variations in support burdens as measured by the dependency ratio

by

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This paper is based upon the assumption that efforts by scholars in various disciplines to assess the significance of the changing relationships between the two vital rates (fertility and mortality) and the impact of these changes on levels of living should be supplemented by an evaluation of dependency conditions for as many as possible of the world's countries. Rates of natural increase and even net increase and many other measures of population growth provide few clues to the magnitude of the support burden that the productive members of a society must carry, although fertility ratios constitute a step in this direction. Knowledge of these various rates and ratios makes it possible to delineate many of the statistical relationships between those who are born and those who die but it does not indicate the proportional balance between various age groups in the surviving population. Eventually, although absolute numbers in all age groups must be taken into account, questions of «overpopulation» revolve in large part around the proportions of total populations that are available to assume responsibility for those, who by virtue of age, generally cannot fully care for themselves and who make up the dependent segment of the population. The latter group consists of the very young and the elderly.[1]

This paper has five related purposes which are to (1) present the current dependency situations for as many as possible of the world's countries; (2) indicate the relative importance of the young and the elderly in the total dependency situations of the respective countries; (3) examine rural and urban variations in the support burdens; (4) point out the degree to which the support burdens in the various populations have increased or decreased in the most recent intercensal periods; and (5) give some indication of how greatly the changes in dependency burdens vary according to rural and urban residence.

The basic index of dependency employed is the *dependency ratio*. It is calculated as follows:

$$\text{Dependency ratio} = \frac{\text{Population aged 0-14 and 65 and over}}{\text{Population aged 15-64}} \times 100$$

There is justification for classifying those aged 17-64 or 18-64 in the productive population, but for virtually every country the census data that are necessary for calculating the dependency indexes are provided for five-year age groups so that the only real choice involved is the placement of persons aged 15-19. For present purposes, it is assumed that

1. For a discussion of the use of data on dependency burdens for evaluating «overpopulation», see David R. Kamerschen, «On an Operational Index of 'Overpopulation'», *Economic Development and Cultural Change*, Vol. XIII (January, 1965), pp. 169-187.

sufficient numbers of those in this age group are producers to justify their inclusion in that category. Similarly, some of those younger than age 65 are not producers and many aged 65 and over still fall into the producer class, especially in societies or parts of societies in which financial limitations make retirement impossible. In this case, too, a sufficient number aged 65 and over actually can be found to be dependent to warrant their placement in this group, but the somewhat arbitrary nature of the classification of both the young and the elderly is acknowledged.[1] Moreover, use of the dependency ratio carries the implicit assumption that the support burden is distributed evenly among those aged 15-64, which is not the case in any society. Nor does the index make allowance for the levels of living at which the support burden is carried in various societies.[2] Nevertheless, the dependency ratio does facilitate useful comparisons between large numbers of populations that would not yet be possible if greater refinement of the index were mandatory. Variations in it as presented here, however, should not be taken as representing differences in levels of living.[3]

The overall dependency ratios in this paper are presented with the subdivisions «youth dependency ratio» and «old age dependency ratio.» The former is the number of persons aged 0-14 per 100 producers (aged 15-64) and the latter is the number of persons aged 65 and over per 100 producers. The separation is especially important in assessing trends, for in some populations in which the youth dependency ratio is increasing, the old age ratio is declining; in others where the old age ratio is rising, the youth dependency ratio is falling. In both cases, the net result often is that virtually no change occurs in the total ratio, thereby obscuring the actual dynamics that are underway. In nearly every society, however, the youth segment makes up the major share of the total dependent population, the aged group the smaller part, although the relative importance of each varies widely according to levels of socioeconomic development, relationships between the two vital rates, the selectivity of international and internal migration, and other factors.

1. For discussions of the dependency ratio and its computation in various forms, see William Petersen, *Population*, New York: Macmillan, 1961, pp. 76-83; Warren S. Thompson and David T. Lewis, *Population Problems* (fifth edition), New York: McGraw-Hill, 1965, pp. 91-93; and Donald J. Bogue, *Principles of Demography*, New York: Wiley, 1969, pp. 154-155.

2. For an excellent discussion of the bearing of consumption norms and labor force participation on dependency ratios, see Ephraim Kleiman, «A Standardized Dependency Ratio», *Demography*, Vol. 4 (1967), pp. 876-893.

3. Kleiman, *op. cit.*, p. 892.

dependency burdens at most recent censuses

This section of the paper deals with the dependency situation as it existed in various countries at their most recent enumerations. Most of these counts were made in the early 1960's, some later in that decade, and a few in 1970. The total dependency situations for all countries for which data are available are shown in Figure 1. No estimates have been employed, although relatively reliable ones for years later than the most recent enumerations are available for some of the countries.

At the last census, 98 of these countries had one million or more inhabitants. They may be grouped according to three categories of overall dependency ratios. «High» ratios are those 90.0 and above, «medium» are those 60.0-89.9, and «low» are those 59.9 and below.

High Dependency Ratios

Twenty-seven countries have dependency ratios of 90.0 or more. They include four in North Africa (Algeria, Libya, Morocco, and Tunisia), five in Tropical and Southern Africa (Ghana, Kenya, Malawi, the African population of Southern Rhodesia, and Togo), seven in Middle America (Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, and Nicaragua), four in South America (Colombia, Ecuador, Paraguay, and Venezuela), three in Southwest Asia (Iraq, Jordan, and Syria), two in South Central Asia (Iran and Pakistan), and two in Southeast Asia (Sarawak and the Philippines). None of the populations of Northern America, East Asia, Europe, Oceania, or the Soviet Union falls into this category, although any analysis for Asia is necessarily limited by the fact that data for Mainland China are unavailable.

The 10 countries with the highest dependency ratios appear in Table 1. So «youthful» are these populations that in each of them the aged group makes up less than one-tenth of the total dependent population. The 27 countries with the greatest support burdens have a median ratio for the entire dependent population of 99.4, a median youth ratio of 92.1, and a median old age ratio of 7.1. Clearly, the youth support burden is of overwhelming significance as compared with the burden for the aged in generating the total dependency situations of these populations. Virtually all of them are «underdeveloped» or «developing» nations and all either are experiencing substantial reductions in rates of mortality or have done so in the recent past, the principal result of which is an increase in the proportion of children because of a lowering of infant mortality without a correspondingly great decrease in the mortality level of

FIGURE 1. *Dependency Ratios for All of the World's Countries for Which Data Are Available, Latest Census*

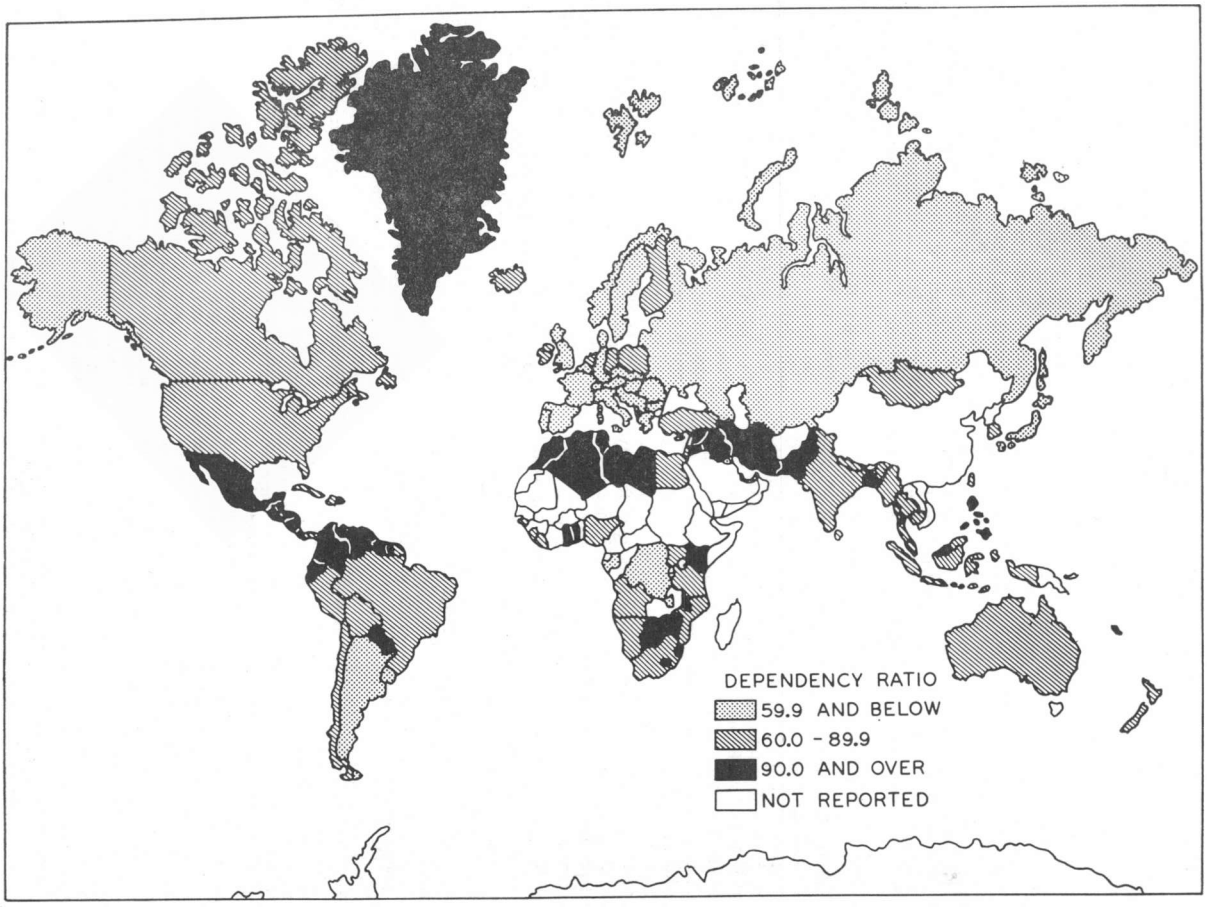

TABLE 1. *Ten Countries with the Highest Dependency Ratios, Latest Census.*

Country	Year	Dependency ratio Total	Youth	Old Age
Iraq	1965	113.4	102.5	10.9
Algeria	1966	106.7	97.7	9.1
Costa Rica	1963	106.6	100.1	6.6
Nicaragua	1963	104.8	98.8	6.0
Togo	1958-60	104.3	96.0	8.4
Syria	1960	104.2	94.5	9.7
Honduras	1961	101.1	96.1	4.9
Dominican Republic	1960	101.0	95.1	6.0
Kenya	1962	100.8	93.0	7.8
Southern Rhodesia (Africans)	1969	100.3	96.2	4.1

Source: various issues, United Nations, «Demographic Yearbook».

adults.[1] In the bulk of the countries, according to the limited data on vital rates that are available, fertility remained relatively stable at a high level during the most recent intercensal periods. In three (Algeria, the Dominican Republic, and Pakistan) it rose slightly, and in four (Jordan, Guatemala, Mexico, and Paraguay) it declined somewhat.[2] In all cases for which the data on vital processes are reasonably reliable, however, it is the precipitous decline in infant mortality rates coupled with relatively high fertility levels that has had the most profound influence on the dependency pattern in these populations,[3] causing them to become more «youthful» and to make child care a more costly concern than care for the aged.[4]

1. For a discussion of the relationship between levels of development and dependency burdens, see Bogue, *op. cit.*, pp. 155-156.

2. United Nations, *Demographic Yearbook, 1969*, New York: United Nations, 1970, pp. 256-275, Table 12. An evaluation of the quality of the data on fertility appears in Lee-Jay Cho, «Estimated Refined Measures of Fertility for All Major Countries of the World», *Demography*, Vol. 1 (1964), pp. 359-374.

3. United Nations, *Demographic Yearbook, 1966*, New York: United Nations, 1967, pp. 280-295, Table 14.

4. It should be made clear that reductions in the death rate have different degrees of impact at various points in the age profile, depending upon how the reductions vary for particular age groups. Thus, decreases in mortality rates where fertility levels remain high are likely to be greatest among infants, thereby allowing higher proportions of them to survive and causing the population to become more «youthful». The «aging» of a population generally depends upon low fertility and low mortality over a relatively long period of time so that as infant mortality is reduced close to the minimum, additional reductions in the overall death rate are reflected in greater life expectancy and an aging population. In general, though, fertility levels have greater impact on the dependency situation than do mortality levels. See George J. Stolnitz, «Mortality Declines and Age Distributions», *Milbank Memorial Fund Quarterly*, Vol. 34 (1956), pp. 178-215; Vasilios G. Valaoras, «Young and Aged Populations», *Annals of the American Academy of Political and Social Science*, Vol. CCCXVI (March, 1958), pp. 69-83; Nathan Keyfitz, «Changing Vital Rates and Age Distributions», *Population Studies*, Vol. XXII (July, 1968), pp. 235-251; and David M. Heer, *Society and Population*, Englewood Cliffs: Prentice-Hall, 1968, pp. 80-86. Moreover, there appears to have been a closer correlation between increases in socioeconomic development and decreases in mortality rates prior to 1940 than there is at present, essentially because many of the «underdeveloped» nations have been able to adopt specific death-control technology without promulgating fullscale development programs. See Kingsley Davis, «The Amazing Decline of Mortality in Underdeveloped Areas», *American Economic Review* (May, 1956), pp. 305-318; Petersen, op. cit., p. 468; and Robert H. Weller and David F. Sly, «Modernization and Demographic Change», *Rural Sociology*, Vol. 34 (September, 1969), p. 319.

Medium Dependency Ratios

Forty-four populations exhibited in their latest censuses, dependency ratios classified as «medium» (60.0-89.9). They include one in North Africa (the United Arab Republic), eight in Tropical and Southern Africa (Angola, Liberia, Mozambique, Nigeria, Sierra Leone, South Africa, Tanzania, and Uganda), two in Northern America (Canada and the United States), five in Middle America (Cuba, Haiti, Jamaica, Panama, and Puerto Rico), four in South America (Bolivia, Brazil, Chile, and Peru), two in Southwest Asia (Israel and Turkey), three in South Central Asia (Ceylon, India, and Nepal), seven in Southeast Asia (Burma, Cambodia, Indonesia, Sabah, Singapore, Thailand, and West Malaysia), three in East Asia (Taiwan, Hong Kong, and the Republic of Korea), three in Northern Europe (Finland, Ireland, and Northern Ireland), one in Western Europe (the Netherlands), two in Eastern Europe (the Democratic Republic of Germany and Poland), one in Southern Europe (Albania), and two in Oceania (Australia and New Zealand). Taken together, these countries had median total, youth, and old age ratios of 77.7, 71.2, and 6.5, respectively.

The «medium» countries are of two distinct types with respect to the components of their overall dependency burdens. The first group is made up of those whose youth ratios are relatively high but whose old age ratios are low. For this category the median youth ratio is 72.5 and the median old age ratio is only 6.0. Some 33 populations fall into this group, concentrated largely in Africa, Asia, and Latin America. Most of them have experienced drastic reductions in mortality and about half are undergoing important decreases in fertility as well. In about one-third, fertility levels remained relatively constant in the most recent intercensal periods, and in a few they decreased.

The second «medium» group is made up of 11 countries which have fairly low youth ratios but high old age indexes. The medians are 50.6 and 14.1, respectively. Most of them are located in Northern America, Europe, and Oceania. They, of course, have experienced low death rates and low birth rates for

sufficient periods of time so that the elderly have become increasingly large segments of their total populations. Also, it appears that these countries are sufficiently sophisticated in the control of mortality so that additional reductions in the death rate probably will produce what Keyfitz calls «neutral change,»[1] that is, decreases that are distributed sufficiently evenly over the age groups to produce no important change in the age profile. The fact that they have undergone fertility control to an appreciable extent also makes their youth ratios comparatively low. Moreover, even though low mortality rates among the young tend to offset this somewhat by raising the ratios, in most of these populations no reductions in infant and youth mortality comparable to those that occurred earlier are likely, so that the principal result of additional decreases in mortality will be to raise the proportions of the producers and the elderly.[2]

TABLE 2. *Ten Countries with the Lowest Dependency Ratios, Latest Census*

Country	Year	Dependency ratios		
		Total	Youth	Old Age
West Berlin	1961	45.1	18.9	26.2
Japan	1965	46.8	37.6	9.2
Bulgaria	1965	48.0	35.3	12.7
Sweden	1965	50.6	31.2	19.4
Switzerland	1960	50.8	35.4	15.4
Romania	1966	51.2	39.4	11.8
Italy	1961	51.6	37.2	14.5
Hungary	1963	51.9	37.2	14.6
Greece	1961	52.0	39.7	12.4
Austria	1961	53.2	34.3	18.9

Source: various issues, United Nations, «Demographic Yearbook».

Low Dependency Ratios

The most recent enumerations of 27 countries reported total dependency ratios that may be designated as «low» (59.9 and below). They include the non-African populations of two in Southern and Tropical Africa (the Democratic Republic of the Congo and Southern Rhodesia), two in South America (Argentina and Uruguay), one in East Asia (Japan), five in Northern Europe (Denmark, Norway, Sweden, England and Wales, and Scotland), five in Western Europe (Austria, Belgium, France, the Federal Republic of Germany, and Switzerland), six in Eastern Europe (Bulgaria, Czechoslovakia, East and West Berlin, Hungary, and Romania), five in Southern Europe (Greece, Italy, Portugal, Spain, and Yugoslavia), and the Soviet Union. None of the countries in North Africa, Northern America, and Middle America falls into this class; in all of Asia only Japan qualifies for inclusion.

The 10 countries with the lowest overall dependency ratios are shown in Table 2. They are «aging» populations in the sense that in all of them the elderly constitute at least one-fifth of the total dependent group. These populations with low total dependency ratios have a median youth ratio of only 36.3 but an average old age index of 14.5. The only population of the 98 under consideration that has an old age dependency ratio higher than that for youth falls in this group, namely West Berlin in which the indexes are 26.2 and 18.9, respectively. All of the societies in the «low» group long have enjoyed extremely low if slightly fluctuating death rates, both for infants and older persons, and have learned to apply rational controls to fertility so that levels of reproduction also are low, although in the latest intercensal periods they vacillated to the degree that the birth rates declined in about one-third of the countries, remained stable in another one-third, and rose slightly in the last one-third. The net result in most of these places is an age profile in which total and youth dependency ratios tend to be relatively low and old age ratios comparatively high.

rural-urban differences

The available materials make it possible to evaluate the dependency situations separately for the rural and urban populations of 67 countries, but in the interest of space and because the definitions of rural and urban differ widely, only some general observations appear here. In virtually every case, overall dependency burdens are greater for the rural than for the urban segments. In all of the countries taken together, the median ratios for the urban and rural populations are 69.3 and 86.6, respectively. The relative importance of the two component ratios of the overall index, however, varies considerably. In the urban portions of these populations collectively, the youth dependency ratio is 61.0 and in the rural segments it is 79.9. The old age ratios for the urban and rural groups are 7.4 and 8.8, respectively.Thus, in the rural group as a whole, on the average, the producing population must carry the responsibility for a 31 per cent larger share of children and a 19 per cent larger share of the elderly than is the case in the urban segment.[3] Both the rural and the urban situations arise in part from the tendency for birth

1. Keyfitz, *op. cit.*, pp. 235 and 246-251.

2. See Kingsley Davis,«Population and Welfare in Industrial Societies», *Population Review*, Vol. 6 (January, 1962), p. 27.

3. This is an oversimplification in the sense that the dependency burden in any residence category does not fall exclusively upon its productive members but is carried in part by the total productive population of the nation.

rates to be higher in rural than in urban populations and from the age selectivity that inheres in the pattern of rural-to-urban migration in many societies. That is, the rural areas, especially the farms, tend to lose relatively high proportions of young adults but to retain more than their fair shares of children and the aged. In some instances, the rural areas even serve as the destinations for those 65 and over who migrate from urban centers upon retirement.[1]

In general, however, whether rural or urban segments are under consideration, the so-called «developed» areas carry relatively small support burdens for children but large ones for the aged; whereas in the «underdeveloped» and «developing» areas the heavy dependency burden is made up largely of children and disproportionately small numbers of the aged. Thus, youth ratios in both urban and rural populations are considerably higher in most of the countries of Africa, Asia, and Latin America than they are in those of North America, Europe, Oceania, and the Soviet Union. On the other hand, old age ratios tend to be relatively low in both residential segments of the nations of Africa, Asia, and Latin America but comparatively high in those of the other four great regions. In fact, in some of the latter countries, urban centers that attracted large numbers of young adults at the peak of their great rural-to-urban flows now find themselves made up increasingly of older people as the migrants age. For example, in the United States, in 1970, the support burden for the elderly was such that old age dependency ratios in the urban and rural populations were 14.9 and 15.6, respectively. Other cases in which old age ratios in the urban populations were 15.0 or higher are Denmark, France, Ireland, Norway, Sweden, England and Wales, Northern Ireland, Scotland, and New Zealand. In all of these instances, the rural-urban differences are minor and in a few the urban ratios even exceed the rural slightly.[2]

On an individual basis, the pattern in 61 of the 67 countries is for youth ratios to be higher in the rural than the urban populations. The only exceptions are the United Arab Republic, Cambodia, East Malaysia (Sabah and Sarawak), Ireland, and Sweden. In 15 of the countries the old age ratios are higher in the urban populations than in the rural. They are Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Uruguay, Hong Kong, Sabah, Norway, Scotland, Australia, and New Zealand. In the remaining 52 populations, old age ratios are higher in the rural than the urban segments although the percentage difference is generally less than is the case for the youth ratio; the proportion of the elderly in most of these populations is comparatively small.

changes in support burdens

It is possible to ascertain changes in total, youth, and old age dependency burdens during the most recent intercensal periods for 76 countries with one million or more inhabitants.[3] These changes are shown in Table 3, which includes total dependency ratios and those for youth and old age for the two most recent censuses for which materials are to be had. Included also are the percentage changes that have occurred in the three types of ratios.

Increases in Dependency Ratios

The most important fact emerging from the study of changes is that the support burden has become heavier in the great majority of the populations considered. Thus, total dependency ratios have risen in 59 of the 77 populations and have declined in only 18. The increases range from a high of 107.6 per cent in Hong Kong to a low of 0.1 per cent in the Federal Republic of Germany. The median change in all of the countries taken together is an increase of 8.5 per cent in total dependency ratios, one of 8.1 per cent in youth ratios, and one of 12.5 per cent in old age ratios. These figures are, of course, the net result of decreases in some countries and increases in others. If one considers only the countries whose ratios of various types rose, the situation is as follows: total ratios increased in 59 populations, producing a median rise of 11.6 per cent; youth ratios increased in 55 populations for a median rise of 11.7 per cent; and old age ratios rose in 62 populations to generate a median increase of 14.5 per cent.

In most of the 77 populations for which changes have been assessed, larger numerical increases took

1. For fuller accounts of variations in age composition by residence, see T. Lynn Smith and Paul E. Zopf, Jr., *Principles of Inductive Rural Sociology*, Philadelphia: F.A. Davis, 1970, pp. 50-54; and Dale E. Hathaway, J. Allan Beegle, and W. Keith Bryant, *People of Rural America* (A 1960 Census Monograph), Washington: Government Printing Office, 1968, pp. 42-68. For observations on age selectivity of migration, see Calvin L. Beale, «Rural Depopulation in the United States: Some Demographic Consequences of Agricultural Adjustments», *Demography*, Vol. 1 (1964), p. 269.

2. The data do not allow separate analyses to be made for suburban parts of these societies although the aged tend to be underrepresented there. See Erdman Palmore and Frank Whittington, «Trends in the Relative Status of the Aged», *Social Forces*, Vol. 50 (September, 1971), p. 89. Cf. Robin J. Pryor, «Defining the Rural-Urban Fringe», *Social Forces*, Vol. 47 (December, 1968), p. 206.

3. The population of Southern Rhodesia is subdivided into «African» and «non-African», thereby bringing the total number of populations studied to 77.

TABLE 3. *Dependency Ratios for 77 Populations of One Million or More for Which Data Are Available at the Two Most Recent Censuses*

Country	Intercensal period	Youth dependency ratio			Old age dependency ratio			Total dependency ratio		
		Former year	Latter year	Per cent change	Former year	Latter year	Per cent change	Former year	Latter year	Per cent change
North Africa:										
Algeria	1954-66	78.4	97.7	24.5	5.5	9.1	65.1	84.0	106.7	27.1
Libya	1954-64	68.0	85.4	25.5	10.9	9.9	— 8.8	78.9	95.4	20.8
Morocco	1952-60	74.0	86.1	16.4	6.5	7.8	19.9	80.5	93.9	16.7
Tunisia	1956-66	75.0	92.4	23.1	8.6	7.1	—17.8	83.7	99.4	18.9
United Arab Republic	1947-60	64.7	79.5	22.9	5.3	6.5	22.6	70.0	86.0	22.9
Tropical & Southern Africa:										
Angola	1950-60	67.6	74.8	10.6	4.9	4.6	—5.5.	72.5	79.4	9.5
Democratic Republic of the Congo (non-Africans)	1952-58	37.3	48.6	30.4	1.8	1.7	—4.9	39.1	50.3	28.7
South Africa	1951-60	66.0	71.5	8.3	7.1	6.9	—3.1	73.1	78.4	7.2
Southern Rhodesia										
(Africans)	1962-69	90.9	96.2	5.8	4.1	4.1	—0.2[a]	95.0	100.3	5.6
(non-Africans)	1961-69	54.2	47.2	—12.8	6.9	8.1	17.8	61.1	55.4	—9.4
Northern America:										
Canada	1961-66	58.1	55.5	— 4.5	13.1	13.0	—0.8	71.2	68.4	—3.8
United States	1960-70	52.2	46.2	—11.3	15.5	16.0	3.4	67.6	62.3	—7.9
Middle America:										
Costa Rica	1950-63	79.0	100.1	26.6	5.3	6.6	23.7	84.4	106.6	26.4
Cuba	1943-53	58.7	61.2	4.2	5.5	7.2	31.0	64.2	68.3	6.5
Dominican Republic	1950-60	84.5	95.1	12.4	5.4	6.0	9.7	90.0	101.0	12.3
El Salvador	1950-61	73.7	86.1	16.9	5.3	6.1	15.5	79.0	92.2	16.8
Guatemala	1950-64	76.5	90.0	17.7	4.5	5.4	21.5	80.9	95.4	17.9
Honduras	1950-61	73.2	96.1	31.3	7.2	4.9	—31.4	80.4	101.1	25.7
Jamaica	1943-60	61.7	75.5	22.3	7.1	7.9	12.5	68.8	83.4	21.3
Mexico	1960-70	85.1	92.3	8.5	6.6	7.4	12.8	91.7	99.7	8.8
Nicaragua	1950-63	80.4	98.8	22.9	5.3	6.0	13.0	85.6	104.8	22.3
Panama	1950-60	75.4	82.0	8.6	5.9	6.6	12.7	81.3	88.6	8.9
Puerto Rico	1960-70	81.9	64.2	—21.7	10.0	11.5	14.9	91.9	75.6	—17.7
South America:										
Argentina	1947-60	47.3	48.3	2.4	6.0	8.9	47.9	53.3	57.3	7.5
Brazil	1950-60	75.2	78.4	4.3	4.4	5.0	13.2	79.6	83.4	4.8
Chile	1952-60	63.7	70.7	11.0	6.8	7.7	12.6	70.5	78.3	11.1
Colombia	1951-64	78.4	92.6	18.2	5.8	6.0	3.3	84.1	98.6	17.2
Ecuador	1950-62	78.6	86.9	10.5	6.6	6.2	—5.6	85.2	93.1	9.3
Paraguay	1950-62	83.3	91.4	9.7	7.1	7.7	9.0	90.4	99.1	9.6
Peru	1940-61	78.5	81.9	4.4	8.0	7.2	—10.3	86.5	89.1	3.0
Venezuela	1950-61	75.8	88.5	16.7	4.8	5.1	6.3	80.6	93.6	16.1
Southwest Asia:										
Iraq	1957-65	89.9	102.5	14.1	10.2	10.9	6.8	100.1	113.4	13.3
Israel	1948-61	42.6	61.4	44.3	5.9	8.9	51.2	48.4	70.3	45.1
Turkey	1960-65	74.7	77.6	3.8	6.4	7.3	14.5	81.1	84.9	4.7
South Central Asia:										
Ceylon	1953-63	69.9	76.4	9.3	6.2	6.6	7.0	76.1	83.0	9.1
India	1951-61	63.5	73.4	15.6	6.1	5.5	—13.8	69.6	78.9	13.4
Iran	1956-66	78.3	92.1	17.6	7.4	7.7	4.6	85.7	99.8	16.5
Southeast Asia:										
Malaysia (East)										
Sabah	1951-60	67.6	80.2	18.6	3.5	4.0	15.1	71.2	84.3	18.4
Sarawak	1947-60	68.9	84.7	22.8	5.4	5.8	6.5	74.3	90.4	21.7
Philippines	1948-60	83.8	88.6	5.7	6.0	5.3	—11.7	89.8	93.9	4.5
Singapore	1957-70	77.8	67.0	—13.8	3.9	5.8	48.2	81.7	72.8	—10.9
Thailand	1947-60	76.8	80.0	4.2	4.7	5.2	10.7	81.5	85.2	4.5

(continued)

TABLE 3. *Dependency Ratios for 77 Populations of One Million or More for Which Data Are Available at the Two Most Recent Censuses* *(continued)*

Country	Intercensal period	Youth dependency ratio			Old age dependency ratio			Total dependency ratio		
		Former year	Latter year	Per cent change	Former year	Latter year	Per cent change	Former year	Latter year	Per cent change
East Asia:										
China (Taiwan)	1956-66	82.8	79.9	—3.5	4.6	4.8	3.9	87.4	84.7	—3.1
Hong Kong	1931-61	34.6	72.2	108.8	2.6	5.0	92.3	37.2	77.2	107.6
Japan	1960-65	46.8	37.6	—19.6	8.9	9.2	3.6	55.7	46.8	—15.9
Republic of Korea	1960-66	80.4	81.8	1.7	6.1	6.2	2.0	86.4	88.0	1.8
Northern Europe:										
Denmark	1960-65	39.0	36.7	—6.0	16.6	17.6	6.6	55.6	54.3	—2.2
Finland	1950-60	47.3	48.2	1.9	10.4	11.8	13.0	57.8	60.0	4.0
Ireland	1961-66	54.0	54.2	0.5	19.4	19.5	0.4	73.3	73.7	0.5
Norway	1950-60	37.0	41.0	10.9	14.6	17.6	20.8	51.6	58.6	13.7
Sweden	1960-65	33.3	31.2	—6.4	18.1	19.4	7.1	51.5	50.6	—1.8
United Kingdom										
England and Wales	1951-61	33.1	35.2	6.4	16.5	18.3	11.0	49.6	53.6	7.9
Northern Ireland	1951-66	44.2	49.3	11.7	15.8	17.6	11.4	59.9	66.9	11.6
Scotland	1951-61	37.6	40.7	8.1	15.2	16.7	9.7	52.9	57.4	8.5
Western Europe.:										
Austria	1951-61	34.4	34.3	—0.3	15.9	18.9	19.0	50.3	53.2	5.8
Belgium	1947-61	30.0	37.3	24.4	15.6	19.1	22.9	45.5	56.4	23.9
France	1962-68	39.6	37.8	—4.5	20.1	21.4	6.4	59.6	59.1	—0.8
Germany, Federal Republic	1950-61	35.1	32.8	—6.4	13.8	16.1	16.4	48.9	48.9	0.1[a]
Netherlands	1947-60	46.0	50.6	9.9	11.2	15.1	35.1	57.2	65.6	14.8
Switzerland	1950-60	35.2	35.4	0.5	14.4	15.4	7.1	49.6	50.8	2.4
Eastern Europe:										
Bulgaria	1956-65	40.1	35.3	—12.0	10.9	12.7	16.4	51.0	48.0	—5.9
Czechoslovakia	1950-61	38.0	42.6	12.0	11.7	13.7	17.0	49.7	56.3	13.2
Germany, Democratic Republic	1950-64	34.9	39.1	11.9	15.6	23.4	49.4	50.4	62.4	23.5
East Berlin	1950-64	26.0	30.4	16.8	19.3	25.7	33.3	45.4	56.2	23.8
West Berlin	1950-61	25.4	18.9	—25.6	17.7	26.2	48.0	43.1	45.1	4.6
Hungary	1960-63	38.7	37.3	— 3.5	13.6	14.6	7.3	52.3	51.9	—0.7
Poland	1950-60	45.9	56.2	22.4	8.3	9.9	19.2	54.2	66.0	21.9
Romania	1956-66	41.6	39.4	— 5.5	9.6	11.8	22.7	51.3	51.2	—0.2
Southern Europe:										
Albania	1950-55	70.2	71.2	1.4	11.4	11.2	—2.4	81.6	82.4	0.9
Greece	1951-61	43.6	39.7	—9.0	10.6	12.4	17.1	54.2	52.0	—3.9
Italy	1951-61	40.2	37.2	—7.7	12.6	14.5	14.6	52.9	51.6	—2.4
Portugal	1950-60	46.4	46.4	b	11.0	12.7	15.4	57.4	59.1	2.9
Spain	1950-60	39.4	42.6	8.0	10.9	12.8	17.9	50.3	55.4	10.2
Yugoslavia	1953-61	47.9	49.7	3.6	9.4	9.9	5.1	57.3	59.6	3.9
Oceania:										
Australia	1961-66	49.4	47.3	—4.2	13.9	13.8	—1.0	63.2	61.0	—3.5
New Zealand	1961-66	56.8	55.2	—2.8	14.8	14.1	—4.9	71.6	69.3	—3.2
USSR	1959-70	53.4	44.6	—16.5	10.2	12.0	17.9	63.6	56.6	—11.0

Sources: compiled and computed from data in various issues, United Nations, «Demographic Yearbook».

a. Carried to two decimal places.

b. Less than 0,1 per cent change.

place among children than among the aged, although there are some exceptions in which the absolute numbers of children increased less than the numbers of the elderly. These are the United States, France, West Germany, Greece, Portugal, Romania, and the Soviet Union. In addition, the numbers of children actually decreased in Southern Rhodesia (non-Africans), Puerto Rico, Japan, Austria, Bulgaria, Denmark, East Germany, East and West Berlin, Hungary, Italy, and Sweden. This occurred as more older children moved into the category of producers than infants were born to replenish the ranks of those aged 0-14. In many populations, especially those of Europe, the patterns of change are such that increases in total dependency ratios were more the result of growth in numbers and proportions of the elderly than of children. In fact, in the periods under study, only Tunisia and Honduras failed to report increases in the absolute numbers of the elderly.

The magnitude of increase in support burdens varies considerably among the countries studied. On the basis of percentages of increase, the 59 countries with expanding support burdens may be grouped as follows: «high» (increases above 14.9 per cent), «medium» (7.5-14.9 per cent), and «low» (0.1-7.4 per cent).

In the group of 23 populations with «high» rates of increase are five in North Africa (Algeria, Libya, Morocco, Tunisia, and the United Arab Republic), one in Tropical and Southern Africa (non-Africans in the Democratic Republic of the Congo), six in Middle America (Costa Rica, El Salvador, Guatemala, Honduras, Jamaica, and Nicaragua), two in South America (Colombia and Venezuela), one in Southwest Asia (Israel), one in South Central Asia (Iran), two in Southeast Asia (Sabah and Sarawak), one in East Asia (Hong Kong), one in Western Europe (Belgium), and three in Eastern Europe (East Germany, East Berlin, and Poland). In 17 of the 23, youth ratios increased at a greater rate than did those for the aged. Those in which percentage increases were greater for old age ratios are Algeria, Morocco, Guatemala, Israel, East Germany, and East Berlin. Only the last two populations had old age ratios that exceeded 6.5 in the first census year so that in most cases in which high proportional growth was registered in old age ratios, the initial figure was quite low. The median increase in youth ratios was 22.8 per cent, that in old age ratios was 15.5 per cent. In no case did youth ratios decrease but in four instances (Libya, Tunisia, non-Africans in the Democratic Republic of the Congo, and Honduras) old age ratios declined, which generally reflects a more rapid rate of growth in both the youth and producer populations than in the aged segment. Thus, the prevailing pattern in the populations with high rates of intercensal increase in total ratios involves more substantial increases in the support burden for youth than for the elderly. In most cases, these are nations with relatively high fertility levels but decreasing mortality rates, a major effect of which is to reduce infant and child mortality and to add relatively large numbers of those aged 0-14 to the population.

In the group of 18 populations with «medium» rates of increase in total dependency ratios are one in Tropical and Southern Africa (Angola), three in Middle America (the Dominican Republic, Mexico, and Panama), four in South America (Argentina, Chile, Ecuador, and Paraguay), one in Southwest Asia (Iraq), two in South Central Asia (Ceylon and India), four in Northern Europe (Norway, England and Wales, Northern Ireland, and Scotland), and one each in Western Europe (the Netherlands), Eastern Europe (Czechoslovakia), and Southern Europe (Spain). In eight of the 18, youth ratios increased at a faster rate than did old age ratios. Those in which percentage increases were greater for the aged than for youth are Mexico, Panama, Argentina, Chile, Norway, England and Wales, Scotland, the Netherlands, Czechoslovakia, and Spain. The median increase in youth ratios of the 18 populations was 10.2 per cent, that in old age ratios was 11.2 per cent. In no case did youth ratios decrease among these populations but in three (Angola, Ecuador, and India) the old age ratios dropped. These three cases also are experiencing fairly rapid increases in their populations aged 15-64 as many older children move into this category, but they have not yet undergone sufficient transformation in their fertility and mortality situations for relatively large percentages to have moved into the group aged 65 and over.

Most of the other countries with «medium» rates of increase in total ratios tend to be in two areas: (1) Middle and South America where fertility levels in several countries have begun to come down substantially so that the rate of increase of the population aged 0-14 is declining but whose aged populations are still relatively small; and (2) Europe where many countries have long been accustomed to low levels of fertility and mortality so that their aged are an increasingly large share of the total.

Finally, in the group of 18 populations with «low» rates of increase in total dependency ratios are two in Southern and Tropical Africa (South Africa and the African segment in Southern Rhodesia), one in Middle America (Cuba), two in South America (Brazil and Peru), one in Southwest Asia (Turkey), two in Southeast Asia (the Philippines and Thailand), one in East Asia (South Korea), two in Northern Europe (Finland and Ireland), three in Western Europe (Austria, West Germany, and Switzerland), one in East-

ern Europe (West Berlin), and three in Southern Europe (Albania, Portugal, and Yugoslavia). In only six of the 18 did youth ratios increase at a greater rate than old age ratios. The six are South Africa, the African population of Southern Rhodesia, Peru, the Philippines, Ireland, and Albania. The median increase in youth ratios of the 18 populations was only 2.7 per cent; that in old age ratios was 8.9 per cent. In four cases (Austria, West Germany, West Berlin, and Portugal) youth ratios decreased and in five (South Africa, Africans in Southern Rhodesia, Peru, the Philippines, and Albania) the old age indexes declined. This group of 18 countries also includes one segment whose fertility levels are declining to the extent that smaller percentages of children are being added to the population than formerly but whose increase in life expectancy for adults has not been large enough for a sufficient period of time to expand the elderly group greatly. It includes another segment in which both vital rates have been under control long enough for the aged to have become a relatively large share of the total. These countries have much in common with the group whose dependency ratios have decreased, discussed below. Finally, the group includes a few countries with comparatively high rates of infant mortality so that the largest proportional additions of children to their populations probably have yet to be made.

Decreases in Dependency Ratios

As indicated above, overall dependency ratios decreased in 18 of the 77 populations studied. The reductions ranged from 17.7 per cent in Puerto Rico to 0.2 per cent in Romania. The median decrease in these 18 countries taken together was 3.8 per cent in total ratios and 6.8 per cent in youth ratios; but in old age ratios the change was a median increase of 7.2 per cent. Clearly, the magnitude of reduction is far more modest than is that of the average increases that took place in the 59 populations whose support burdens expanded in their most recent intercensal periods. Moreover, such reductions as did occur are due to decreases in youth support burdens and took place in spite of increases in those for the elderly. In all 18 cases in which total ratios declined, those for youth did likewise whereas those for old age dropped in only three of the populations. Thus, only in Canada, Australia, and New Zealand were reductions in total dependency ratios, the result being the decreases in both youth and old age indexes. In part, this occurred because in all three countries the ranks of those aged 15-64 were swelled by immigration whereas the youth and elderly groups grew far less by this means. In the remaining 15 populations, the decreases in overall ratios occurred because the youth indexes declined at a greater rate than the old age indexes increased. In some instances, of course, decreases occurred in one of the two component ratios but greater increases took place in the other so that the net result was a rise in the total support burden.

When the two component ratios are studied separately, it is found that youth dependency indexes decreased in 21 populations, with a median reduction of 7.7 per cent. The greatest decrease occurred in West Berlin (25.6 per cent) followed in descending order of decline by Puerto Rico, Japan, the Soviet Union, Singapore, Southern Rhodesia (non-Africans), Bulgaria, the United States, Greece, Italy, Sweden, West Germany, Denmark, Romania, Canada, France, Australia, Hungary, China (Taiwan), New Zealand, and Austria. For the most part, these populations have undergone the transition to low fertility rates and no longer are experiencing any great reductions in infant mortality, essentially because of the low points that already have been reached. This situation is accompanied by either high or increasing life expectancy for all age groups so that the current principal result of overall low fertility and mortality rates is an «aging» of the population. In this connection, it is significant that among the 21 countries with declining youth ratios, old age ratios rose in 18, the median increase being 15.7 per cent. The old age ratios declined only in Canada (0.8 per cent), Australia (1.0 per cent), and New Zealand (4.7 per cent). By and large, these 21 are «developed» nations with high degrees of urbanization and rational control of the vital processes.

The old age support burden decreased in 15 populations in their most recent intercensal periods, producing a median decrease of 5.5 per cent. The greatest reduction occurred in Honduras (31.4 per cent), followed in descending order by Tunisia, India, the Philippines, Peru, Libya, Ecuador, Angola, New Zealand, the Democtatic Republic of the Congo (non-Africans), South Africa, Albania, Australia, Canada, and Southern Rhodesia (Africans). Most of these nations bear little socioeconomic resemblance to the ones in which youth ratios have declined appreciably. With a few exceptions, notably New Zealand, Australia, and Canada, they are «developing» nations in which fertility rates are still relatively high and in which declining mortality has its principal effects among the very young, thereby increasing the proportions of those aged 0-14 without generating correspondingly great increases in the percentages who fall either in the category of producers or that of the aged. So great are the influences of this particular development, that in the most recent intercensal periods, youth dependency ratios increased in 12 of the 15 countries that underwent decreases in old age ratios, the median rise being 10.6 per cent. Once again,

TABLE 4. *Dependency Ratios for 23 Populations of One Million or More for Which Data Are Available at the Two Most Recent Censuses, by Residence*

Country	Intercensal period	Youth dependency ratio			Old age dependency ratio			Total dependency ratio		
		Former year	Latter year	Per cent change	Former year	Latter year	Per cent change	Former year	Latter year	Per cent change
Canada										
Urban	1951-66	53.4	51.7	—3.3	12.7	12.5	—0.4	66.1	64.2	—2.9
Rural	1961-66	70.0	67.2	—4.0	14.0	14.3	2.1	84.0	81.5	—3.0
Costa Rica										
Urban	1950-60	62.4	79.0	26.5	5.1	5.3	5.1	67.5	84.3	24.6
Rural	1950-60	92.7	103.0	11.0	5.6	6.8	12.8	98.3	109.2	11.2
Puerto Rico										
Urban	1960-70	66.9	53.8	—19.6	9.9	10.4	4.8	76.8	64.2	—16.4
Rural	1960-70	95.4	76.6	—19.8	9.4	11.8	25.7	104.8	88.4	—15.7
United States										
Urban	1960-70	49.5	44.5	—10.1	14.9	15.7	5.4	64.4	60.2	—6.5
Rural	1960-70	58.1	51.2	—11.9	15.6	17.0	9.0	73.8	68.2	—7.6
Chile										
Urban	1952-60	55.7	65.0	16.8	6.3	7.4	17.8	62.0	72.5	16.9
Rural	1952-60	77.5	84.1	8.6	7.6	8.2	7.2	85.2	92.3	8.4
Iran										
Urban	1956-66	71.6	84.1	17.5	6.2	6.7	7.9	77.8	90.8	16.8
Rural	1956-66	81.6	97.6	19.6	7.9	8.4	6.2	89.6	106.1	18.4
Iraq										
Urban	1957-65	81.9	98.5	20.2	8.2	9.1	10.4	90.1	107.5	19.3
Rural	1957-65	95.4	106.2	11.3	11.7	13.0	11.1	107.1	119.2	11.3
Japan										
Urban	1960-65	42.0	34.4	—18.1	7.5	7.8	4.1	49.5	42.2	—14.8
Rural	1960-65	56.2	45.3	—19.4	11.7	12.6	8.1	67.8	57.9	—14.7
Republic of Korea										
Urban	1960-66	74.4	69.7	—6.4	3.9	3.8	—1.0	78.3	73.5	—6.1
Rural	1960-66	82.8	88.6	7.0	7.0	7.6	7.6	89.8	96.2	7.1
Bulgaria										
Urban	1956-65	37.7	32.9	—12.9	8.5	9.2	7.6	46.2	42.1	—9.0
Rural	1956-65	41.4	37.6	—9.2	12.2	16.0	31.4	53.6	53.6	a
Denmark										
Urban	1960-65	36.5	33.7	—7.5	17.1	17.4	2.0	53.6	51.1	—4.5
Rural	1960-65	46.7	43.6	—6.6	15.0	18.2	21.4	61.7	61.8	0.2
Finland										
Urban	1950-60	38.2	40.2	5.2	8.7	10.3	17.3	46.9	50.4	7.5
Rural	1950-60	52.2	53.8	3.1	11.3	12.9	13.4	63.5	66.7	5.0
France										
Urban	1962-68	37.7	36.7	—2.6	17.9	19.0	6.0	55.6	55.7	0.1
Rural	1962-68	42.9	40.4	—5.8	24.0	27.3	13.7	66.9	67.7	1.2
Greece										
Urban	1951-61	32.8	33.1	0.8	8.4	10.6	25.4	41.2	43.7	5.8
Rural	1951-61	55.4	49.5	—10.6	12.3	14.8	20.5	67.7	64.3	—5.0
Hungary										
Urban	1960-63	32.7	30.4	—5.4	13.1	13.8	5.4	45.8	44.2	—3.5
Rural	1960-63	42.9	42.8	—0.3	14.0	15.2	8.9	56.9	58.0	1.9
Ireland										
Urban	1961-66	53.5	54.9	2.6	15.3	15.4	0.7	68.8	70.4	2.2
Rural	1961-66	54.4	53.5	—1.5	23.0	23.5	2.1	77.4	77.0	—0.4
Norway										
Urban	1950-60	28.8	32.5	12.9	14.0	17.9	27.9	42.8	50.4	17.8
Rural	1950-60	41.2	45.4	10.0	14.9	17.5	17.3	56.2	62.9	12.0
Romania										
Urban	1956-66	31.4	30.3	—2.8	8.2	9.6	17.5	39.6	39.9	0.8
Rural	1956-66	46.9	45.7	—2.4	10.4	13.4	28.7	57.2	59.1	3.2
Spain										
Urban	1950-60	34.5	39.8	15.4	9.7	11.5	18.8	44.2	51.3	16.2
Rural	1950-60	42.5	44.3	4.3	11.6	13.7	17.6	54.1	58.0	7.2

(continued)

TABLE 4. *Dependency Ratios for 23 Populations of One Million or More for Which Data Are Available at the Two Most Recent Censuses, by Residence* *(continued)*

Country	Intercensal period	Youth dependency ratio			Old age dependency ratio			Total dependency ratio		
		Former year	Latter year	Per cent change	Former year	Latter year	Per cent change	Former year	Latter year	Per cen changet
Sweden										
Urban	1960-65	33.0	31.3	—3.9	16.1	17.2	6.8	49.1	48.5	—1.2
Rural	1960-65	34.2	30.8	—7.8	23.9	27.6	15.4	58.2	58.4	0.4
Northern Ireland										
Urban	1961-66	44.7	47.1	5.5	15.7	17.5	11.3	60.4	64.6	7.0
Rural	1961-66	50.8	51.9	2.2	17.6	17.7	0.1	68.4	69.6	1.7
Australia										
Urban	1961-66	47.4	45.5	—4.0	14.4	14.2	—1.0	61.7	59.7	—3.2
Rural	1961-66	59.8	57.5	—3.8	11.8	11.4	—3.0	71.5	68.9	—3.6
New Zealand										
Urban	1956-61	45.6	50.1	9.9	17.3	17.1	— 0.9	62.9	67.2	7.0
Rural	1956-61	62.6	70.1	12.0	12.7	10.6	—16.5	75.3	80.7	7.2

Sources: compiled and computed from data in various issues, United Nations, «Demographic Yearbook».

[a] Less than 0.1 per cent change.

only Canada, Australia, and New Zealand failed to follow this pattern.

Rural-Urban Variations

Changes in the dependency situations for the rural and urban segments of 23 populations appear in Table 4. Almost all are «developed» countries and the number is relatively small because of the unavailability of data for others. As is the case for most of the 67 populations for which the most current rural-urban contrasts were discussed earlier, in all 23 of those now under consideration, the overall dependency ratios in both of the census years employed were higher in the rural than the urban populations. This relationship between the residence groups holds for youth and the aged in all but a few cases. Specifically, at the most recent census, urban ratios were slightly higher than the rural for youth in two countries (Ireland and Sweden) and for the aged in three (Norway, Australia, and New Zealand).

The typical change in both rural and urban segments is an increase in the total support burden although there have some decreases, two of them substantial (Puerto Rico, 16.4 per cent in the urban group and 15.7 per cent in the rural; Japan, 14.8 per cent in the urban segment and 14.7 per cent in the rural).

In the urban group, 13 of the 23 countries registered intercensal increases in overall dependency ratios. The 10 in whose urban populations the total support burden decreased are Canada, the United States, Puerto Rico, Japan, South Korea, Bulgaria, Denmark, Hungary, Sweden, and Australia. The extremes ranged from an increase of 24.9 per cent in Costa Rica between 1961 and 1966, to a decrease of 16.4 per cent in Puerto Rico between 1960 and 1970. The median change for all 23 urban populations was an increase of 0.8 per cent in total ratios. The small overall increase in the urban group was due far more to increases in the relative importance of the elderly population than of that aged 0-14. Thus, youth ratios increased in 11 of the countries and decreased in 12, producing a median decrease of 2.6 per cent, but the old age ratios rose in 19 of the populations and dropped in only four for a median increase of 6.0 per cent. In fact, the youth ratios ranged from a decrease of 19.6 per cent in Puerto Rico to an increase of 26.5 per cent in Costa Rica, whereas the old age ratios fell between the extremes of a mere 1.0 per cent decrease in Australia and New Zealand and a 27.9 per cent increase in Norway. Only three of the urban populations experienced decreases in all three of the ratios. These are Canada, South Korea, and Australia. In each of them, the proportional reduction in youth ratios was greater than that in old age indexes.

Finally, in a few cases, fluctuations in the dependency burdens in the urban population were the result of decreases in the absolute numbers of persons in the various age categories. In Northern Ireland the number of those aged 15-64 decreased slightly which contributed to the rise in all three types of dependency ratios. The urban groups in Japan, Puerto Rico, Hungary, and Denmark lost numbers of children and the youth dependency ratios declined in each case. In Iran, reductions in the numbers of the urban elderly contributed to the decrease in the old age ratio. In all other cases, the numbers of persons in each of the three broad age categories rose.

Thus, the typical urban pattern among the 23 countries is one of increases in the total dependency bur-

den, principally because of growth in the relative importance of the elderly populations and despite little or no change, on the average, in the proportional significance of those aged 0-14. In this sense, the 23 countries are closely representative of most industrial nations whose patterns of fertility, mortality, and migration (both foreign and internal) favor an «aging» of their population but they almost certainly are not representative of the larger group of «developing» nations in whose urban segments children still tend to weigh relatively heavily. It is to be hoped that the more recent censuses of these nations will report age profiles by residence so that questions relating to the relative importance of the young, the old, and the producers can be answered.

In the rural segments, 15 of the 23 populations under consideration reported intercensal increases in their overall support burdens, seven reflected decreases, and one (Bulgaria) recorded no change. The seven in whose rural populations the total support burden declined are Canada, the United States, Puerto Rico, Japan, Greece, Ireland, and Australia. The extremes were less far apart than in the urban group and ranged from an increase of 18.4 per cent in Iran to a decrease of 15.7 per cent in Puerto Rico. The median change for all 23 rural populations was an increase of only 1.7 per cent in total dependency ratios. As with the urban populations, the overall increase in the rural group was influenced more heavily by increases in the relative importance of the aged than of children. Thus, youth ratios increased in 10 of the countries but dropped in 13, producing a median reduction of 1.5 per cent. The old age ratios rose in 21 of the populations and dropped in only two (Australia and New Zealand) for a median increase of 12.8 per cent. The youth ratios ranged from a decrease of 19.8 per cent in Ireland to an increase of 19.6 per cent in Spain; the old age ratios ranged between the decrease of 16.5 per cent in New Zealand and the increase of 31.4 per cent in Bulgaria. Only Australia experienced decreases in all three of the ratios.

Absolute reductions in numbers of persons in the various age groups were apparent in a much larger number of rural than urban populations. In particular, decreases in the numbers of those aged 15-64 were influential in generating increase in support burdens in some rural populations. For example, the number of producers declined in Chile, Iraq, Finland, Norway, and Spain, thereby contributing to increases in youth, old age, and total dependency ratios in the rural areas. The numbers of producers, youth, and the elderly all decreased in the rural parts of Canada, Japan, France, Ireland, Sweden, and New Zealand with the net result in most cases of decreases in youth support burdens but increases in those for the aged. The numbers of producers and the young declined in Puerto Rico, Bulgaria, and Romania to help generate reductions in youth dependency ratios and increases in old age support burdens in each case. The number of rural youth became smaller in the United States, Greece, and Hungary. This helped to produce reductions in youth ratios which were accompanied by increases in old age support burdens. In most cases in which producers became fewer in the rural areas, it appears that the age selectivity of rural-urban migration is the principal factor involved.

Insofar as overall changes in dependency burdens are concerned, no matter what the dynamics within given populations may be, the rural situation on the whole in these 23 countries is only a slightly different version of the urban. That is, the typical pattern is one of increases in overall dependency burdens, influenced more heavily by greater proportional increases among the elderly than among the young. In turn, the similarity of the two residence situations suggests that both are reflections of national changes and that unlike the condition in many of the «developing» countries, the support burdens in both the urban and rural populations are about equally influenced by controls on fertility and mortality. This further suggests that when socioeconomic development has proceeded relatively far in a society, rural and urban people tend to be affected more or less equally and that the wide demographic differences that often distinguished them previously tend to disappear.

conclusions

The study of support burdens of a large number of the world's countries, as reflected in their total, youth, and old age dependency ratios, has generated the following conclusions:

1. The largest support burdens, found mainly in the so-called «underdeveloped» or «developing» countries, are overwhelmingly made up of children. The aged constitute relatively small parts of the total dependent populations in these societies, which are concentrated largely in Africa, Asia, and parts of Latin America. They generally have high fertility levels and decreasing mortality rates, the chief result of which is to add large numbers of those aged 0-14 to the population.

2. Countries with moderate dependency burdens tend to fall into two groups, namely: (A) that composed «of developing countries in which mortality rates have declined substantially but in which reductions in fertility levels have not kept pace so that the average youth ratio is relatively high and the average old age ratio is relatively low; and (B) the one made up of «developed» or industrialized countries in

which fertility and mortality rates have been low enough long enough to produce comparatively high old age ratios but low ones for youth.

3. The lowest dependency ratios occur in countries with comparatively large proportions of those aged 65 and over but relatively small percentages of children. This is basically the result of fertility and mortality rates that have been comparatively low for some time so that the populations involved may be described as «aging».

4. In nearly every population, dependency ratios are higher in the rural than in the urban segment, both because of the residence differentials in vital rates and the age selectivity of rural-to-urban migration.

5. When levels of socioeconomic development are relatively high and roughly the same in the rural and urban parts of most societies, the differentials in support burdens tend to disappear. This generally occurs because fertility and mortality levels tend to grow more alike for the two groups and because migration from the rural areas tends to slow down. The last situation occurs largely because the great surpluses or rural people eventually are reduced, sometimes close to the vanishing point.

6. In the great majority of countries (77 per cent), the support burdens have grown larger in the most recent intercensal periods. The largest numerical increases have occurred, on the average, among children, but the greater proportional increases have taken place among the elderly. In several cases, the numbers of children actually have decreased but in almost none has the number of the aged declined.

7. In populations with high rates of increase in their total dependency ratios, growth in the numbers of children is largely responsible. In some, the support burdens for the elderly have actually declined as larger percentages of persons have aged from the youth category into the group of producers than have passed from the producing to the elderly group.

8. The countries with moderate rates of increase in overall ratios either are experiencing reductions in fertility and mortality rates in such a way that they have just begun to age or have had low vital rates long enough so that their aged make up a continually growing share of the dependent population, their children a smaller share.

9. Such growth in support burdens as does occur where rates are low, usually is due far more to increases in the proportions of those aged 65 and over than to increases in the percentages of children.

10. Decreases in dependency ratios occurred in a minority of populations (23 per cent). Generally, they are the net result of sharp reductions in youth ratios but increases in old age ratios. Even so, the overall magnitude of decrease in these populations is considerably less than the magnitude of increase in the larger number which experienced the onset of heavier dependency burdens. Most of the societies in which decreases took place have undergone the transition to low fertility and low mortality rates and have passed the point at which mortality reductions tend principally to expand the child population. Their life expectancy is high and they often are «aging» populations.

11. The typical change in both the rural and the urban segments of most populations studied is an increase, although there have been some reductions. This portion of the study had to be limited largely to developed societies which tended to select countries with either decreases or relatively small increases in youth ratios but fairly substantial increases in those for the aged in both their rural and urban populations.

12. In the developed countries, the support burdens in the rural and urban portions seem to be about equally affected by changes in fertility and mortality rates, both in magnitude and in the relative importance of the young and the old in the dependent population. In turn, this suggests that when socioeconomic development has proceeded relatively far, the demographic differences between the rural and urban parts of a society tend to disappear.

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"Thus, whereas we can expect that the industrialized areas of the world will have to support roughly 1.4 to 1.7 billion people a century hence, the underdeveloped world, which today totals around 2.5 billions, will have to support something like 40 billions by that date if it continues to double its numbers approximately every quarter century."

Robert L. Heilbroner, "The Human Prospect" in *The New York Times,* January 24, 1974.