly to 27.1 percent and the percentage of workers 55 and over will decrease a little to 10.7 percent. The median age of workers by 2000 will increase by almost a full year to reach 35.6 years. By 2000 the total dependency burden will increase a bit to 1.46 and the youth dependency burden will decrease to 0.54 to constitute a smaller percentage of the total dependency burden than in 1980, 37.0 percent compared with 42.4 percent (Tables 5 and 6).

The data for the world as a whole average, of course, significant differences in the above statistics, by sex, by level of development and by regions within the two development areas.

MDCs and LDCs In 1980 the proportion of workers 65 and over in the MDCs was 3.0 percent, whereas that in the LDCs was 3.1 percent. The proportion of workers 45 and over in the MDCs, however, was 32.1 percent, compared with 24.5 percent in the LDCs, and the proportion of workers 55 and over was 12.6 percent compared with 10.7 percent. The median age of workers in the MDCs was 37.4 years compared with 33.5 years in the LDCs. The total dependency burden was greater in the LDCs than in the MDCs--1.57 vs. 1.15; and the youth dependency burden was over twice as great in the LDCs than in the MDCs, 0.73 compared with 0.35. In the LDCs the youth dependency burden constituted 46.5 percent of the total burden compared with 30.4 percent in the MDCs.

Differences in the aging of workers in the respective development areas, it must be noted, are in part attributable to the difference in the proportion of workers in agriculture as compared with nonagricultural pursuits. Workers in agriculture continue labor force activ-

ity at ages above that of workers in nonagricultural pursuits.

Sex Differences In 1980, in the world as a whole, male workers 65 and over made up 3.4 percent of all male workers compared with 2.6 percent for females. Among workers 45 and over males made up 27.4 percent compared with 35.6 percent for females; and for workers 55 and over the male percentage was 12.1 compared with 9.9. The median age of male workers was 35.1 years compared with 34.0 years for females (Table 6).

By 2000, the proportion of workers 65 and over, for the world, will decrease to 2.8 percent for males and 2.1 percent for females. Workers 45 and over will be 27.7 percent of male workers and 26.0 percent of females. Workers 55 and over will make up 11.5 percent of male workers and 9.3 percent of female. The median age of workers in 2000 will be 36.0 years for males and 34.9 years for females.

Thus, although females in the general population are older than males, female workers were and are projected to remain, younger than male workers. This is the result of differences in labor force participation rates which are generated by many other factors. The sex differences in the MDCs and LDCs, respectively, and in the regions within them are reported in Tables 6 and 9.

The Regions There were no systematic patterns in 1980 and in 2000 in the proportions of workers 65 and over, 45 and over, and 55 and over by regions within or between the MDCs and the LDCs. Variations in these proportions were affected by other factors of the type discussed above, which differed in their impact in the various areas (Table 9).

Patterns did become apparent, however, when the median age was examined. Among the LDC regions, there was only one region, China, in which the median age of persons in the labor force was as high as 35.2 years in 1980; but, with the single exception of Southern Africa, the median ages of workers in the MDC regions were above this level. By 2000, however, this pattern will be broken. By the end of the century there will be two LDC regions in which the median age of workers will exceed 35.0 years, in China with 37.0 years and in Other East Asia with 35.7 years; but there will be three MDC regions with median ages of workers below the level in China--in Southern Africa, Temperate South America and in Australia and New Zealand.

When sex is controlled a more intensive examination of regional differences does reveal some significant items. Japan in 1980 had the highest median ages of any region for each sex, 39.6 years for males and 39.5 years for females; and by 2000 the difference between Japan and all other regions will be increased. By 2000 Japan's median age for workers is projected to be 42.4 years for males and, interestingly, 42.5 years for females--a difference that may not have statistical significance. Northern Europe comes closest to Japan in median age in 1980, but falls well under Japan in the projections for 2000. It is somewhat surprising that the USSR, as a major industrial nation, had a relatively young labor force and is projected to be similarly characterized in 2000. The USSR's large war losses in World War II and fluctuations in fertility undoubtedly still affect its age structure.

Among the LDC regions, as in the case of the aging of the general

population, the data for China display the relatively greater aging of her working population. In general, it is clear that among the LDC regions, aging of the labor force, relatively homogeneous in 1980, will remain relatively homogeneous in manifestations of labor force aging to the end of the century. This conclusion must be modified, however, by calling attention to the relatively rapid aging in Other East Asia and the Caribbean, on the one hand; and to the relatively slow pace of aging in Eastern Africa, Western Africa, Middle Africa and South America (Table 9).

Finally, review of the dependency burden by regions permits the following summarization:

1) Among the fourteen LDC regions there were, in 1980, four regions with 2.0 or more total dependents per worker and seven additional regions with burdens in excess of 1.5 per worker; in contrast, among the MDC regions there were none in 1980 with total dependency burdens of 2.0 or more; and only three regions with total burdens in excess of 1.5.

2) By 2000 the total dependency burden will decrease in seven of the ten MDC regions, while remaining the same in two regions; but it is projected to increase, by 2000, in five of the fourteen LDC regions and to remain above 1.5 dependents in eleven of the LDC regions. By 2000 there will be only three MDC regions with more than 1.5 dependents per worker.

3) In 1980 there were eight of the ten MDC regions with youth dependency burdens below 0.50 per worker but only China among the LDC regions with a low youth dependency burden.

4) Between 1980 and 2000 the youth dependency burden is projected to decrease in nine of the ten MDC regions, remain the same in one (USSR); but to increase in three of the LDC regions (Eastern Africa, Middle Africa and Western Africa).

B. Conclusion

Population aging and extension of life are relatively new phenomena in the human experience. They are generating unprecedented problems which call for unprecedented policies and programs, both in the private and public sectors.

Both personal and social adjustments are needed to cope with the problems of aging. The personal problems call for changes in attitudes and behavior of individual elders in respect to: new bases of status, prestige and power; the upgrading of education and skills; preparation for retirement; new living arrangements; problems of health and physical impairment; the maintenance of interpersonal relationships; and positive outlooks for the future.

Social adjustment involves institutional changes both in the private and public sectors. Institutional adjustments in the private sector will necessitate new approaches to: the employment of oldsters; flexibility in hours of work per day and per week; length of vacations; upgrading of education and skills; private pension systems; counseling services; facilities for maintenance of health and coping with physical impairment; and provision of general geriatric and gerontological services.

In the public sector governments are increasingly regulating and supplementing provisions for income maintenance of oldsters, develop-

ing systems of public pensions and Social Security systems, providing facilities for upgrading education and skills, regulating ages for compulsory retirement, creating programs for maintenance of health and coping with physical impairment. Governments are also increasingly becoming aware of the importance to older persons of controlling inflation and fluctuations of the business cycle and the impact of variations in monetary and fiscal policy.

The more developed countries are already confronted with the problems of aging and life extension. Their experiences are prologue for the less developed countries in the decades ahead. The "International Symposium on an Aging Society--Strategies for 21st Century Japan" held in Tokyo in November, 1982 produced research papers and a report which are relevant to consideration of problems of aging societies.

I. Introduction

In all areas of the world in which the demographic transition has occurred a significant byproduct has been the aging of the population and the extension of life. "Aging" is a macro view of an entire population and is measured in a number of ways including number and proportion of older persons, median (or average) age, the aged dependency ratio and the aging index. The extension of life refers to the increase in years of life lived by individual persons. It is a micro view of individuals in a population and is generally measured by expectation of life at birth and at various ages. It has been demonstrated that population aging is primarily the product of declines in fertility, whereas the extension of life is mainly the result of declines in mortality.

The labor force is a major element of a population which by conventional methods of measurement include all persons working or seeking work. As the population ages the labor force, of course, also ages; and as individuals in a population experience extension of life so do individual members of the labor force.

The populations of the world vary in the extent to which they have aged or experienced increases in life expectancy. In general, there is a positive correlation between aging and life extension and the level of economic development. This follows from the fact that the more developed countries (MDCs) were the first to experience the demographic transition. The less developed countries (LDCs) have only recently begun to experience substantial declines in fertility and, in the main, are still relatively "young" populations. The United Nations has classified the countries of the world as "young", "mature", and "aged". Young nations are those with persons 65 years of age and older constituting less than 4 percent of their total population; aged nations are those with 7 percent or more of their people being in this age group; and mature nations are those with 4 to 7 percent of their people 65 and older.

This study to begin with will examine population aging from 1975 to 2000 based on the United Nations population projections as assessed in 1973; and the United Nations population projections from 2000 to 2025 based on its assessment in 1980. The reasons for using projections based on the UN 1973 assessment is that those population projections were used as the framework for the labor force projections from 1975 to 2000 prepared by the International Labour Office (ILO). Labor force projections are not yet available from 2000 to 2025 so that for that time period only population projections will be analyzed, not only to ascertain population aging but, since the UN has also projected life expectancies, also to analyze differentials in the extension of life. Furthermore, since the UN projections based on its 1980 assessment include data on life extension from 1950 (1950-55), the extension of life data from 1975-80 to 1995-2000 will also be considered.

Since population projections for 2000 are available both as assessed by the UN in 1973 and in 1980, both population projections will be given at the outset as a convenient way to see the differences. It will be observed that the differences between the two sets of data for 2000 are relatively small and are based largely on the decrease in fertility in the LDCs beginning in the mid-1960s which was taken into

account in the 1980 assessment.

In the interest of continuity, the analysis of population aging and the extension of life from 1975-80 to 2020-2025 will be presented first. After that, analysis will be made of the aging in the labor force from 1975 to 2000, based, of course, on the UN population projections as assessed in 1973 and the ILO labor force projections.

The data will be presented for the world as a whole, for the more developed countries presented (MDCs) and less developed countries (LDCs) respectively. Finally, in a separate section the data will be presented for the regions within the MDCs and LDCs as delineated by the United Nations.

Since the statistics in this study are all summary data for the world, for the MDCs and the LDCs, and for the major regions, it is to be observed that:

> "The estimates and projections for each major area and region have been obtained by aggregating the independent estimate and projections for the component countries and territories. The regional figures include data for small countries and territories (generally with less than 250,000 inhabitants in 1970) which are not shown separately."

The geographic classification used as the areal components in this study, is that of the United Nations. Eight major "areas" are delineated within which "More Developed Regions" and "Less Developed Regions" are specified. The areas and regions for which the individual country and territory statistics are aggregated are given in Appendix 1.

In presenting the population data, statistics for 1970 will first be considered because they are based on actual censuses and survey data as far as available. Then, the data for 1980 will be given because, although they are based on projections, they provide a more up-to-date point of departure for the more extended projections. Moreover, as will be indicated, the 1980 projected data do not differ materially for most areas from the actual data to the extent that such statistics are available from the censuses taken in or around 1980. At this writing it should also be noted that only limited data are as yet available from such censuses. Such discrepancies as may exist between the projected data for 1980 and what may be the actual data, although they may affect level, are not likely in a significant way to affect trend on which major attention is focused.

II. Population Aging

The World In 1970 the world was estimated to have 3.6 billion (Table 1) persons of whom about 200 million, or 5.5 percent, were 65 years old or older. The median age of the world's peoples was 22.2 years. The dependency ratio was 72.6, of which 63.1 was youth dependency and 9.5 was aged dependency.[1/] The world's aging index was 15.1, that is, there were 15.1 persons 65 and over for each 100 young persons under 15 (Table 1).[2/]

Some years ago Professor Bernice Neugarten of the University of Chicago distinguished between the "young-old" and the "old-old". The

former were persons 65 to 74; the latter 75 years old and older. In 1970, the old-old constituted 31.0 percent of all persons 65 and over.

By 1980, using the projections of the United Nations as assessed in 1973, world population was estimated at 4.4 billion. Of this total 255.5 million persons were 65 years old or older, or 5.8 percent. Median age in 1980 was 22.6 years. The dependency ratio had decreased to 70.7 of which 60.8 was youth dependency and 10.0 was aged dependency. The aging index had increased to 16.4. The old-old had increased to 32.0 percent of all the old (Table 1).

By the year 2000, it was projected in the "median variant" by the United Nations (as assessed in 1973) that world population will total 6.3 billion, of which 395.7 million, or 6.3 percent, will be 65 and older. Median age will have increased to 24.5 years, an increase from 1980 of 1.92 years. The dependency ratio at the century's end will have declined to 63.2, of which 52.9 will be youth dependents and 10.3 will be aged dependents. Over the 20 year period from 1980 to 2000, it is projected that the total number of dependents will have declined by 7.5, with a decline of 7.9 young dependents offset by an increase of 0.3 aged dependents. By 2000 it is projected that there will be 19.5 old persons 65 and over for each 100 young persons under 15, an increase from 1980 of over 3 older persons in the aging index. By 2000, the old-old will have increased to a full one-third of all persons 65 and over, 33.3 percent (Table 1).

Using the new projections from 2000 to 2025, the number of persons 65 years old and older in 2000, will be 402.9 million, 6.6 percent of the world's population. (The old projection for 2000 was 6.3 percent.) By 2025 the proportion of older persons is projected to rise to 9.3 percent, a 41 percent increase in about a single human generation (Table 1).

The median age of the world's population in 2000, according to the new UN projection, will be 26.1 years. (The old projection was 24.5 years.) Between 2000 and 2025 median age will have risen to 30.8 years, an increase of 4.7 years, or 18.0 percent.

The world's total dependency ratio in 2000 will be 59.4, with the youth dependency ratio being 48.9 and old aged dependency being 10.5. (The old dependency ratios were 63.2, 52.9 and 10.3.) By 2025 the total dependency ratio in the world is projected to decrease too 52.3 as youth dependency drops to 38.1 and old age dependency rises to 14.1.

The aging index 21.5 in 2000 in the new projection (19.5 in the old) is projected to increase to 37.1 by 2025. Finally, especially significant for employment and retirement policy, is the anticipated increase in the proportion of persons 75 and older of all persons 65 and older. In 2000, according to the new projection, persons 75 and older will constitute 33.7 percent of all persons 65 and older. (In the old projection it was 33.3.) By 2025 this proportion will not have changed much, at 32.5 percent, but, as will be seen below the UN projection in 2025 for the world as a whole, will be averaging quite disparate situations in the MDCs and the LDCs.

MDC and LDC Differences In 1970 the MDCs with some 1.1 billion people contained 30.0 percent of the world's population. In contrast,

with 2.5 billion persons the LDCs had 70.0 percent of the world's total. In 1980 the UN projections indicate that the MDCs had 1.2 billion persons, and the LDCs 3.2 billion or 73.0 of the world total (Table 1).

In 1980 persons 65 and over made up 11.1 percent of the population in the MDCs but only 3.9 percent in the LDCs. The median age of the population in the MDCs was 31.7 years, whereas that of the LDCs population was only 19.9 years. The total dependency ratio in the MDCs was 53.9 compared with 77.9 in the LDCs. Youth dependency was much greater in the LDCs than in the MDCs, 71.0 compared with 36.8; but the aged dependency ratio was more than twice as great in the MDCs than in the LDCs, 17.0 compared with 7.0. The contrast in the aging index undoubtedly points to major differences in the social order. In the MDCs there were 46.3 persons 65 and older for each 100 young persons under 15, whereas in the LDCs the comparable figure was 9.8. In 1980 the proportion of the "old-old" among all the old was 36.3 percent in the MDCs but 27.4 percent in the LDCs.

By 2000, the projected population of 1.4 billion in the MDCs would constitute only 21.7 percent of the world's peoples, a considerable dip from the 30.0 percent in 1970. The LDCs with a projected population of 4.9 billion would have 78.3 percent of the world total.

By 2000, the proportion of persons 65 and over in the MDCs will have risen to 12.4 percent, as contrasted with 4.6 percent in the LDCs. Median age will have reached 34.0 years in the MDCs but only 22.5 years in the LDCs.

The dependency ratio in the MDCs is projected to have declined slightly to 53.8 by 2000, whereas that in the LDCs, which will have declined more sharply to 66.0, will still be well above that in the MDCs. Youth dependency at 34.8 in the MDCs would still be far below that in the LDCs at 58.3; and old age dependency in the MDCs, at 19.0, will still be almost 2-1/2 times that of the LDCs at 7.7.

By 2000 the aging index in the MDCs will have increased greatly to 54.7; while that in the LDCs, which also will have experienced a substantial increase to 13.2 from 9.2 in 1970, will still be far below that in the MDCs.

Finally, the proportion of persons 75 years old and older of persons 65 years old and over by 2000 will be 38.5 percent in the MDCs and 29.5 percent in the LDCs.

In summary, every index of aging both in 1980 and 2000 will be much greater in the MDCs than in the LDCs where aging will not constitute a great problem, as will be seen below, until well into the 21st century.

In the new UN projections for 2000, persons 65 and older constituted 13.0 percent of all persons in the MDCs but only 4.9 percent in the LDCs. (The old projections were 12.4 percent and 4.6 percent.) By 2025 persons 65 and older would constitute 16.7 percent in the MDCs and only 7.8 percent in the LDCs. It is noteworthy, in observing the great differences in population aging, that the proportion of older persons in the LDCs by 2025 will still constitute less than half the proportion in the MDCs, and will still be considerably below the level

in the MDCs a generation earlier, in 2000.

Median age in the MDCs in the new projections for 2000 will be 35.8 years, (as compared with 34.0 years in the old projection). Median age in the LDCs, in contrast, would be only 24.1 years (compared with 22.5 years in the old projection). By 2025 median age in the MDCs will rise to 38.2 years, whereas in the LDCs, median age is projected to increase to 29.5 years.

The total dependency ratio in the MDCs in the new projection for 2000 will be 51.6 (as compared with 53.8 in the old). That in the LDCs is projected to be 61.6 (66.0 in the old projection). By 2025 the total dependency ratio in the MDCs is projected to increase to 57.9, whereas that in the LDCs is projected to decrease to 51.2. The increase in the total dependency ratio in the MDCs between 2000 and 2025 is entirely attributable to the rise in the old age dependency ratio which is projected to increase from 19.8 in 2000 (19.0 in the old projection) to 26.4 in 2025. The youth dependency ratio in the MDCs will remain about constant being projected to be 31.8 in 2000 and 31.5 in 2025 (34.8 in 2000 in the old projection). In the LDCs the decrease in the total dependency ratio between 2000 and 2025 is projected to be the net effect of a decline in the youth dependency ratio from 53.7 to 39.4 and the rise in the aged dependency ratio from 7.9 to 11.8. Thus the difference between the old aged dependency ratio in the MDCs and LDCs is projected to increase during the first quarter of the 21st century from 11.9 elders per 100 persons of intermediate age to 14.6 elders. By 2025 the aged dependency ratio in the LDCs will still be well below that in the MDCs in 2000 (11.8 vs. 19.8).

The aging index in the MDCs in the new UN projection for 2000 is 62.2 (as compared with 54.7 in the old projection). In contrast, in the LDCs in the new projection the aging index will be less than one-fourth that in the MDCs, at 14.7 (13.2 in the old projection). By 2025 there will be 83.9 older persons per 100 younger persons in the MDCs, as contrasted with only 29.8 in the LDCs. Finally, the old-old in the MDC in 2000 will be 38.2 percent (38.5 percent in the old projection) as contrasted with 30.5 percent (29.5 percent in the old projection). By 2025 the old-old in the MDCs at 38.9 percent will be considerably above that in the LDCs at 29.8 percent.

Sex Differences In the MDCs in 1980 the proportion of persons 65 and older was appreciably smaller for males than females, 8.8 percent compared with 13.2 percent. In the LDCs the proportion of such older persons by sex showed relatively little difference, 3.6 percent for males and 4.2 percent for females (Table 2). In the MDCs median ages by sex were 30.1 years for males and 33.4 years for females; in the LDCs the comparable figures were much lower and were more nearly alike, 19.8 years for males and 20.0 years for females (Table 2).

In 1980, in the MDCs, there were 35.1 males 65 and over for each 100 males under 15; in contrast the aging index for females was 58.0. In the LDCs the aging index for males was 9.1 and for females 10.5, indexes for each sex much lower and more alike than in the MDCs.

In 1980 the old-old females made up 38.5 percent of all old males, whereas old-old females made up 38.5 percent of all old females. By 2000 the proportion of elders in the MDCs will have risen for each sex, to the level of 10.2 percent for males and 14.4 percent

for females. In the LDCs by 2000, the proportion of older persons will have increased somewhat for each sex, but the difference between the sexes will still be small, at 4.3 percent for males and 5.0 percent for females.

In 2000 the median ages in the MDCs will have increased for each sex to 32.8 years for males and 35.3 years for females and the gap between the sexes will have shrunk to 2.5 years from 3.3 years. In the LDCs median ages will also have increased for each sex to 22.3 years for males and to 22.7 years for females, but will still be far below those in the MDCs. The gap in median ages by sex in the LDCs will still be less than one half year in 2000 as in 1980. By 2000 the aging index in the MDCs by sex will be 43.6 for males and 66.3 for females. In the LDCs the aging indexes will still be far below and more equal than those in the MDCs, 12.2 for males and 14.3 for females.

Finally, by 2000, old-old males in the MDCs will make up 33.2 percent of all old males; but a much larger proportion of all old females will be old-old, 42.2 percent.

By 2000 in the MDCs, using the newer UN projections, males 65 and over will constitute 10.7 percent of all males as contrasted with 15.3 percent for females (comparable older projection percentages were 10.2 and 14.4). By 2025 these projections will have risen to 14.5 for males and 18.9 for females. Thus, by the end of the first quarter of the 21st century, the percentage of older females will be almost a third higher than that of males.

The median age of males in the MDCs will in 2000 be 34.4 years (32.8 years in the older projection), whereas the median age of females will be 37.2 years (35.3 years in the old projection). By 2025 male median age will have increased by 2.5 years to 36.9 years; and female median age will have risen by 2.4 years to reach 39.6 years. In 2000 female median age in the MDCs will be 2.8 years greater than male and the disparity will remain about the same by 2025, at 2.7 years. Between 1980 and 2025 the gap in the median ages of males and females can narrow from 3.3 to 2.7 years.

The aging index for males in the MDCs will, under the new projections, be 48.7 for males and 76.3 for females (43.6 and 66.3 in the old projection). By 2025 the male aging index will rise to 69.9 and the female to 98.5.

In 2000, among males in the MDCs, about one third, 32.8 percent, of those 65 and over will be 75 and over (33.2 in the old projection); by 2025 this proportion will for males be 34.9 percent. For females the projection of those 75 and over among women 65 and over will in 2000 be 41.9 (42.2 in the old projection) and remain at 41.9 in 2025. This relatively small overall change in the proportion of old-old suggests that mortality at older ages may be nearing an asymptote.

In the LDCs in 2000, according to the new projections, the proportion of persons 65 years old and older will be 4.6 percent for males and 5.2 percent for females. (These percentages were 4.3 and 5.0 for the old projections.) By 2025 the proportion of males 65 and older will rise to 7.2 percent and of females to 8.4 percent. The disparity between the sexes will thus double--increasing from 0.6 to 1.2 percentage points.

The median age in the LDCs in 2000 will be 23.9 years for men and 24.2 years for women. (The old projections were 22.3 and 22.7 years). By 2025 median age of males will rise by 5.3 years to reach 29.2 years; and median age of females will increase by 5.6 years to reach 29.8 years.

The aging index for males in 2000 is projected to be 13.7 for males and 15.7 for females (12.2 and 14.3 in the old projections). By 2025 the aging index will be 27.3 for men and 32.4 for women. In 2000 the old-old among males will be 29.1 percent and among females 31.7 percent (28.1 and 30.7 in the old projection). By 2025 the male old-old will be 28.2 percent of all old males and the female old-old will be 31.1 percent of all old females.

In summary it is to be observed that each of the indexes of aging for each sex is greater in the MDCs than in the LDCs both as projected to 2000 and to 2025; and that the disparities in the indexes between the sexes is consistently greater in the MDCs than in the LDCs.

III. Extension of Life

As has been indicated above, the UN has recently published projections of mortality, including expectation of life, from 1950-55 to 2020-25. These data are given by sex for individual countries and territories as well as in aggregated form for the areas shown in this study.

The World In 1975-80 expectation of life at birth for the world as a whole for both sexes combined was 57.5 years (Table 3). By 1975-2000 life expectancy is projected to rise to 63.9 years and by 2020-2025 to 70.4 years. Thus, in the last two decades of this century life expectancy is projected to increase by 6.4 years, or by 11.1 percent; and during the first quarter of the 21st century, expectation of life at birth is projected to increase by an additional 6.5 years, or by an additional 10.2 percent.

It is anticipated, then, expectation of life at birth will increase from 1975-80 to 2020-2025 by 12.9 years, a rise from 1980 of 22.4 percent.

The above world data for the sexes combined and for the MDCs and LDCs combined represent averages which, of course, obscure the great differences by sex and by level of development. The level of development differences will be unscrambled by sex in the materials which follow (Table 4).

MDCs and LDCs In the MDCs life expectancy at birth in 1980 was 68.4 years for males and 75.7 years for females--a difference of 7.3 years. By 2000, using the UN projections as assessed in 1980, expectation of life at birth for males will increase to 70.2 years and for females to 77.5 years, a difference of 7.3 years, the same as in 1980. By the year 2025 male expectation will be 72.0 years and female 79.0 years and the difference will be decreased by 7 years.

In the LDCs expectation of life at birth in 1980 was well below that in the MDCs. Male life expectancy at birth was 54.2 years and female 56.0 years with a difference of only 1.8 years. By 2000, however, male life expectancy will increase to 61.2 years and female to

63.7 years for a difference of 2.5 years. By 2025 male life expectation will be 67.7 years and female 71.7 years with a difference of 4.0 years. The sex difference in longevity is projected to increase in favor of the female as life expectancy for both sexes increases.

It is clear that longevity in the MDCs at a higher level in 1980 than that in the LDCs, despite increase in expectation of life at birth in the LDCs, will remain higher for both sexes during the remainder of this century and to the end of the first quarter of the next century. But the projections show that the gap in longevity between the MDCs and LDCs for each sex will narrow between 1980 and 2025 as mortality continues to fall in the LDCs. In 1980 MDC longevity for males was 14.2 years greater than that in the LDCs. By 2025 this gap will have narrowed to 4.3 years. The difference between life expectancy for females in the MDCs and LDCs was 19.7 years in 1980, but is projected to diminish to 7.3 years by 2025.

IV. Labor Force Aging

Given the aging of population and the extension of life as products of the demographic transition, it follows that the labor force, a major sub-set of the population, will also undergo aging but not necessarily the extension of working life. Aging of the labor force is not necessarily followed by the extension of working life because retirement from the labor force may, for individuals, decrease the length of working life. However, because of increased survivorship aggregate number of person-years of work during the life span may increase. That is the increase in person-years of work resulting from increased survivorship before retirement age may more than offset the impact of retirement on aggregate years of work during the lifetime of a cohort.

This study will be restricted to the consideration of aging of the labor force and not with the extension of working life. The reason for this is that data are available for the geographical and political areas utilized in this study but are not yet available on the extension of working life except for a few nations.

The basic data analyzed on the aging of the labor force of the world, the MDCs, the LDCs and the regions of the world as delineated by the UN are the statistics produced by the International Labour Office (ILO) in its estimates for the world 1950 to 1970, and its projections from 1975 to 2000.

The ILO Data The ILO data cover the period 1950 to 1970 with projections from 1975 by quinquennia to the year 1990 and then to 2000. The object of ILO in making these statistics available,

> "is to provide a comprehensive and consistent set of data, based on uniform concepts, methods and classification schemes, for all countries, territories, regions and major areas of the world, including summary data for the world and for the more developed and less developed regions."

Needless to say because of the diversity of census and survey methods and variations in conceptual frameworks, it was necessary for ILO, in order to achieve its objective of data, uniformity and consistency, to make adjustments in the national data. The ILO publica-

tion further states:

> "The data obtained from national sources are adjusted to conform to a standard concept of labour force which is defined to comprise all employed and unemployed persons (including those seeking work for the first time). It covers employers, persons working on their own account, salaried employees, wage earners, unpaid family workers, members of producer's cooperatives and members of the armed forces."

The data were obtained by the ILO from national censuses and relevant sample surveys during the period 1945-1975. Also explained by the ILO is the general statistical framework set up by the United Nations and the Specialized Agencies within which its labor force estimates and projections are embodied.

> "The data presented . . . form part of the combined programme of the United Nations and the specialized agencies' demographic estimates and projections covering total population, urban and rural population, households and families, labour force, school population, agricultural population and agricultural labour force. Uniformity was assured among the estimates and projections prepared by the United Nations and the specialized agencies as regards the utilisation of common basic data and such specifications as reference years, sex-age detail and geographic framework; similarly, technical matters relating to assumptions, methods, comparability and integration of estimates and projections are also fully coordinated among these bodies. Consequently the labour force estimates and projections coincide with the results of applying to the United Nations population estimates and projections, by sex and age group and for the specified years, the ILO estimates and projections of labour force participation rates referred to the same sex-age groups and the same mid-year dates."

> "The population data used for this purpose relate to the estimates for mid-year 1950, 1955, 1960, 1965, 1970 and the projections for mid-year 1975, 1980, 1985, 1990, 1995 and 2000 supplied by the United Nations. The labour force projections shown in this publication are based on the medium variant projections of total population."

Since the data in this study are all summary data for the world, for the MDCs and the LDCs, and for the major world regions, it is to be observed that:

> "The estimates and projections for each major area and region have been obtained by aggregating the independent estimates and projections for the component countries and territories. The regional figures include data for small countries and territories (generally with less than 250,000 inhabitants in 1970) which are not shown separately."

A summary of the methodology employed by the ILO in making its "benchmark estimates '1950-1970'" and projections from 1975 are given in the Appendix to this article as taken from the "Introduction" to

Vol. V of the ILO series of six volumes. Further methodological detail is contained in Vol. VI of the publication.[3/]

The World The age structure of the labor force will, of course, change within the framework of age structure changes in the total population. In making the projections of the labor force, as has been indicated, the ILO, in fact, used the United Nations population projections as assessed in 1973.

In 1970 there were 1,508.6 million workers in the world (Table 5). In 1980, using the ILO projections as published in 1977, the labor force had increased to 1,794.4 million workers, an increase of 285.8 million workers or 18.9 percent. In 1970 there were 979.8 million males in the work force and 528.8 million females. By 1980 male workers increased to 1,170.4 million and female workers to 624.0 million. Thus, during the 1970s, male workers increased by 19.5 percent and female workers by 18.0 percent. Males made up 64.9 percent of the world's work force in 1970 and 65.2 percent in 1980. In 1980, 3.1 percent of workers of both sexes combined were 65 years old and older, 3.4 percent of the males and 2.6 percent of the females. Of all workers, 26.8 percent were 45 years old and older, 27.4 percent for males and 25.6 percent for females. Of all workers, 11.3 percent were 55 years old and older, 12.1 percent for males and 9.9 percent for females. The median age of all workers was 34.7 years, 35.1 years for men and 34.0 years for women.

It is to be noted that although females are older than males in the general population as measured by proportion of older persons and median age, they are younger than males in the world's labor force. This pattern, of course, reflects the difference in labor force participation of workers by sex and age.

Finally, there is interest in the number of dependents per worker to show differential burdens of dependency. The dependency ratios shown in the materials relating to the general population are proxies for the relationship between persons of working age not in the labor force together with persons below working age, and persons in the labor force. In 1980, for the world as a whole, there was for each worker 1.44 dependents, of whom 0.61 dependents, or 42.4 percent, were under 10 years of age.

By 2000, according to the ILO projection, the world's labor force would have increased to 2,545.9 million workers, an increment of 751.4 million over the 1980 figure, or an increase of 41.9 percent. It is a sobering thought to realize that the world must achieve enough development to absorb three-quarters of a billion additional workers in the two decades from 1980 to the end of the century. Moreover, this task is exacerbated by the fact that most of this increase in the labor force, as will be shown below, is projected to occur in the LDCs.

By 2000 the proportion of workers 65 and over in the world will have actually diminished to 2.6 percent (from 3.1 percent), reflecting both increasing retirement, and the post World War II baby boom in the MDCs; and anticipated continuing high fertility in the LDCs. Male workers 65 and over will by 2000 have diminished to 2.8 percent (from 3.4 percent) and females to 2.1 percent (from 2.6 percent) (Table 6).

The proportion of workers 45 and over in 2000 can be 27.1 per-

cent, 27.7 percent for males and 26.0 percent for females. These percentages show little change from 1980 but will be slightly above their 1980 counterpart (at 26.8, 27.4 and 25.6 percent). The proportion of workers 55 and over will by 2000 be 10.7 percent (down from 11.3 percent in 1980); that for men in 2000 will be 11.5 percent (down from 12.1 percent) and for women 9.3 percent (down from 9.9 percent).

Median age of the world's labor force in 2000 is projected to be 35.6 years, up slightly from the 1980 figure, 34.7 years. For men median age would be 36.0 years and for women, 34.9 years, up slightly for each sex.

By 2000 the burden of dependency will have increased somewhat to 1.46 dependents per person in the labor force (from 1.44); but the burden of young dependents will have diminished to 0.54, constituting 37.0 percent of total dependents, as compared with 42.4 percent in 1980.

The MDCs and LDCs The labor force materials presented above for the world as a whole obscure important differences between the MDCs and LDCs. In 1970, 67.7 percent of the world's workers were in the LDCs and by 1980 this proportion had risen to 69.4 percent. In 1970 workers constituted 45.0 percent of the MDC population, whereas they made up only 40.4 percent of the LDC population. By 1980 persons in the labor force made up 46.5 percent of the MDC population and 39.0 percent of the LDC population. It should be noted again that the difference reflects not only differences in labor force participation but, also, differences in age structure, more specifically, differences in the proportions of people below working age as well as of working age.

In 1970, the general labor force participation rate of males in the MDCs was 69.4 compared with 41.1 for females (Table 6). In the LDCs the comparable percentages for males was 75.2 and for females 38.1. By 1980, general labor force participation rates for men in the MDCs was 69.4, the same as for 1970. That for females in the MDCs was 42.7, a level higher than in 1970. By 1980 the general labor force participation rate for men in the LDCs was 72.5 whereas the comparable rate for women was 35.8.

Workers 65 and over, 45 and over and 55 and over In 1980 male workers 65 and over constituted 3.2 percent of all male workers, compared with 2.6 percent for females (Table 6). In the LDCs male workers 65 and over made up 3.4 percent of all male workers with the comparable figure for female workers being 2.5 percent. Although all persons of each sex in the MDCs have a higher proportion of persons 65 and over than are found in the LDCs, the proportions of workers 65 and over are at almost the same levels. This is the case because in the MDCs a larger proportion of older workers are retired from the labor force than is the case in the LDCs in which a larger proportion of older workers continue their labor force participation.

The fact that MDC total populations are older than LDC total populations carries over into the age structure and the labor force is evident when workers 45 years old and older are compared. In the MDCs male workers 45 and over, in 1980, made up 32.6 percent of all male workers, compared with 25.4 percent in the LDCs. The comparable figures for females were 31.4 percent and 22.5 percent. At age 55 and

over the differences between workers of each sex in the MDCs and the LDCs narrowed as retirement affected labor force participation in the MDCs (Table 6).

Median Age The expected pattern of workers being older in the MDCs than in the LDCs is obtained when comparisons are made of their median ages. In 1980 in the MDCs the median ages of males in the labor force was 37.8 years and of females 36.8 years. In the LDCs the median ages by sex were 34.0 years and 32.3 years, respectively (Table 6).

Finally, in examining differences between the MDCs and LDCs in the burden of dependency per worker the fact that LDC populations have larger proportions of persons under 10, persons below labor force age, gives the LDCs a higher dependency burden. In the LDCs in 1980 the number of dependents per worker was 1.57 of which 0.73 dependents, or 46.5 percent of the total burden was composed of youngsters under 10 years of age. In the MDCs, in 1980, there were only 1.15 dependents per worker, of which only 0.35 dependents, or 30.4 percent, were under 10 years of age. The burden of total dependency in the LDCs is more than a third (36.5 percent) higher than in the MDCs and their burden of young dependents is more than double that in the MDCs.

By 2000 workers in the MDCs will increase to 638.5 million, or by 16.2 percent over 1980. In the LDCs total persons in the work force will rise to 1,907.3 million, an increase of 53.2 percent. Between 1980 and 2000 the MDCs must be prepared to absorb an additional labor force of 88.8 million workers, but the LDCs will be faced by the much more stupendous problem of absorbing an additional 662.6 million workers. Male workers in the MDCs will increase between 1980 and 2000 by 14.5 percent, whereas in the LDCs male workers are projected to increase by 53.5 percent. Female workers are likely to increase by 18.6 percent in the MDCs, but by 52.7 percent in the LDCs. Thus, of the total increase in workers between 1980 and 2000, 88.2 percent will be in the LDCs.

Between 1980 and 2000, male workers 65 and over in the MDCs will reach 3.1 percent and females 2.4 percent, very little change from the 1980 levels. In the LDCs male workers in 2000 will have 2.8 percent 65 and over and females 2.0 percent, levels not much different from those in 1980. The reasons for the very little change in the proportion of workers of both sexes being 65 and over and the relatively small difference in these proportions between the MDCs and LDCs have already been presented.

In 2000 male workers 45 and over in the MDCs will be 35.7 percent and female workers 33.8 percent of this respective total workers, levels moderately above their 1980 levels. In the LDCs male workers 45 and over will be 25.4 percent and female workers 22.7 percent of their respective totals, levels which, although well below those in the MDCs, will be at above their levels in 1980. Similarly male workers in the MDCs 55 and over will make up 14.5 percent and female workers 11.5 percent of their respective total numbers. In the LDCs the comparable percentages will be 10.6 and 8.3 percent. As in the case above for workers 45 and over, there will be little change in these levels from those in 1980, but the LDC proportions will remain below those in the MDCs.

Although there will not be much indication of aging of the labor force as measured by the proportion of workers of each sex 65 and over, 45 and over and 55 and over, the median age of workers of each will rise between 1980 and 2000. In 2000, in the MDCs, the median age of male workers, at 39.1 years and female workers at 38.1 years will be, for both males and females, 1.3 years higher than in 1980. In the LDCs the median age of male workers at 35.1 years and female workers at 33.6 years will be 1.1 years higher than in 1980 for males and 1.3 years higher for females. In 2000 male workers in the MDCs will be 4.0 years older than those in the LDCs and female workers will be 4.5 years older.

It is clear that although the general population in the MDCs is faced with considerable aging during the remainder of this century, that the aging of the MDC labor force will not be as great. In the MDCs the median age of the general male population at 32.8 years in 2000 will be 2.7 years above the 1980 level whereas the difference in the median ages of male workers will be only 1.3 years; for females the difference in median ages in the general female population will be 1.9 years compared with 1.3 years in the labor force. It is to be observed, however, that whereas females have a median age above that for males in the general population, it is below that of males in the labor force both in the MDCs and the LDCs. In the LDCs, the median age of males in the general population at 22.3 years in 2000 will increase by 2.5 years, whereas the increase in the median age of male workers between 1980 and 2000 will be only 1.1 years. For females the median age in the general population will rise by 2.7 years as contrasted with only 1.3 years in the labor force.

Finally, it is to be noted that the difference between the median ages of the general population and that of workers diminished between 1980 and 2000. In 1980 in the MDCs the median age of male workers was 7.7 years greater than that in the general population (Table 6) but this difference would narrow to 6.3 years by 2000. For females in the MDCs, the difference in median ages shrank from 3.4 years in 1980 to 2.8 years in 2000. Similarly the differences in median ages for other categories will shrink between 1980 and 2000 as follows:

men in the LDCs, from 14.2 to 12.8 years and
women in the LDCs, from 12.3 to 10.9 years.

The narrowing of the differences in the median ages of the members of each sex between the median age of the general population and that of the labor force as projected, indicates that larger proportions of both males and females will be in the labor force at older ages in 2000 than in 1980.

Dependency Burden Compared with Dependency Ratios It is of some interest to compare the data on the dependency burden as calculated using the labor force data with the dependency ratios presented in the general population data. The comparative statistics are presented in Table A.

First of all it may be concluded that the respective indexes are, indeed, measuring essentially the same phenomena. The directions of change between 1980 and 2000 are the same even though the magnitudes of change differ, but not by much. Similarly, the ratios of the indexes in the LDCs to those in the MDCs are essentially as expected, that is, dependency is greater in the LDCs than in the MDCs. The comparative data demonstrate that the conventional dependency ratios do

provide reasonable valid measurement of the real dependency burden as revealed by use of labor force data.

V. Aging in the MDC Regions--Population

Just as data for the world as a whole obscure differences between the MDCs and the LDCs, so do data for the latter obscure regional differences within each of these levels of development categories. Since it is not feasible within the limits of this paper to analyze data for individual countries, the analysis will be continued for the broad regions of the world within the MDCs and the LDCs, respectively.

Adhering to the pattern of analysis followed above, there first will be considered the aging of the general population, but, for the regions the data will, in the main, be dealt with for each sex separately. The statistics for the sexes combined are given in Table 7. Population and labor force totals for the sexes combined will be dealt with only as the indexes employed may require.

Population data for males and females are shown in Table 8 for 1970 and as projected to 1980 and 2000. Treated first are the proportions of the regional populations which are 65 and over.

Persons 65 and over Among the MDC regions it is apparent that for males the highest proportion of those 65 and over were in Western Europe and in Northern Europe where, in 1970, the aged constituted over 10 percent of all males and in 1980 over 11 percent or above. These, of course, are the regions which experienced relatively early fertility decline, some countries as early as during the 18th century, and, therefore, they were also the first to experience population aging. The lowest proportions of males 65 and over were in Southern Africa in which 3.6 percent of the men were in this age group in 1970 and 3.4 percent in 1980. In this region, fertility, although declining, was still relatively high.

As will be shown below, Southern Africa, although classified by the U.N. as a region within the MDCs, is in most population and labor force respects more like a LDC than a MDC region. This no doubt arises from the dual economic and segregated racial composition of South Africa. Accordingly, the region next to lowest to Southern Africa will also be underrated in respect to males 65 and over. The next lowest region in 1980 was the USSR at 6.6 percent. The relatively low proportion of older males in the USSR may be attributable to the war losses suffered in World War I.

The proportion of females 65 and over in general follows the same pattern. In 1970 in Western Europe the proportion of women 65 and over exceeded 15 percent and that of Northern Europe almost reached this level. In 1980 in Western Europe 16.6 percent of all women were 65 and over and in Northern Europe 16.5 percent. The lowest proportion of older women was in Southern Africa where it fell below 5 percent both in 1970 and in 1980.

Next lowest to Southern Africa was Temperate South America with 7.2 percent in 1970 and 8.7 percent in 1980. Note that the population of females 65 and over in the USSR was about twice that of males at 10.0 percent in 1970 and 13.2 in 1980.

By 2000 an increase in the proportion of older persons is projected with considerable regional variations. The regions with the highest proportion of older males will be Western Europe with 11.9 percent, Southern Europe with 11.8 percent, Japan with 11.6 percent, and Eastern Europe with 11.2 percent.

The advent of Eastern Europe and Southern Europe follows their relatively rapid decreases in fertility during and after World War I and the appearance of Japan in this group follows the rapid reduction in her fertility during and after World War II. The lowest proportion of older males is projected to be in Southern Africa, where it will have changed very little from the 1980 level to still be below 4 percent. The next lowest will be in Temperate South America at 8.0 percent.

The proportion of females 65 and over is projected by 2000 to exceed 15 percent in three regions: Western Europe, Northern Europe, and Southern Europe. Eastern Europe, Japan and the USSR will also have relatively large proportions of older women at levels between 14 and 15 percent. Japan is projected to experience a great upsurge in the proportion of older women between 1980 and 2000 as the percentage of women 65 and over is projected to rise from 9.6 percent in 1980 to 14.8 percent. The USSR is projected to have an increase in older women to 15.0 percent in 2000 from 13.2 percent in 1980.

As has been indicated above, population projections have been made available by the UN to 2025 from 2000 as assessed in 1980. Inspection of Tables 1 and 2 will reveal that the data for 2000 as projected by the UN on the basis of their assessment in 1973 differ little from the newer data although the newer projections show more aging by 2000 than the earlier data. The differences are so small, however, that in the interest of simplicity, the two projections will not be shown in the text, and the projections to 2025 will be discussed directly.

By 2025 males 65 and over will be 17.0 percent or higher in Japan and Western Europe and will be between 16 and 17 percent in Northern Europe and Southern Europe. In Southern Africa males 65 and over will still be as low as 5.0 percent--the only MDC region to fall below 10 percent and to overlap with regions in the LDCs. The next lowest region in 2025 will be Temperate South America at 10.6 percent.

The proportion of women 65 and over in the MDC regions will exceed one-fifth of all women in Japan, at 21.6 percent, in Northern Europe, at 20.6 percent, and in Western Europe, at 21.8 percent. Only in Southern Africa will women 65 and over be as low as 5.8 percent of all women; and only in Temperate South America, at 13.5 percent, as well as in Southern Africa, will the proportion of women 65 and over fall below 16 percent.

Median Age In 1970 in the MDCs, in two of the ten regions, males had median ages above 30 years, Western Europe and Northern Europe, the former at 31.3 years and the latter at 32.1 years. In contrast, in Southern Africa males had a median age of only 19.1 years, the lowest, of the MDC regions. In 1980, five of the ten regions will have median ages above 30 years and only one, Southern Africa, below 20 (Table 8).

By 1980, five of the ten MDC regions had median ages above 30 years. The highest male median ages were in Western Europe with 32.6 years and in Northern Europe with 32.4 years. The lowest male median ages were in Southern Africa with 18.6 years and in Temperate South America with 26.3 years.

By 2000, in two of the MDC regions, male median ages will exceed 35 years, in Japan and in Western Europe. With continuing relatively high fertility the male median age in Southern Africa will be 18.6 years in 2000, the same as in 1980. The next lowest median age will, in 2000 be in Temperate South America, at 29.2 years.

In 1970, six of the ten MDC regions had female median ages above 30 years. By 1980 this was the case for seven of the regions. The regions with the highest female median ages in 1980 were Western Europe with a median age of 36.0 years, and Northern Europe, with 35.5 years. The lowest female median ages were in Southern Africa, with 19.2 years and Temperate South America well above that level with 27.7 years.

By 2000 Japan will have experienced a spectacular increase in the aging of women, making Japan the oldest MDC region for women, as female median age reaches 38.2 years. Closest behind Japan will be Western Europe with a female median age of 37.0 years. Three other regions will have female median ages above 35 years, namely, Eastern Europe, Northern Europe, and Southern Europe. The lowest female median age among the MDC regions will be in Southern Africa, at 19.2 years and the next lowest at 30.2 years will be in Australia and New Zealand.

By 2025, two of the MDC regions will have males with median ages above 40, Western Europe and Northern Europe, both at 40.4 years. Two regions--Japan and Southern Europe--will have male median ages between 39 and 40 years. Southern Africa will have a male median age of 24.0 years, and the next lowest region will again be Temperate South America at 33.0 years.

In four of the MDC regions female median ages will be above 40 years, Western Europe, where it will be the highest at 43.8 years, in Japan, in Southern Europe and in Northern Europe. In only two regions will the median age of women be below 35 years, in Temperate South America 34.8 years and, of course, in Southern Africa, at 24.5 years.

Dependency Ratios In 1970, as is to be expected, the highest dependency ratio among the MDC regions was in Southern Africa. This region had a dependency ratio of 82.0, a level well above that of other MDC regions. The lowest total dependency ratio was in Japan with a ratio of 45.1. The pattern was essentially the same in 1980 with the total dependency ratio for Southern Africa being 83.8 and for Japan 50.0.

By 2000, Southern Africa will have the highest dependency ratio which at 83.5 will have experienced a slight decrease over 1980. By the end of the century Japan will still have the lowest dependency ratio among the MDC regions, at 49.9. By 2025 Japan will have displaced Southern Africa in having the highest total dependency ratio at 60.7, compared with 60.1 for Southern Africa. But this will come about only by reason of the great increase Japan will experience in

aged dependents. By 2025 the lowest total dependency ratio will be in Temperate South America at 52.6. It should be borne in mind that comparisons of total dependency ratios over time obscures the often conflicting changes in its components--youth and aged dependency.

In 1970 the highest youth dependency ratio was in Southern Africa, at 74.6. The next highest was in Temperate South America, at 50.8. By far the lowest youth dependency ratio was in Japan which had only 34.9 young persons under 15 for each 100 persons 15 to 64 years of age. In 1980 the highest youth dependency ratio was still in Southern Africa, at 77.1 and the next highest in Temperate South America, at 47.2. The lowest was in Western Europe, 33.6, as fertility there continued its decline. It is to be noted that the next lowest youth dependency ratio was in Eastern Europe, 35.5, where the birth rate also plummeted. By 2000 the highest youth dependency will still be in Southern Africa at 76.4, with the next highest still in Australia and New Zealand at 41.2. The lowest youth dependency ratio is projected to be in Japan in which it will drop to 30.0. The youth dependency ratio is projected to decline in all the MDC regions between 1980 and 2000. By 2025, Southern Africa is projected to still have the highest youth dependency ratio of any MDC regions at 51.4. The next highest will be the USSR with 34.9. Between 2000 and 2025, however, the youth dependency ratio in Southern Africa will have decreased substantially while that in the USSR will drop below the youth dependency ratio in Temperate South America. The lowest youth dependency ratio is projected to be in Northern Europe at 27.8. Between 2000 and 2025 the youth dependency ratio will have decreased in each of the MDC regions, with the possible exception of Western Europe. The difference in the youth dependency ratio projected for the year 2000 between that based on the UN assessment in 1973 and that in 1980 affect this statement (Table 7).

In 1970 the highest aged dependency ratios were in Western Europe and Northern Europe, with 20.3 and 20.1 respectively. By 1980 these two regions still had the highest aged dependency ratios but in reverse order with that in Northern Europe being 22.4 and that in Western Europe being 21.5. The lowest aged dependency ratio, as was to be expected, was in Southern Africa, with 7.4 in 1970 and 6.8 in 1980. Next lowest aged dependency ratio in 1970 was in Japan, with a ratio of 10.2, but Japan's aged dependency ratio rose to 12.9 by 1980--a level above that of Temperate South America, at 12.5. This leap up by Japan between 1970 and 1980 was a signal of the rapidity with which Japan will age subsequently.

By 2000 the highest aged dependency ratios will be in Southern Europe at 21.6 followed closely by Western Europe at 21.4 and Northern Europe at 20.4. Note that Japan's aged dependency ratio will rise to 19.9 in the old projection and 21.7, the third highest in the new projection. Southern Africa will still have the lowest aged dependency ratio at 7.1 with the next lowest being in Australia and New Zealand at 14.4.

Each of the MDC regions is projected (in the new projections) to show an increase in its old dependency ratio between 1980 and 2000. By 2000 there will be four of the ten MDC regions with old age dependency ratios above 20.

By 2025 there will be two regions with aged dependency ratios

above 30, Japan at 31.3 and Western Europe at 31.1. Six of the regions will have aged dependency ratios between 20 and 30. The lowest aged dependency ratio will be in Southern Africa at 8.7, a level well below that of ten of fourteen LDC regions. The next lowest will be Temperate South America, at 18.4.

Aging Index In 1970 the highest aging index was in Western Europe and Northern Europe, in each of which there were more than 52 persons 65 and over for each 100 persons under 15. In contrast in Southern Africa there were only 10 older persons for each 100 younger persons. The next lowest aging index was in Temperate South America at 21.2. In 1980 there were two regions with an aging index above 60, 64.0 in Western Europe and 61.1 in Northern Europe. In 1980 the aging index was lowest in Southern Africa at 8.8 and next lowest in Temperate South America at 26.4.

By 2000 the highest aging indexes will be in Western Europe at 66.2 and in Japan at 66.1. Between 1980 and 2000 Japan, the most rapidly aging nation in the world, will have its aging index soar from 34.6 in 1980 to 66.1 in 2000.

The lowest aging indexes will be in Southern Africa with 9.3 and the next lowest will be in Australia and New Zealand with 34.9. In each of these MDC regions, without exception, (if the new projections are used) the aging index will increase between 1980 and 2000.

By 2025 there will be three MDC regions with indexes above 100, that is, with more persons 65 and over than under 15. These will be Western Europe with 108.7, Japan with 106.9 and Northern Europe with 104.7. Southern Europe will come close to an index of 100 with 97.8. The lowest aging index in 2025 will be in Southern Africa with 16.8 followed by Temperate South America with 53.9.

The old-old The combination of increased population aging and the extension of life is, as has been indicated, leading to an increase in the proportion of "old-old"--persons 75 and over as a proportion of all persons 65 and over. The data for the regions of the MDCs and LDCs will be presented for both sexes combined.

In the MDCs as a whole, for both sexes combined, the persons 75 and over made up 34.0 percent of all persons 65 and over in 1970 and 36.3 percent in 1980. By 2000 the old-old will constitute 38.5 percent of all the old, by 2025, 38.9 percent.

In 1980 among the MDC regions, the highest proportion of the old-old were in Northern America and in Western Europe, in each of which persons 75 and over made up 38.7 percent of all persons 65 and over. Northern Europe was the next highest with 37.3 percent. It is striking that although Northern America does not rank as high in other indexes of aging as Northern Europe, Western Europe and Japan, it does have a relatively high proportion of the old-old. This suggests that geriatric care for older persons in Northern America may be superior to that in other regions--an assertion that requires further investigation. The lowest proportion of old-old in 1980 was in Southern Africa with 29.3 percent and the next lowest was in Temperate South America with 33.3 percent.

By 2000, three of the ten MDC regions will have over 40 percent

of all persons 65 and over, 75 and over--Northern America with 43.3 percent, Northern Europe with 44.1 percent and Western Europe with 40.1 percent. By 2025 there will be four MDC regions in which the old-old will be over 40 percent, Japan with 47.3 percent, Northern Europe with 42.0 percent, Southern Europe with 41.8 percent and Western Europe with 40.7 percent. Japan by 2025 will have become the region with the highest indexes of aging by reason of her drastic reduction in fertility after World War II. Northern America will have dropped below the 40 percent level in old-old probably because of the great bulge in persons 65 to 74, reflecting the large baby boom after World War II. The region with the lowest proportion of old-old in 2025 will still be, as expected, Southern Africa but its proportion of old-old will have risen to 32.7 percent. The next lowest will have become Northern America with 35.0 percent.

VI. Aging in the MDC Regions--The Labor Force

It has been noted that for the MDCs in the aggregate the proportion of workers 65 and over will diminish between 1980 and 2000 but that the proportion of workers 45 and over and 55 and over will increase. The decrease in the population of workers 65 and over will be a product of changes in labor force participation rates, including the effects of retirement, rather than changes in the age structure. The median age of workers will increase and the total dependency burden and youth dependency burden will decrease. There are and, there would continue to be, considerable variation in respect to these items among the regions within the MDCs.

Male Workers 65 and over, 45 and over and 55 and over In 1980 the largest proportion of male workers 65 and over in the MDC regions was in Japan with 5.5 percent and in Eastern Europe, with 5.1 percent. The lowest proportion of such older male workers was in the USSR, with only 1.1 percent of such older workers. These differences are affected, of course, by variations in retirement practices as well as age structure. A better indication of differences in the age of male workers is given by those 45 and over, 55 and over and median ages.

Male workers 45 and over and 55 and over were in greatest proportion among the MDC regions in Northern Europe. Those 45 and over constituted 37.1 percent in 1980 and those 55 and over in Northern Europe made up 19.1 percent of all male workers. The lowest proportion of workers 45 and over in 1980 was in Southern Africa with 24.7 percent.

In 2000 the MDC regions with the highest proportion of male workers 65 and over will be in Japan with 7.0 percent followed by Eastern Europe with 4.4 percent. The lowest proportion of male workers 65 and over will be in the USSR with 1.3 percent, followed by Southern Africa and Western Europe with 2.2 percent.

The highest proportion of male workers 45 and over in 2000 among the MDC regions will be in Japan with 44.6 percent. This is a level well above that in the next highest regions, 38.7 percent in Eastern Europe, 37.6 percent in Western Europe, and 37.4 percent in Northern Europe. The lowest percentage of male workers 45 and over will be in Southern Africa at 23.0 percent followed by 30.2 percent in Temperate South America and 30.8 percent in the USSR.

By 2000 the highest proportion of male workers 55 and over will be in Japan at 22.4 percent. In this respect as in others, Japan is at a level considerably above that in the next highest regions, 16.4 percent in Eastern and Northern Europe and 16.0 percent in Western Europe. The lowest proportion of male workers 55 and over in 2000 will be in Southern Africa at 9.4 percent followed by 9.8 percent in the USSR.

Median Age--Male Workers In 1980 the MDC region with the highest median ages of male workers was Japan with a median age for male workers of 39.6 years. Northern Europe, however, was a close second with a median age of 39.2 years and Eastern Europe with 38.7 years. Southern Europe with 38.3 years followed closely. The region with the lowest male workers median age was Southern Africa with a median of 33.9 years and the next lowest was Temperate South America with 37.2.

Female Workers 65 and over, 45 and over and 55 and over In 1980 the MDC region with the highest proportion of female workers 65 and over was in Eastern Europe with 4.6 percent, followed closely by Japan with 4.0 percent. The lowest proportion of female workers 65 and over was in the USSR, 0.9 percent with the next lowest in Australia and New Zealand with 1.4 percent.

In 1980, the highest proportion, by far, of female workers 45 and over were in Japan, with 37.7 percent, and the next highest was in Northern Europe with 35.1 percent. The highest proportion of female workers 55 and over was in Japan with 15.9 percent followed closely by Northern America with 15.8 percent and Northern Europe with 15.7 percent.

The lowest proportion of female workers 45 and over in 1980 was in Southern Africa with 17.8 percent and the next lowest in Temperate South America with 21.7 percent. The lowest proportion of female workers 55 and over was in the USSR with 4.3 percent, followed by Southern Africa with 6.5 percent.

By 2000 Japan will have the highest proportion of female workers 65 and over, at 4.8 percent; 45 and over, at 45.4 percent; and 55 and over, at 20.2 percent. Second to Japan in the proportion of female workers 65 and over will be Eastern Europe with 4.4 percent. Second to Japan in the proportion of women in the labor force 45 and over will be Northern America with 38.2 percent; and second to Japan with female workers 55 and over will be Eastern Europe with 14.9 percent. This shift in regions with relatively high proportions of older female workers results from the effects of differential female labor force participation rates and retirement rates as well as differential female age structures.

In 2000, the lowest proportion of female workers 65 and over will be in the USSR, with 0.8 percent, the lowest proportion of female workers 45 and over will be in Southern Africa with 17.4 percent, and the lowest proportion of female workers 55 and over will be the USSR with 4.4 percent.

Median Age--Female Workers In 1980 the MDC regions with the highest female workers median age was Japan with a median age of 39.5 years, followed by Eastern Europe with a median age of 38.5 years. The region with the lowest female workers median age was Southern

Africa with 29.7 years, followed by Australia-New Zealand with a median age of 32.4 years and Temperate South America with 32.5 years.

By 2000 the region with the highest median age, by far, will be Japan with a median of 42.5 years. Next will be Northern America and Eastern Europe, each with a median age for female workers of 39.6 years. The regions with the lowest median age for female workers will be Southern Africa with 30.1 years and Temperate South America with a median age of 33.5 years.

Dependency Burden The dependency burden as defined in this paper is necessarily a statistic meaningful only for both sexes combined. In 1980 the MDC region with the highest dependency burden was Temperate South America with 1.71 dependents for each worker, followed by Southern Africa with 1.67. These two regions also had the highest youth dependency burden, that is, children under 10 per worker, 0.86 for Southern Africa and 0.55 for Temperate South America. The child dependency burden in Southern Africa was over half, 51.5 percent of the total dependency burden; in Temperate South America it was about one-third, 32.2 percent.

The regions with the lowest total dependency burden, in 1980, were Eastern Europe with 0.88 and Japan with 0.95 in total dependency per worker.

The regions with the lowest youth dependency burden, in 1980, were Eastern Europe with only 0.29 children under 10 per worker, Western Europe with 0.32 and the USSR with 0.33. In Eastern Europe the youth dependency burden constituted 33.0 percent of the total dependency burden, in Western Europe 25.4 percent, and in the USSR 33.7 percent.

By 2000 the regions with the highest total dependency burden will still be Southern Africa with 1.67 dependents per worker and Temperate South America with 1.60. These two regions will also have the highest youth dependency burden in 2000, 0.79 in Southern Africa and 0.45 in Temperate South America. In the former region the youth dependency burden will make up 47.3 percent of the total dependency burden and in the latter, 28.1 percent.

The lowest total dependency burden in 2000 will be in Eastern Europe with 0.86 total dependents per worker and in Japan with 0.87. The regions with the lowest youth dependency burden in 2000 will be in Japan with 0.25 children under 10 per worker and in Eastern Europe with 0.27. In Japan the youth dependency burden will be only 28.7 percent of the total burden and in Eastern Europe 31.4 percent.

VII. Extension of Life--MDC Regions

The United Nations has made available projections to 2025 of expectation of life at birth for the world, the More Developed and Less Developed areas and for their regions. These data are examined in the materials which follow.

It has already been indicated that expectation of life at birth for the MDC areas in the aggregate was, in 1980, 71.9 years for the sexes combined, 68.4 years for males and 75.7 years for females. By 2000, these life expectations are projected to rise, respectively, to

73.7 years, 70.2 years and 77.5 years; and by 2025 it is projected that there will be further advances in longevity to 75.4 years, 72.0 years and 79.0 years. Needless to say there will be considerable variations in life expectancy among the regions within the MDCs (Table 4).

In 1980 only three of the 10 MDC regions had life expectancies at birth for both sexes combined below 70 years--Southern Africa with 58.8 years, Temperate South America with 68.1 years, and the USSR with 69.6 years (Table 5). The region with the highest life expectation for the combined sexes was Japan with an expectation of 75.6 years. Three other regions reached 73.0 years, Northern America, Western Europe and Australia and New Zealand.

Only two of the regions had male life expectancies above 70, Japan with 73.1 years and Australia and New Zealand with 70.0 years. The lowest life expectations for males were in Southern Africa, with 57.4 years and Temperate South America and the USSR with 65.0 years.

Five of the ten MDC regions had female life expectations at birth at or above 76.0 years--Japan with 78.3 years, Northern America with 77.0 years, Western Europe with 76.7 years, Australia and New Zealand with 76.2 years and Northern Europe with 76.0 years.

The lowest female life expectation at birth was in Southern Africa with 60.3 years, followed by Temperate South America with 71.4 years. It is to be noted that the relatively small variation in life expectation among the MDC regions, with the exception of Southern Africa, gives testimony to the progress and diffusion of modern medical and public health advances.

By 2000, for the sexes combined, all the MDC regions except for Southern Africa, will have expectations of life at birth above 70.0 years, with a range of 77.3 years for Japan down to 71.1 years for Temperate South America. Life expectancy for Southern Africa will have advanced to 66.6 years. By 2025, for both sexes combined, life expectancy will have risen above 70.0 years for all the MDC regions. The range of life expectancies will vary from the high of 77.4 years for Japan to 72.1 years in Temperate South America. Southern Africa by 2025 will have an expectation of life at birth somewhat above 70.0 years, at 72.2 years.

By 2000 only three of the MDC regions will have male life expectancies below 70.0 years--Southern Africa with 65.1 years, the USSR with 67.1 years and Temperate South America with 68.0 years. The other seven MDC regions will have male life expectancies ranging from a high of 74.8 years for Japan to a low of 70.1 years for Northern America.

By 2025 only two of the regions will have male life expectancies below 70.0 years, Temperate South America with 68.7 years and Southern Africa with 69.8 years. Male expectation of life in the other eight MDC regions will range from a high of 75.0 years for Japan to a low of 70.8 years for the USSR.

By 2000 only Southern Africa and Temperate South America will have a female life expectation below 75.0 years, the former at 68.2 years and the latter at 74.4 years. Eight of the nine other MDC re-

gions will have female life expectations above 75.0 years, ranging from a high of 80.0 years for Japan to a low of 76.0 years for the USSR. By 2025 the projections show that only one MDC region will have a female life expectation below 75.0 years, Southern Africa, and that region will have reached 74.6 years. The other nine regions will have a high of 80.0 years for Japan to a low of 75.6 years for Temperate South America.

VIII. Aging in LDC Regions--Population

It has been indicated that the LDC areas in the aggregate will experience population aging at a much slower pace than the MDC areas. This follows from the fact that fertility decline in the LDCs has begun only recently compared with decline in birth rates in the MDCs. Significant fertility decreases in the LDC areas did not begin until the mid-1960s and at this writing a number of populous LDC, have achieved relatively little decrease in their birth rates, especially in Middle South Asia, Western South Asia and much of Africa. With delays in fertility decreases, aging delays will inevitably follow.

The examination of manifestation of aging in the LDC regions will follow the pattern followed in the analyses of data for the MDC regions.

In the data for the LDC regions (with few exceptions when the statistics are not meaningful by sex as, for example, dependency ratios) the manifestations of aging will be examined for each sex separately. The statistics for the combined sexes are given in Table 7.

Persons 65 years and over In thirteen of the fourteen LDC regions in 1980 the proportion of male 65 and over were below 4.0 percent, the level below which the UN has classified nations as "young". The only LDC regions with more than 4.0 percent of its men 65 and over were China, at 5.4 percent, and the Caribbean at 5.1 percent, the result of their declining birth rates. In the other twelve regions the projection of men 65 and over ranged from a high of 3.7 percent in Western South Asia to a low of 2.4 percent in Western Africa.

The proportion of women 65 and over was below 4.0 percent in ten of the fourteen regions. The four regions with more than 4.0 percent females 65 and over were China with 6.4 percent, the Caribbean with 5.4 percent, Other East Asia with 4.6 percent and Western South Asia with 4.2 percent. Among the ten LDC regions with under 4.0 percent 65 and over in the female population, the high proportion was in Middle America with 3.7 percent and the low was in Western Africa with 2.9 percent. Only in Middle South Asia was the proportion of older women no higher than that of old men. For each sex, that proportion in this region was 3.0 percent, suggesting that women there may be the victims of lower status and lower quality of life than in the other LDC regions.

By 2000 using the UN projections assessed in 1980, the proportion of men 65 and over in the LDCs in the aggregate will have increased to 4.6 percent from 3.6 percent in 1980. (The data for 2000 as assessed in 1973 are given in Table 1.) Thus, the LDCs in the aggregate will have males move, in 2000, from the UN "young" category to the "mature."

Among the LDC regions six will have entered the category of "mature" for males. The region with the highest proportion of males 65 and over will be China with 7.0 percent, followed by the Caribbean with 5.4 percent and Other East Asia with 5.0 percent. In the eight regions with proportions of older men still below 4.0 percent, the high will be Eastern South Asia with 3.9 percent and the low will be Western Africa with 2.6 percent.

By 2025, four of the LDC regions will have projections of males 65 and over above the 7.0 percent defined as "old" by the UN--China with 12.3 percent, Other East Asia, 9.8 percent, the Caribbean with 7.8 percent and Micronesia and Polynesia with 8.1 percent. It is projected, of course, that each of these regions will have achieved relatively low fertility by the end of the first quarter of the 21st century. Among the remaining ten LDC regions the proportion of men 65 and over will range from a high of 6.8 percent in Eastern South Asia to a low of 3.4 percent in Eastern Africa and Western Africa.

By 2000 only China will have a proportion of women 65 and over above 7.0 percent, at 7.7 percent. At the other extreme four regions will still have women 65 and over below 4.0 percent, in the "young" category--Eastern Africa 3.2 percent, Middle Africa 3.7 percent, Western Africa 3.0 percent, and Melanesia 3.8 percent. The remaining nine regions will have proportions of females 65 and over falling in the "mature" category between 4.0 and 7.0 percent, ranging from a high of 6.6 percent in Other East Asia to a low of 4.0 percent in Middle South Asia.

In 2025 eight of the LDC regions are projected to have proportions of women 65 and over above 7.0 percent in the "old" category. The largest proportion of these older women will be in China with 14.3 percent females 65 and over, a level which will overlap with the population of older women in the MDC regions. The lowest of these "old" proportions of women 65 and over will be in Middle South Asia and Western South Asia each with 7.1 percent females 65 and over.

In the remaining six LDC regions by 2025, only two will fall in the "young" category, under 4.0 percent--namely Western Africa and Eastern Africa each with 3.9 percent.

Median Age In 1980 the median age of males in the LDCs in the aggregate was 19.8 years. Within the LDC regions male median ages ranged from 17.0 years in Eastern Africa and Middle America to 24.6 years in China.

In only one region in addition to China, was male median age above 20.0 years, namely in Other East Asia, at 21.0 years. In twelve of the fourteen regions median age of males fell into the narrow range of 17.0 to 20.0 years.

In 1980 there were three LDC regions with female median ages above 20.0 years--China with 24.3 years, Other East Asia with 21.7 years and the Caribbean with 20.3 years. In three regions female median ages were under 18 years--in Eastern Africa, 17.5 years, in Western Africa with 17.6 years and in Middle America with 17.5 years. In the remaining eight regions female median ages were in the narrow range from 18 to 20 years. In only Melanesia, China and Middle South Asia did the female median age fail to exceed that of the male.

By 2000, in only four regions were male median ages below 20 years; and by 2025 there will be no LDC regions with male median ages below 20.0 years.

In 2000 there will be three regions with male median ages above 25 and by 2025 there will be eleven such regions, among which five will have median ages above 30 years. Both in 2000 and 2025 China will have the highest male median ages, with 30.4 years and 37.1 years, respectively. In 2000 the lowest median age will be in Eastern Africa, Middle Africa and Western Africa with medians of 16.6 years in Eastern Africa and Western Africa and 17.8 years in Middle Africa. By 2025 these three African regions will still have the lowest male median ages, but their median ages will have all risen to over 20.0 years, ranging from 21.2 to 22.2 years.

In 2000 there will be only one region, China, in which the female median age will be above 30 years, 30.6 years. By 2025 there will be five LDC regions in which the female median ages will exceed 30 years. These five regions will have female median ages ranging from a high of 38.4 years in China to a low of 30.4 years in Middle South Asia.

In 2000 the regions with the lowest female median ages, below 20.0 years, will be in Eastern Africa with a median of 17.2 years, Middle Africa with 17.8 years, and Western Africa with 17.0 years. In eight of the regions female median ages will range from 20.0 to 24.4 years and in two regions between 25.0 years and 30.0 years, namely in Other East Asia with 27.7 years and the Caribbean with 26.2 years. By 2025 in addition to the five regions with female median ages above 30 years, there will be six regions with median ages between 25.0 and 30.0 years. In 2025 in only three regions will female median ages fall below 25 years and median ages in these regions will range between 21.8 and 22.9 years.

Total Dependency Ratios It has been indicated that the total dependency ratio for the LDCs in 1980 was 77.9 with projections showing a decrease to 61.6 by 2000 (66.0 in the old projection) and further decrease to 51.2 by 2025.

In 1980 total dependency ratios in the LDC regions ranged from a high of 94.4 in Middle America to a low of 66.2 in China. There were six regions with total dependency ratios above 85 and four additional regions in which the ratios ranged from 80 to 85. Only four regions had total dependency ratios under 80.

By 2000 only two regions will have total dependency ratios above 90--Eastern Africa and Western Africa, each with 95.6. There will be only one region with a total dependency ratio under 50--China, with 46.3. The remaining eleven regions will have total dependency ratios ranging from a high of 87.6 to a low of 51.6.

By 2025 there will be only three regions with total dependency ratios above 60, Eastern Africa, with 66.4 and Western Africa, with 64.9, and Middle Africa, with 63.9. There will be four regions with total dependency ratios below 50, Middle South Asia, with 45.1, Eastern South Asia, with 45.2, China, with 47.8 and Other East Asia, with 48.5. In the other seven regions the total dependency ratio will range from a high of 59.4 to a low of 51.1.

Changes in the total dependency ratio obscure, of course, changes in its components: the youth dependency ratio and the aged dependency ratio.

In 1980 the regions with the highest youth dependency ratios were in Middle America with 87.8 and in Eastern Africa with 87.5, followed closely by Western Africa, Northern Africa, Western South Asia and Eastern South Asia with youth dependency ratios ranging from 86.8 down to 80.1.

With some exceptions total dependency ratios will decrease between 1980 and 2000 in the LDC regions. What is more important, however, in connection with an analyses of aging are the changes in the youth and aged dependency ratios.

Youth Dependency Ratios It has been shown that youth dependency ratios in the LDCs as an aggregate will decrease from 71.0 in 1980 to 53.7 in 2000 and to 39.4 in 2025. As is pointed out below there will be considerable variations in these changes for the individual LDC regions.

In 1980, the youth dependency ratio was above 80.0 in six LDC regions. It was highest in Tropical South America with a youth dependency ratio of 87.8 and in Eastern Africa, with 87.5. The youth dependency ratio was lowest in China at 52.6 followed by Other East Asia with 59.4. In the other six regions the youth dependency ratio ranged from 78.8 to 66.7.

Between 1980 and 2000 in only two of the LDC regions will the youth dependency ratio fail to diminish--in Eastern Africa and in Middle Africa. Between 2000 and 2025 the youth dependency ratio is projected to decrease in every LDC region.

In 2000 the highest youth dependency ratios will be in Western Africa with a ratio of 90.1 followed by Eastern Africa, with 89.9 and Middle Africa, with 81.3. The lowest youth dependency ratios will be in China with 35.6 and in Other East Asia with 42.8. In five other regions the youth dependency ratio ranged from a low of 50.2 to a high of 58.6. In the remaining four regions it ranged from a high of 68.5 to a low of 62.9.

By 2025 the highest youth dependency ratios will be in Eastern Africa with 60.4, in Western Africa with 58.9 and in Middle Africa with 56.9. The lowest youth dependency ratios will be in China with 28.2 followed by Other East Asia with 32.6. Three other regions will have youth dependency ratios under 40, Eastern South Asia, Middle South Asia, and Micronesia and Polynesia. The remaining six regions will have youth dependency ratios ranging from 42.6 to 48.6.

It is to be noted that between 1980 and 2025 the highest youth dependency ratio in the LDC regions is projected to decrease from 87.5 to 60.4 (both ratios in Eastern Africa) a decrease of almost one-third, 31.0 percent. The lowest youth dependency ratio in this span of 45 years is projected to decrease from 52.6 to 28.2 (both in China), a decrease of almost half, 46.4 percent.

Aged Dependency Ratios The LDC regions with the highest aged dependency ratios in 1980 were in China with 9.5 and in the Caribbean

with 9.4. The next highest aged dependency ratio was in Western South Asia with 7.5. The lowest aged dependency ratios were in Northern Africa with an aged ratio of 5.1, in Eastern Africa with 5.2 and in Micronesia and Polynesia with 5.3. Four other regions had aged dependency ratios under 6.0, China, Other East Asia, Eastern Africa and Tropical South America. Four of the regions had aged dependency ratios ranging from 6.0 to 6.6.

Between 1980 and 2000 the aged dependency ratio will increase in twelve of the fourteen LDC regions. Only in the Caribbean and in Middle America is this aged ratio projected to diminish between 1980 and 2025. The highest aged dependency ratio in 2000 will be in China, with 10.7, followed by the Caribbean, with 9.3. In four other regions this aged dependency ratio will range from 7.5 to 8.8. The lowest aged dependency ratios will be in Western Africa with 5.4 and in Eastern Africa with 5.7. In the other six regions the aged dependency ratio will vary from 6.2 to 6.9.

Between 2000 and 2025, the aged dependency ratio is projected to increase in every LDC region and in a number of them quite substantially. These changes will follow from the fact that in many of these LDC regions fertility declines which began for some LDCs in the mid-1960s, will have proceeded at different tempos to the first quarter of the 21st century.

The highest aged dependency ratios in the LDC regions, by 2025, will be found in China with an aged ratio of 19.6, far above that in any other region. Following China will be Other East Asia with an aged ratio of 15.9, Micronesia and Polynesia with 13.4 and the Caribbean with 13.3. The lowest aged dependency ratios in 2025 will be in Western Africa with 6.0, and in Eastern Africa with 6.1, followed by Middle Africa with 7.0. The remaining seven regions will have aged dependency ratios ranging from 8.0 to 11.1.

Between 1980 and 2025 the highest aged dependency ratios are projected to increase from 9.5 to 19.6 (both in China) or to more than double; and the lowest aged ratios are projected to rise from 5.1 to 6.0 (both in Western Africa) or by 17.6 percent.

Aging Index In 1980 the highest aging index in the LDC regions was in China with an index of 18.1--18 persons 65 and over for each 100 persons under 15. Following China at a considerably lower level was the Caribbean with an aging index of 13.4. The only other region with an index above ten was Other East Asia with 11.2. The lowest aging indexes were in Northern Africa with 5.9 followed by Eastern Africa with 6.0 and Eastern South Asia with 6.8. There were two regions with aging indexes of 9.2, Middle South Asia, and 8.0, Micronesia and Polynesia. The remaining six regions had aging indexes bunched from 7.0 to 7.8.

Between 1980 and 2000 and 2000 to 2025 the aging index is projected to increase in every one of the fourteen LDC regions, many by substantial amounts.

In 2000 the regions with the highest aging indexes will be in China with 30.1, followed by Other East Asia with 20.5 and the Caribbean with 18.6. The lowest aging indexes in 2000 will be in Western Africa, with 6.0 and in Eastern Africa with 6.4. Middle

Africa will come next with 7.7. Three regions will have aging indexes ranging from 13.0 to 13.7 and five from 9.4 to 11.5.

By 2025 the aging index will be highest in China with 69.5. A distant second will be Other East Asia with 49.0. The next three highest aging indexes will range from 31.2 to 35.5 in Eastern South Asia, the Caribbean and Micronesia and Polynesia. The lowest aging indexes will be in Eastern Africa, with 10.1, Western Africa with 10.3 and in Middle Africa with 12.3. The six remaining regions will have aging indexes ranging from 27.5 down to 18.6.

Between 1980 and 2025 it is projected that the region with the highest aging index, China, will experience an almost four-fold increase in the aging index to reach 69.5, a level which will in 2025 be above a number of the indexes in the MDC regions. Although the aging index is projected to rise between 1980 and 2025 in all LDC regions, it will still be relatively low, below the level in a number of the MDC regions in 1980. This will be true especially in three of the four African regions in which not much diminution in fertility and mortality is anticipated.

The Old-Old In 1980 the LDC regions with the highest proportions of the old-old (the highest proportions of persons 75 and over of those 65 and over) were in Middle America with 32.9 percent and in the Caribbean with 32.6 percent. These relatively high proportions of old-old in these regions is puzzling because Middle America did not contain a relatively high proportion of persons 65 and over (3.4 percent) although the Caribbean did (5.2 percent). Conceivably these regions are subject to errors in reporting which would be carried forward into the projections. Further study of these data is required.

The lowest proportions of old-old in 1980 were in Middle Africa with 23.2 percent and in Western Africa with 23.6 percent. These data are, of course, consistent with the other age data for these regions. In the remaining ten regions the range in the proportion of the old-old was quite narrow, as is to be expected by reason of their similarity in fertility levels. The old-old in these ten regions ranged from a high of 29.7 to a low of 24.4 percent.

Between 1980 and 2000 the proportion of old-old is projected to increase in every LDC region, although sometimes by very little. Between 2000 and 2025, however, as with the MDC regions, the proportions of old-old will increase in some of the LDC regions and decrease in others. These variations could conceivably be the result of errors in the data as well as age structure changes. The reporting of age in the higher ages is known to be subject to relatively high error both for the living and for decendents. The statistics are nevertheless presented as calculated by the United Nations because, on balance, they result in patterns consistent with the other age data with some exceptions as noted.

In 2000, according to the UN projections there will be six LDC regions with proportions of old-old above 30.0 percent. The highest proportion will be in the Caribbean with 35.7 percent and the lowest among these six regions will be in Micronesia and Polynesia with 31.0 percent. The lowest proportion of old-old will be in Middle South Asia with 25.7 percent, followed closely by Western Africa with 26.6.

The remaining six regions will have proportions of old-old in 2000 bunched from 27.9 to 27.3 percent.

In 2025 there will be eight regions with the proportions of old-old at 30.0 percent or higher. The highest proportion of the old-old will be in the Caribbean with 33.6 percent followed by Tropical South America with 32.7 percent. The remaining six of these eight regions will have proportions of the old-old in the narrow range of 31.5 to 30.0 percent. The lowest proportion of old-old in 2025 will be in Other East Asia with 27.8 percent and in Middle South Asia with 27.9 percent. The remaining four regions will be bunched from 29.0 to 29.9 percent.

The most important generalizations to be drawn from these data on the old-old in the LDC regions are that: one, they are subject to relatively greater error than the other data; two, they are projected to change very little between 1980 and 2025; and three, they have a remarkably small range of inter-regional differences.

IX. Aging in the LDC Regions--Labor Force

It has been indicated that workers 65 and over in the LDCs in the aggregate constituted, in 1980, 3.4 percent of all male workers and 2.5 percent of all female workers. By 2000 the ILO projections indicate that these proportions will actually diminish--to 2.8 percent for male workers and 2.0 percent for female workers. Examined next are variations in these statistics by regions within the LDCs, as well as other data relating to the aging of the work force.

Male Workers 65 and over, 45 and over and 55 and over In 1980 the regions with the highest proportions of male workers 65 and over were China and Western South Asia, each with 4.0 percent. There were four regions with less than 3.0 percent of older male workers, with percentages ranging from 2.2 to 2.8 percent. The remaining eight regions had percentages of male workers in the narrow range of between 3.0 to 3.8 percent.

In 1980 in only two regions did the proportion of male workers 45 and over exceed 25.0 percent--in China with 28.8 percent and the Caribbean with 26.3 percent. The lowest proportion of male workers 45 and over were in Eastern Africa with 21.2 percent and Micronesia and Polynesia with 21.8 percent. In the other ten LDC regions the proportions of male workers 45 and over fall into the narrow range of 22.3 to 24.9 percent.

The largest proportions of workers 55 and over in 1980 were in China with 13.5 percent and the Caribbean with 12.6 percent. The lowest proportion of male workers in this age category were in Micronesia and Polynesia with 9.5 percent and in Eastern Africa with 9.8 percent. Other East Asia and Tropical South America were the only other regions in which the proportion of men in the labor force 55 and over fell below 10.0 percent, each with 9.9 percent. The remaining regions fell between 10.0 and 11.5 percent.

By 2000 the proportion of older male workers will have shrunk not only for the LDCs in the aggregate but also, in each of the fourteen regions. This shrinkage is in prospect despite the increase in the proportion of males 65 and over in the general population reflecting,

of course, trends in labor force participation.

In 2000 in only three regions will the proportion of male workers 65 and over be 3.0 percent or more--3.4 percent in Melanesia, 3.3 percent in China and 3.0 percent in Middle Africa. In each of these areas large proportions of older workers may still be participating in primary sectors of the economy. The lowest proportion of older male workers will be in Other East Asia with only 1.9 percent. In each of the other LDC regions the proportion of older male workers will fall into the narrow range of 2.2 to 2.9 percent.

Between 1980 and 2000 the proportion of male workers 45 and over will decrease in eight regions and increase in six. Such variations cannot be interpreted as the product of changing age structures but, rather, as the net effect of interactions of changing age structure and labor force participation rates, as affected by changes in the agricultural and nonagricultural sectors and in employment and retirement practices.

Between 1980 and 2000 the proportion of male workers 45 and over and 55 and over decreased respectively, male workers 65 and over were also decreased (with possible exceptions in two regions). These decreases in the proportions of male workers in all three of the older age grouping 45 and over, 55 and over and 65 and over are projected to occur despite the anticipated increase in the median age of male workers.

Male Median Age In 1980 the highest median age of male workers in the LDC regions was in China with a median age of 36.0, followed by the Caribbean with 34.3 years. The lowest male worker median ages were in Eastern Africa with 31.2 years followed by Middle America with 32.5 years. Five other regions had median ages in 1980 for male workers ranging from 32.6 to 32.9 years. The five remaining LDC regions had median ages for male workers ranging from 33.2 to 33.9 years.

By 2000 the median age of male workers will have increased in each of the fourteen LDC regions. The median age will be highest in China with 37.7 years followed by Other East Asia with 36.2 years. Micronesia and Polynesia with 35.8 years and the Caribbean with 35.2 years were the next highest median ages. The lowest median ages will be in Eastern Africa with 31.9 years.

Of the remaining LDC regions five will range from 34.0 to 34.8 years and four from 33.4 to 33.9 years.

Female Workers 65 and over, 45 and over and 55 and over In 1980, the regions with the highest proportions of female workers 65 and over were Western South Asia with 3.9 percent followed by China with 3.2 percent. These were the only LDC regions with proportions of female workers 65 and over above 3.0 percent. The lowest proportion of female workers 65 and over was in Micronesia and Polynesia with 1.0 percent; and this region was followed by four other regions having less than 2.0 percent female workers in this age category. The remaining seven regions had female workers 65 and over ranging from 2.0 to 2.9 percent.

In 1980 the LDC regions with the highest proportion of female workers 45 and over were in China, with 24.6 percent and in Other East

Asia with 24.1 percent. The lowest proportions of female workers 45 and over were in Micronesia and Polynesia with 15.0 percent, followed by Tropical South America with 15.8 percent, Middle America with 17.2 percent and in Northern Africa with 19.6 percent. These were the only regions with percentages of female workers 45 and over below 20.0 percent. The remaining eight regions had proportions of female workers in this age class ranging from 20.4 to 23.1 percent.

The highest proportions of women 55 and over among the LDC regions in 1980 were China with 10.6 percent, Western South Asia, with 10.5 percent and Eastern Africa with 10.1 percent. The regions with the lowest proportions of female workers 55 and over were Micronesia and Polynesia with 5.0 percent, followed by Tropical South America with 6.1 percent. Four other regions had less than 8.0 percent of female workers 55 and over ranging from 7.4 to 7.9 percent. The remaining five regions had proportions ranging from 8.6 to 9.5 percent.

By 2000 the proportion of female workers 65 and over will have decreased from the 1980 level in each LDC region. In 2000 there will be only six regions with proportions of female workers 65 and over above 2.0 percent and the highest percentages will be in Eastern Africa with 2.7 percent followed by China and Western South Asia, each with 2.4 percent. The region with the lowest proportion of female workers 65 and over by 2000 will be Micronesia and Polynesia with 0.9 percent, followed by Tropical South America with 1.0 percent. The six other regions will have proportions of female workers 65 and over ranging from 1.4 to 1.9 percent.

Between 1980 and 2000 growing testimony to the conflicting factors involved (namely changing age structure and changing labor force participation rates) eight of the LDC regions will experience a decrease in female workers 45 and over, five of the regions will show some increase and one will remain the same. The highest proportion of female workers 45 and over will be in China with 27.2 percent followed by Other East Asia with 25.5 percent. The lowest proportion of female workers 45 and over will be in Middle America with 14.6 percent followed by Tropical South America with 14.8 percent and Micronesia and Polynesia with 15.0 percent. Only one other region will be below 20.0 percent--Northern Africa with 17.9 percent. The remaining eight regions will be bunched with 20.0 to 22.8 percent of women workers 45 and over.

The mixed changes among the LDC regions in the proportion of older female workers is also evident in changes between 1980 and 2000 of the proportion of female workers 55 and over. Increases in this proportion of female workers will occur in only two regions--Other East Asia and Eastern South Asia. The highest proportion of female workers 55 and over will be in Eastern Africa with 10.0 percent, China with 9.4 percent, Other East Asia with 9.3 percent, Western South Asia and Western Africa with 9.1 percent and Eastern South Asia with 9.0 percent. The lowest proportion of female workers 55 and over will be in Micronesia and Polynesia with 4.4 percent, followed by Tropical South America with 4.8 percent, Middle America with 5.5 percent, Northern Africa with 6.7 percent. In four of the regions this percentage will range from 7.2 to 8.1 percent.

Female Median Age In 1980 the LDC regions with the highest median ages of female workers were China with 33.9 years and the

Caribbean and Western Africa each with 32.5 years. The regions with the lowest median ages were Northern Africa with 27.2 years, followed closely by Middle America with 27.3 years. Other regions with median ages of female workers under 30.0 years were Tropical South America with 28.5 years and Micronesia and Polynesia with 29.8 years. The seven other regions had median ages of female workers ranging from 30.6 years to 32.2 years.

Between 1980 and 2000 the median age of female workers will increase in every LDC region. The regions with the highest median ages will be China with 35.7 years, Other East Asia with 34.8 years and the Caribbean with 33.7 years. The regions with the lowest median ages for female workers in reverse order will be Middle America with 28.0 years and Northern Africa with 29.0 years. The only other region with female worker median age below 30.0 years will be Tropical South America with 29.8 years. The remaining regions will have female worker median ages ranging from 31.5 to 33.0 years.

Dependency Burden In 1980 the dependency burden for the MDCs in the aggregate was 1.15, that is, there were 1.15 dependents per worker. In contrast, in 1980 in the LDCs in the aggregate was 1.57, 36.5 percent higher.

In 1980 there were four LDC regions with more than two dependents per worker. The highest dependency burdens were in Northern Africa with 2.70, and in Middle America with 2.41. The other two regions with more than two dependents per worker were in Tropical South America with 2.22 and in Western South Asia with 2.01. The regions with the lowest dependency burden were in Melanesia with 1.08 and in China with 1.15. There were three additional regions with dependency burdens lower than 1.50--ranging from 1.45 to 1.48. Finally, there were five regions with dependency burdens between 1.50 and 2.00--ranging from 1.50 to 1.98.

Between 1980 and 2000 the dependency burden will decrease in nine of the LDC regions and increase in five of them. The highest dependency burdens will, in 2000, be in Northern Africa with 2.55, in Middle America with 2.24, and in Western South Asia with 2.03. These three regions will be the only ones with a dependency burden above 2.0. The lowest dependency burden in 2000 will be in China with 1.09, in Melanesia with 1.20 and in Other East Asia with 1.24. In the remaining eight regions the dependency burden will range from 1.58 to 1.98.

In the MDCs in the aggregate in 1980 the youth dependency burden was at a level of 0.35 children under ten per worker. This level was well below that in every LDC region.

The regions with the highest youth dependency burden were Northern Africa with 1.15 children under ten per worker and Middle America with 1.11. There were no other regions with child dependency burdens above 1.00. The lowest child dependency burdens were in China with 0.48 and Other East Asia with 0.60. There were four regions with child dependency burdens ranging from 0.63 to 0.79; and six regions with child dependency burdens ranging between 0.82 to 0.97.

In only three of the fourteen LDC regions will the child dependency burden increase between 1980 and 2000--in Eastern Africa, Middle

Africa and Western Africa. In the other eleven regions the burden of child dependency will diminish. The highest child dependency burden will be in 2000 in Middle America with 0.95 and in Northern Africa with 0.94. Thus by 2000 there will be no region with a child dependency burden of 1.0 or more. But in addition to the two regions with child dependency burdens above 0.90 there will be four between 0.80 and 0.89. The lowest burdens of child dependency in 2000 will be in China with 0.36 and in Other East Asia with 0.44. There will be six additional regions ranging from 0.59 to 0.77.

X. Extension of Life--LDC Regions

It has been indicated that life expectation at birth for the LDCs in the aggregate in 1980, was 55.1 years for the combined sexes, 54.2 years for males and 56.0 years for females. By 2000, using the UN projections, life expectancy will rise, respectively, to 62.5 years, 61.2 years and 63.7 years; and by 2025 to 69.6 years, 67.7 years and 71.7 years.

There is, of course, considerable variation among the LDC regions in expectation of life at birth in 1980 and as projected to 2000 and to 2025.

In 1980 there were no LDC regions with life expectancy at birth at 70.0 years or above for the sexes combined or for each sex.

For both sexes combined there were only six of the fourteen LDC regions with life expectancies above 60.0 years, only five for males and six for females.

The highest life expectancy for the combined sexes were in China with 67.3 years and in Micronesia and Polynesia with 64.6 years. The other four regions with life expectancy above 60 were Other East Asia and Middle America each with 63.2 years, the Caribbean with 62.8 years and Tropical South America with 61.3 years. The lowest life expectancies for the combined sexes were in Middle Africa with 44.6 years and in Western Africa with 46.3 years. The only other regions with life expectation under 50.0 years were Eastern Africa with 46.8 years and Middle South Asia with 49.2 years. The remaining four regions had for the combined sexes life expectation ranging from 51.1 years to 57.9 years.

In 1980 the highest male life expectations were in China, with 66.0 years and in Micronesia and Polynesia with 62.8 years. The other three regions with male life expectancy above 60 years were in Other East Asia, the Caribbean and Middle America. The lowest male life expectations were in Middle Africa with 42.9 years, Western Africa with 44.7 years and Eastern Africa with 45.1 years. The other region with a male life expectation under 50.0 years was Middle South Asia with 49.7 years. The remaining five regions had male life expectations ranging from 51.0 to 59.4 years.

In 1980 the highest female life expectations were in China with 68.6 years and in Micronesia and Polynesia with 66.5 years. The other four regions with female life expectation above 60 years were in Other East Asia, Middle America, the Caribbean and in Tropical South America.

The lowest life expectations of females in 1980 were in Middle Africa with 46.2 years and in Western Africa with 47.9 years. Two other regions had female expectations below 50.0 years, Eastern Africa and Middle South Asia. The remaining four regions had female life expectation ranging from 51.0 to 59.7 years.

Between 1980 and 2000 and 2025, male expectation of life at birth is projected to increase in every LDC region. Whereas in 1980 there was no region with male life expectation of 70.0 or more years, by 2000, there will be one such region and by 2025, there will be four such regions.

In 2000 the regions with the highest male expectation of life were China with 70.6 years followed by Micronesia and Polynesia with 67.9 years, Middle America with 67.7 years, and Other East Asia with 67.4 years. The lowest male expectation of life in 2000 will be in Middle Africa with 52.8 years, followed by Western Africa with 54.2 years, Eastern Africa with 54.7 years and Middle South Asia with 58.1 years. The six remaining regions will have male life expectancies ranging from 60.0 years to 65.1 years.

By 2025 there will be four regions with male life expectations at birth ranging from 72.0 down to 70.4, namely China, Micronesia and Polynesia, Other East Asia and Middle America. The lowest male life expectations will be in Middle Africa with 63.1 years, Western Africa with 64.1 years and Eastern Africa with 64.5 years. The remaining seven regions will have male expectations of life bunched from a high of 69.1 years to a low of 66.8 years.

Between 1980 and 2000 and 2025, female expectation of life is projected to increase in every LDC region. Whereas in 1980 there was no LDC region with female life expectation at birth at 70.0 years and above, by 2000 there will be four such regions and by 2025 there will be ten such regions.

In 2000, the four regions with female expectations of life above 70 years will be China, Micronesia and Polynesia, Other East Asia and Middle America. The regions with the lowest female life expectancies will be Middle Africa with 56.1 years, Middle South Asia with 57.6 years, Western Africa with 57.8 years and Eastern Africa with 58.5 years. In the remaining six regions female life expectancies will, according to the projections, range from a high of 69.4 years to a low of 61.8 years.

By 2025, only four of the fourteen LDC regions will have female life expectancies at birth below 70.0 years. The regions with the highest life expectations will be China with 77.4 years, Micronesia and Polynesia with 76.5 years and Other East Asia with 76.4 years. The seven other regions that will have female life expectations above 70.0 years in 2025 will be bunched from a high of 74.8 years to a low of 71.2 years. The regions with the lowest female life expectation are Middle Africa with 66.8 years and Western Africa with 68.3 years. Middle South Asia will have a female life expectancy of 68.6 years and Eastern Africa, 68.9 years.

XI. Conclusions

The materials which have been presented on the aging of the popu-

lation and of the labor force have important social, economic and political implications. This is a generalization that has increasingly been realized throughout the world. The More Developed Countries which are already experiencing the problems being generated by increasing proportions of old persons and older workers in their populations are still in the early stages of formulating policies and mounting programs to deal with problems of aging both in the public and private sectors.

The aging of populations and workers is a direct product of the demographic transition. Reductions in fertility have increased the proportions of older persons and, also, of older workers, although not in a one-to-one relationship as has been noted. The primary factor in the aging of populations as measured by the various indexes employed in this study has been declining fertility. The more important factor in the extension of life has been declining mortality. This study has presented the available data, from the United Nations, showing the extent to which the various areas of the world have experienced both population aging and increased life expectancy. While it has been possible to present data on the aging of the work force, from the ILO, it has not been possible to show increases in working life, because such data are not yet available on a world-wide basis. The calculation of tables of working life to parallel the life tables of the general population is a task that remains to be done for the geographic and political areas used in this study. Population and labor force aging is generating problems and requiring many types of adjustments in the realms of the personal, the familial, the social, the economic, the political and the governmental.

The great increase in the number and proportion of older persons has vitally affected their roles--as manifest in their status, prestige and power. Older persons in contemporary life, and especially in the vortex of rapid social change including accelerating urbanization, are confronted with new types of vulnerability and risks for which the traditional order has no provisions or solutions. Among the problems which must be faced by older persons are problems of health and physical impairment which increase with age; problems of income maintenance as education and skills become increasingly obsolescent; problems of social relationships as contemporaries become subjected to physical impairment, chronic diseases and death; and problems of housing, social participation, recreation and positive outlook for the future.

Aging generates familial problems: those of spouse survivorship, association with children, grandchildren and other relatives as the nuclear and neo-local family become the dominant forms of family structure and organization, problems created by soaring divorce rates and family dissolution, and problems occasioned by the loss or attenuation of traditional family functions.

Older persons are increasing in number and proportion as the social order is being transformed to "urbanism as a way of life." The older person is especially vulnerable to new risks as contacts change from primary to secondary; as informal social control breaks down and is replaced by formal controls; as traditional forms of behavior are eroded and decision-making is required on an unprecedented scale; as religiosity diminishes and secularism leaves many older persons adrift in an unstable milieu characterized by continuous change; and as interpersonal contacts loose warmth, sympathy, and sentiment and become

increasingly utilitarian. Yet, in all the new adjustments necessary to maintain oneself in the social order, the older person finds it difficult and often impossible to rely on the traditional support and assistance of his relatives, including his own children. Especially difficult may be the adjustments required by women who are experiencing drastic changes as their roles are broadened--as they undergo transition from females to human beings.

Aging is also having significant economic impacts. In the interdependent economic order the older worker is often at greater risk than the younger worker to the threat of unemployment and underemployment. The older worker is confronted with a relatively new need--the need to retire and to undergo the many changes in life style produced by compulsory retirement. As work has changed from requiring brawn to requiring brain, older workers are able to continue many forms of work activity not previously possible as old age reduces physical powers. However, rapid technological progress often makes obsolescent their education and skills, which may impair their ability to make a living by labor force participation.

Finally, it must be noted in this sketchy inventorying of problems facing oldsters, income maintenance of the aged in retirement is threatened by inflation as well as swings in the business cycle, and the instabilities of public as well as private pension systems.

Aging of the population and the labor force and the problems being generated as outlined above, have led throughout the world to increased government intervention on behalf of the old. Such intervention has taken a number of forms in providing for persons in various forms of social security and welfare systems. This type of intervention is, of course, in the main, financially feasible and possible primarily in the more developed countries. Fortunately aging and the extension of life are phenomena that have appeared first in more developed countries, but, as the statistics presented show, will in due course, also be the lot of the less developed countries early in the course of the 21st century. This, however, is not to say, that the less developed countries do not now have any problems of aging.

The problems of aging and life extension now manifest in the more developed countries are creating many policy issues both in the public and private sectors. A framework for approaching these policy issues was provided a generation ago by one of the pioneers of gerontology, Professor Earnest W. Burgess of the University of Chicago. Burgess called attention to two aspects of adjustment in old age "personal" and "social". Personal adjustment refers to the changes the person makes to satisfy his own needs and aspirations while meeting the requirements of the society. Social adjustment refers to the adaptations of society--revisions of policies and programs to meet new problems generated by social change.

Policy Issues Policy issues in respect to personal adjustment involve the development of new bases for older persons achieving status, prestige and power, the upgrading of education and skills, preparation for retirement, creating and adapting to new living arrangements, resolution of problems of health and physical improvement, the maintenance of personal relationships, continued participation in social affairs and the creation of positive outlooks for the future.

Social adjustment involves institutuional changes both in the public and private sectors. In the private sector policies may require rekindling and maintenance of traditional ways of dealing with older people to development of new programs for the continued employment of older persons, creation of private forms of income maintenance through private pension systems and investment opportunities, possession of counseling services, development of means for upgrading education and skills, making available necessary facilities for maintenance of health and coping with physical impairment, general opportunities for active participation of older persons and, in general, developing and maintaining gerontological and geriatric services.

In the public sector new forms of government intervention on behalf of maintaining and improving the quality of life of elders and providing for emergencies may be expected to proliferate. Policies will involve consideration and modification of ages for compulsory retirement, and income maintenance through public pension systems and general social security and welfare programs. These include covenents and finding it necessary to supplement and to regulate private sector arrangements for aging with old age problems. Governments can be expected to continue to bolster arrangements for geriatric and gerontological services. Governments are already developing and may be expected to develop programs to ameliorate the problems of old age in such areas as upgrading of education and skills, housing, recreation, social activities, as well as facilities for health care.

Moreover, governments in cooperation with the private sector are already mandating and may be expected to continue the regulation of hours of work, length of vacations, unemployment benefits, and training programs. Perhaps the most important contribution of government to maintaining the quality of life of older persons lies in the realm of control of inflation which destroys the value of fixed incomes from pensions and investments, in general, the amelioration of the more harmful consequences of the business cycle, and the maintenance of sound monetary and fiscal policy.

Population aging and the extension of life are relatively new phenomena in human history. They are creating unprecedented problems which require unprecedented personal and social adjustments. Problems generated by old age have become acute in many nations, especially among the more developed countries which are the first to experience them. However, the problems now being encountered by the more developed countries are prologue for the less developed countries in the coming decades.

These perspectives emerged in the "International Symposium on an Aging Society--Strategies for 21st Century Japan" held in Tokyo in November of 1982. The Report of this Symposium, together with the research papers presented, provides a benchmark for future consideration of policies and programs relating to aging societies.

XII. Acknowledgements

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Table A: Dependency ratio and dependency burden comparisons for MDCs and LDCs, 1980 and 2000

	1980	2000	% change
MDC			
Total dependency ratio	53.9	53.8	- 0.2
Youth dependency ratio	36.8	34.8	- 5.4
Dependency burden	1.15	1.13	- 1.6
Youth dependency burden	0.35	0.32	- 7.9
LDC			
Total dependency ratio	77.9	66.0	-15.3
Youth dependency ratio	71.0	58.3	-17.9
Dependency burden	1.57	1.57	0.1
Youth dependency burden	0.73	0.62	-14.9
Total dependency ratio (LDC) / Total dependency ratio (MDC)	1.44	1.23	
Youth dependency ratio (LDC) / Youth dependency ratio (MDC)	1.92	1.68	
Dependency burden (LDC) / Dependency burden (MDC)	1.36	1.39	
Youth dependency burden (LDC) / Youth dependency burden (MDC)	2.10	1.94	

Table 1: Aging of population 1970-2025 for World, MDCs, LDCs (in ten thousands)

	1970	1980	2000[1]	2000[2]	2025
World					
Total population	361,038	437,465	625,683	611,885	819,507
Population 65+ (N)	19,914	25,553	39,573	40,290	76,065
Population 65+ (%)	5.5	5.8	6.3	6.6	9.3
Median age	22.2	22.6	24.5	26.1	30.8
Total dependency ratio	72.6	70.7	63.2	59.4	52.3
Youth dependency ratio	63.1	60.8	52.9	48.9	38.1
Aged dependency ratio	9.5	10.0	10.3	10.5	14.1
Aging index	15.1	16.4	19.5	21.5	37.1
75+ as % of 65+	31.0	32.0	33.3	33.7	32.5
MDCs					
Total population	108,402	118,100	136,024	127,216	137,679
Population 65+ (N)	10,426	13,086	16,823	16,595	23,028
Population 65+ (%)	9.6	11.1	12.4	13.0	16.7
Median age	29.9	31.7	34.0	35.8	38.2
Total dependency ratio	57.0	53.9	53.8	51.6	57.9
Youth dependency ratio	41.9	36.8	34.8	31.8	31.5
Aged dependency ratio	15.1	17.0	19.0	19.8	26.4
Aging index	36.1	46.3	54.7	62.2	83.9
75+ as % of 65+	34.0	36.3	38.5	38.2	38.9
LDCs					
Total population	252,636	319,365	489,658	484,669	681,828
Population 65+ (N)	9,488	12,468	22,750	23,694	53,037
Population 65+ (%)	3.8	3.9	4.6	4.9	7.8
Median age	19.5	19.9	22.5	24.1	29.5
Total dependency ratio	80.4	77.9	66.0	61.6	51.2
Youth dependency ratio	73.6	71.0	58.3	53.7	39.4
Aged dependency ratio	6.8	7.0	7.7	7.9	11.8
Aging index	9.2	9.8	13.2	14.7	29.8
75+ as % of 65+	27.6	27.4	29.5	30.5	29.8

Note: 2000[1] projections based on 1973 assessments.
2000[2] projections based on 1980 assessments.

Table 2: Aging of population 1970-2025 for World, MDCs, LDCs by sex (in ten thousands)

	1970		1980		2000[1]	
	Male	Female	Male	Female	Male	Female
World						
Total population	180,630	180,408	219,315	218,150	314,592	311,090
Population 65+ (N)	8,577	11,337	10,964	14,589	17,542	22,031
Population 65+ (%)	4.8	6.3	5.0	6.7	5.6	7.1
Median age	21.7	22.7	22.2	23.1	24.1	24.8
Aging index	12.8	17.5	13.8	19.1	17.0	22.2
75+ as % of 65+	28.5	32.8	29.1	34.1	30.1	35.9
MDCs						
Total population	52,291	56,111	57,300	60,800	66,891	69,133
Population 65+ (N)	4,090	6,336	5,062	8,023	6,851	9,972
Population 65+ (%)	7.8	11.3	8.8	13.2	10.2	14.4
Median age	28.0	31.8	30.1	33.4	32.8	35.3
Aging index	27.7	44.8	35.1	58.0	43.6	66.3
75+ as % of 65+	30.9	36.0	32.8	38.5	33.2	42.2
LDCs						
Total population	128,339	124,296	162,015	157,350	247,702	241,957
Population 65+ (N)	4,487	5,001	5,902	6,566	10,691	12,058
Population 65+ (%)	3.5	4.0	3.6	4.2	4.3	5.0
Median age	19.4	19.5	19.8	20.0	22.3	22.7
Aging index	8.6	9.9	9.1	10.5	12.2	14.3
75+ as % of 65+	26.3	28.9	26.0	28.7	28.1	30.7

Notes: 2000^{1} projections based on 1973 assessments.
2000^{2} projections based on 1980 assessments.

Table 2 (continued)

	2000[2]		2025	
	Male	Female	Male	Female
World				
Total population	308,006	303,879	410,794	408,713
Population 65+ (N)	17,917	22,373	34,496	41,568
Population 65+ (%)	5.8	7.4	8.4	10.2
Median age	25.7	26.5	30.3	31.3
Aging index	18.7	24.3	33.1	41.2
75+ as % of 65+	30.5	36.2	30.1	34.5
MDCs				
Total population	62,380	64,836	67,682	69,996
Population 65+ (N)	6,651	9,944	9,796	13,232
Population 65+ (%)	10.7	15.3	14.5	18.9
Median age	34.4	37.2	36.9	39.6
Aging index	48.7	76.3	69.9	98.5
75+ as % of 65+	32.8	41.9	34.9	41.9
LDCs				
Total population	245,626	239,042	343,112	338,716
Population 65+ (N)	11,266	12,428	24,701	28,336
Population 65+ (%)	4.6	5.2	7.2	8.4
Median age	23.9	24.2	29.2	29.8
Aging index	13.7	15.7	27.3	32.4
75+ as % of 65+	29.1	31.7	28.2	31.1

Table 3: Life expectancy at birth 1970-2025 for World and regions within MDCs and LDCs

	1970	1980	2000	2025
World	54.1	57.5	63.9	70.4
MDCs	70.5	71.9	73.7	75.4
Japan	71.1	75.6	77.3	77.4
Southern Africa	55.3	58.8	66.6	72.2
Temperate South America	65.3	68.1	71.1	72.1
Northern America	70.6	73.0	74.1	75.1
Eastern Europe	69.7	70.8	73.5	75.3
Northern Europe	71.8	72.9	74.7	75.9
Southern Europe	69.5	71.7	74.2	75.6
Western Europe	71.2	73.0	74.8	76.1
Australia & New Zealand	71.8	73.0	74.8	76.0
U.S.S.R.	70.0	69.6	71.5	74.6
LDCs	51.0	55.1	62.5	69.6
China	59.1	67.3	72.6	74.6
Eastern South Asia	46.9	52.5	61.8	69.8
Other East Asia	58.3	63.2	69.5	73.6
Middle South Asia	46.1	49.2	57.9	67.7
Western South Asia	52.1	57.9	65.2	71.5
Eastern Africa	42.7	46.8	56.6	66.6
Middle Africa	40.5	44.6	54.4	64.9
Northern Africa	49.1	53.7	62.4	70.1
Western Africa	41.8	46.3	56.0	66.2
Caribbean	60.6	62.8	67.0	70.7
Middle America	59.2	63.2	69.7	72.6
Tropical South America	57.2	61.3	67.1	71.7
Melanesia	46.0	51.1	61.8	69.8
Micronesia & Polynesia	61.0	64.6	70.0	73.8

Table 4: Life expectancy at birth 1970-2025 for World and regions within MDCs and LDCs by sex

	1970		1980		2000		2025	
	Male	Female	Male	Female	Male	Female	Male	Female
World	52.8	55.3	56.3	58.8	62.4	65.5	68.2	72.6
MDCs	67.2	73.8	68.4	75.7	70.2	77.5	72.0	79.0
Japan	68.5	73.9	73.1	78.3	74.8	80.0	75.0	80.0
Southern Africa	54.0	56.7	57.4	60.3	65.1	68.2	69.8	74.6
Temperate South America	62.1	68.5	65.0	71.4	68.0	74.4	68.7	75.6
Northern America	67.1	74.2	69.2	77.0	70.1	78.2	71.0	79.5
Eastern Europe	67.1	72.4	67.7	74.0	70.6	76.6	72.6	78.2
Northern Europe	68.9	74.9	69.8	76.0	71.7	77.9	73.1	78.9
Southern Europe	67.0	72.2	69.1	74.6	71.4	77.2	73.0	78.4
Western Europe	68.0	74.5	69.5	76.7	71.6	78.2	73.1	79.2
Australia & New Zealand	68.8	75.1	70.0	76.2	71.6	78.1	73.0	79.1
U.S.S.R.	65.5	74.0	65.0	74.3	67.1	76.0	70.8	78.5
LDCs	50.2	51.9	54.2	56.0	61.2	63.7	67.7	71.7
China	57.6	60.7	66.0	68.6	70.6	74.6	72.0	77.4
Eastern South Asia	45.6	48.4	51.0	54.1	60.0	63.7	67.6	72.2
Other East Asia	56.5	60.1	61.2	65.4	67.4	71.7	70.8	76.4
Middle South Asia	46.7	45.5	49.7	48.6	58.1	57.6	66.8	68.6
Western South Asia	50.7	53.6	56.2	59.7	63.2	67.4	68.9	74.1
Eastern Africa	41.1	44.4	45.1	48.5	54.7	58.5	64.5	68.9
Middle Africa	38.9	42.1	42.9	46.2	52.8	56.1	63.1	66.8
Northern Africa	48.0	50.2	52.5	54.9	61.0	63.8	67.9	72.3
Western Africa	40.2	43.4	44.7	47.9	54.2	57.8	64.1	68.3
Caribbean	58.9	62.4	60.9	64.8	65.1	69.0	68.5	73.0
Middle America	57.5	60.9	61.3	65.2	67.7	71.8	70.4	74.8
Tropical South America	55.5	58.9	59.4	63.2	64.9	69.4	69.1	74.4
Melanesia	46.2	45.9	51.2	51.0	61.8	61.8	68.4	71.2
Micronesia & Polynesia	59.5	62.7	62.8	66.5	67.9	72.2	71.2	76.5

Table 5: Aging of labor force 1970-2000 for World, MDCs, LDCs (in thousands)

	1970	1980	2000
World			
Total labor force	1,508,614	1,794,446	2,545,857
Labor force 65+ (N)	50,055	55,405	65,843
Labor force 65+ (%)	3.3	3.1	2.6
Not in labor force	1,178,956	1,483,418	2,325,468
Median age	34.4	34.7	35.6
45+ as % of TLF	26.6	26.8	27.1
55+ as % of TLF	12.0	11.3	10.7
Dependency burden	1.39	1.44	1.46
Youth dependency burden	0.61	0.61	0.54
MDCs			
Total labor force	487,929	549,712	638,513
Labor force 65+ (N)	15,188	16,368	17,882
Labor force 65+ (%)	3.1	3.0	2.8
Not in labor force	405,760	440,352	517,406
Median age	36.9	37.4	38.7
45+ as % of TLF	31.2	32.1	34.9
55+ as % of TLF	13.9	12.6	13.3
Dependency burden	1.22	1.15	1.13
Youth dependency burden	0.39	0.35	0.32
LDCs			
Total labor force	1,020,684	1,244,733	1,907,343
Labor force 65+ (N)	34,867	39,037	47,961
Labor force 65+ (%)	3.4	3.1	2.5
Not in labor force	773,197	1,043,064	1,808,065
Median age	33.2	33.5	34.6
45+ as % of TLF	24.4	24.5	24.5
55+ as % of TLF	11.0	10.7	9.9
Dependency burden	1.48	1.57	1.57
Youth dependency burden	0.72	0.73	0.62

Notes: Dependency burden: Total non-workers including children under 10 per worker.
Youth dependency burden: Children under 10 per worker.

Table 6: Aging of labor force 1970-2000 for World, MDCs, LDCs, by sex (in thousands)

	1970		1980		2000	
	Male	Female	Male	Female	Male	Female
World						
Total labor force	979,771	528,843	1,170,431	624,015	1,668,029	877,828
Labor force 65+ (N)	35,733	14,322	39,474	15,931	47,461	18,382
Labor force 65+ (%)	3.6	2.7	3.4	2.6	2.8	2.1
Not in labor force	356,479	822,477	463,761	1,019,657	771,977	1,553,491
Median age	34.9	33.5	35.1	34.0	36.0	34.9
45+ as % of TLF	27.3	25.3	27.4	25.6	27.7	26.0
55+ as % of TLF	12.8	10.4	12.1	9.9	11.5	9.3
MDCs						
Total labor force	295,485	192,444	330,200	219,512	378,165	260,348
Labor force 65+ (N)	10,128	5,060	10,672	5,696	11,570	6,312
Labor force 65+ (%)	3.4	2.6	3.2	2.6	3.1	2.4
Not in labor force	130,261	275,499	145,262	295,090	186,339	331,067
Median age	37.3	36.3	37.8	36.8	39.1	38.1
45+ as % of TLF	31.7	30.4	32.6	31.4	35.7	33.8
55+ as % of TLF	15.3	11.9	13.5	11.3	14.5	11.5
LDCs						
Total labor force	684,286	336,398	840,231	404,502	1,289,863	617,480
Labor force 65+ (N)	25,605	9,262	28,801	10,236	35,891	12,070
Labor force 65+ (%)	3.7	2.8	3.4	2.5	2.8	2.0
Not in labor force	226,218	546,979	318,497	724,567	585,642	1,222,423
Median age	33.8	31.8	34.0	32.3	35.1	33.6
45+ as % of TLF	25.4	22.3	25.4	22.5	25.4	22.7
55+ as % of TLF	11.8	9.5	11.5	9.2	10.6	8.3

Table 7: Aging of population 1970-2025 for regions within MDCs and LDCs (in ten thousands)

	Total population				
	1970	1980	2000[1]	2000[2]	2025
MDCs	108,402	118,100	136,024	127,216	137,679
Japan	10,433	11,754	13,293	12,928	13,145
Southern Africa	2,434	3,218	5,621	5,798	10,055
Temperate South America	3,607	4,156	5,208	5,161	6,193
Northern America	22,639	24,883	29,620	29,880	34,354
Eastern Europe	10,294	10,965	12,144	12,136	13,067
Northern Europe	8,031	8,374	9,132	8,258	8,132
Southern Europe	12,770	13,711	15,569	15,356	16,064
Western Europe	14,814	15,605	17,106	15,452	14,957
Australia & New Zealand	1,537	1,840	2,451	2,182	2,464
U.S.S.R.	24,277	26,812	31,503	31,024	35,496
LDCs	252,636	319,365	489,658	484,669	681,828
China	77,184	90,761	114,799	125,730	146,933
Eastern South Asia	28,297	37,085	59,162	52,044	68,849
Other East Asia	5,069	6,260	8,914	8,809	11,136
Middle South Asia	74,171	95,400	150,121	138,626	186,701
Western South Asia	7,652	10,199	17,443	16,809	26,376
Eastern Africa	9,982	13,242	24,206	25,003	47,792
Middle Africa	4,045	5,111	8,737	9,144	16,217
Northern Africa	8,562	11,306	19,182	18,616	29,592
Western Africa	10,150	13,270	23,868	26,727	50,514
Caribbean	2,462	3,002	4,451	4,329	6,189
Middle America	6,700	9,263	17,267	15,571	24,291
Tropical South America	15,533	20,742	35,068	31,515	49,848
Melanesia	277	356	585	601	924
Micronesia & Polynesia	118	152	236	188	219

Notes: 2000[1] projections based on 1973 assessments.
2000[2] projections based on 1980 assessments.

Table 7 (continued)

Population 65+ (N)					Population 65+ (%)					Median age				
1970	1980	2000[1]	2000[2]	2025	1970	1980	2000[1]	2000[2]	2025	1970	1980	2000[1]	2000[2]	2025
10,426	13,086	16,823	16,595	23,028	9.6	11.1	12.4	13.0	16.7	29.9	31.7	34.0	35.8	38.2
737	1,008	1,761	1,880	2,564	7.1	8.6	13.2	14.5	19.5	29.4	32.3	36.9	38.6	40.8
100	118	218	246	543	4.1	3.7	3.9	4.2	5.4	19.4	18.9	18.9	19.3	24.2
240	324	490	497	747	6.7	7.8	9.4	9.6	12.1	25.9	27.0	30.0	29.9	33.9
2,187	2,622	3,194	3,308	5,476	9.7	10.5	10.8	11.1	15.9	28.1	30.5	33.1	34.8	37.5
1,071	1,316	1,594	1,612	2,185	10.4	12.0	13.1	13.3	16.7	31.2	33.1	35.3	35.6	38.0
1,018	1,178	1,191	1,237	1,510	12.7	14.1	13.0	15.0	18.6	33.8	33.9	34.2	37.9	41.8
1,255	1,597	2,127	2,284	2,885	9.8	11.6	13.7	14.9	18.0	30.8	32.4	34.2	36.3	40.4
1,895	2,164	2,382	2,312	2,909	12.8	13.9	13.9	15.0	19.5	33.3	34.2	36.2	38.9	42.1
129	164	226	234	382	8.4	8.9	9.2	10.7	15.5	27.5	28.2	29.9	33.7	37.8
1,894	2,712	3,857	3,728	5,116	7.8	10.1	12.2	12.0	14.4	28.2	30.5	33.0	33.4	35.2
9,488	12,468	22,750	23,694	53,037	3.8	3.9	4.6	4.9	7.8	19.5	19.9	22.5	24.1	29.5
4,141	5,333	8,476	9,212	19,484	5.4	5.9	7.4	7.3	13.3	22.8	24.4	29.8	30.5	37.7
828	1,095	2,288	2,285	5,242	2.9	3.0	3.9	4.4	7.6	18.2	18.2	21.3	24.0	31.6
172	250	497	510	1,196	3.4	4.0	5.6	5.8	10.7	18.9	21.3	26.3	27.4	34.3
2,162	2,851	5,770	5,400	12,515	2.9	3.0	3.8	3.9	6.7	18.4	18.5	21.4	22.9	30.4
292	404	734	738	1,750	3.8	4.0	4.2	4.4	6.6	18.4	18.3	20.3	20.7	27.6
269	360	710	732	1,746	2.7	2.7	2.9	2.9	3.7	17.7	17.3	17.3	16.9	21.5
130	164	298	304	690	3.2	3.2	3.4	3.3	4.3	18.9	18.7	18.2	18.1	22.5
291	367	735	707	1,762	3.4	3.2	3.8	3.8	6.0	17.6	18.0	20.4	20.1	26.9
279	354	687	742	1,849	2.7	2.7	2.9	2.8	3.7	17.8	17.3	17.3	16.8	21.8
121	158	246	254	528	4.9	5.2	5.5	5.9	8.5	19.3	19.9	23.0	25.7	29.2
227	316	598	592	1,536	3.4	3.4	3.5	3.8	6.3	16.7	17.2	18.8	21.1	27.6
466	682	1,462	1,445	3,381	3.0	3.3	4.2	4.6	6.8	17.8	18.6	21.2	22.6	26.4
8	11	21	22	49	3.0	3.2	3.7	3.7	5.3	18.8	18.7	20.1	20.1	27.0
3	5	11	9	20	2.7	3.1	4.5	4.6	8.9	17.4	19.9	24.1	23.0	30.9

Table 7 (continued)

	Total dependency ratio					Youth dependency ratio				
	1970	1980	2000[1]	2000[2]	2025	1970	1980	2000[1]	2000[2]	2025
MDCs	57.0	53.9	53.8	51.6	57.9	41.9	36.8	34.8	31.8	31.5
Japan	45.1	50.0	49.9	49.4	60.7	34.9	37.1	30.0	27.7	29.3
Southern Africa	82.0	83.8	83.5	82.6	60.1	74.6	77.1	76.4	74.9	51.4
Temperate South America	61.5	59.7	54.7	55.9	52.6	50.8	47.2	40.2	40.9	34.2
Northern America	61.5	52.3	50.5	49.4	57.0	45.9	36.3	34.3	32.8	31.9
Eastern Europe	54.0	54.0	53.4	51.9	58.3	37.9	35.5	33.3	31.7	31.8
Northern Europe	58.3	58.9	56.0	50.1	56.9	38.2	36.6	35.6	27.6	27.8
Southern Europe	56.9	56.3	57.9	53.4	57.0	41.4	38.1	36.4	30.6	28.8
Western Europe	58.7	55.1	53.7	48.8	59.6	38.4	33.6	32.3	26.6	28.6
Australia & New Zealand	60.6	59.5	55.6	48.8	55.8	47.2	45.2	41.2	32.9	31.6
U.S.S.R.	57.4	52.4	55.8	55.7	57.6	45.1	37.0	36.7	37.0	34.9
LDCs	80.4	77.9	66.0	61.6	51.2	73.6	71.0	58.3	53.7	39.4
China	66.1	62.2	48.5	46.3	47.8	57.2	52.6	37.6	35.6	28.2
Eastern South Asia	87.6	85.5	67.6	58.2	45.2	82.1	80.1	61.1	51.2	34.2
Other East Asia	83.9	66.1	54.8	51.6	48.5	77.6	59.4	46.1	42.8	32.6
Middle South Asia	85.8	83.2	67.3	61.4	45.1	80.4	77.8	60.9	55.1	35.4
Western South Asia	88.0	89.1	74.9	74.1	53.1	80.8	81.6	67.5	66.5	43.0
Eastern Africa	89.3	92.7	92.1	95.6	66.4	84.2	87.5	86.5	89.9	60.4
Middle Africa	82.6	84.7	87.6	87.6	63.9	76.8	78.8	81.2	81.3	56.9
Northern Africa	92.8	87.3	73.4	75.2	52.3	86.3	81.2	66.7	68.5	43.3
Western Africa	89.2	92.0	92.4	95.6	64.9	84.0	86.8	86.8	90.1	58.9
Caribbean	86.7	79.6	67.3	59.6	55.9	77.6	70.2	58.0	50.2	42.6
Middle America	99.2	94.4	82.9	69.3	52.7	92.5	87.8	76.5	62.9	43.1
Tropical South America	88.5	84.0	71.2	66.2	59.4	82.8	77.9	64.1	58.6	48.6
Melanesia	83.3	83.1	74.4	73.7	51.1	77.8	77.2	68.0	67.4	43.1
Micronesia & Polynesia	89.9	72.0	59.2	62.5	51.3	84.7	66.7	52.0	55.0	37.9

Table 7 (continued)

Aged dependency ratio					Aging index					75+/65+ (%)				
1970	1980	2000[1]	2000[2]	2025	1970	1980	2000[1]	2000[2]	2025	1970	1980	2000[1]	2000[2]	2025
15.1	17.0	19.0	19.8	26.4	36.1	46.3	54.7	62.2	83.9	34.0	36.3	38.5	38.2	38.9
10.2	12.9	19.9	21.7	31.3	29.4	34.6	66.1	78.5	106.9	30.3	33.4	33.2	34.3	47.3
7.4	6.8	7.1	7.7	8.7	10.0	8.8	9.3	10.3	16.8	33.7	29.3	30.1	32.1	32.7
10.8	12.5	14.5	15.0	18.4	21.2	26.4	36.2	36.7	53.9	30.8	33.3	37.8	38.3	38.1
15.6	16.0	16.2	16.5	25.0	34.0	44.2	47.3	50.4	78.3	38.2	38.7	43.3	41.3	35.0
16.0	18.5	20.1	20.2	26.5	42.2	52.0	60.5	63.7	83.2	30.4	34.4	35.9	36.2	36.9
20.1	22.4	20.4	22.5	29.1	52.5	61.1	57.1	81.4	104.7	35.1	37.3	44.1	44.3	42.0
15.4	18.2	21.6	22.8	28.2	37.2	47.8	59.4	74.5	97.8	33.7	35.2	37.4	38.2	41.8
20.3	21.5	21.4	22.3	31.1	52.9	64.0	66.2	83.9	108.7	34.2	38.7	40.1	40.0	40.7
13.4	14.2	14.4	16.0	24.2	28.5	31.5	34.9	48.6	76.5	36.2	33.5	39.4	39.4	37.2
12.3	15.4	19.1	18.7	22.7	27.2	41.6	52.0	50.6	65.1	32.2	34.8	36.0	35.1	36.2
6.8	7.0	7.7	7.9	11.8	9.2	9.8	13.2	14.7	29.8	27.6	27.4	29.5	30.5	29.8
8.9	9.5	11.0	10.7	19.6	15.6	18.1	29.2	30.1	69.5	27.8	29.7	32.6	33.7	30.2
5.5	5.5	6.5	6.9	11.1	6.7	6.8	10.6	13.6	32.3	25.9	25.4	25.9	27.4	27.8
6.2	6.6	8.6	8.8	15.9	8.0	11.2	18.7	20.5	49.0	28.4	26.7	30.2	30.4	29.0
5.4	5.5	6.4	6.3	9.7	6.7	7.0	10.6	11.4	27.5	28.5	24.4	26.5	25.7	27.9
7.2	7.5	7.4	7.6	10.2	8.9	9.2	10.9	11.5	23.6	25.0	27.4	28.3	27.8	30.8
5.1	5.2	5.6	5.7	6.1	6.1	6.0	6.5	6.4	10.1	24.0	24.6	27.1	27.8	29.0
5.9	5.9	6.4	6.2	7.0	7.6	7.5	7.9	7.7	12.3	27.0	23.2	26.7	27.5	30.0
6.6	6.1	6.6	6.7	9.1	7.6	7.5	10.0	9.7	21.0	28.4	27.0	28.1	27.9	30.1
5.2	5.1	5.5	5.4	6.0	6.2	5.9	6.4	6.0	10.3	27.0	23.6	25.8	26.6	29.9
9.2	9.4	9.2	9.3	13.3	11.8	13.4	15.9	18.6	31.2	30.6	32.6	35.4	35.7	33.6
6.8	6.6	6.3	6.4	9.7	7.3	7.6	8.3	10.2	22.4	30.4	32.9	33.4	33.8	31.5
5.6	6.0	7.1	7.6	10.8	6.8	7.8	11.1	13.0	22.2	25.3	26.4	29.8	33.7	32.7
5.6	5.8	6.4	6.4	8.0	7.2	7.5	9.4	9.4	18.6	23.5	24.6	27.1	27.3	29.2
5.1	5.3	7.2	7.5	13.4	6.1	8.0	13.8	13.7	35.5	30.3	27.7	30.2	31.0	31.3

Table 8: Aging of population 1970-2025 for regions within MDCs and LDCs by sex (in ten thousands)

	Total population							
	1970		1980		2000[1]		2000[2]	
	Male	Female	Male	Female	Male	Female	Male	Female
MDCs	52,291	56,111	57,300	60,800	66,891	69,133	62,380	64,836
Japan	5,120	5,313	5,784	5,970	6,570	6,723	6,405	6,523
Southern Africa	1,198	1,236	1,590	1,628	2,790	2,831	2,890	2,908
Temperate South America	1,804	1,803	2,066	2,090	2,578	2,630	2,557	2,603
Northern America	11,104	11,535	12,157	12,726	14,529	15,091	14,782	15,099
Eastern Europe	4,981	5,313	5,348	5,617	6,008	6,136	5,981	6,155
Northern Europe	3,930	4,101	4,104	4,270	4,505	4,628	4,079	4,178
Southern Europe	6,232	6,538	6,697	7,014	7,662	7,906	7,563	7,794
Western Europe	7,165	7,649	7,648	7,957	8,558	8,548	7,593	7,858
Australia & New Zealand	773	764	929	911	1,237	1,214	1,091	1,091
U.S.S.R.	11,180	13,097	12,566	14,246	15,246	16,257	14,886	16,138
LDCs	128,339	124,296	162,015	157,350	247,702	241,957	245,626	239,042
China	39,509	37,675	46,247	44,514	57,894	56,905	63,826	61,903
Eastern South Asia	14,067	14,230	18,503	18,583	29,631	29,531	25,997	26,047
Other East Asia	2,534	2,535	3,140	3,119	4,473	4,441	4,436	4,373
Middle South Asia	38,332	35,839	49,274	46,125	77,372	72,750	71,592	67,034
Western South Asia	3,884	3,768	5,155	5,044	8,800	8,643	8,530	8,279
Eastern Africa	4,943	5,039	6,559	6,683	12,018	12,187	12,396	12,607
Middle Africa	1,988	2,057	2,516	2,595	4,321	4,415	4,528	4,616
Northern Africa	4,292	4,270	5,672	5,634	9,653	9,530	9,411	9,205
Western Africa	5,020	5,130	6,561	6,708	11,830	12,038	13,277	13,450
Caribbean	1,227	1,234	1,501	1,501	2,233	2,217	2,160	2,169
Middle America	3,368	3,333	4,662	4,601	8,712	8,555	7,829	7,742
Tropical South America	7,771	7,762	10,372	10,370	17,552	17,516	15,792	15,722
Melanesia	145	132	185	171	301	284	311	290
Micronesia & Polynesia	61	57	78	74	120	116	94	94

Notes: 2000^1 projections based on 1973 assessments.
2000^2 projections based on 1980 assessments.

Table 8 (continued)

Population 65+ (N)											
1970		1980		2000[1]		2000[2]		2025		2025	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
4,090	6,336	5,062	8,023	6,851	9,972	6,651	9,944	9,796	13,232	67,682	69,996
324	414	433	575	764	997	815	1,065	1,136	1,429	6,537	6,608
43	57	53	65	101	117	113	133	249	294	5,008	5,048
110	130	143	182	207	283	214	283	324	424	3,055	3,137
922	1,265	1,066	1,556	1,282	1,912	1,357	1,952	2,305	3,172	16,851	17,503
433	637	535	781	672	922	668	945	955	1,230	6,471	6,596
405	613	472	705	478	714	526	711	663	846	4,014	4,118
523	732	671	926	905	1,222	972	1,312	1,270	1,615	7,954	8,110
740	1,155	843	1,321	1,020	1,362	930	1,382	1,252	1,658	7,349	7,608
54	75	73	92	102	125	104	130	170	212	1,222	1,241
579	1,315	826	1,886	1,422	2,436	1,280	2,447	2,046	3,070	17,285	18,211
4,487	5,001	5,902	6,566	10,691	12,058	11,266	12,428	24,701	28,336	343,112	338,716
1,920	2,221	2,488	2,845	4,010	4,466	4,441	4,771	8,985	10,500	73,336	73,597
381	447	498	598	1,028	1,260	1,015	1,270	2,347	2,895	34,355	34,494
66	106	107	143	216	282	224	286	548	648	5,563	5,573
1,112	1,050	1,455	1,396	2,819	2,950	2,698	2,702	6,083	6,432	95,918	90,783
141	151	192	212	340	393	345	393	820	930	13,284	13,092
121	148	162	198	323	386	330	403	796	950	23,744	24,048
58	72	73	91	134	164	133	171	315	375	8,066	8,151
139	152	171	196	328	406	323	384	811	950	14,937	14,654
126	152	160	193	313	374	339	403	850	999	25,106	25,408
59	62	77	81	112	134	116	138	241	287	3,089	3,100
106	121	147	170	277	322	273	319	721	816	12,188	12,104
211	255	311	370	675	788	689	756	1,579	1,801	24,880	24,967
4	4	6	6	11	11	11	11	24	25	474	450
2	2	2	2	5	6	4	5	9	11	108	112

Table 8 (continued)

	Population 65+ (%)									
	1970		1980		2000[1]		2000[2]		2025	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
MDCs	7.8	11.3	8.8	13.2	10.2	14.4	10.7	15.3	14.5	18.9
Japan	6.3	7.8	7.5	9.6	11.6	14.8	12.7	16.3	17.4	21.6
Southern Africa	3.6	4.6	3.4	4.0	3.6	4.1	3.9	4.6	5.0	5.8
Temperate South America	6.1	7.2	6.9	8.7	8.0	10.8	8.4	10.9	10.6	13.5
Northern America	8.3	11.0	8.8	12.2	8.8	12.7	9.2	12.9	13.7	18.1
Eastern Europe	8.7	12.0	10.0	13.9	11.2	15.0	11.2	15.4	14.8	18.6
Northern Europe	10.3	15.0	11.5	16.5	10.6	15.4	12.9	17.0	16.5	20.6
Southern Europe	8.4	11.2	10.0	13.2	11.8	15.5	12.9	16.8	16.0	19.9
Western Europe	10.3	15.1	11.0	16.6	11.9	15.9	12.2	17.6	17.0	21.8
Australia & New Zealand	7.0	9.8	7.8	10.1	8.2	10.3	9.5	11.9	13.9	17.1
U.S.S.R.	5.2	10.0	6.6	13.2	9.3	15.0	8.6	15.2	11.8	16.9
LDCs	3.5	4.0	3.6	4.2	4.3	5.0	4.6	5.2	7.2	8.4
China	4.9	5.9	5.4	6.4	6.9	7.8	7.0	7.7	12.3	14.3
Eastern South Asia	2.7	3.1	2.7	3.2	3.5	4.3	3.9	4.9	6.8	8.4
Other East Asia	2.6	4.2	3.4	4.6	4.8	6.3	5.0	6.6	9.8	11.6
Middle South Asia	2.9	2.9	3.0	3.0	3.6	4.1	3.8	4.0	6.3	7.1
Western South Asia	3.6	4.0	3.7	4.2	3.9	4.6	4.0	4.7	6.2	7.1
Eastern Africa	2.4	2.9	2.5	3.0	2.7	3.2	2.7	3.2	3.4	3.9
Middle Africa	2.9	3.5	2.9	3.5	3.1	3.7	2.9	3.7	3.9	4.6
Northern Africa	3.2	3.6	3.0	3.5	3.4	4.3	3.4	4.2	5.4	6.5
Western Africa	2.5	3.0	2.4	2.9	2.6	3.1	2.6	3.0	3.4	3.9
Caribbean	4.8	5.0	5.1	5.4	5.0	6.0	5.4	6.3	7.8	9.3
Middle America	3.1	3.6	3.1	3.7	3.2	3.8	3.5	4.1	5.9	6.7
Tropical South America	2.7	3.3	3.0	3.6	3.8	4.5	4.4	4.8	6.3	7.2
Melanesia	3.0	3.0	3.1	3.3	3.5	3.8	3.5	3.8	5.1	5.5
Micronesia & Polynesia	2.6	2.8	2.9	3.2	4.2	4.8	4.4	4.9	8.1	9.7

Table 8 (continued)

Median age									
1970		1980		2000[1]		2000[2]		2025	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
28.0	31.8	30.1	33.4	32.8	35.3	34.4	37.2	36.9	39.6
28.4	30.3	31.3	33.3	35.7	38.2	37.3	40.1	39.3	42.3
19.1	19.6	18.6	19.2	18.6	19.2	19.0	19.6	24.0	24.5
25.4	26.4	26.3	27.7	29.2	30.8	29.1	30.6	33.0	34.8
26.7	29.5	29.2	31.9	31.9	34.4	33.5	36.0	36.4	38.7
29.4	33.0	31.6	34.7	34.1	36.5	34.2	37.0	36.8	39.3
32.1	35.6	32.4	35.5	33.0	35.5	36.8	38.9	40.4	43.2
29.4	32.2	30.9	33.8	32.9	35.5	35.0	37.5	39.2	41.6
31.3	35.5	32.6	36.0	35.4	37.0	37.8	40.2	40.4	43.8
26.8	28.3	27.7	28.7	29.5	30.2	33.1	34.4	36.8	38.9
24.9	31.3	27.7	33.3	31.3	34.7	31.1	35.6	33.5	36.8
19.4	19.5	19.8	20.0	22.3	22.7	23.9	24.2	29.2	29.8
22.9	22.6	24.6	24.3	29.6	29.9	30.4	30.6	37.1	38.4
17.7	18.7	17.8	18.6	21.0	21.7	23.6	24.4	31.1	32.2
18.3	19.5	21.0	21.7	25.9	26.7	27.2	27.7	33.8	34.9
18.4	18.3	18.5	18.5	21.4	21.4	22.9	22.9	30.4	30.4
18.3	18.6	18.2	18.5	20.0	20.6	20.7	20.8	27.3	27.9
17.4	17.9	17.0	17.5	17.1	17.6	16.6	17.2	21.2	21.8
18.6	19.2	18.4	19.0	17.9	18.5	17.8	18.5	22.2	22.9
17.2	18.0	17.7	18.4	20.1	20.8	19.8	20.4	26.7	27.2
17.5	18.0	17.1	17.6	17.0	17.5	16.6	17.0	21.5	22.0
19.0	19.6	19.5	20.3	22.6	23.4	25.3	26.2	28.7	29.7
16.4	17.0	17.0	17.5	18.6	19.0	20.9	21.4	27.3	28.0
17.6	18.0	18.4	18.8	20.8	21.5	22.4	22.9	26.0	26.8
19.1	18.5	18.9	18.5	20.2	20.0	20.1	20.0	27.0	27.0
17.5	17.4	19.8	19.9	24.0	24.2	22.7	23.4	30.0	31.7

Table 8 (continued)

	Aging index									
	1970		1980		2000[1]		2000[2]		2025	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
MDCs	27.7	44.8	35.1	58.0	43.6	66.3	48.7	76.3	69.9	98.5
Japan	25.2	33.7	29.1	40.4	56.0	76.6	66.1	91.6	91.9	122.8
Southern Africa	8.6	11.4	7.9	9.6	8.6	10.0	9.4	11.3	15.3	18.3
Temperate South America	19.2	23.3	22.9	30.0	30.1	42.5	31.1	42.5	46.0	62.0
Northern America	28.1	40.1	35.2	53.6	37.2	57.9	40.4	60.8	64.9	92.1
Eastern Europe	33.4	51.4	41.4	63.3	49.7	71.9	51.5	76.4	70.9	96.1
Northern Europe	40.7	64.9	47.9	75.0	44.7	70.2	67.6	95.8	89.9	120.3
Southern Europe	30.4	44.3	39.2	56.7	49.4	69.9	62.0	87.6	84.1	112.2
Western Europe	40.4	65.9	48.8	79.9	55.5	77.4	65.8	----	91.2	127.0
Australia & New Zealand	23.3	34.0	27.3	35.8	30.8	39.1	42.2	55.2	66.5	86.9
U.S.S.R.	16.4	38.6	24.9	59.0	37.6	66.8	34.1	67.8	51.0	79.8
LDCs	8.6	9.9	9.1	10.5	12.2	14.3	13.7	15.7	27.3	32.4
China	14.2	17.0	16.6	19.6	27.2	31.3	28.4	31.8	62.9	76.2
Eastern South Asia	6.0	7.3	6.1	7.6	9.4	11.9	11.9	15.3	28.5	36.4
Other East Asia	6.1	10.1	9.3	13.0	16.0	21.5	17.7	23.5	44.1	54.0
Middle South Asia	6.7	6.8	7.0	7.1	10.0	11.1	11.0	11.8	26.0	29.0
Western South Asia	8.4	9.4	8.6	9.8	9.9	11.9	10.6	12.5	21.8	25.6
Eastern Africa	5.4	6.7	5.4	6.6	5.9	7.1	5.7	7.0	9.1	11.0
Middle Africa	6.8	8.5	6.7	8.3	7.0	8.7	6.7	8.7	11.1	13.4
Northern Africa	7.1	8.1	6.8	8.2	8.7	11.2	8.7	10.8	18.9	23.1
Western Africa	5.6	6.7	5.4	6.4	5.8	7.0	5.5	6.6	9.4	11.2
Caribbean	11.4	12.3	12.9	14.1	14.3	17.6	16.7	20.5	28.1	34.5
Middle America	6.7	7.9	6.9	8.2	7.5	9.1	9.3	11.2	20.7	24.2
Tropical South America	6.1	7.6	7.0	8.5	10.1	12.2	12.3	13.8	20.6	24.0
Melanesia	7.3	7.0	7.4	7.7	9.1	9.7	9.2	9.7	17.8	19.4
Micronesia & Polynesia	5.9	6.3	7.6	8.3	12.7	14.8	12.7	14.7	31.1	40.1

Table 8 (continued)

75+/65+ (%)									
1970		1980		2000[1]		2000[2]		2025	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
30.9	36.0	32.8	38.5	33.2	42.2	32.8	41.9	34.9	41.9
26.8	33.0	31.7	34.7	28.7	36.7	29.7	37.9	44.3	49.8
31.0	35.7	27.0	31.1	29.4	30.8	31.1	33.0	31.2	34.0
28.6	32.6	31.3	35.0	34.5	40.3	35.2	40.6	34.6	40.8
35.5	40.1	34.7	41.5	39.2	46.0	37.2	44.1	30.7	38.1
27.1	32.7	31.9	36.2	31.5	39.1	31.5	39.6	33.4	39.6
30.5	38.1	31.8	41.1	37.9	48.3	40.1	47.4	38.6	44.7
30.9	35.8	32.0	37.5	34.0	40.0	34.5	41.0	38.0	44.7
29.9	36.9	34.9	41.1	34.3	44.5	33.4	44.5	37.1	43.4
31.4	39.7	29.5	36.7	36.0	42.2	35.8	42.3	34.3	39.6
30.9	32.9	30.9	36.5	27.6	40.8	25.7	40.1	30.7	39.9
26.3	28.9	26.0	28.7	28.1	30.7	29.1	31.7	28.2	31.1
26.3	29.1	27.8	31.3	30.5	34.5	31.8	35.5	28.9	31.4
24.7	26.9	24.1	26.4	24.5	27.1	25.8	28.7	25.6	29.6
24.8	30.6	22.8	29.6	28.6	31.4	28.8	31.7	26.8	30.9
27.3	29.8	23.8	25.0	26.2	26.8	25.4	26.1	26.6	29.1
23.4	26.5	26.6	28.2	26.9	29.5	26.2	29.2	28.7	32.6
23.0	24.8	23.6	25.4	26.2	27.9	26.5	28.9	28.6	30.9
26.0	27.7	22.2	23.8	25.4	27.8	26.0	28.7	28.5	31.2
28.3	28.4	26.1	27.7	27.1	28.9	27.1	28.6	27.6	32.2
26.6	27.4	22.4	24.6	24.6	26.8	25.3	27.7	28.9	30.8
27.7	33.4	31.3	33.8	34.1	36.6	34.7	36.5	31.7	35.1
29.8	30.9	32.0	33.7	32.2	34.4	32.4	35.0	30.1	32.8
23.5	26.8	24.5	28.0	28.0	31.5	32.9	34.4	31.6	33.7
22.7	24.4	24.6	26.3	26.4	28.0	26.4	28.2	28.3	30.1
29.4	29.4	25.0	29.2	29.4	30.4	29.3	32.6	29.9	32.4

Table 9: Aging of labor force 1970-2000 for regions within MDCs and LDCs (in thousands)

	Total labor force			Labor force 65+ (N)		
	1970	1980	2000	1970	1980	2000
MDCs	487,929	549,712	638,513	15,188	16,368	17,882
Japan	53,390	60,431	71,193	2,572	2,971	4,292
Southern Africa	9,371	12,040	21,026	278	276	370
Temperate South America	13,241	15,317	20,040	386	417	476
Northern America	95,765	112,644	139,549	3,468	3,685	3,840
Eastern Europe	53,228	58,220	65,138	2,663	2,860	2,876
Northern Europe	36,506	38,142	42,941	1,220	1,254	1,074
Southern Europe	49,129	52,932	60,109	1,799	1,869	1,812
Western Europe	62,561	68,963	77,043	1,717	1,733	1,683
Australia & New Zealand	6,416	7,765	10,656	152	177	207
U.S.S.R.	117,689	135,294	151,844	1,211	1,402	1,622
LDCs	1,020,684	1,244,733	1,907,343	34,867	39,037	47,961
China	364,612	421,905	550,005	14,508	15,811	16,241
Eastern South Asia	112,123	140,691	228,953	3,162	3,604	5,284
Other East Asia	19,163	25,450	39,744	420	525	723
Middle South Asia	283,353	348,431	556,031	8,672	9,807	13,152
Western South Asia	27,090	33,836	57,548	1,152	1,339	1,557
Eastern Africa	43,327	54,113	90,322	1,356	1,646	2,547
Middle Africa	17,265	20,622	31,738	552	614	797
Northern Africa	23,343	30,539	54,085	840	895	1,207
Western Africa	43,345	53,138	87,075	1,388	1,541	2,129
Caribbean	8,300	10,207	16,172	324	337	401
Middle America	19,635	27,172	53,263	850	987	1,226
Tropical South America	47,989	64,369	117,842	1,312	1,593	2,238
Melanesia	1,396	1,710	2,659	43	53	75
Micronesia & Polynesia	369	512	879	10	11	16

Table 9 (continued

Labor force 65+(%)			Not in labor force			Median age		
1970	1980	2000	1970	1980	2000	1970	1980	2000
3.1	3.0	2.8	405,760	440,352	517,406	36.9	37.4	38.7
4.8	4.9	6.0	33,822	36,854	43,607	36.9	39.6	42.5
3.0	2.3	1.8	8,089	9,783	18,567	32.8	32.5	32.4
2.9	2.7	2.4	15,114	17,793	23,065	35.4	35.5	36.2
3.6	3.3	2.8	89,383	96,317	112,653	38.0	37.2	39.2
5.0	4.9	4.4	33,472	34,322	38,638	38.1	38.6	39.9
3.3	3.3	2.5	30,598	32,794	34,381	39.6	38.7	39.3
3.7	3.5	3.0	55,606	62,051	71,541	36.4	37.1	37.4
2.7	2.5	2.2	61,234	65,306	70,213	37.2	37.2	39.1
2.4	2.3	1.9	5,926	6,978	9,494	35.9	35.7	36.7
1.0	1.0	1.1	80,608	87,938	113,819	35.6	36.3	37.3
3.4	3.1	2.5	773,197	1,043,064	1,808,065	33.2	33.5	34.6
4.0	3.8	3.0	224,914	283,267	402,142	34.4	35.2	37.0
2.8	2.6	2.3	81,741	115,378	216,394	32.7	32.4	33.6
2.2	2.1	1.8	17,077	21,792	31,733	33.8	33.3	35.7
3.1	2.8	2.4	227,276	316,123	574,984	32.6	32.8	34.0
4.2	4.0	2.7	25,742	36,345	70,603	32.5	33.0	33.8
3.1	3.0	2.8	24,175	33,988	73,288	30.6	31.3	32.0
3.2	3.0	2.5	10,884	14,599	28,447	32.3	32.8	33.5
3.6	2.9	2.2	34,553	47,506	86,941	32.4	32.2	33.6
3.2	2.9	2.4	25,185	35,351	74,036	32.2	32.7	33.2
3.9	3.3	2.5	9,032	11,716	17,785	34.4	33.7	34.7
4.3	3.6	2.3	24,943	35,262	68,592	31.8	31.6	32.6
2.7	2.5	1.9	58,618	80,578	141,974	32.0	32.3	33.5
3.1	3.1	2.8	524	774	1,628	31.8	31.9	33.0
2.7	2.2	1.8	446	605	955	32.1	32.2	34.7

Table 9 (continued)

	45+/TLF (%)			55+/TLF (%)			Dependency burden			Youth dependency burden		
	1970	1980	2000	1970	1980	2000	1970	1980	2000	1970	1980	2000
MDCs	31.2	32.1	34.9	13.9	12.6	13.3	1.22	1.15	1.13	0.39	0.35	0.32
Japan	31.0	37.0	44.9	15.2	16.1	21.4	0.95	0.95	0.87	0.32	0.34	0.25
Southern Africa	23.2	22.2	20.8	10.0	9.3	8.0	1.60	1.67	1.67	0.73	0.86	0.79
Temperate South America	27.9	27.8	27.7	11.6	11.3	10.4	1.72	1.71	1.60	0.58	0.55	0.45
Northern America	36.1	32.4	36.3	16.5	15.7	13.7	1.36	1.21	1.12	0.43	0.35	0.32
Eastern Europe	34.2	35.0	38.2	17.6	14.9	15.7	0.93	0.88	0.86	0.31	0.29	0.27
Northern Europe	39.4	36.4	36.9	19.1	17.8	15.2	1.20	1.20	1.13	0.36	0.34	0.33
Southern Europe	30.5	32.6	31.7	14.4	13.2	12.8	1.60	1.59	1.59	0.47	0.42	0.40
Western Europe	32.6	32.2	36.1	16.0	13.0	15.0	1.37	1.26	1.22	0.39	0.32	0.31
Australia & New Zealand	31.3	29.1	30.6	13.4	13.0	11.3	1.40	1.37	1.30	0.47	0.47	0.41
U.S.S.R.	23.3	27.7	28.8	7.0	5.7	7.3	1.06	0.98	1.07	0.38	0.33	0.33
LDCs	24.4	24.5	24.5	11.0	10.7	9.9	1.48	1.57	1.57	0.72	0.73	0.62
China	27.4	27.2	30.2	12.7	12.4	11.6	1.12	1.15	1.09	0.50	0.48	0.36
Eastern South Asia	22.3	23.4	21.8	9.6	9.6	9.4	1.52	1.64	1.58	0.79	0.82	0.64
Other East Asia	24.4	23.9	25.8	9.9	9.6	9.7	1.65	1.46	1.24	0.75	0.60	0.44
Middle South Asia	22.8	23.4	22.6	10.0	10.0	9.3	1.62	1.74	1.70	0.82	0.83	0.67
Western South Asia	24.1	24.5	22.7	12.7	11.0	9.5	1.82	2.01	2.03	0.87	0.94	0.80
Eastern Africa	21.3	21.6	22.0	9.9	9.9	9.8	1.30	1.45	1.68	0.75	0.82	0.87
Middle Africa	22.6	22.9	23.1	10.2	10.1	9.6	1.34	1.48	1.75	0.71	0.77	0.86
Northern Africa	23.5	22.8	21.8	11.0	10.2	8.9	2.67	2.70	2.55	1.19	1.15	0.94
Western Africa	22.4	22.7	22.6	10.0	9.9	9.5	1.34	1.50	1.74	0.76	0.83	0.89
Caribbean	26.9	25.1	23.4	12.7	11.6	9.6	1.97	1.94	1.75	0.88	0.79	0.65
Middle America	22.7	21.3	20.2	11.5	10.0	8.2	2.41	2.41	2.24	1.14	1.11	0.95
Tropical South America	21.6	21.2	21.1	9.3	9.0	8.0	2.24	2.22	1.98	1.02	0.97	0.77
Melanesia	22.5	22.8	22.5	10.0	10.1	9.8	0.98	1.08	1.20	0.61	0.63	0.59
Micronesia & Polynesia	21.4	20.5	23.0	9.2	8.6	8.5	2.20	1.98	1.68	0.99	0.79	0.59

Notes: TLF = Total labor force
Dependency burden: Total non-workers including children under 10 per worker.
Youth dependency burden: Children under 10 per worker.

Table 10: Aging of labor force 1970-2000 for regions within MDCs and LDCs by sex (in thousands)

	Total labor force					
	1970		1980		2000	
	Male	Female	Male	Female	Male	Female
MDCs	295,485	192,444	330,200	219,512	378,165	260,348
Japan	32,489	20,901	36,101	24,330	40,917	30,276
Southern Africa	6,163	3,208	7,725	4,315	12,981	8,045
Temperate South America	10,013	3,228	11,290	4,027	14,224	5,816
Northern America	60,766	34,999	69,748	42,896	83,462	56,087
Eastern Europe	29,408	23,820	31,946	26,274	35,049	30,089
Northern Europe	23,486	13,020	23,971	14,171	26,167	16,774
Southern Europe	35,615	13,514	37,703	15,229	41,698	18,411
Western Europe	41,039	21,522	44,727	24,236	49,071	27,972
Australia & New Zealand	4,445	1,971	5,278	2,487	7,018	3,638
U.S.S.R.	58,220	59,469	69,433	65,861	80,560	71,284
LDCs	684,286	336,398	840,231	404,502	1,289,863	617,480
China	226,309	138,303	263,264	158,641	339,010	210,995
Eastern South Asia	71,128	40,995	90,444	50,247	150,432	78,521
Other East Asia	12,082	7,081	16,045	9,405	24,537	15,207
Middle South Asia	201,265	82,088	249,416	99,015	400,249	155,782
Western South Asia	20,250	6,840	25,388	8,448	42,913	14,635
Eastern Africa	27,881	15,446	35,133	18,980	59,798	30,524
Middle Africa	10,718	6,547	12,928	7,694	20,105	11,633
Northern Africa	21,343	2,000	27,655	2,884	47,903	6,182
Western Africa	25,935	17,410	32,128	21,010	53,280	33,795
Caribbean	5,892	2,408	7,184	3,023	11,260	4,912
Middle America	16,258	3,377	21,971	5,201	40,462	12,801
Tropical South America	37,922	10,067	49,512	14,857	84,652	33,190
Melanesia	833	563	1,027	683	1,628	1,031
Micronesia & Polynesia	305	64	412	100	652	227

Table 10 (continued)

	Not in labor force					
	1970		1980		2000	
	Male	Female	Male	Female	Male	Female
MDCs	130,261	275,499	145,262	295,090	186,339	331,067
Japan	9,954	23,868	11,384	25,470	15,502	28,105
Southern Africa	2,380	5,709	2,979	6,804	6,546	12,021
Temperate South America	4,115	10,999	5,086	12,707	6,994	16,071
Northern America	29,244	60,139	31,449	64,868	39,337	73,316
Eastern Europe	12,093	21,379	12,772	21,550	15,963	22,675
Northern Europe	9,044	21,554	10,509	22,285	11,701	22,680
Southern Europe	14,980	40,626	17,941	44,110	22,615	48,926
Western Europe	18,163	43,071	20,624	44,682	24,341	45,872
Australia & New Zealand	1,738	4,188	2,153	4,825	3,128	6,366
U.S.S.R.	30,935	49,673	33,344	54,594	46,759	67,060
LDCs	226,218	546,979	318,497	724,567	585,642	1,222,423
China	76,239	148,675	96,230	187,037	140,348	261,794
Eastern South Asia	24,324	57,417	36,353	79,025	71,531	144,863
Other East Asia	5,854	11,223	7,555	14,237	11,211	20,522
Middle South Asia	63,063	164,213	94,195	221,928	183,256	391,728
Western South Asia	6,538	19,204	9,967	26,378	21,472	49,131
Eastern Africa	5,374	18,801	8,281	25,707	20,966	52,322
Middle Africa	3,035	7,849	4,298	10,301	9,466	18,981
Northern Africa	7,477	27,076	11,221	36,285	22,699	64,242
Western Africa	7,813	17,372	11,399	23,952	26,084	47,952
Caribbean	2,689	6,343	3,705	8,011	5,703	12,082
Middle America	6,005	18,938	9,284	25,978	20,774	47,818
Tropical South America	15,135	43,483	22,598	57,980	44,728	97,246
Melanesia	177	347	269	505	582	1,046
Micronesia & Polynesia	116	330	162	443	279	676

Table 10 (continued)

Labor force 65+ (N)						Labor force 65+ (%)					
1970		1980		2000		1970		1980		2000	
Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
10,128	5,060	10,672	5,696	11,570	6,312	3.4	2.6	3.2	2.6	3.1	2.4
1,761	811	1,993	978	2,842	1,450	5.4	3.9	5.5	4.0	7.0	4.8
209	69	211	65	286	84	3.4	2.2	2.7	1.5	2.2	1.0
326	60	347	70	390	86	3.3	1.9	3.1	1.7	2.7	1.5
2,341	1,127	2,396	1,289	2,413	1,427	3.8	3.2	3.4	3.0	2.9	2.5
1,592	1.071	1,637	1,223	1,539	1,337	5.4	4.5	5.1	4.6	4.4	4.4
850	370	864	390	720	354	3.6	2.8	3.6	2.8	2.8	2.1
1,374	425	1,432	437	1,396	416	3.9	3.1	3.8	2.9	3.4	2.3
1,084	633	1,077	656	1,087	596	2.6	2.9	2.4	2.7	2.2	2.1
121	31	142	35	165	42	2.7	1.6	2.7	1.4	2.4	1.2
678	533	784	618	1,018	604	1.2	0.9	1.1	0.9	1.3	0.8
25,605	9,262	28,801	10,236	35,891	12,070	3.7	2.8	3.4	2.5	2.8	2.0
9,670	4,838	10,653	5,158	11,252	4,989	4.3	3.5	4.0	3.2	3.3	2.4
2,165	997	2,446	1,158	3,608	1,676	3.0	2.4	2.7	2.3	2.4	2.1
273	147	355	170	477	246	2.3	2.1	2.2	1.8	1.9	1.6
7,290	1,382	8,226	1,581	10,926	2,226	3.6	1.7	3.3	1.6	2.7	1.4
875	277	1,012	327	1,202	355	4.3	4.0	4.0	3.9	2.8	2.4
906	450	1,104	542	1,732	815	3.2	2.9	3.1	2.9	2.9	2.7
404	148	451	163	594	203	3.8	2.3	3.5	2.1	3.0	1.8
791	49	839	56	1,116	91	3.7	2.4	3.0	1.9	2.3	1.5
878	510	986	555	1,400	729	3.4	2.9	3.1	2.6	2.6	2.2
247	77	265	72	302	99	4.2	3.2	3.7	2.4	2.7	2.0
730	120	841	146	1,029	197	4.5	3.6	3.8	2.8	2.5	1.5
1,126	186	1,364	229	1,898	340	3.0	1.8	2.8	1.5	2.2	1.0
32	11	39	14	55	20	3.8	2.0	3.8	2.0	3.4	1.9
9	1	10	1	14	2	3.0	1.6	2.4	1.0	2.2	0.9

Table 10 (continued)

Median age						45+/TLF (%)						55+/TLF (%)					
1970		1980		2000		1970		1980		2000		1970		1980		2000	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
37.3	36.3	37.8	36.8	39.1	38.1	31.7	30.4	32.6	31.4	35.7	33.8	15.3	11.9	13.5	11.3	14.5	11.5
37.3	36.3	39.6	39.5	42.4	42.5	30.6	31.7	36.5	37.7	44.6	45.4	16.0	14.1	16.2	15.9	22.4	20.2
34.2	30.0	33.9	29.7	33.7	30.1	25.5	18.7	24.7	17.8	23.0	17.4	11.3	7.5	10.9	6.5	9.4	5.7
36.4	32.1	36.6	32.5	37.2	33.5	30.0	21.4	30.0	21.7	30.2	21.6	12.9	7.8	12.6	7.7	11.7	7.0
38.2	37.6	37.2	37.2	39.0	39.6	35.8	36.6	31.6	33.7	35.1	38.2	16.8	15.9	15.7	15.8	13.6	14.0
38.1	38.1	38.7	38.5	40.1	39.6	34.2	34.2	35.1	34.9	38.7	37.6	18.6	16.4	15.3	14.4	16.4	14.9
40.2	38.4	39.2	37.7	39.6	38.7	40.3	37.9	37.1	35.1	37.4	36.3	20.5	16.7	19.1	15.7	16.4	13.4
37.5	33.2	38.3	33.7	38.5	34.5	32.4	25.5	34.7	27.2	33.9	26.8	15.5	11.5	14.4	10.4	14.0	10.0
37.9	35.8	38.0	35.6	39.9	37.6	33.0	31.9	33.0	30.7	37.6	33.3	16.5	15.1	13.2	12.7	16.0	13.0
37.4	31.8	37.0	32.4	37.8	34.4	33.7	25.9	31.4	24.2	32.6	26.6	15.3	9.3	14.7	9.2	13.0	8.1
35.2	35.9	36.3	36.3	37.8	36.8	22.2	24.4	27.9	27.5	30.8	26.7	8.8	5.3	6.9	4.3	9.8	4.4
33.8	31.8	34.0	32.3	35.1	33.6	25.4	22.3	25.4	22.5	25.4	22.7	11.8	9.5	11.5	9.2	10.6	8.3
35.2	33.0	36.0	33.9	37.7	35.7	28.7	25.3	28.8	24.6	32.0	27.2	13.6	11.1	13.5	10.6	13.0	9.4
33.4	31.4	32.9	31.4	34.0	32.8	23.2	20.8	24.1	22.1	21.9	21.5	10.2	8.8	10.0	8.9	9.5	9.0
34.4	32.6	33.9	32.0	36.2	34.8	24.5	24.2	23.8	24.1	25.9	25.5	10.1	9.7	9.9	9.2	10.0	9.3
33.4	30.9	33.4	31.4	34.4	32.9	24.4	19.0	24.6	20.5	23.6	20.0	11.1	7.1	11.0	7.4	10.1	7.2
33.0	30.8	33.5	31.1	34.3	32.2	24.5	22.7	24.9	23.1	23.3	21.2	12.7	12.6	11.2	10.5	9.6	9.1
30.6	30.8	31.2	31.4	31.9	32.1	20.8	22.1	21.2	22.5	21.5	22.8	9.7	10.1	9.8	10.1	9.7	10.0
32.7	31.5	33.2	32.2	33.9	32.9	23.4	21.4	23.6	21.7	23.8	21.9	11.1	8.7	11.0	8.6	10.6	8.1
32.8	27.4	32.6	27.2	34.0	29.0	23.9	19.9	23.1	19.6	22.3	17.9	11.2	8.5	10.4	7.6	9.2	6.7
32.4	32.0	32.8	32.5	33.4	33.0	22.4	22.5	22.6	22.8	22.4	22.7	10.3	9.7	10.1	9.5	9.7	9.1
35.1	32.6	34.3	32.5	35.2	33.7	28.5	23.0	26.3	22.3	24.4	21.3	13.8	10.1	12.6	9.2	10.3	8.1
32.5	28.0	32.5	27.3	33.8	28.0	23.4	19.3	22.3	17.2	21.9	14.6	11.9	9.5	10.5	7.8	9.0	5.5
32.8	28.3	33.3	28.5	34.8	29.8	22.8	16.8	22.8	15.8	23.5	14.8	10.0	6.7	9.9	6.1	9.3	4.8
32.7	30.6	32.7	30.6	33.6	32.0	24.0	20.2	24.3	20.4	23.9	20.3	11.4	7.8	11.5	7.9	11.1	7.8
32.4	30.5	32.8	29.8	35.8	31.5	22.3	17.2	21.8	15.0	25.8	15.0	9.8	6.3	9.5	5.0	10.0	4.4

Note: TLF = Total labor force.

Appendix. Countries within regions of MDCs and LDCs

World

More Developed Countries (MDCs)

1. Japan
2. Southern Africa

   Botswana, Lesotho, Namibia, South Africa, Swaziland
3. Temperate South America

   Argentina, Chile, Falkland Islands, Uruguay
4. Northern America

   Bermuda, Canada, Greenland, St. Pierre and Miquelon, U.S.A.
5. Eastern Europe

   Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Rumania
6. Northern Europe

   Channel Islands, Denmark, Faroe Islands, Finland, Iceland, Ireland, Isle of Man, Norway, Sweden, United Kingdom
7. Southern Europe

   Albania, Andorra, Gibraltar, Greece, Holy See, Italy, Malta, Portugal, San Marino, Spain, Yugoslavia
8. Western Europe

   Austria, Belgium, Federal Republic of Germany, France, Liechtenstein, Luxembourg, Monaco, Netherlands, Switzerland
9. Australia and New Zealand

   Australia, New Zealand
10. U.S.S.R.

Less Developed Countries (LDCs)

1. China
2. Eastern South Asia

   Brunei, Burma, Democratic Kampuchea, Indonesia, Lao Republic, Malaysia, Philippines, Portuguese Timor, Singapore, Thailand, Viet Nam
3. Other East Asia

   Democratic People's Republic of Korea, Hong Kong, Macau, Mongolia, Republic of Korea
4. Middle South Asia

   Afghanistan, Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan, Sikkim, Sri Lanka

5. Western South Asia

   Bahrain, Cyprus, Democratic Yemen, Gaza Strip (Palestine), Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

6. Eastern Africa

   Burundi, Comoros, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Reunion, Rwanda, Somalia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe

7. Middle Africa

   Angola, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, United Republic of Cameroon, Zaire

8. Northern Africa

   Algeria, Egypt, Libyan Arab Republic, Morocco, Sudan, Tunisia

9. Western Africa

   Benin, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo, Upper Volta

10. Caribbean

    Antigua, Bahamas, Barbados, British Virgin Islands, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Netherlands Antilles, Puerto Rico, St. Kitts-Nevis-Anguilla, St. Lucia, St. Vincent, Trinidad and Tobago, Turks and Caicos Islands, Virgin Islands (U.S.A.)

11. Middle America

    Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Panama Canal Zone

12. Tropical South America

    Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Surinam, Venezuela

13. Melanesia

    British Solomon Islands, New Caledonia, New Hebrides, Norfolk Island, Papua New Guinea

14. Micronesia and Polynesia

    American Samoa, Canton and Enderbury Islands, Christmas Islands, Cocos Islands, Cook Islands, Fiji, French Polynesia, Guam, Johnston Island, Kiribati, Midway Islands, Nauru, Niue, Pacific Islands, Pitcairn Island, Tokelau Islands, Tonga, Tuvalu, Wake Island, Wallis and Futuna Islands, Western Samoa

Notes

1/ The dependency ratio has been developed as a proxy for the number of dependents per 100 workers because labor force data have not been widely and currently available. The total dependency ratio has two components, the youth dependency ratio and the aged dependency ratio. The total dependency ratio is defined as:

$$\frac{\text{persons under 15 plus persons 65 and over}}{\text{persons 15 to 64 years old}} \times 100$$

the youth dependency ratio is:

$$\frac{\text{persons under 15}}{\text{persons 15 to 64}} \times 100$$

the aged dependency ratio is:

$$\frac{\text{persons 65 and over}}{\text{persons 15 to 64}} \times 100$$

2/ The total dependency burden is presented here because of the availability of the necessary data, namely, the number of persons of working age not in the labor force, the number of workers, and the number of persons under working age taken in the ILO statistics as under 10 years of age. The total dependency burden is:

$$\frac{\text{persons not in the labor force and persons under 10}}{\text{persons in the work force}}$$

the youth dependency burden is:

$$\frac{\text{persons under 10 years of age}}{\text{persons in the work force}}$$

3/ Benchmark Estimates: 1950-1970 As the basic population estimates have been made available by the United Nations, the fundamental operation has been to determine the relevant activity (i.e. labor force participation) rates for mid-1950, mid-1960 and mid-1970.

In brief, every effort has been made to assemble all the pertinent information available on the size, sex-age composition, sectoral distribution and other characteristics of the labor force in each country, in general for the years 1950, 1960 and 1970, but also for any years in the period 1945-1975. For the most part, population census data have been used although, wherever necessary, adjustments have been made to bring the data on labor force into conformity with the standard concepts and coverage adopted for the present purpose. For example, interpolation or extrapolation was employed to center the data on mid-years 1950, 1960 and 1970 respectively while estimates were made of the correction needed on account of any divergence from the standard concepts and coverage. For the latter purpose, the national labor force data

were closely examined for completeness of coverage, particularly as regards inclusion of unemployed persons and unpaid family workers. Where the age grouping in the national data did not correspond with the standard age groups adopted, estimates were made by fitting curves.

If only partial or no data were available on the labor force for certain countries and territories within a specified region, the values were estimated on the basis of suitable models--which sometimes implied estimation on the basis of activity rates and the sectoral distribution in the rest of the region, or in selected countries of other regions, which showed demographic, social and economic affinities.

After the final estimates of activity rates for each sex-age group were determined for each country for 1950, 1960 and 1970, the estimated absolute numbers in the labor force were obtained by applying the activity rates to the relevant population estimates of the United Nations. The sectoral distribution of the resulting total numbers of males and females in the labor force was then calculated by applying the estimated percentage distribution over agriculture, industry and services, as previously determined from national data (after adjustment wherever necessary). The activity rates for each sex-age group and the percentage distribution of the male and female labor force in agriculture, industry and services for mid-years 1955 and 1965 were obtained by interpolation and the absolute numbers were obtained in similar fashion as for years 1950, 1960 and 1970.

Projections: 1975-2000 The labor force projections presented in this publication are based on a standard projection methodology which, with a few exceptions, has been uniformly applied to all countries and territories. The assumptions and methods employed are similar in many respects to those previously used for making the projections published in ILO, Labour Force Projections, 1965-1985, First Edition, Parts I-V, Geneva, 1971. However, a major modification introduced in the present methods is the use of regression equations as the main projection vehicles, rather than the models used in the above-mentioned projection series. In brief, the methods employed are in large measure based on the results of comparative analysis in which statistical, graphical and computer techniques are extensively used. The most important new feature of the latest methodology is the derivation of regression equations which take account also of the trends in rates of change of labor force participation ratios.

It is possible that, in a particular country, the future trends in activity rates may diverge to some extent from the path which, for purposes of the present projections, they have been deemed most likely to follow. For instance, they may diverge as a result of more rapid industrialization and urbanization, or faster increase in school attendance, or introduction of an earlier retirement age than implicitly assumed, or as a result of other special factors.

The present projection methodology was systematically tested by reverse projection techniques. The 1970 labor force for each country and territory was projected backwards to 1960 and 1950 and

the results obtained were compared to the benchmark estimates of the labor force by sex and age group for 1960 and 1950 shown in this publication. The differences between actual and projected labor force were in most cases very minor. However, for certain countries which had undergone important changes in political, social and economic structure between 1950 and 1960 or between 1960 and 1970, the differences were larger but rarely exceeded 10 percent during the particular decade where such changes occurred: for these countries, it was necessary to modify somewhat the standard projection methodology.

4/ For discussion of Burgess materials see Philip M. Hauser, "Facing the Implications of an Aging Population," The Social Service Review, Vol. XXVII, June 1953.

References

Hauser, Philip M. "Aging and World-wide Population Change." 1956. Robert H. Binstock and Ethel Shanas. Handbook of Aging and the Social Sciences. New York: Van Nostrand & Reinhold.

International Labour Office. 1977. Labour Force Estimates and Projections, 1950-2000. Vol. V, World Summary, 2nd Ed. Geneva: International Labour Office.

_____. 1977. Labour Force Estimates and Projections, 1950-2000. Vol. VI, Methodological Supplement, 2nd Ed. Geneva: International Labour Office.

United Nations. 1980. Demographic Yearbook, 32nd Issue. New York: United Nations.

_____. 1956. Dept. of Economic and Social Affairs: "The Aging of Population and its Economic and Social Implications." Population Studies, No. 26. New York: United Nations.

_____. 1981. Dept. of International Economic and Social Affairs: "World Population Prospects as Assessed in 1980." Population Studies, No. 78. New York: United Nations.

_____. 1976. Population Division: Population by Sex and Age for Regions and Countries, 1950-2000, as Assessed in 1973: Medium Variant. Working Paper, No. 60. New York: United Nations.