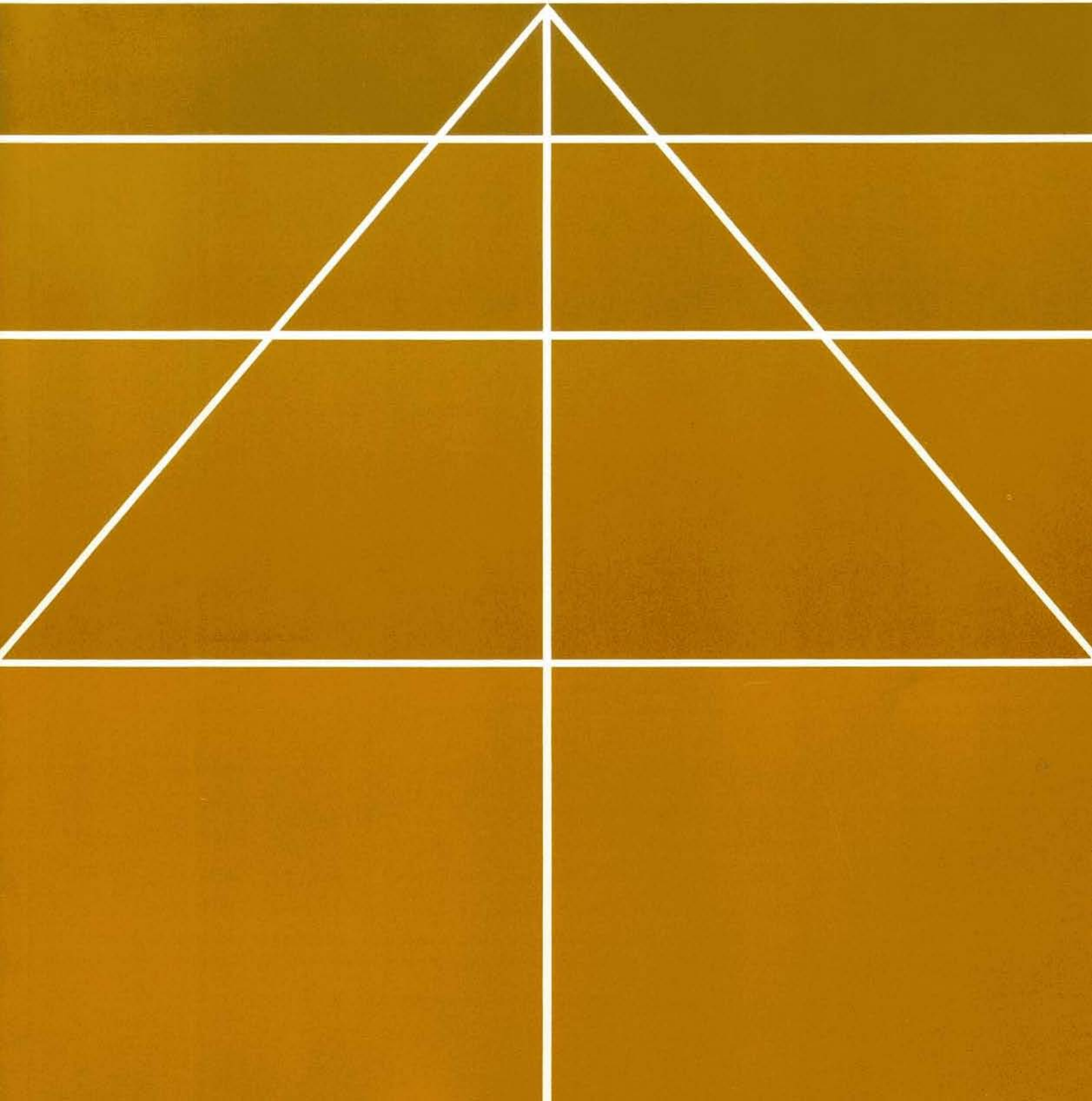
UNITED NATIONS

PATTERNS OF URBAN AND RURAL POPULATION GROWTH



ST/ESA/SER.A/68

Department of International Economic and Social Affairs
POPULATION STUDIES, No. 68

PATTERNS OF URBAN AND RURAL POPULATION GROWTH

UNITED NATIONS
New York, 1980

NOTE

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The designations "developed" and "developing" economies are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process.

The term "country" as used in the text of this publication also refers, as appropriate, to territories or areas.

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

The printing of this volume was made possible by a publications grant from the United Nations Fund for Population Activities

ST/ESA/SER.A/68

UNITED NATIONS PUBLICATION

Sales No. E.79.XIII.9

Price: $U.S. 13.00

CONTENTS

Annexes

LIST OF TABLES

List of figures

Explanatory notes

The following symbols have been used in the tables throughout the report:

Three dots (. . .) indicate that data are not available or are not separately reported;

A dash (—) indicates that the amount is nil or negligible;

A blank in a table indicates that the item is not applicable;

A minus sign (−) indicates a deficit or decrease, except as indicated;

A full stop (.) is used to indicate decimals;

A slash (/) indicates a crop year or financial year, e.g., 1970/71.

Use of a hyphen (-) between dates representing years, e.g., 1971-1973, signifies the full period involved, including the beginning and end years.

Details and percentages in tables do not necessarily add to totals, because of rounding.

Reference to "tons" indicates metric tons, and to "dollars" ($) United States dollars, unless otherwise stated.

I. HISTORICAL BACKGROUND OF URBANIZATION

The world of humans has undergone three great changes in the pattern and organization of settlements, two of them revolutionary. The first great revolution was the transition from hunting and fishing to agriculture, and it occurred in the Neolithic Age. Previously, homeless bands of hunters and gatherers settled down in units and then in groups of dwellings, erected to last longer than a mere season; and even today one can refer to those groups as "villages". This beginning of rural settlement, superseding a condition of no settlement at all, was associated with a comparatively large population increase. Prior to that time, humans, as a whole, could at most have numbered only a few million; but with the adoption of settled agriculture the human population soon reached many dozens of millions.

The second great change—a transition rather than a revolution—was the emergence of what, even by modern standards, can be designated as "cities". It is now generally agreed that this development occurred first in the region of Mesopotamia (currently Iraq) soon after 3500 B.C. The seed of the urban idea was then gradually carried to other parts, notably to the Nile Valley (Egypt), the Indus Valley (Pakistan); and, subsequently, the Hoang-ho Valley (China). The urban development in the western hemisphere (Mexico, Peru) at a later date was perhaps independently inspired by an indigenous achievement, because of the separation by oceans. The origin of the city was related to the gradual discovery that more organized social bodies could carry progress in material welfare to a distinctly more advanced level. To bring organization to a level beyond that attainable with the limited capacity for memory by the human individual, there was a need for record-keeping, a system of writing or at least some substitute (e.g., the many-coloured knotted strings, or *quipus,* which served as records among the Peruvian Incas). Because history also depends upon writing, history itself begins with the establishment of cities. In that phase of historical evolution, down to the beginning of the nineteenth century (i.e., less than 200 years ago)—cities were organizing factors effective in large bodies of society, such as kingdoms and empires, although only small fractions of the combined society could be contained in the cities themselves.

Humans have become increasingly conscious of their ability to induce change, and this self-knowledge has been applied more and more systematically. Therefore, human-induced changes, at first very slow, have had a way of accelerating. The historical phase of "city-organized" civilization referred to above lasted some 5,000 years. Currently, the world is in a new revolutionary phase of human settlement pattern which became conspicuous less than 200 years ago. This new revolution is associated with the modern revolutions of philosophy, science, technology and power-using machinery. The new material instruments available to humans facilitate the absorption by cities of substantial proportions, even majorities, of the populations in many countries. The new technical means, and a further enhancement of organization, have also facilitated the sustenance of thousands of millions of people in place of the hundreds of millions populating the world up to 200 years ago.

But even within the past 200 years—and especially within the past few decades—a further mutation in the conditions of human settlement has occurred, which makes it necessary to distinguish an "early modern" from a "recent modern" period. Modern technology has not been a one-time accomplishment; it is a developing system of ever-increasing powers. Along with these factors, there has also occurred an alteration in political concepts and established political facts. Roughly speaking, from around 1800 to around 1950, much of the world was subject to the rule or tutelage of privileged political powers, many but not all situated in Europe. The exploitative relationship that existed between regions of greatly unequal economic and social development stimulated the rise of urban populations in some parts of the world and elsewhere kept it in narrower bounds. It also brought with it the seeds of explosive population growth. This quite new, or "late modern", phase also finds support in technological systems far more advanced than those which generally characterized the "early modern" period.

A review of this history, and in particular of the most recent historical trends, must acknowledge that cities have changed simultaneously in their quantitative and their qualitative aspects. The concept of "city" must be very broad to encompass the great variety of forms in which cities have appeared in history and currently appear. The current phase of urbanization, quite conceivably, may culminate in new settlement types which will have to be described as "post-urban".

Numerous descriptive criteria can be used to set cities apart from settlements of the rural type. No catalogue of possible descriptions, however, will result in a unique definition of all cities, valid throughout time and space. Principal occupations, physical arrangements, social structures and other features of the population and its environment can vary widely between historical and modern cities, as well as among cities in countries of different levels and forms of economic and social development. In order to find a single feature that can identify all cities, it is necessary to rise to a higher level of abstraction. What really distinguishes any city from other inhabited places is the evidence of a population involved in a great variety of activities and functions. The functions can be of diverse orientation—social, cultural, industrial, commercial, religious, artistic, educational, military, political, or administrative—to mention several that occasionally become rather salient. Not all these functions need to be present in any one city to make it a city. What does set cities apart is rather

the fact that the functions found in them are comparatively numerous.[1]

Multiplicity of functions—this abstract basis of a definition—has many logical consequences which are manifest in most cities to a considerable degree. Once they are manifold, the functions also become interdependent and generate additional functions derived from their mutual relationship. Administration and management, trade, banking, legal advice, accountancy, information services and so forth can be suggested among these derived vocations. As urban functions breed more urban functions, the distinction of cities from their rural surroundings can become greatly sharpened. Most of history is marked by a rather striking contrast between life in the cities and in the surrounding countryside.

Because of interdependence, the multiple functions must be carried out within close reach of one another and must be locally supported by numerous auxiliary services. Because of their demand on the limited capacity of individuals, the functions also depend upon a work force with increasing degrees of specialization. The co-ordination of variously specialized activities gives rise to vertical hierarchies, including an élite, several middle and lower strata and often also a class of outcasts performing the most unpleasant, but yet necessary, tasks. Common interests also produce horizontal combinations, such as craftsmen's guilds, clubs, professional associations and trade unions. The fine gradation of functions and supporting services becomes fully effective only when the local population is rather numerous.

A large populace residing in close proximity produces a high population density, placing a great premium on the economic use of space. As historical cities, furthermore, tended to be confined within a defence perimeter to protect them against attacks, density was further increased. Little local space, therefore, has remained available for purposes of agriculture. Hence, one finds the frequent emphasis on the non-agricultural aspect of cities, an often-used economic criterion. In places of such specialized activity, of course, society has been organized in particular ways and animated by a distinctly rational order of ideas. Thus, the urban phenomenon has also become the subject of many sociological studies, and its social qualities have been subsumed under the term "urbanism". An often-cited definition[2] of urbanism combines the three criteria of population size population density and social heterogeneity of the population, many other urban features can be deduced as necessary consequences of those three criteria.

In many periods of history, cities, at least those of appreciable size, have been heavy exploiters of their rural surroundings. Of necessity, they were carefully organized because their sustenance had to be secured through imports from an agriculture that produced only small surpluses. Through the use of laws, traditions, conditions of land tenure, prestige and supernatural beliefs, all of them ultimately backed by military force, the cities sought to justify and effectively exercise that "social power" through which agricultural produce could be taxed and appropriated, if not sometimes extorted or even requisitioned.[3] The benefits returned to the rural areas were mainly non-economic and consisted of the enforcement of peace, a sense of national identity, religious functions, the respectful observance of laws, the acceptance of a monetary currency, the determination of a calendar, the setting of weights and measures, and so forth. Because order in the entire society depended upon these mostly intangible functions, the spell that the cities cast over the villages was not easily broken.

Owing to their privileged position, cities had their own laws and statutes, conferred special rights and obligations on their lawful inhabitants and had power to limit the residence of non-citizens. In feudal times, moreover, many of the rural inhabitants were effectively restricted in their movements. For purposes of defence, cities were equipped with conspicuous moats, walls, gates, bastions and citadels. In modern times, however, these constructions have ceased to be among the salient features.

The historical exclusiveness of urban privileges not shared by the country folk entailed a downgrading of the social status of the latter, at least from the standpoint of the more literate and articulate urbane society. Most languages still have a derogatory term associating rural people with a supposed cultural inferiority. Negative connotations of the term "bourgeois", which at first simply meant "townsman", emerged only later when city society itself became an object of articulate social criticism. For long periods of history, members in the urban élite groups enjoyed a high prestige only rarely questioned until the industrial revolution and mechanized transport altered the fundamental relationships between the cities and the countryside and among social classes within the cities.

Historically, cities have earned a lasting fame mainly through their variety of ostentatious displays.[4] During their ascendancy, architecture, the fine arts, public spectacles, religious and military processions, philosophical disputations and various other striking manifestations of the human spirit were conspicuous before the public eye, drawing great attention throughout the kingdoms and empires, if not also among the "barbarians" beyond the confines of an empire. The undisputed social power of the urban hierarchy and the highly polished skills in arts and crafts bore testimony to the wealth upon which luxury and display could thrive. The prestige resulting therefrom further augmented the social power of the cities. Modern industrialism and rationalism, on the other hand, appear to have deprived cities of much of their historical magic. Large cities have become so numerous and information about them so widely disseminated that they no longer possess that degree of self-conscious uniqueness which was one of their features in history. Very large size also diminishes the cultural unity of a city once it becomes impossible for large segments of the populace to congregate in central places of public spectacle or decisive action.

In the growth of cities to large size, as well as in the modern changes of their character, the role of transport bears emphasis. The magnitudes that historical cities could attain always depended upon the amount of agricultural produce that could be brought together in one

[1] Lewis Mumford, *The City in History: Its Origins, Its Transformations, and Its Prospects* (New York, Harcourt Brace and World, 1961), p. 31; and Pierre Georges, *La Ville; le fait urbain à travers le monde* (Paris, Presses Universitaires de France, 1952).

[2] Louis Wirth, "Urbanism as a way of life", *American Journal of Sociology*, vol. XLIV (July 1938), pp. 1-24.

[3] The term "social power" is elaborated in Gideon Sjoberg, *The Preindustrial City: Past and Present* (Glencoe, Illinois, Free Press, 1960).

[4] L. Mumford, *op. cit.*

spot, that amount depending in part upon the radius over which existing means of transport could be operated with efficiency. At times of political fragmentation, or when feudal lords laid their first claim on the yields of harvests—as in mediaeval Europe—fiscal and political obstacles limited the distance of shipments. Though the means of transport were not lacking, cities at such times remained of more limited scope. By contrast, Rome in ancient times had enjoyed uncontested access to all the shores of the Mediterranean Sea. Ancient Constantinople was situated at a point of convergence through which many long-distance transports by land and by sea were bound to pass. In historical China, Egypt and Iraq, the combination of very intensive forms of agriculture with intricate networks of navigable canals also facilitated the massive provisioning of cities with vital needs and so permitted them to attain considerable size.[5]

One of the factors that give modern cities a different imprint, configuration and possible size than were known in history is the modern development of mechanized transport and means of instant long-distance communication. Transoceanic shipping in large bulk became increasingly possible in recent centuries; thus, for a time seaports flourished. Railways constructed in the nineteenth century renewed the prominence of those inland cities where the lines converged and of numerous points of trans-shipment where cargo was transferred from one transport vehicle to another. Among the eventual consequences were the numerous large and rapidly growing "industrial" cities of fairly recent history. But it is necessary to emphasize that changes did not end there, and further urban developments are now being witnessed which go far beyond the possibilities of the age of the railways. More recent transformations have resulted from the new means of transport by road and by air, which have intensified the direct influence of cities into extended zones within their immediate reach and have accelerated the contacts which can now be made among nearly all the major cities of the world. Co-ordinated action between points of departure and arrival of passengers and goods has been greatly facilitated by the telegraph and the telephone, adding to the efficiency and capacity of voluminous transport. Perhaps a planetary system of closely interrelated cities will eventually emerge and, with time, imbue humanity with a new sense of unity and identity, assuming that administrative capabilities also become equal to the corresponding immense tasks.[6]

Although advances in transportation were a necessary condition for the organization of mankind into cities, the basic motivating force in recent urbanization is the advantages enjoyed by urban areas in the production and exchange of most non-agricultural goods, combined with changes in economic structure that have emphasized the relative importance of those goods. The urban advantages, often described under the rubric of "economies of agglomeration", are dealt with in chapter IV. In addition to these natural advantages, urban areas often enjoy, as in the past, disproportionate political power which acts to accelerate growth. For the individual, the urban advantages, whether earned or conferred, manifest themselves primarily in higher wages. Average urban incomes are higher than rural in virtually every country where the differences have been investigated.[7] The differences are the principal motive for migrating from rural to urban areas.[8] In turn, the net migration from rural to urban areas is principally responsible for the growing fractions living in urban areas, as is demonstrated in chapter III. There is evidence that, for the most part, migrants' expectations of economic betterment are realized.[9] Nevertheless, many Governments have expressed concern about the consequences of rural-urban migration for sending and receiving areas. Of the 156 Governments responding in 1976 to a survey conducted by the United Nations, (75 per cent) expressed a preference either to decelerate (64 per cent) or reverse the direction of (11 per cent) their main internal migration patterns, principal among which are rural-urban flows.[10] A number of Governments have enacted programmes with this intent.[11]

A. New forms of urban organization

Within many countries, urban developments attain an almost regional scale through a widening diffusion of the urban phenomenon in space. Again, new means of transport (some of them subterranean) and the almost ubiquitous telephone play a decisive role. At least in the technologically advanced countries, it is no longer necessary for all specialized urban functions to be carried out within closest proximity to one another nor for the persons engaged therein to reside at very short distances from their places of work. The consequence is an increased

[5] Rhoads Murphy, *Shanghai: Key to Modern China* (Cambridge, Massachusetts, Harvard University Press, 1953).

[6] Doxiadis envisages the emergence of a world-wide urban system of immense complexity in a form describable as "ecumenopolis". Constantinos A. Doxiadis, *Ekistics; An Introduction to the Science of Human Settlements* (New York, Oxford University Press, 1968), pp. 215-220 and 376-380.

[7] For an African summary, see Derek Byerlee, "Rural-urban migration in Africa: theory, policy, and research implications", *International Migration Review*, vol. 8, No. 4 (Winter 1974) pp. 543-566. Other international data are cited in Koichi Mera, "On the urban agglomeration and economic efficiency", *Economic Development and Cultural Change*, vol. 21, No. 2 (January 1973, pp. 309-324. International survey data on income, many using a rural-urban distinction, may be found in Shail Jain, *Size Distribution of Income: A Compilation of Data* (World Bank, Washington, D.C., 1975).

[8] See reviews in J. Gaude, "Causes and repercussions of rural migration in developing countries: a critical analysis", World Employment Programme Working Paper WEP/10-6/WP10, Geneva, International Labour Office, October 1976; Lorene Y. L. Yap, "The attraction of cities", *Journal of Development Economics*, vol. 4 (1977), pp. 239-264; Sally Findley, *Planning for Internal Migration: A Review of Issues and Policies in Developing Countries* (Washington, D.C., Bureau of the Census, 1977).

[9] Oded Stark, "Rural-to-urban migration and some economic issues: a review utilizing findings of surveys and empirical studies covering the 1965-1975 period", World Employment Programme Working Paper WEP/2-21/WP38, Geneva, International Labour Office, May 1976; S. Findley, *op. cit.* pp. 24-27.

[10] Government responses to the United Nations survey, "Third Population Inquiry Among Governments: Population Policy in the Context of Development in 1976", reported in *Concise Report on The World Population Situation in 1977: New Beginnings and Uncertain Ends* (United Nations publication, Sales No. E.78.XIII.9), p. 93, table 32.

[11] Reviews of certain programmes may be found in Niles M. Hansen, ed., *Public Policy and Regional Economic Development. The Experience of Nine Western Countries* (Cambridge, Massachusetts, Ballinger, 1974); Brian J. L. Berry, *The Human Consequences of Urbanization: Divergent Paths in the Urban Experience of the Twentieth Century* (London, Macmillan, 1973); and Frederick C. Turner, "The rush to cities in Latin America: government policies have more effect than we recognize", *Habitat*, vol. 2, No. 1/2 (1977), pp. 189-203.

geographical sprawl of urbanized regions and a penetration of features of an urban type even beyond them into areas inhabited at no more than rural settlement densities. This expansion in space concerns industrial activities, urban types of dwellings, shopping areas and various other services which were previously more exclusively confined to the core areas of cities. The new subregional or even regional composites now constitute what are commonly described as "metropolitan areas". These areas have a strictly urban core, highly urbanized tentacles along major arteries of transport and extensive adjacent areas of lower settlement density. The latter areas, because of high frequency in transport and communications to and from the city, undergo a profound influence so that the way of life also meets several of the sociological criteria of "urbanism". Thus, the developed countries may be in the process of creating "nothing less than an urban civilization without cities",[12] a process, as Berry also notes, which was vividly predicted by H. G. Wells as long ago as 1902.

Rather the opposite, perhaps, can be said with regard to some of the peripheral developments around many cities in the technologically less advanced countries. There also, long-distance bulk transport of food and necessary materials has facilitated the growth of urban centres to sometimes very large sizes. Short-distance transport by rail, omnibus and bicycle has widened the radius of the areas more directly in contact with these cities. The numerous new residents of such areas, however, do not always fully conform to the sociological attributes of "urbanism". Rural traditions have remained strong among large population segments, so that there may coexist an entire spectrum of population groups acculturated to modern urbanism to a wide range of degrees. One important result of "residual ruralism" among urban residents in developing countries is that the city is less alienating, anomic, and disintegrative[13] than it appeared to earlier writers.[14]

As a result of such diverse new changes in areas adjacent to large and growing cities, the statistical definition of cities is now beset by several boundary problems. Such questions concern the identification of true "urban" zones, also bearing in mind sociological criteria; localities of only modest size; and the geographical delimitation of the outer contours of regions under an urban influence.

As suggested above, the "metropolitan areas" in advanced countries include zones with urban features but only rural settlement densities. In the less advanced countries, cities can be surrounded by rather dense squatter settlements whose inhabitants, sociologically speaking, are still rather "rural". These overlapping phenomena, of course, can have several gradations not easily brought into sharp relief. For demographic purposes, it is convenient to disregard the sociological qualifications and to consider "urban" those mostly built-up areas in which settlement density is high. Since these areas also extend beyond the corresponding core cities but exclude adjacent zones of rural density, the urban units so defined constitute "agglomerations" or "urbanized areas", a concept wider than the limits of many cities but yet narrower than the corresponding "metropolitan areas".

Aside from cities, many smaller towns have existed in history and exist today. Their functions are fewer than those of the major cities, but more numerous than those of typical villages where the predominant dedication is to agriculture. It is possible for some agricultural villages to attain larger sizes than small commercial, industrial, administrative or mining towns, making it difficult to establish a particular size limit above which settlements should be regarded as towns. In the past, some administrative instruments explicitly defined towns of a secondary order of magnitude, for instance, the charters or patents which in Europe often identified certain localities as "market-towns". In East Asia, three categories of settlement are still distinguished: major cities; minor towns; and rural settlements.[15]

The remaining boundary problem is that of the outer geographical contours of the zones of influence related to large cities. Even in history, when cities were walled, there usually existed some immediately adjacent extramural settlements whose denizens entered the city freely in daytime and enjoyed a few but not all of the privileges of genuine city residents. Since city walls have vanished and modern transport vehicles have facilitated the growth of extensive suburbs, one now recognizes additional residential zones and mergers among cities in close proximity so that they constitute conurbations or central cities with satellite towns. Up to this point, the conglomerate is still strictly urban; but beyond it, additional rural residents have adopted urban ways in such respects as education, forms of entertainment, styles of speech, styles of clothing, use of banking services and possession of household appliances. These features can be correlated with frequencies of transport and communication within the city region. The latter are usually taken into account in defining the "metropolitan areas" around some of the larger cities in many countries, as discussed above. A more extensive concept, that of "megalopolis", has also come into use to delineate still larger regions within which several individual "metropolitan areas" have become mutually adjacent.[16]

---

[12] Brian J. L. Berry, "The counterurbanization process: how general?", in Niles M. Hansen, ed., *Human Settlement Systems: International Perspectives on Structure, Change, and Public Policy* (Cambridge, Massachusetts, Ballinger, 1978), pp. 25-50.

[13] Wayne Cornelius, "The political sociology of cityward migration in Latin America: towards empirical theory", in Janet Abu-Lughod and Richard Hay, Jr., eds., *Third World Urbanization* (Chicago, Maaroufa Press, 1977), pp. 213-224.

[14] For example, L. Wirth, *loc. cit.*

[15] Known as *shi, cheng* and *shiang* in China; as *shi, machi* and *mura* in Japan; and as *shi, eup* and *myeon* in the Republic of Korea.

[16] Using 20 million inhabitants as the lower size limit for a region of adjacent metropolitan areas to qualify as a "megalopolis", one study identifies five "megalopolitan" regions currently existing in the world (based on populations in 1960):

(1) On the eastern coast of the United States of America, a region connecting Boston, New York, Philadelphia, Baltimore and Washington, D.C., with a population of 34.2 million;

(2) On the shores of the Great Lakes in the mid-western United States, an area including Chicago, Detroit and Cleveland, 19.7 million;

(3) In Japan, the region combining Tokyo, Yokohama, Nagoya and Osaka-Kobe, 40.5 million;

(4) In the Rhine region of Western Europe, the area comprising Amsterdam, Rotterdam, Essen, Dortmund, Duisburg, Düsseldorf, Frankfurt, Mainz, Mannheim and Stuttgart, 29.2 million population;

(5) In England, the region including London, Birmingham, Manchester, Liverpool, Leeds, Bradford, Sheffield, Nottingham and Leicester, with 32.2 million inhabitants.

Data taken from Peter Hall and others, *The Containment of Urban England*, vol. I, *Urban and Metropolitan Growth Processes* (London, Allen and Unwin, 1973), pp. 49-58.

Because metropolitan areas consist of both urbanized and non-urbanized territory and other cities of varied size can be found outside the metropolitan areas, it is, perhaps, the proper time to substitute for the old "urban/rural" dichotomy a fourfold scheme distinguishing urbanized and rural territories both inside and outside metropolitan areas.[17]

B. Brief quantitative review of historical growth of cities

The most thorough research on the growth of cities by size throughout historical time and for the entire world is probably that of Chandler and Fox.[18] From their work it is possible to tabulate rather comprehensively the historical record of city growth (see tables 1 and 2). This seemingly systematic presentation, however, should not lead to a mistaken view that the historical knowledge of city populations can ever be so accurate. These writers, in fact, make it very clear that for the greatest part of historical time only circumstantial evidence can be found and that the individual estimates based thereon are to a large extent only assessments of plausible orders of magnitude. Their estimates do not agree closely with those of other informed analysts. Assuming that the estimates are not affected by any systematic bias, however, somewhat greater confidence can be placed in combined aggregates because of the presumable partial compensation of errors among individual figures.

In their endeavour to make all estimates comparable, in time as well as internationally, Chandler and Fox had as their goal the estimation of the populations of agglomerations. In many instances, that effort implied the inclusion of the population of suburbs immediately adjacent to municipal administrative territory. In much of East Asia, on the other hand, municipal administration often extends far beyond the limits of the city itself and can therefore include a large rural population, a circumstance that has caused much exaggeration of city sizes in China and Japan; in these instances, the authors endeavoured to estimate city populations within narrower, or strictly "urban", limits.

The earliest cities discovered by archaeologists existed in the area currently called Western South Asia, notably those in Mesopotamia for which historical records also could be found.[19] Though numerous, the early Mesopotamian cities were at first quite small and remained small owing to rivalries among them which kept the territory politically fragmented. In Egypt, the rise of the earliest cities came somewhat later; but because of the political unity of Egypt, the national capital soon reached a larger size. It is estimated that the first city to surpass 100,000 inhabitants was Thebes, in Egypt, and that the event may have occurred about 1360 B.C.[20] Some time

[17] This tentative conclusion is arrived at in *Demographic Yearbook, 1972* (United Nations publication, Sales No. E/F.73.XIII.1), "Statistical definitions of urban population and their uses in applied demography".

[18] Tertius Chandler and Gerald Fox, *3000 Years of Urban Growth* (New York and London, Academic Press, 1974).

[19] The division of functions necessary to endow an inhabited locality with "urban" features presupposes some administrative capabilities which, in turn, depend upon written records or some equivalent. Hence, the earliest records found can be taken as a symptom that true cities had come into existence. This was the case first in Mesopotamia (i.e., Iraq) soon after 3500 B.C. Population sizes between 5,000 and 25,000 inhabitants have been suggested for these earliest cities. See G. Sjoberg, *op. cit.*, pp. 27-37.

[20] T. Chandler and G. Fox, *op. cit.*

Table 1. Number of cities in the world above given size limits, 1360 B.C.-A.D. 1925

Date	Cities with population over: 100 000	200 000	500 000	1 000 000	2 000 000	5 000 000	Largest city in world
B.C.							
1360	1	—	—	—	—	—	Thebes (Egypt)[a]
650	3	—	—	—	—	—	Nineveh (Iraq)[b]
430	12	2	—	—	—	—	Babylon (Iraq)[c]
200	14	4	—	—	—	—	Patna (India)[d]
100	16	6	2	—	—	—	Rome (Italy)
A.D.							
361	12	6	—	—	—	—	Constantinople[e]
622	8	5	1	—	—	—	Constantinople[e]
800	14	6	2	—	—	—	Changan (China)[f]
1000	17	5	—	—	—	—	Córdoba (Spain)
1200	24	5	—	—	—	—	Hangchow (China)
1400	23	9	—	—	—	—	Nanking (China)
1500	23	11	2	—	—	—	Peking (China)
1600	37	15	3	—	—	—	Peking (China)
1700	41	20	7	—	—	—	Istanbul (Turkey)
1800	65	24	6	1	—	—	Peking (China)
1850	110[g]	44	11	3	1	—	London (United Kingdom)
1875	165[g]	73	17	6	2	—	London (United Kingdom)
1900	301	148	43	16	4	1	London (United Kingdom)
1925	450[g]	213	91	31	10	3	New York (United States of America)

Source: Tertius Chandler and Gerald Fox, *3000 Years of Urban Growth* (New York and London, Academic Press, 1974).

[a] Near present Luxor.

[b] Near present Mosul.

[c] Near present Baghdad.

[d] Previously known as Pataliputra.

[e] Currently known as Istanbul.

[f] Currently known as Sian.

[g] Partial extrapolation from data in source.

TABLE 2. GEOGRAPHICAL DISTRIBUTION OF 25 LARGEST CITIES IN THE WORLD, 430 B.C.-A.D. 1925

Date	World total	South Asia[a]	East Asia[b]	Europe[c]	Africa	Americas[d]
B.C.						
430	25	11	8	4	2	0
200	25	13	7	2	3	0
A.D.						
100	25	15	4	3	3	0
361	25	13	4	4	3	1
622	25	17	5	1	1	1
800	25	12	9	2	2	0
1000	25	7	10	4	4	0
1200	25	7	10	4	4	0
1400	25	7	8	8	2	0
1500	25	8	9	6	2	0
1600	25	5	10	8	2	0
1700	25	5	10	8	2	0
1800	25	4	11	9	1	0
1850	25	4	8	11	0	2
1875	25	4	3	13	1	4
1900	25	2	4	12	0	5
1925	25	2	3	13	0	7

SOURCE: Tertius Chandler and Gerald Fox, *3000 Years of Urban Growth* (New York and London, Academic Press, 1974).

[a] Asia other than China, Democratic People's Republic of Korea, Japan, Republic of Korea and Turkey.

[b] China, Democratic People's Republic of Korea, Japan and Republic of Korea.

[c] Including Turkey and Union of Soviet Socialist Republics.

[d] Northern America and Latin America combined.

thereafter, conquest and political consolidation caused Mesopotamian cities (Babylon, Nineveh) again to surpass those of Egypt. But the evidence on which population estimates can be based has remained so scanty that none of these developments can be traced with any accuracy.

By the fifth century B.C., the geographical extent of city civilization was already more ample. Aside from Babylon, cities with over 100,000 inhabitants also existed in Persia, Greece, Egypt, India and China. The most notable urban developments then shifted from Babylon through Persia to India, and there is some likelihood that under the Empire of King Asoka (269-232 B.C.) India had at least one city larger than any that had existed in the world before.

About the turn of the Christian era, with the Roman Empire in the west and the Han Dynasty in China, resources could be organized on a scale that permitted the growth of even larger cities. By the year A.D. 100, Rome may have reached 650,000 inhabitants; and it is possible that Loyang, in China, was then of comparable size. But these empires again declined and in the ensuing disorganization city sizes were greatly reduced. It is to be noted, however, that the eastern Roman, or Byzantine, Empire persisted for many subsequent centuries, making Constantinople (currently Istanbul) the leading city of the world over a rather extensive time period. But it was not until after the turn of the second millennium that the numbers and sizes of cities in the world again approximated those of the classical empires which had existed almost a thousand years previously.

Europe continued for a long time in a state of political fragmentation which gave only limited scope to the sustenance or growth of cities. The dominant element in European society was the feudal aristocrats residing in castles outside the cities. Though numerous, the European cities remained quite small. Between A.D. 900 and 1500, the population of Rome probably never exceeded 40,000; and in 1377, it may have fallen as low as 17,000 inhabitants. By contrast, in China, centralized administration became highly effective again under the T'ang Dynasty (A.D. 618-907), and once more under the subsequent Sung Dynasty (A.D. 960-1279). The spread of Islam over wide areas in Western South Asia and Northern Africa was also associated with, for the time, considerable urbanization. As suggested by Chandler and Fox, the first city to surpass 1 million inhabitants was Changan (currently Sian) in China, before the year 763, when it was sacked; and the second city to reach such size temporarily was Baghdad, in the tenth century, again followed by a decline. Thereafter, no other city reached 1 million in population until late in the eighteenth century when Peking grew so large and was shortly surpassed by London.

Actually, for most of the time between the years 800 and 1800, China remained almost unsurpassed in the number and sizes of its cities. Only some individual cities within the culture sphere of Islam temporarily surpassed the chief city of China, as was the case of Baghdad around A.D. 900, Córdoba in Spain about 1000, Cairo about 1350; and either Delhi or Agra in India late in the seventeenth century under the rule of the Moguls. The career of Constantinople was somewhat varied. It remained among the world's largest cities up to 1200, though it had already declined by that time. By 1453, when the Turks conquered it, it had shrunk to 40,000 or

50,000 inhabitants. As capital of the Turkish Empire, however, it re-emerged as the second largest and sometimes even the largest city in the world, closely rivalling Peking in the period from about 1550 to about 1750.

After the fall of ancient Rome, the eclipse of city civilization in Europe was very prolonged, except in those parts of Europe which fell under Moslem rule, namely, Turkey, Sicily and Moorish Spain. Apart from Constantinople, scarcely any European city ever exceeded 50,000 inhabitants between the years 600 and 1100. There was a revival of cities in the later Middle Ages; but even so, no city in Europe, outside the Moslem sphere, reached 300,000 inhabitants until some time after the year 1600. European cities were then not noteworthy for their sizes, but rather for the gradual and sustained emergence of new rational orientations, leading to the cultural renascence of the fifteenth century, subsequent voyages of discovery and the eventual growth of world-wide trading empires. Further developments of this venturesome spirit prompted the liberal philosophy of the eighteenth century, the fostering of science and, eventually, the industrial revolution and the mechanization of transport.

In the thirteenth century, when Marco Polo visited the cities of China, they were decidedly larger than his native Venice. Early in the sixteenth century, when the Spaniards conquered Tenochtitlán (currently Mexico City), it was much larger than any city in Spain. Even in the seventeenth century, London was still smaller than Agra, the Mogul capital in India. But new dynamic forms of organization eventually provided several countries of Europe with such relative advantages that they attained—and exploited—a certain degree of pre-eminence in the world, especially in the course of the nineteenth century. No longer did cities simply extract benefits from the surrounding countryside; in addition, urbanized countries gained an ascendancy over other countries. The growth of cities was much accelerated, first in Europe and then also elsewhere; and a revolution of settlement pattern gathered speed and propagated itself over the face of the earth; it is still continuing momentously.

For a time, Europe became the most urbanized region of the world. In 1800, of the 65 cities with at least 100,000 inhabitants, only 21 were in Europe (including Russia and Turkey). In 1900, the world had 301 cities of such size; and among these cities, 148 were in Europe. For the first time in history, a majority of a national population could reside in cities and towns, as had been the case in the United Kingdom since about 1850. Against the time-scale of the long history that has been reviewed, the emergence of cities which could accommodate large proportions of national populations, in the course of the nineteenth century, was an almost sudden event. So also was the temporary pre-eminence of Europe, which had come to surpass China, India and the Islamic sphere as the greatest centre of urban culture. Certainly, the European philosophers of the eighteenth century could scarcely have foreseen that the new institutions they advocated might release such a vast rural-to-urban migration. Even less could they have imagined that the dynamic developments in Europe, in yet another century, would be superseded by even more powerful trends elsewhere. In the current epoch, Europe is no longer in the vanguard of world urbanization. Early in the twentieth century, cities in both Latin America and Northern America grew with even greater speed. Since about the middle of this century, urban growth in Asia and Africa has attained an especially great momentum.

The figures on city size presented by Chandler and Fox permit some educated guesses about the historical size of the total urban population. The estimates can be made by application of rank-size rules to the distribution of places of known size in order to estimate the number and size of other places meeting the criterion for "urban". For present purposes, a minimum size of 5,000 is adopted to define urban places. The resulting estimates have been compared to other historical series prepared by Hoyt and by Davis and Hertz, and adjusted where considered appropriate. Lastly, total population figures were adapted from series prepared by Durand, Clark and Carr-Saunders.[21] Results of these procedures indicate that the urban percentage varied within the relatively narrow range of from 4.5 to 6.0 between A.D. 100 and 1800, with little trend evident. More detailed estimates for the years between 1800 and 1925, when record-keeping was markedly better, are shown in table 3. It was only during that relatively recent period that the urban percentage began to surge forward, beginning in

[21] For a review of methodology and sources, see John V. Grauman, "Orders of magnitude of the world's urban population in history", *United Nations Population Bulletin, No. 8—1976* (United Nations publication, Sales No. E.76.XIII.3), pp. 16-33.

TABLE 3. ESTIMATED TOTAL, URBAN AND RURAL POPULATIONS, WORLD, MORE DEVELOPED REGIONS AND LESS DEVELOPED REGIONS, 1800-1925
(Millions)

	World				*More developed regions*				*Less developed regions*[a]				*Percentage share of world population in currently more developed regions*		
Date	*Total*	*Urban*	*Rural*	*Percentage urban*	*Total*	*Urban*	*Rural*	*Percentage urban*	*Total*	*Urban*	*Rural*	*Percentage urban*	*Total*	*Urban*	*Rural*
1800	978	50	928	5.1	273	20	253	7.3	705	30	675	4.3	27.9	40.0	27.3
1825	1 110	60	1 050	5.4	305	25	280	8.2	805	35	770	4.3	27.5	41.7	26.7
1850	1 262	80	1 182	6.3	352	40	312	11.4	910	40	870	4.4	27.9	50.0	26.4
1875	1 420	125	1 295	8.8	435	75	360	17.2	985	50	935	5.0	30.6	60.0	27.8
1900	1 650	220	1 430	13.3	575	150	425	26.1	1 075	70	1 005	6.5	34.8	68.9	29.5
1925	1 950	400	1 550	20.5	715	285	430	39.9	1 235	115	1 120	9.3	36.7	71.2	27.7

SOURCE: John V. Grauman, "Orders of magnitude of the world's urban population in history", *United Nations Population Bulletin, No. 8–1976* (United Nations publication, Sales No. E.76.XIII.3), p. 32.

[a] Including Cyprus, Israel and Turkey, which are currently included in the region of Western South Asia.

the currently developed regions. These regions held some 40 per cent of the world urban population in 1800, a percentage that rose to 71.2 in 1925.

As is shown in chapter II, this percentage has receded substantially from the high-water mark reached in 1925. During the past several decades, the weight of the world urban and rural populations has shifted rapidly towards the less developed regions. It has been argued that these rapid changes reflect fundamental changes in the nature of urbanization and of urban and rural growth in developing countries. The present publication is focused on this most recent period. Its major purpose is to describe as accurately as possible the levels, trends and mechanisms of urban and rural growth since 1950, including growth differences among cities within the urban pool. It also attempts to interpret this record in light of broadly sketched demographic, economic and political features.

Chapter II provides new estimates of urban and rural growth since 1950, with projections to the year 2000. The revisions include the introduction of new data and the adoption of a new projection methodology. Consideration is given to the pace of urbanization and to the relation between urban and industrial populations.

Chapter III presents new estimates of the components of change in urban and rural populations for those countries which can supply an adequate basis for making such estimates. It also includes an analysis of factors quantitatively associated with rural-urban net migration rates in developing countries.

Chapter IV examines patterns of growth among more than 1,000 cities with over 100,000 population. Among the factors considered as influences on city growth are city size, national population growth, national economic growth and the political status of a city. The chapter also examines the size distribution of cities in major world regions.

Chapters V and VI present the first large-scale consideration of the occupational structures of urban and rural populations and how those structures change in the course of urbanization and development. It also attempts to identify and interpret regional differences in occupational structures. Chapter VI explicitly addresses the occupational roles of women in urban and rural populations.

Chapter VII examines the family in urban and rural areas with a view towards identifying the differences in family form and structure that are associated with residence. Household size and complexity, and the distribution of marital statuses are among the features of family life considered. Rural/urban differences in the age and sex composition of populations in major areas and regions are discussed in chapter VIII. Thus, the last four chapters serve to indicate some major social differences entailed by urban as opposed to rural residence. In so doing, they help to reaffirm the importance of the urban/rural distinction maintained in the rest of the report and the value of demographic accounts that distinguish between the two sectors.

II. ESTIMATES AND PROJECTIONS OF URBAN AND RURAL POPULATIONS

In preparing a global accounting of urban and rural growth, one is beset by problems of data and definition. Unlike mortality and fertility studies, the criteria for identifying the phenomenon under study are not obvious nor are they necessarily constant from country to country. Furthermore, evidence on levels and trends in urbanization does not typically accumulate continuously, as it does on death and birth rates where vital registration systems are in effect. Instead, estimates of urban and rural growth must rely heavily on information from widely spaced population censuses.

In this study, the practice is continued of presenting estimates based on urban areas designated by the country under review, rather than imposing a uniform set of criteria. Partial justification for this practice is that national statistical offices are in the best position to distinguish between urban and rural-type areas in their own country. For example, an urban designation typically implies a predominance of non-agricultural activities. Such a criterion may not need to be explicit in developed countries, where large agglomerations will almost certainly be non-agricultural. But in certain developing countries this may not be the case, and an additional explicit criterion of economic activity may have to be introduced. An additional justification is that the size and nature of administrative units, which would necessarily form the building-blocks of redefined urban areas, vary considerably from country to country, so that true comparability could never be achieved.[1]

However, since much of the interest in urban and rural growth processes relates to changes in population size over time, it was believed necessary to adjust national figures whenever a change in national urban definition occurred. Such an adjustment avoids the erratic dips and peaks in urban and rural growth that may be produced by a definitional change. These irregularities become even more troublesome when recent growth trends are projected into the future. Therefore, a strenuous attempt was made to adjust all figures to a comparable definition within a particular country. When possible, earlier data were adjusted to the later definition. Occasionally, it was necessary to use a definition that was never nationally adopted in order to maximize comparability over time. Annex I gives the urban definition used in each country for purposes of this study, the years for which basic data on urban and rural population size were available (in the large majority of cases from population censuses) and instances in which the data for a particular year had to be adjusted to achieve intertemporal comparability of definition.

In order to examine efficiently and concisely the levels and trends in urbanization on a regional or global level, it is necessary to have the various country estimates available at the same point in time. To be consistent with other procedures used by the Population Division, these time points would correspond to the mid-years of 1950, 1955 . . . 1975. But the dates at which countries conduct censuses or make population estimates vary widely. The method for processing the census results into the desired uniform sequence of dates is relatively simple. When a desired date for estimation was bounded by two censuses in a particular country, the nearest census on either side of the estimation date was identified and the calculated intercensal difference between urban and rural growth rates was assumed to have remained constant during the intercensal period. The urban proportion at the desired date was derived through this assumption. When the desired estimation date was not bounded by two censuses or other concrete estimates, the two nearest observations were identified and the measured intercensal urban/rural growth difference between them was applied forward or backward in time as required. One advantage of working with the urban/rural growth difference is that it shows considerable stability over a wide range of conditions.[2] A second advantage is that it can be computed directly from the proportions urban that are recorded in the two censuses, rather than from absolute numbers.[3] Hence, it is relatively insensitive to changes in the completeness of census enumeration.

The core of the method used to project urban population has been termed the "United Nations method".[4] Basically, this method involves extrapolating into the future the most recently observed urban/rural growth difference. This procedure results in a logistic time path of the proportion urban which has a peak velocity (annual absolute gain in proportion urban) at a proportion of 0.5 and has a maximum urban proportion, eventually to be reached by all countries, of 1.000. In the most recent urban projections made by the United Nations

[1] For detailed discussions of problems of urban definitions, see *Growth of the World's Urban and Rural Population, 1920-2000* (United Nations publication, Sales No. E.69.XIII.3), pp. 7-10; and *Manual VIII. Methods for Projections of Urban and Rural Population* (United Nations E.74.XIII.3), pp. 9-13V.

[2] For documentation, see *Manual VIII. Methods for Projections of Urban and Rural Population*, pp. 27-30, 36-44.

[3] The urban/rural growth difference during any intercensal period of length n years is simply:

$$URGD = \frac{1n\left(\frac{\frac{PU(2)}{1\text{-}PU(2)}}{\frac{PU(1)}{1\text{-}PU(1)}}\right)}{n}$$

where $PU\ (2)$ = the urban proportion at the second census;
$PU\ (1)$ = that proportion at the first census.

In order to estimate the urban/rural ratio at some intercensal point t years from the first census, one must compute

$$\frac{PU(t)}{1\text{-}PU(t)} = \left(\frac{PU(1)}{1\text{-}PU(1)}\right) e^{URGD \cdot t}$$

[4] For a full description of this method, see *Manual VIII. Methods for Projections of Urban and Rural Population*, chap. V.

Secretariat, the last-observed urban/rural growth difference was modified linearly during each five years of the projection period so that by the year 2000 the urban/rural growth difference for each country was 0.0275.[5]

For both theoretical and empirical reasons, it was considered desirable to modify the procedure for the present volume. As is demonstrated in chapter III, the overwhelmingly important source of difference between urban and rural growth rates is net rural-urban migration. As the urban proportion increases, it therefore becomes more and more difficult to maintain a particular urban/rural growth difference because the pool of potential migrants to urban areas declines as a fraction of the urban population, while the pool of potential migrants to rural areas increases as a fraction of the rural population. Therefore, it is reasonable to expect the urban/rural growth difference to decline as the urban proportion rises. An explicit model[6] has been developed which demonstrates why such tendencies should be expected and furthermore shows that they would be expected even when migration between urban and rural areas follows a gravity model in which rates of migration to the other sector are a function of the relative size of the other sector.

Empirically, it is not difficult to demonstrate that such tendencies have prevailed in the recent past. The urban/rural growth difference between the two most recent observations (typically, between the 1960 and 1970 round of censuses) has been computed for the 110 countries with over 2 million in population. The mean urban/rural growth difference for populations that fall into a particular category of the initial urban proportion is as follows:

Range of initial urban proportion	*Number of countries*	*Mean urban/rural growth difference between two most recent observations*
0-0.2499	49	0.03947
0.2500-0.4999	34	0.03490
0.5000-0.7499	16	0.02760
0.7500-1.0000	11	0.01985

It is clear that the urban/rural growth differences tend to decline as the initial urban proportion increases. The coefficient of correlation between the two variables for these 110 countries is —0.280. Hence, it was considered desirable to incorporate this relationship into the urban projections. This incorporation was accomplished by first regressing the urban/rural growth difference on the initial proportion urban for these 110 countries. The resulting equation is:

$$URGD_H = 0.044177 - 0.028274 \cdot \text{initial proportion urban}$$

According to this equation, when a country is 10 per cent urban, the expected urban/rural growth difference is 0.04135; when it is 90 per cent urban, the expected urban/rural growth difference is only 0.01873. Few

[5] "Trends and prospects in urban and rural population, 1950-2000, as assessed in 1973-1974" (ESA/P/WP.54).

[6] Urban and rural populations form a system of two sectors, each of which is subject to change in size as a result of natural increase, out-migration to the other sector and in-migration from the other sector. The natural way to represent such a system of growth and exchange is by differential equations. Given below is one set of differential equations based on fairly reasonable assumptions that yields a formula well-suited to the projection of urban proportions.

Let $U(t)$,$R(t)$ = size of urban and rurual populations at time t. By definition, in a closed population the rate of change in absolute numbers for $U(t)$ and $R(t)$ must be:

$$\frac{dU(t)}{dt} = NI_U(t)\,U(t) - OM_U(t)\,U(t) + OM_R(t)\,R(t) \quad (1)$$

$$\frac{dR(t)}{dt} = NI_R(t)\,R(t) + OM_U(t)\,U(t) - OM_R(t)\,R(t)$$

where $NI_U(t), NI_R(t)$ = rates of natural increase in urban and rural populations at time t;

$OM_U(t), OM_R(t)$ = gross rates of out-migration from urban and rural populations at time t.

In order to use these identities to model or to predict changes in proportion urban, it is necessary to make assumptions about the functional forms of rates of natural increase and of out-migration. One should first assume that rates of natural increase in urban and rural areas are constant over time (but not necessarily equal) and that rates of out-migration are also constant:

$$NI_U = K \qquad OM_U = j$$
$$NI_R = l \qquad OM_R = m$$

In this case,

$$\frac{dU(t)}{dt} = KU(t) - jU(t) + mR(t)$$

$$\frac{dR(t)}{dt} = lR(t) + jU(t) - mR(t)$$

The proportionate growth rates of urban and rural areas will then be:

$$\frac{dU(t)}{dt}/U(t) = K - j + m\frac{R(t)}{U(t)}$$

$$\frac{dR(t)}{dt}/R(t) = l - m + j\frac{U(t)}{R(t)}$$

and the urban/rural growth difference will be:

$$URGD(t) = (K - j) - (l - m) + m\frac{R(t)}{U(t)} - j\frac{U(t)}{R(t)} \quad (2)$$

This last expression shows that the urban/rural growth difference will decline as the ratio of urban-to-rural population increases. The only instance where such a decline would not occur is when there is no communication between the sectors, i.e., where rates of out-migration from both sectors (m and j) are zero. With constant rates of natural increase and of out-migration, the rural/urban growth rate difference must decline as the urban proportion rises. As shown in the text, such a tendency has in fact been observed cross-sectionally.

The model just described can be made somewhat more realistic by introducing a gravity model of migration. Suppose, for example, that the probability of moving from one sector to the other is a linear function of the proportion of the total population that is located in that other sector:

$$OM_U(t) = j + q\left(\frac{R(t)}{R(t) + U(t)}\right)$$

$$OM_R(t) = m + n\left(\frac{U(t)}{R(t) + U(t)}\right).$$

After substituting these expressions into equations (1) and simplifying, one obtains:

$$URGD(t) = (K - l) + (m - j) + (n - q) + m\frac{R(t)}{U(t)} - j\frac{U(t)}{R(t)} \quad (3)$$

This last expression has exactly the same functional form as equation (2), which did not contain the gravity hypothesis. The only difference is that the constant term now contains additional elements. The urban/rural growth difference continues to decline as the urban proportion increases.

The natural increase functions can also be altered in the direction of realism without changing the basic functional form of equations (2) and (3). In particular, if both urban and rural rates of natural increase decline linearly and at the same rate as the proportion urban rises, then the only element in equations (2) or (3) to change is again the constant term. The form of the equations is thus fairly insensitive to assumptions about migration and natural increase. It is not surprising that the hypothesized tendency for the urban/rural growth difference to decline as the proportion urban rises is empirically observed.

countries have actually achieved these expected values, and it was considered desirable also to allow local conditions, as reflected in actual urban/rural growth differences, to be reflected in the projection period. These two considerations led to a procedure in which the most recently observed urban/rural growth difference for a country was allowed to approach the hypothetical values more and more closely during the projection period.[7] In particular, a set of linear weights were employed:

Projection period	*Weight given to most recently observed urban/rural growth difference URGD*	*Weight given to* $URGD_H$
1975-1980	0.8	0.2
1980-1985	0.6	0.4
1985-1990	0.4	0.6
1990-1995	0.2	0.8
1995-2000	0.0	1.0

Thus, by the period 1995-2000, the urban/rural growth difference used in the projection was simply the $URGD_H$ computed from the regression equation just presented, using as the "initial proportion urban" the actual value derived and presented for 1995.

Because the data failed to reveal a tendency for negative urban/rural growth differences to emerge at high levels of the proportion urban, the procedure continues to imply that the urban proportion would eventually reach unity if projected far enough into the future. But the rate at which this limit is approached is much slower than under past procedures. On the other hand, for populations below 59 per cent urban, the speed of urbanization will be somewhat greater than under past procedures.

As a final step, both the estimated and the projected proportions urban are applied to United Nations estimates and projections of total national population for the years 1950, 1955 . . . 2000.[8]

A. URBAN POPULATION

The estimated and projected urban population for each country may be found in table 48 (see annex II). Table 4 given below presents the urban figures for the

[7] These hypothetical values are recomputed for each five-year projection period based on the actual urban proportion that was projected for the beginning of that period.

[8] *World Population Prospects as Assessed in 1973* (United Nations publication, Sales No. E.76.XIII.4).

TABLE 4. URBAN POPULATION, MAJOR AREAS AND REGIONS, 1950-2000
(Thousands)

	1950	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
World total	724 147	1 012 084	1 354 357	1 560 860	1 806 809	2 422 293	3 208 028
More developed regions	448 929	572 730	702 876	767 302	834 401	969 226	1 092 470
Less developed regions	275 218	439 354	651 481	793 558	972 408	1 453 067	2 115 558
Africa	31 818	49 506	80 373	103 032	132 951	219 202	345 757
Eastern Africa	3 403	5 821	10 675	15 109	21 303	40 345	70 535
Middle Africa	3 827	5 751	10 176	13 437	17 598	29 130	45 235
Northern Africa	12 698	19 570	31 344	39 391	49 557	76 960	111 914
Southern Africa	5 338	7 592	10 650	12 481	14 959	21 958	32 560
Western Africa	6 552	10 772	17 528	22 614	29 534	50 809	85 513
Latin America	67 511	106 599	162 355	198 366	240 592	343 304	466 234
Caribbean	5 604	7 731	11 098	13 184	15 653	21 645	28 760
Middle America	14 245	22 744	36 102	45 123	56 275	85 804	124 610
Temperate South America	16 475	22 419	28 090	31 060	34 157	40 292	45 741
Tropical South America	31 187	53 705	87 065	108 999	134 507	195 563	267 123
Northern America	106 019	133 281	159 493	170 501	183 281	212 393	239 199
East Asia	112 812	194 734	265 153	308 943	359 457	476 462	622 441
China	61 393	121 716	166 710	195 355	230 652	320 393	443 213
Japan	41 977	58 712	74 386	83 424	91 970	104 668	114 128
Other East Asia	9 442	14 306	24 057	30 164	36 835	51 401	65 100
South Asia	104 883	146 902	217 290	265 568	329 760	515 685	790 685
Eastern South Asia	25 694	38 014	56 640	69 234	85 863	134 525	207 672
Middle South Asia	74 096	99 794	143 883	173 993	214 900	335 677	517 642
Western South Asia	5 093	9 094	16 767	22 341	28 997	45 483	65 371
Europe	222 603	266 032	318 374	343 504	369 286	423 291	476 953
Eastern Europe	36 708	46 323	54 828	59 785	65 028	75 405	85 688
Northern Europe	53 866	58 191	65 273	68 305	71 276	76 889	82 119
Southern Europe	53 763	68 433	88 095	99 134	111 141	137 641	165 002
Western Europe	78 266	93 085	110 178	116 280	121 841	133 356	144 144
Oceania	7 736	10 443	13 675	15 630	17 829	22 590	27 145
USSR	70 765	104 587	137 644	155 316	173 653	209 366	239 614

world, its major geographical regions and its more and less developed regions between 1950 and 2000.[9] The urban population of the world is estimated to have increased by 207 million in the short period between 1970 and 1975, or at an annual rate of 41 million per annum. Of this growth, 31 per cent occurred in more developed regions and 69 per cent in less developed regions. The more rapid urban accretion in less developed regions had brought the urban populations of the two groups of countries into approximate parity by 1975, when 49.2 per cent of the world urban population lived in more developed regions. Urban growth between 1970 and 1975 was distributed very widely among the less developed regions. Africa is estimated to have gained 23 million urbanites; Latin America, 36 million; East Asia (excluding Japan), 35 million; and South Asia, 48 million.

By the year 2000, the majority—nearly two thirds (65.9 per cent)—of the world urban population is projected to reside in the less developed regions. In fact, the projected gain of 1,320 million in the urban population in these areas between 1975 and 2000 is nearly double the total urban population of the more developed regions in 1975 (768 million). Although the urban population of the more developed regions is anticipated to grow by 42 per cent in the last quarter of this century, the projected growth in Africa is 336 per cent; in Latin America, 235 per cent; in East Asia (excluding Japan), 225 per cent; and in South Asia, 298 per cent. In 1975, Europe still had a larger urban population, 344 million, than any other region in the world. But by the year 2000, its anticipated urban population of 477 million is expected to be far eclipsed by that of South Asia (791 million) and East Asia (622 million), and to be virtually matched by that of Latin America (466 million). The urban population in Africa is expected to surpass that of Northern America somewhere around 1990. It is clear that the less developed regions must prepare for an unprecedented magnitude of urban increment during this quarter of a century.

Between 1950 and 2000, it is anticipated that the urban population of less developed regions will grow by a factor of 7.7: that is, 10.9 in Africa; 6.9 in Latin America; 7.2 in East Asia (excluding Japan); and 7.5 in South Asia. In contrast, the urban population of the more developed regions is expected to grow by a factor of only 2.4 during this period. The anticipated growth of 2,480 million in the world urban population between 1950 and 2000 is expected to be distributed as follows: 74 per cent in less developed regions (13 in Africa, 16 in Latin America, 18 in East Asia (excluding Japan) and 28 in South Asia); and 26 per cent in more developed regions (10 in Europe, 7 in the USSR, 5 in North America, 3 in Japan and 1 in Oceania). Many features of urban life, such as housing construction and recruitment of public employees, are primarily functions of urban growth rather than of urban size. It is clear that the management of these functions in the last half of this century will be much more difficult for the developing regions than it will be—and probably has ever been—for the developed regions. The anticipated gain in the world urban population between 1975 and 2000 (1,650 million) is almost exactly double the estimated gain between 1950 and 1975 (837 million).

Table 5 presents the average annual growth rates (continuously compounded) of urban areas in major world regions. Although Latin America and East Asia appear to have experienced the most rapid urban growth in the 1950s, they have been replaced since that time by Africa. In the period 1970-1975, urban areas in Africa are estimated to have grown at an annual rate of 4.97 per cent. Eastern, Western and Middle Africa each had annual urban growth exceeding 5.0 per cent during this period. Such rapid growth is facilitated by the fact that urban proportions in Africa have been quite small, so that any particular absolute level of urban growth makes a large proportionate contribution to the urban population. According to the projections, the rate of urban growth in Africa should peak in the period of 1975-1980 and then taper off rather slowly, while maintaining its greater speed in relation to other major regions.

South Asia also appears to be in the midst of a continuously rising urban growth rate, which is anticipated to continue through the decade of the 1980s and then to taper off. Urban proportions in this area are also quite low and provide a basis for explosive urban growth. Latin America, East Asia, Europe, Oceania and the Soviet Union all appear to be experiencing continuous declines in the rate of urban growth, which are projected to continue for the rest of the century. These declines are attributable in part to a slackening pace of urbanization and in part to reduced rates of national population growth.

From 1960 to the end of the century, urban growth rates for the world as a whole are expected to remain virtually level at a rate of 2.8-2.9 per cent. This constancy occurs despite continuous declines in the rates for the more developed regions, which contained over half of the world urban population in 1960. It is largely a product of a rapid shift of the world urban population towards less developed regions, where urban populations are growing more rapidly. This compositional shift towards rapidly growing areas is sufficient to offset the declining urban growth in a major component area.

The bulk of the difference in urban growth rates between the more developed and less developed regions is not attributable to differences in rates of urbanization (i.e., the growth rate of the urban proportion). Instead, it is attributable primarily to more rapid population growth rates in the less developed regions. One informative exercise that illustrates the importance of population growth for urban growth is simply to correlate the two growth rates across countries. For 108 of the 110 coun-

[9] For convenience, the largest regional groupings used below for dealing with trends are the categories of "less developed" and "more developed" as established by the Population Division of the Department of International Economic and Social Affairs of the United Nations Secretariat, on the basis of demographic criteria. The former category includes all countries and other territories of Africa, Asia (excluding Japan), Latin America and Oceania (excluding Australia and New Zealand). The latter category includes all of Europe, the Union of Soviet Socialist Republics, Northern America and the countries just cited as being outside the "less developed" classification. Within these two broadest groupings, there are eight "major areas" subdivided into 24 geographical regions, which are used at numerous points in the text and tables.

In Latin America, the countries of Temperate South America, which were formerly in the "more developed" category, are currently in the "less developed" category.

In most chapters of this publication, data are based on the inclusion of Cyprus, Israel and Turkey in the region of Southern Europe because such classifications were used when those data were prepared; those countries are currently included in the region of Western South Asia.

TABLE 5. AVERAGE ANNUAL GROWTH RATES OF URBAN AREAS IN MAJOR AREAS AND REGIONS, 1950-2000
(Percentage)

	1950-1960	*1960-1970*	*1970-1975*	*1975-1980*	*1980-1990*	*1990-2000*
World total	3.35	2.91	2.84	2.93	2.93	2.81
More developed regions	2.44	2.05	1.75	1.68	1.50	1.20
Less developed regions	4.68	3.94	3.95	4.06	4.02	3.76
Africa	4.42	4.85	4.97	5.10	5.00	4.56
Eastern Africa	5.37	6.06	6.95	6.87	6.39	5.59
Middle Africa	4.07	5.71	5.56	5.40	5.04	4.40
Northern Africa	4.33	4.71	4.57	4.59	4.40	3.74
Southern Africa	3.52	3.38	3.17	3.62	3.84	3.94
Western Africa	4.97	4.87	5.10	5.34	5.43	5.21
Latin America	4.57	4.21	4.01	3.86	3.56	3.06
Caribbean	3.22	3.62	3.44	3.43	3.24	2.84
Middle America	4.68	4.62	4.46	4.42	4.22	3.73
Temperate South America	3.08	2.26	2.01	1.90	1.65	1.27
Tropical South America	5.44	4.83	4.49	4.21	3.74	3.12
Northern America	2.29	1.80	1.33	1.45	1.47	1.19
East Asia	5.46	3.09	3.06	3.03	2.82	2.67
China	6.84	3.15	3.17	3.32	3.29	3.25
Japan	3.36	2.37	2.29	1.95	1.29	0.87
Other East Asia	4.16	5.20	4.52	4.00	3.33	2.36
South Asia	3.37	3.91	4.01	4.33	4.47	4.27
Eastern South Asia	3.92	3.99	4.02	4.31	4.49	4.34
Middle South Asia	2.98	3.66	3.80	4.22	4.46	4.33
Western South Asia	5.80	6.12	5.74	5.22	4.50	3.63
Europe	1.78	1.80	1.52	1.45	1.36	1.19
Eastern Europe	2.33	1.69	1.73	1.68	1.48	1.28
Northern Europe	0.77	1.15	0.91	0.85	0.76	0.66
Southern Europe	2.41	2.53	2.36	2.29	2.14	1.81
Western Europe	1.73	1.69	1.08	0.93	0.90	0.78
Oceania	3.00	2.70	2.67	2.63	2.37	1.84
USSR	3.91	2.75	2.42	2.23	1.87	1.35

tries with over 2 million population, the growth rate of the urban and total populations between the two most recent censuses are correlated at 0.819.[10] In contrast, the correlations between urban growth rates and the initial proportion urban, the initial level of gross national product *per capita,* the growth rate of gross domestic product *per capita* and a set of regional indicators are all below 0.550 in absolute value. As a single perdictor of urban growth in a country, the rate of population growth serves quite adequately.

B. RURAL POPULATION

The estimated and projected size of the world rural population is shown for major areas and regions in table 6 and for countries in table 49 (annex II). The rural gain for the world as a whole between 1970 and 1975 is estimated to be 151 million, or 56 million less than the gain for urban areas. However, in the less developed regions, the rural gain of 165 million is actually 17 per cent higher than the urban gain for these same countries. The rural gain for the world as a whole is diminished as a result of a slow rural decline in the more developed regions, estimated to amount to 14 million.

The demographic present and future of rural populations lies preponderantly in the less developed regions. These areas contained 85 per cent the world rural population in 1975 and are projected to contain 90 per cent by the end of the century. Both East Asia (excluding Japan) and South Asia had larger rural populations in 1975 than did all the more developed regions combined. The projected increment in the rural population in South Asia alone between 1975 and 2000 exceeds the total 1975 rural population of the more developed regions. The projected rural gains in the last quarter of the twentieth century are not nearly so evenly distributed among less developed regions as are the urban increments. South Asia is projected to gain 457 million rural residents; Africa, 170 million; East Asia (excluding Japan), 59 million; and Latin America, only 28 million. In percentage terms, the rural population of South Asia is expected to grow by 49, Africa by 57, East Asia (excluding Japan) by 9 and Latin America by 22 per cent. Although these percentages are much lower than the percentage expansion of urban areas, it must be remembered that they are typically being applied to a much larger base. The

[10] Two countries were omitted from the group of 110 because other types of data were not available for them which would permit the computation of equivalent correlation coefficients for other variables.

TABLE 6. RURAL POPULATION, MAJOR AREAS AND REGIONS, 1950-2000
(Thousands)

	1950	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
World total	1 776 924	1 973 733	2 255 816	2 406 771	2 567 042	2 857 409	3 045 956
More developed regions	405 502	402 396	383 894	369 606	355 013	325 258	294 700
Less developed regions	1 371 422	1 571 337	1 871 922	2 037 165	2 212 029	2 532 151	2 751 256
Africa	186 986	223 290	271 355	298 281	327 963	394 881	467 923
Eastern Africa	58 474	71 372	89 143	99 389	110 688	137 235	169 325
Middle Africa	22 431	26 025	30 270	31 873	33 602	37 605	42 497
Northern Africa	39 108	46 162	54 283	58 793	63 497	72 787	79 909
Southern Africa	8 986	10 614	13 685	15 372	17 220	20 734	23 671
Western Africa	57 987	69 117	83 974	92 854	102 956	126 520	152 521
Latin America	96 411	108 982	120 670	125 728	131 042	142 283	153 695
Caribbean	11 120	12 500	13 520	13 933	14 364	15 204	15 744
Middle America	21 589	25 946	30 902	33 528	36 356	42 356	48 060
Temperate South America	8 962	8 402	7 984	7 687	7 407	6 860	6 338
Tropical South America	54 740	62 134	68 264	70 580	72 915	77 863	83 553
Northern America	60 054	65 381	66 896	66 340	65 552	62 743	57 000
East Asia	562 008	593 246	661 713	697 437	728 292	757 036	747 621
China	496 797	532 772	605 130	643 448	676 957	710 749	704 774
Japan	41 648	35 384	29 945	27 696	25 576	21 545	18 801
Other East Asia	23 563	25 090	26 638	26 293	25 759	24 742	24 046
South Asia	565 336	678 453	844 886	940 033	1 046 859	1 256 031	1 397 199
Eastern South Asia	147 533	178 972	226 330	254 604	284 991	344 187	383 949
Middle South Asia	401 114	480 609	597 626	663 583	738 849	885 687	983 190
Western South Asia	16 689	18 872	20 930	21 846	23 019	26 157	30 060
Europe	191 926	189 318	179 534	173 563	167 229	154 551	141 548
Eastern Europe	51 792	50 386	48 114	46 481	44 619	40 201	35 749
Northern Europe	18 611	17 643	15 037	13 671	12 463	10 537	9 203
Southern Europe	77 350	79 861	78 424	77 190	75 939	73 264	69 683
Western Europe	44 173	41 428	37 959	36 221	34 208	30 549	26 913
Oceania	4 893	5 321	5 638	5 667	5 643	5 508	5 557
USSR	109 310	109 742	105 124	99 722	94 462	84 376	75 413

projected absolute growth by 2000 in rural areas of the less developed regions (714 million) is more than half of the projected growth of their urban areas (1,320 million). Unless startling increases occur in the rate of urbanization, probably about one third of the huge anticipated increase in populations of the less developed regions during the remainder of this century will be accommodated in rural areas. It is perhaps even more noteworthy that this projected rural gain of 714 million between 1975 and 2000 is 38 per cent greater than the entire gain in urban populations of the less developed regions between 1950 and 1975 (518 million).

Table 7 presents the average annual growth rate of rural areas in major areas and regions between 1950 and 2000. The more developed regions have had slowly declining rural populations since 1950, and the rate of decline had increased sharply to the period 1970-1975, after which it was projected to change very little. In Northern Europe and in Australia and New Zealand, in fact, the rate of rural decline is projected to diminish for the rest of the century. There are sporadic indications that certain developed countries are beginning a "rural renaissance", although in most cases the phenomenon manifests itself primarily in the relatively slow growth of the largest cities rather than of urban populations in general. It should be remembered that the projection procedure, based on information available from the most recent censuses, does reduce the projected rate of urban growth in relation to rural growth as urban proportions increase. It is too early to judge whether events will turn the reduced rate of rural decline observed from recent censuses into a true rural renaissance for a broad range of countries.

In the less developed regions, rural growth rates appear to have been relatively constant at a level of about 1.7 per cent per annum from 1960 to 1980. They have been highest during this period in South Asia (2.1-2.2 per cent), where limited urban populations cannot absorb much of the high rural natural increase; and lowest in Latin America (about 0.9 per cent), where urban populations have absorbed not only much of the high rural natural increase but the very high urban natural increase. In Temperate South America, rural growth has been negative since 1950 and is expected to remain so for the duration of the century. In Africa and Latin America, rural growth rates are expected to remain roughly constant at their current levels during the remainder of the century. In East and South Asia, they are expected to decline, largely because of projected declines in rates of total population growth in these regions.

TABLE 7. AVERAGE ANNUAL GROWTH RATES OF RURAL AREAS IN MAJOR AREAS AND REGIONS, 1950-2000
(Percentage)

	1950-1960	*1960-1970*	*1970-1975*	*1975-1980*	*1980-1990*	*1990-2000*
World total	1.05	1.34	1.30	1.29	1.07	0.64
More developed regions	−0.08	−0.47	−0.76	−0.81	−0.88	−0.99
Less developed regions	1.36	1.75	1.69	1.65	1.35	0.83
Africa	1.77	1.95	1.89	1.90	1.86	1.70
Eastern Africa	1.99	2.22	2.18	2.15	2.15	2.10
Middle Africa	1.49	1.51	1.03	1.06	1.13	1.22
Northern Africa	1.66	1.62	1.60	1.54	1.37	0.93
Southern Africa	1.67	2.54	2.32	2.27	1.86	1.32
Western Africa	1.76	1.95	2.01	2.07	2.06	1.87
Latin America	1.23	1.02	0.82	0.83	0.82	0.77
Caribbean	1.17	0.78	0.60	0.61	0.57	0.35
Middle America	1.84	1.75	1.63	1.62	1.53	1.26
Temperate South America	−0.65	−0.51	−0.76	−0.74	−0.77	−0.79
Tropical South America	1.27	0.94	0.67	0.65	0.66	0.71
Northern America	0.85	0.23	−0.17	−0.24	−0.44	−0.96
East Asia	0.54	1.09	1.05	0.87	0.39	−0.13
China	0.70	1.27	1.23	1.02	0.49	−0.08
Japan	−1.63	−1.67	−1.56	−1.59	−1.72	−1.36
Other East Asia	0.63	0.60	−0.26	−0.41	−0.40	−0.29
South Asia	1.82	2.19	2.13	2.15	1.82	1.07
Eastern South Asia	1.93	2.35	2.35	2.25	1.89	1.09
Middle South Asia	1.81	2.18	2.09	2.15	1.81	1.04
Western South Asia	1.23	1.04	0.86	1.05	1.28	1.39
Europe	−0.14	−0.53	−0.68	−0.74	−0.79	−0.88
Eastern Europe	−0.28	−0.46	−0.69	−0.82	−1.04	−1.17
Northern Europe	−0.53	−1.60	−1.90	−1.85	−1.68	−1.35
Southern Europe	0.32	−0.18	−0.32	−0.33	−0.36	−0.50
Western Europe	−0.64	−0.87	−0.94	−1.14	−1.13	−1.27
Oceania	0.84	0.58	0.10	−0.08	−0.24	0.09
USSR	0.04	−0.43	−1.06	−1.08	−1.13	−1.12

C. RELATIVE SIZE OF URBAN AND RURAL POPULATIONS

Table 8 presents the percentage urban in the world and its major areas and regions. In 1975, 39.3 per cent of the world population was estimated to reside in urban areas (67.5 per cent of the population in the more developed regions and 28.0 per cent of that in the less developed regions). As shown in figure I, the annual increment in the urban percentage was relatively steady between 1950 and 1975 for the world and for both the more developed and the less developed regions; and it is expected to remain so for the rest of the century. The average annual gain in the percentage urban between 1975 and 2000 for less developed regions is projected at 0.62 percentage point; for more developed regions, at 0.45 percentage point; and for the world, 0.48. By the end of the century, the annual increment in the percentage urban is expected to be on the upswing for less developed regions and to be tailing off for more developed regions. The world percentage urban can be seen to draw closer to the percentage urban in the less developed regions as the century progresses. If the projections prove to be accurate, the next century will begin just after the world population achieves an urban majority; in 2000, the world is projected to be 51.3 per cent urban. Nevertheless, in Eastern Africa, Western Africa, China and South Asia, rural residents are still expected to outnumber urban by more than 50 per cent. Details on the percentage urban in individual countries may be found in table 50 (annex II).

It is interesting to observe that the ratio of urban-to-rural populations is growing considerably more slowly for the world as a whole than for either the more developed or the less developed regions. The growth rate of this ratio is simply the difference between the growth rates for urban and rural areas. For the period 1975-1980, this difference for less developed regions is estimated to be 2.41 per cent per annum; and for the more developed regions, 2.49 per cent. The difference for the world as a whole, 1.64 per cent, lies well outside of this narrow range. The reason for the apparent anomaly is simply that the more developed and the less developed regions receive very different weights in the calculation of urban growth rates than they do in the calculation of rural rates. Since the more developed regions contain roughly half of the world urban population, the relatively slow demographic growth in these countries is weighted much more heavily in the world urban growth rate than in the rural rate, where the slowly growing more developed regions constitute only 15 per cent of the total. The simple fact is that the world is urbanizing

TABLE 8. PROPORTIONS OF POPULATION LIVING IN URBAN AREAS OF MAJOR AREAS AND REGIONS, 1950-2000
(Percentage)

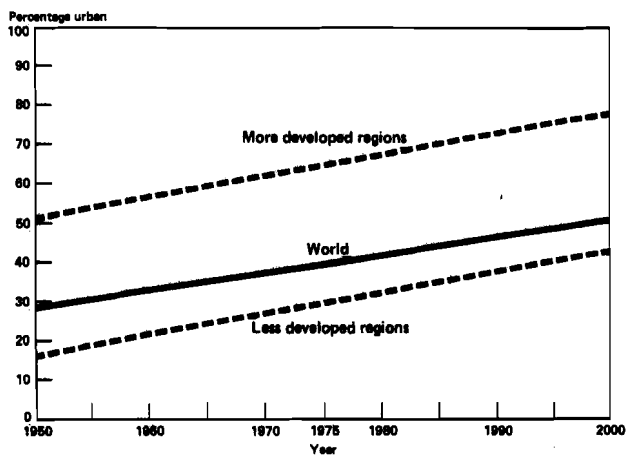
	1950	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
World total	28.95	33.89	37.51	39.34	41.31	45.88	51.29
More developed regions	52.54	58.73	64.68	67.49	70.15	74.87	78.75
Less developed regions	16.71	21.85	25.82	28.03	30.53	36.46	43.46
Africa	14.54	18.15	22.85	25.67	28.85	35.70	42.49
Eastern Africa	5.50	7.54	10.69	13.20	16.14	22.72	29.41
Middle Africa	14.57	18.10	25.16	29.66	34.37	43.65	51.56
Northern Africa	24.51	29.77	36.61	40.12	43.83	51.39	58.34
Southern Africa	37.27	41.70	43.76	44.81	46.49	51.43	57.90
Western Africa	10.15	13.48	17.27	19.58	22.29	28.65	35.92
Latin America	41.18	49.45	57.37	61.21	64.74	70.70	75.21
Caribbean	33.51	38.22	45.08	48.62	52.15	58.74	64.62
Middle America	39.75	46.71	53.88	57.37	60.75	66.95	72.17
Temperate South America	64.77	72.74	77.87	80.16	82.18	85.45	87.83
Tropical South America	36.29	46.36	56.05	60.70	64.85	71.52	76.17
Northern America	63.84	67.09	70.45	71.99	73.66	77.20	80.76
East Asia	16.72	24.71	28.61	30.70	33.05	38.63	45.43
China	11.00	18.60	21.60	23.29	25.41	31.07	38.61
Japan	50.20	62.40	71.30	75.08	78.24	82.93	85.86
Other East Asia	28.61	36.31	47.46	53.43	58.85	67.51	73.03
South Asia	15.65	17.80	20.45	22.02	23.95	29.10	36.13
Eastern South Asia	14.83	17.52	20.02	21.38	23.15	28.10	35.10
Middle South Asia	15.59	17.19	19.40	20.77	22.53	27.48	34.48
Western South Asia	23.38	32.52	44.48	50.45	55.75	63.49	68.50
Europe	53.70	58.42	63.94	66.45	68.83	73.25	77.11
Eastern Europe	41.48	47.90	53.26	56.26	59.31	65.23	70.56
Northern Europe	74.32	76.73	81.28	83.32	85.12	87.95	89.92
Southern Europe	41.01	46.15	52.90	56.25	59.41	65.26	70.31
Western Europe	63.92	69.20	74.38	76.25	78.08	81.36	84.27
Oceania	61.24	66.22	70.77	73.35	75.93	80.37	82.97
USSR	39.30	48.80	56.70	60.90	64.77	71.28	76.06

(in the sense of urban/rural growth differences) much less rapidly than either the more developed or the less developed regions because differentials in demographic growth rates between the two groups give rapidly increasing weight to the less urbanized group. If the anticipated demographic growth actually materializes, however, this disparity will begin to disappear as the less developed regions come to constitute an ever-larger fraction of both urban and rural populations.

The ranking ordering of major areas by their urban proportions is not expected to change substantially during the rest of this century. In 1975, the least urban area was South Asia (22.0 per cent), followed by Africa (25.7), East Asia (30.7), the USSR (60.9), Latin America (61.2), Europe (66.4), Northern America (72.0) and Oceania (73.4). Although the general ordering of major areas is expected to stay much the same for the rest of the century, the range is expected to be reduced by 7 percentage points as urban proportions grow more rapidly in developing than in developed regions.

Table 8 indicates that the urban percentage in less developed regions rose from 16.7 to 28.0 during the period 1950-1975. It is interesting to investigate whether the indicated pace of urbanization is faster or slower than that which characterized the currently developed countries when they traversed the same range. According to estimates presented in table 3, regions that are currently more developed were 17.2 per cent urban in

Figure I. Time path of percentage urban in the world, more developed regions and less developed regions, 1950-2000



1875 and 26.1 per cent in 1900.[11] These figures are remarkably close to those of less developed regions 75 years later. The slightly greater change in urban proportions in developing regions is well within the margin of error in the estimates. The rates of rural-urban migration required to achieve the observed increase in the urban percentage may even have been greater in the more developed regions, in view of the fact that rates of natural increase in those regions were typically higher in rural areas than in urban areas, whereas this generalization is no longer valid.[12] The percentage urban in currently developed countries reached 39.9 per cent in 1925, a figure projected to be reached by the developing regions in 1995, thus roughly preserving the 75-year lag.

Thus, recent rates of urbanization (and implied rates of rural-urban migration) in developing regions are not exceptional by historical standards. What are exceptional are the growth rates of urban and rural regions alike. Between 1875 and 1900, urban populations in currently developed countries grew by 100 per cent and rural populations by 18 per cent (table 3). In the less developed regions between 1950 and 1975, when equivalent changes were taking place in the urban proportion, the urban population grew by 188 and the rural by 49 per cent. The large differences in growth factors between the two regions are obviously caused by more rapid rates of natural increase in the developing regions, which also began with much larger urban and rural populations. Urban growth is currently quite exceptional in developing regions; the explanation, however, is not to be found in an unusually rapid change in urban proportions but in rapid changes in the total population size to which those proportions are applied.

D. Relationship between urban and industrial populations

With the aid of revised urban estimates complete through the 1970 round of population censuses, it is possible to take a fresh look at the over-urbanization thesis. In its simplest form, this thesis holds that urbanization is outpacing industrialization in developing countries, in the sense that urban fractions are large in relation to industrial fractions when compared with the relationships between the two that prevailed at earlier times in currently developed countries. This point was solidly established by Hoselitz and others in the 1950s.[13] It is useful to see whether these tendencies have persisted since that time. Chapter V contains a complementary analysis that focuses on the structure of the labour force within urban and rural areas. For the moment, attention is confined to the aggregate relation between urban and industrial proportions.

Table 9 presents estimates of the proportion of the labour force in the industrial sector in major areas and regions in 1950 and 1970. These estimates were compiled by the International Labour Office and do not depend upon urban/rural estimates, so that the two pieces of information may be viewed as independently derived (although both are, of course, based primarily on census information). Because information for China is deficient and estimates of urban and industrial population for that country appear to be inconsistent, no figures for China are presented and it is excluded from the world total.

The relationship between the urban and the industrial percentages is rather stable over developmental level. Quite typically, the industrial percentage is between 40 and 60 per cent of the urban percentage for a region, and there is no evident tendency for the ratio to change as the level of the two fractions changes. For the world as a whole (excluding China), the ratio was 55.24 per cent in 1950 and 57.77 per cent in 1970. This slight increase suggests that urban growth is no longer outpacing industrial growth; if anything, a slight reversal of the over-urbanization tendency has appeared. However, there are many regions where the industrial/urban ratio has declined.

Probably the most vivid way to demonstrate the close interregional relation between industrial and urban fractions, and the tendencies for change since 1950, is by means of figure II. On this figure are plotted the urban and industrial percentages for each region in 1950 and 1970; the two percentages for a particular region are connected by a line. It should be stated that the urban percentage rose during the period in each of the regions, so that the earlier observation always appears at the left-hand side of the two. Most of the points clearly fall close to a line through the origin with a slope of 0.5 (each unit increment in urban percentage matched by a 0.5 unit increment in the industrial percentage). The following tendencies are suggested by the figure and supported by table 9:

(*a*) Regions beginning at the highest levels of urbanization typically experienced declines in the industrial/urban ratio between 1950 and 1970. Such declines were especially marked in Northern America, Oceania, Northern Europe and Temperate South America, in each of which the fraction of the labour force in industry actually declined while the urban percentage was growing. Nevertheless, the movement was not so decisive as to move the regions far from a 2:1 urban/industrial ratio. Temperate South America moved the largest distance from this relationship, achieving a ratio in 1970 of 2.5:1. The movement in these regions, of course, reflects the emergence of a service economy; the reductions in industrial labour force were invariably absorbed into the service sector rather than into agriculture. Japan and Western Europe did not participate to any important extent in the tendency for a reduced industry/urban ratio. Their exemption may rest in part upon economic structures emphasizing the exportation of manufactured goods;

(*b*) Eastern Europe, Southern Europe and the USSR, all beginning at intermediate urban and industrial fractions, experienced sharp rises in the industry/urban ratio during the period. It has been argued that developments in Eastern Europe and the USSR reflect a development strategy that attempts to economize on investible

[11] In the data given in Chapter I, Cyprus, Israel and Turkey are included in the less developed regions, whereas they are included in the more developed regions in the remainder of this publication.

[12] Kingsley Davis, "Cities and mortality", in International Union for the Scientific Study of Population, *International Population Conference, Liège, 1973* (Liège, 1974), vol. 3, pp. 259-282. See also Chapter III of the present publication.

[13] Bert F. Hoselitz, "Urbanization and economic growth in Asia", *Economic Development and Cultural Change*, vol. 6 (October 1957), pp. 42-54; and *idem*, "The role of cities in the economic growth of underdeveloped countries", *Journal of Political Economy*, vol. 61 (February-December 1953), pp. 195-208.

TABLE 9. REGIONAL RELATIONSHIP BETWEEN URBANIZATION OF POPULATION AND INDUSTRIALIZATION OF THE LABOUR FORCE

Major area and region	1950			1970			Change, 1950-1970 (ratio, (6)/(3)) (7)
	Percentage of labour force in industry (1)	Percentage of population living in urban areas (2)	Ratio, (1)/(2) x 100 (3)	Percentage of labour force in industry (4)	Percentage of population living in urban areas (5)	Ratio, (4)/(5) x 100 (6)	
World[a]	18.81	34.05	55.24	24.17	41.84	57.77	1.045
Africa							
Eastern Africa	3.66	5.50	66.54	6.32	10.69	59.12	0.888
Middle Africa	5.87	14.57	40.29	9.54	25.16	37.92	0.941
Northern Africa	10.44	24.51	42.59	15.75	36.61	43.02	1.010
Southern Africa	24.56	37.27	65.90	26.35	43.76	60.21	0.914
Western Africa	6.10	10.15	60.10	11.30	17.27	65.43	1.089
Latin America							
Caribbean	16.67	33.15	49.75	21.10	45.08	46.81	0.941
Middle America	16.04	39.75	40.35	21.36	53.88	39.64	0.982
Temperate South America	31.06	64.77	47.95	31.12	77.87	39.96	0.833
Tropical South America	16.22	36.29	44.70	19.59	56.05	34.95	0.782
Northern America	36.54	63.84	57.24	34.19	70.45	48.53	0.848
East Asia[a]							
Japan	23.62	50.20	47.05	34.48	71.30	48.36	1.028
Other East Asia	13.30	28.61	46.49	25.37	47.46	53.46	1.150
South Asia							
Eastern South Asia	7.15	14.83	48.21	10.06	20.02	50.25	1.042
Middle South Asia	8.15	15.59	52.28	13.04	19.40	67.21	1.286
Western South Asia	13.40	23.38	57.32	18.40	44.48	41.37	0.722
Europe							
Eastern Europe	26.73	41.48	64.44	37.59	53.26	70.58	1.095
Northern Europe	44.77	74.32	60.24	42.65	81.28	52.47	0.871
Southern Europe	21.50	41.01	52.43	31.00	52.90	58.60	1.118
Western Europe	39.74	63.92	62.17	44.49	74.38	59.81	0.962
Oceania	31.17	61.24	50.90	30.38	70.77	42.93	0.843
USSR	21.62	39.30	55.01	37.65	56.70	66.40	1.207

SOURCES: For columns (1) and (4), International Labour Office, *Labour Force Estimates and Projections: 1950-2000*, vol. V., *World Summary* (Geneva, 1977). Figures for Western South Asia and Southern Europe have been adjusted to conform to the definition of those areas that includes Cyprus, Israel and Turkey in Southern Europe by use of vol. I, *Asia*. For columns (2) and (5), data taken from table 8 of the present report.

[a] Excluding China.

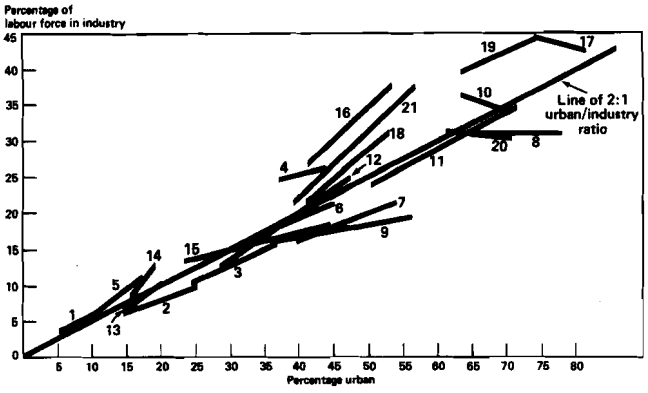
resources by reducing urban populations, with their high consumption requirements, in relation to the industrial labour force.[14] The results are consistent with this and with other explanations. The fact that Southern Europe reveals the same tendency, but without consistent anti-urban policies, suggests that other forces may be at work. All three regions were late-comers to industrialization and it may be the case that a certain acquired momentum for industrial expansion was reflected during this period. In any case, Eastern Europe and the USSR had higher industrial fractions than Northern America, Oceania, Japan or Temperate South America in 1970, despite urban percentages that were 15-20 points lower;

(*c*) All four regions of Latin America had declines in the industry/urban ratio during the period, and all four began the period with a ratio below the world average and in fact below one half. If over-urbanization is operationally defined in terms of "normal" urban industry ratios, then the process continues to characterize Latin America. As is shown in chapter V, what distinguishes Latin America is not so much an unusual occupational structure in cities as a deficiency of non-agricultural occupations in rural areas. Non-agricultural occupations are unusually highly urbanized in Latin America;

(*d*) South Asia and East Asia generally experienced increases in the industry/urban ratio between 1950 and 1970. Thus, the over-urbanization process, first described with reference to countries in this region, seems not to have been exacerbated during those two decades. The fact that these regions are so populous basically accounts for the rise that occurred in the ratio for the world (excluding China) during the period.

[14] Gur Ofer, "Industrial structure, urbanization, and the growth strategy of socialist countries", *Quarterly Journal of Economics*, vol. X, No. 2 (May 1976), pp. 219-244.

Figure II. Relationship between percentage urban and percentage of labour force in industry, 1950 and 1970[a]



Regional key

1. Eastern Africa
2. Middle Africa
3. Northern Africa
4. Southern Africa
5. Western Africa
6. Caribbean
7. Middle America
8. Temperate South America
9. Tropical South America
10. Northern America
11. Japan
12. Other East Asia (excluding China)
13. Eastern South Asia
14. Middle South Asia
15. Western South Asia
16. Eastern Europe
17. Northern Europe
18. Southern Europe
19. Western Europe
20. Oceania
21. USSR

[a] Lines connect observations for 1950 and 1970 in a particular region.

Although the relationships between urban and industrial populations at the national level are doubtless more disparate than those described here, the regional results would appear to focus attention on Latin America as the main arena in which urban growth is outpacing industrial growth. This process is also occurring in some of the most developed regions, but there it would appear to be a normal part of the continuing transition to a post-industrial and service-dominated economy.

The apparent absence of widespread disruption in urban/industry relations since 1950 is not evidence that contemporary relations are no different from those in currently developed countries at an earlier time. It is estimated that 21.6 per cent of the labour force of the currently developed countries was engaged in industry in 1900, at a time when the urban percentage in the region is estimated at 27.3 (from table 3).[15] Clearly, the typical 1:2 ratio did not prevail at that time. But neither does it prevail today in that region. It might be appropriate to view the early industrializing phase in currently developed countries as more anomalous than the experience in contemporary developing countries, particularly when descriptions of the pre-industrial city as a mainly administrative, political and service centre are recalled.[16]

[15] Paul Bairoch and J.-M. Limbor, "Changes in the industrial distribution of the world labour force, by region, 1880-1960", *International Labour Review*, vol. 98, No. 4 (October 1968), p. 319.

[16] G. Sjoberg, *op. cit.*, p. 5.

III. COMPONENTS OF URBAN AND RURAL POPULATION CHANGE

When boundaries of a territory are fixed, its population can change only as a result of births to residents, deaths of residents and movement across those boundaries. When boundaries are flexible, as in the case of populations defined as rural and urban, the additional element of areal reclassification is added to the sources of change. Identifying these sources is an important first step in understanding the social, economic and biological processes that underlie demographic development. If urban populations are growing rapidly in relation to rural populations because of their lower mortality, the implications for policy and planning are quite different than if the source is job-inspired migration. Separating the constituent elements of population growth in urban and rural areas serves to establish proximate causes of demographic change in much the same way that distinctions between nuptiality and marital fertility can establish proximate causes for fertility change.

Despite the desirability of identifying growth components, the raw materials for doing so are not abundant. Even in countries with the very best statistical systems—those which compile births, deaths and migrations by locality—the defined urban areas can spill over or intersect administrative boundaries. Such disparities make it difficult to acquire numerators that correspond definitionally to denominators. Furthermore, unless care is exercised, vital events are often ascribed to place of occurrence rather than to place of residence, imparting an upward bias in most cases to urban rates of natural increase. In the majority of countries, where vital registration is incomplete, it is usually more deficient in rural than in urban areas. Little use can be made of such data for decompositional purposes.

In this chapter, a standardized method is applied to data from many countries in order to estimate the components of change in urban and rural populations. The procedure is necessarily indirect and yields only approximate estimates. Furthermore, it is capable only of distinguishing between natural increase, on the one hand, and migration and reclassification, on the other. But a variety of supplementary evidence, presented below, suggests that the procedure works rather well in achieving this distinction. It is applied to data for individual countries, and the analysis in this chapter focuses on those countries for which the data permit the application.

A. Methods of Procedure

The primary method used in this chapter involves intercensal cohort comparisons of the total and urban population. Exceptional changes between the censuses in urban cohort size are ascribed to net internal migration and reclassification. Summing these changes among cohorts produces an estimate of the total change attributable to this source. This total change is then added to or subtracted from the intercensal change in the urban and rural populations in order to estimate urban and rural natural increase. A computerized procedure was devised to produce estimates when national censuses are separated by any time period between 5 and 15 years. The procedure is straightforward when censuses are separated by 10 years, and this case is used for illustrative purposes.[1]

Define for each sex separately:

$T(i,1)$ = population size in age interval i (assumed to be five years wide) at the initial census;

$T(i,2)$ = population size in age interval i at the second census, 10 years later;

$U(i,1),U(i,2)$ = urban population size in age interval i at the first and second census.

The steps in the procedure are then the following:

(1) Calculate cohort "survival" rates for the total population:

$$S(i) = \frac{T(i+2,2)}{T(i,1)};$$

(2) Apply the cohort survival rates to the appropriate urban cohorts at time 1 to derive an expected number of urban persons in this cohort 10 years hence:

$$EU(i+2,2) = S(i) \cdot U(i,1);$$

(3) Subtract the expected number from the actual number to derive an estimate of net surviving migrants:

$$NSM(i+2,2) = U(i+2,2) - EU(i+2,2);$$

(4) Survive backwards the net surviving migrants by five years (i.e., to mid-period) in order to estimate the total volume of net migration during the period in the cohort:

$$NM(i+1) = NSM(i+2,2)\frac{2}{1+S(i)}$$

Use of this formula implies that internal migration in a cohort occurs one-half way through the period and that cohort deaths are equally distributed between the first and second halves;

(5) For the terminal, open-ended age interval Z at time 2, use:

$$S(Z-2) = \frac{T(Z,2)}{T(Z-2,1)+T(Z-1,1)+T(Z,1)}$$

$$EU(Z,2) = S(Z-2)\left(U(Z-2,1)+U(Z-1,1)+U(Z,1)\right)$$

$$NSM(Z,2) = U(Z,2)-EU(Z,2)$$

$$NM(Z-1) = NSM(Z,2) \cdot \left(\frac{2}{1+S_{Z-2}}\right)$$

[1] Major complications are introduced when censuses are not separated by an integer multiple of five years, particularly for the youngest and oldest ages. For other age groups, forward survival rates are defined by comparing a cohort's initial size with a weighted average of population in the two appropriate five-year ages at the time of the later census. The weighting factor is a linear function of the length of time between censuses.

(6) To estimate migrants into the initial age interval, apply the child/woman ratio of urban residents to migrating women by age from step 4. For greater precision, a form of indirect standardization was used. A standard shape of a fertility function was adopted which was designed to represent births in the preceding five years to women by age. The level of this function was then set in accordance with the observed number aged 0-4 years in the urban population at time 2. The five-year cumulative fertility rates (F_i) were assumed to be distributed by age of women 15-19, 20-24, ... 45-49 in the proportions 0.04, 0.15, 0.24, 0.23, 0.18, 0.11, 0.05. This fertility age-schedule is characteristic of a high-fertility population. The estimate of total migrants into the age interval 0-4 during the period is then:

$$NM(1) = \left[\Sigma_i NM_F(i) \cdot F_i\right] \cdot \frac{U_T(1,2)}{\sum_i U_F(i,2) \cdot F_i}$$

where $U_T(1,2)$ is the total urban population, males plus females, aged 0-4 at time 2; and $NM_F(i)$ and $U_F(i)$ refer to the female sex only.

The procedure thus provides estimates of net migration for every age interval from 1 to $(Z\text{-}1)+$.[2]

Two issues require clarification if the results of this procedure are to be properly interpreted. The first relates to the survival rate. As an intercensal cohort ratio, the survival rate clearly includes the effects of international migration, census omission and censal age misstatement along with mortality. Mortality dominates the survival ratio at higher ages; but the other factors are often dominant at younger ages, particularly where ages are imprecisely known. However, it is precisely because intercensal survival rates reflect these factors and conventional life tables do not that the former rates are preferred for this type of analysis. If patterns of age misstatement and omissions are identical in urban and rural areas and if international migration is directed proportionally to the two, then the intercensal survival rate adjusts correctly for these factors in deriving estimated net migration. Application of life-table survival rates would create spurious patterns of migration because they do not reflect these factors. Error simulations show that the volume of migration estimated through the intercensal approach is quite insensitive to age misreporting which is common to rural and urban areas, although the age pattern of migration can still be rather seriously distorted by extreme forms of misreporting.

Because the assumption that survival rates are identical in rural and urban areas may not be correct, a sensitivity analysis was made of the results for each country. The entire estimation procedure was repeated with the assumption that rural "mortality" at each age exceeded urban "mortality" at that age by 50 per cent. That is, for each cohort there are expected to be, under this alternate procedure, 50 per cent more decrements per initial member of the cohort in rural areas than in urban areas. This assumption is roughly equivalent to assuming that, in the range of mortality characteristic of most developing countries, urban life expectancy at birth exceeds rural by 10 years. Results of using this rather disparate mortality assumption reveal that, in most cases, the component estimates are quite insensitive to the assumption of equality between urban and rural survival rates. Results of the sensitivity analysis are given in section G of this chapter.

The second concept that requires clarification is that of "migration". People can obviously "move" from a rural to an urban area without ever changing their residence, provided that the area in which they live has been reclassified. Reclassification can occur through annexation into an already urban area, because a town grows past the urban-defining boundary or because the definition of urban has changed. The estimates of migration given here obviously include all of these elements, although an attempt was made to minimize the effect of definitional changes by excluding countries having experienced major changes.[3]

International migration that is disproportionately directed to urban or rural areas will affect estimates of internal migration. On the other hand, international migration, regardless of whether it is differentially directed, obviously affects the growth rates of urban and rural areas themselves. If "natural increase" is estimated by adding or subtracting internal net migration from the total changes in urban and rural populations, the remainder will necessarily include international migration. This remainder is referred to throughout the chapter as "natural increase", but it should be borne in mind that it may also comprise international migration. Because the assumption of no rural/urban differentials in international migration is much weaker than an assumption of no international migration, estimates of net internal migration are less contaminated by international migration than are estimates of natural increase.

Lastly, it should be stated that the procedure is designed to disentangle the instantaneous contributions of migration and natural increase to population growth. No attempt is made to assign certain fractions of subsequent growth to current levels of migration or natural increase. Obviously, migrants will bear children and die, just as will those being born today. The long-term impact of current migration and natural increase on population size can only be gauged by some form of population projection. The strategy pursued here, however, is designed to answer a simpler question: what fraction of growth occurring today would be eliminated if rates of migration or natural increase were suddenly set at zero. The fact that this question can best be answered on the basis of intercensal data stretching sometimes over a long period should not deflect attention from the fact that the answer is given in the form of instantaneous rates.

B. Evaluating the technique

The results of using an intercensal survival approach, very similar to the approach pursued here, have been compared with migration estimated directly through the

[2] For applications of closely related intercensal techniques for estimating internal migration, see *Manual VI, Methods of Measuring Internal Migration.* (United Nations publication, Sales No. E.70.XIII.3), chap. II.

[3] As implied above, the estimated migration will also include some "noise" due to differences in patterns of omission and age-misreporting in urban and rural areas. It may also include some systematic biases resulting from: (*a*) international migration that is directed to urban areas disproportionately to the urban population in the initial year; and (*b*) urban and rural mortality differentials that depart from the assumed pattern. The latter two sources of disturbance would only in very rare circumstances produce more error than that estimated in the sensitivity analysis presented below.

use of the Hungarian Population Register.[4] The technique works quite well in this case, producing an error of only 4.8 per cent in total estimated intercensal migrants. The error if life-table, as opposed to intercensal, survival rates were used was 7.3 per cent, and other indirect techniques produced errors of 8.3 and 14.6 per cent. Thus, the intercensal survival approach compares favourably with other techniques.

The results derived herein can also be compared with a completely independent set of data, registered birth and death rates classified by urban/rural residence. For nine countries where the technique has been applied, rates of rural and urban natural increase can be calculated around mid-period and compared with the rates of natural increase derived through the intercensal survival procedure. Results of this comparison are shown in table 10.

TABLE 10. COMPARISON OF ESTIMATED RATES OF NATURAL INCREASE IN URBAN AND RURAL AREAS DERIVED FROM INTERCENSAL SURVIVAL TECHNIQUE AND FROM VITAL REGISTRATION

Country	Period	Rate of natural increase	
		Urban	Rural
Latin America			
Mexico	1960-1970[a]	32.8	34.2
	1960-1970[b]	34.1	33.9
	1965[c]	35.8	36.0
Panama	1960-1970[a]	25.8	33.8
	1960-1970[b]	27.5	32.5
	1965[c]	28.8	32.8
Ecuador	1962-1974[a]	31.1	34.4
	1962-1974[b]	32.2	33.8
	1968[c]	26.1	30.5
Asia			
India	1961-1971[a]	20.1	22.5
	1961-1971[b]	23.6	21.7
	1964-1965[c,d]	22.3	20.6
Japan	1965-1975[a]	14.6	8.8
	1970[c]	13.6	6.9
Europe			
Finland	1960-1970[a]	4.6	2.5
	1966[c]	10.3	5.1
Hungary	1963-1970[a]	1.6	4.8
	1967[c]	3.8	4.7
Norway	1960-1970[a]	6.7	8.9
	1965[c]	7.0	9.2
Poland	1960-1970[a]	8.8	12.2
	1965[c]	8.0	11.9

[a] Assuming that intercensal survival rates are the same for rural and urban residents.

[b] Assuming that rural mortality exceeds urban mortality by 50 per cent at each age.

[c] Vital registration figures derived from United Nations, *Demographic Yearbooks*, primarily 1974 (table 24) and 1975 (table 21).

[d] Death rates are for 1971.

[4] Kalman Tekse, "The measurement of rural-urban migration", in Sidney Goldstein and David Sly, eds., *The Measurement of Urbanization and Projection of Urban Population*, International Union for the Scientific Study of Population Committee on Urbanization and Population, Redistribution working paper No. 2 (Dolhain, Belgium, Ordina Editions, 1975).

The strongest test occurs in the five more developed countries, where registration data are most reliable. In these countries, the table shows that both the level of natural increase and the rural/urban differences in it are rather accurately reflected in the intercensal survival results. Japan and Poland, with pronounced (but opposite) urban/rural differences in natural increase and with little international migration, provide particularly strong validation of the procedure. In Finland, derived rates of natural increase are lower than registration figures, undoubtedly because of net international emigration. Such a disparity is not problematical; it simply reflects the fact that, even at the level of the national aggregate, rates of natural increase exceed rates of population growth because of emigration.

In the four less developed countries, the technique provides good estimates of levels of natural increase (although net out-migration is suggested for Mexico and in-migration for Ecuador) and successfully predicts relatively little difference between rates in urban and rural areas.

The derived estimates of rural and urban natural increase might be compared to a naïve model in which net movement between rural and urban areas is assumed to be equal to zero. In this case, the estimate of natural increase would simply be the urban and rural growth rates themselves. In most of the developing countries, the urban growth rate exceeds the rural by about 30-50 per 1,000, obviously an extremely unrealistic difference for rates of natural increase between the two areas. The estimates of migration produced by the present procedure in all cases moves the rates of rural and urban natural increase to a much more plausible range. Since these rates are the last values to be estimated in a long series, their plausibility gives some assurance that preceding calculations are reasonably reliable.

C. SOURCES OF URBAN GROWTH

As documented in chapter II, rural and urban populations alike are growing throughout most of the world. Attention is now turned to those countries which can supply information on the sources of this growth. It should be stated that the populations included in this analysis were checked for intercensal comparability of urban definitions, and only results for those which passed the test are presented here. Unfortunately, results for Costa Rica, Honduras, the Libyan Arab Jamahiriya, Namibia, Nicaragua (1963-1971) and the United Republic of Tanzania had to be discarded because of changing definitions. Also, in the case of Costa Rica, there was inconsistent application of the same definition. The estimates presented in this chapter will serve to update and expand previous estimates (ESA/P/WP.46) made by the United Nations Secretariat.

In each country and period under review, the urban population is growing. The contribution of internal migration to that growth can be seen in columns 3 and 4 of table II. This table relies upon the assumption that urban and rural age-specific survival rates are equal in developed countries. For developing countries, it uses the average of results produced by this assumption and by the assumption that rural age-specific mortality exceeds urban by 50 per cent. The procedure thus amounts to assuming that rural age-specific mortality exceeds urban by 25 per cent or that life expectancy at birth is about five years greater in urban areas. Section G of

this chapter shows that the results for developing countries are not very sensitive to the assumption about mortality.

European countries in particular, and the more developed countries in general, show the highest proportionate contribution of migration/reclassification to urban growth.[5] An average of two thirds of recent urban growth in European countries has resulted from this source. The figure is similar for the USSR. Only in the countries of oversea western European settlement in Northern America and Oceania is the proportion lower, with the growth contribution of migration in Canada, the United States of America and Australia in the range of 20-35 per cent. The unusual position of these countries partially reflects their retention of relatively high rates of urban natural increase. It should be re-emphasized that, for many European countries in particular, natural increase as measured in table II contains a substantial amount of international migration. Natural increase is almost certainly inflated by international migration in France, Luxembourg, Sweden and Switzerland, while it is deflated in Finland, Greece, Ireland and Spain.[6]

In contrast, the bulk of urban growth in the less developed countries is attributable to the natural increase of urban populations. Considering only the most recent observation for a country, an average of 60.7 per cent of growth is attributable to this source, compared with only 39.3 per cent for migration. These figures are nearly reversed for the more developed countries (40.2 and 59.8 per cent). Much of this disparity between the groups of countries is attributable to the much higher rates of urban natural increase in the less developed countries, particularly those in Latin America and in Western South Asia. From the foot of table 11, it can be seen that the average urban growth rate of the 29 developing countries is 0.04324, which exceeds the average urban growth rate of the 20 developed countries by 0.01851. Of this difference, 0.01558 (or 0.02533-0.00975) is attributable to differences in average rates of natural increase. This represents 84.2 per cent of the difference in urban growth rates between the two groups of countries. Only 15.8 per cent $\left(\frac{0.01792-0.01498}{0.01851}\right)$ is attributable to higher rates of urban in-migration in the developing countries.

Thus, despite the much larger pool of potential rural-urban migrants in the less developed countries, their rate of urban in-migration scarcely differs from that of the more developed countries. Urban growth is typically much faster, by 75 per cent on average (0.04324/0.02473), but the preponderance of the difference is caused by more rapid rates of urban natural increase in the less developed regions. It is fair to conclude that the causes of rapid urban growth in developing countries are inextricably interwoven with the causes of rapid natural increase.

The estimated proportion of urban growth in developing countries attributable to net rural-urban migration represents a slight downward movement in relation to the estimates pertaining to 1960 that were presented in a previous working paper (ESA/P/WP.46). In table 3 of that source, population transfers were estimated to have accounted for 49.1 per cent of urban growth in the less developed countries. Without China, however, the estimate was 42.2 per cent; and China does not appear among the countries listed in table 11. The question arises whether the slight downward revision is a reflection of real trends because most of the present data pertain to the period after 1960, or whether it reflects differences in methods of procedure or an unrepresentative sample of countries. There are some reasons to expect that the fraction of urban growth represented by net internal migration should decline somewhat as the urban proportion rises, as the number of potential in-migrants per urban dweller must decline in the process. One way of answering the question is to examine countries where the intercensal survival procedure could be applied twice, in order to see whether trends exist when comparable procedures are used. There are 11 less developed countries given in table 11 which can provide two temporally adjacent estimates. Of these, five show absolute changes in the percentage contribution of net migration to urban growth of less than 3 per cent in either direction: Chile; El Salvador; India; Sri Lanka; and Turkey. Four show a decline greater than 3 per cent: Brazil (4.7); Ecuador (8.0); Venezuela (8.9); and South Africa (17.0). Two show a rise of 4 per cent or more: Panama (4.0); and Dominican Republic (4.7). There is no striking tendency for change in this group of countries, but the hint of a general downturn is maintained. It appears most judicious to conclude that the proportionate contribution of migration to urban growth in the less developed countries has been relatively stable but with a slight tendency, on average, for decline.

Net rural-urban migration is estimated to account for more than half of urban growth during the most recent period in only five specimen less developed countries: Puerto Rico (64.2); Turkey (61.9); Republic of Korea (60.5); Bangladesh (55.4); and Argentina (1947-1960, 50.8). This list is striking for the over-representation of countries with unusually rapid economic growth.[7] Where economic growth is slower—that is, in the majority of the less developed countries—it is suggested that the large majority of urban growth, perhaps some two thirds, is a result of the natural increase of urban populations themselves. It should, however, be stressed that Africa is poorly represented among the countries examined in this chapter. As the continent with the most rapid rate of urban growth, it can be expected that Africa has a larger than average fraction of that growth attributable to net migration. A review of the sparse evidence available on components of urban growth in Africa indicates that migration appears to account for only a small fraction of urban growth in Ghana, but suggests that it accounts for slightly more than half in Nigeria.[8]

[5] Hereinafter, this source of growth is referred to simply as "migration".

[6] For an alternative treatment that places international migration in the migration component, see *Economic Survey of Europe in 1977, part II, Labour Supply and Migration in Europe: Demographic Dimensions 1950-1975 and Prospects* (United Nations publication, Sales No. E.78.II.E.20).

[7] The exception is Bangladesh, where international migration and population upheavals were considerable and where the very low initial urban proportion of 5.2 per cent gives a very unstable base.

[8] Ita I. Ekanem, "The dynamics of urban growth: a case study of medium-sized towns of Nigeria", contributed paper presented at the International Union for the Scientific Study of Population Conference on Economic and Demographic Change: Issues for the 1980s, Helsinki, Finland, 28 August-1 September 1978.

TABLE 11. SOURCES OF INTERCENSAL GROWTH OF URBAN POPULATIONS

Major area or region and country	*Intercensal period*	*Annual intercensal population growth rate of urban areas (1)*	*Estimated annual urban rate of natural increase (2)*	*Estimated annual rate of urban growth from internal migration and reclassification (3)*	*Estimated percentage of growth attributable to internal migration and reclassification* $(4) = \frac{(3)}{(1)}$
Africa					
Ghana	1960-1970	0.04685	0.02697	0.01988	42.4
Morocco	1960-1971	0.04100	0.02581	0.01519	37.0
South Africa	1951-1960	0.03514	0.02017	0.01497	42.6
	1960-1970	0.03423	0.02548	0.00875	25.6
Mean, Africa					(36.9)
Northern America					
Canada	1951-1961	0.03866	0.02562	0.01304	33.7
	1961-1971	0.02563	0.01644	0.00919	35.9
Dominican Republic	1950-1960	0.05952	0.03360	0.02592	43.5
	1960-1970	0.05804	0.03004	0.02800	48.2
El Salvador	1950-1961	0.03296	0.02536	0.00760	23.1
	1961-1971	0.03671	0.02861	0.00810	22.1
Guatemala	1964-1973	0.02999	0.01982	0.01017	33.9
Mexico	1960-1970	0.04904	0.03349	0.01555	31.7
Nicaragua	1950-1963	0.04109	0.02868	0.01241	30.2
Panama	1950-1960	0.04325	0.02972	0.01353	31.2
	1960-1970	0.04465	0.02668	0.01797	40.2
Puerto Rico	1960-1970	0.04180	0.01498	0.02682	64.2
United States of America	1950-1960	0.02646	0.01708	0.00938	35.4
	1960-1970	0.01755	0.01243	0.00513	29.2
Mean, Northern America[a]					(35.9)
South America					
Argentina	1947-1960	0.02906	0.01431	0.01475	50.8
Brazil	1950-1960	0.05408	0.02625	0.02683	49.6
	1960-1970	0.04708	0.02594	0.02114	44.9
Chile	1952-1960	0.04020	0.02548	0.01472	36.6
	1960-1970	0.02941	0.01842	0.01099	37.4
Colombia	1951-1964	0.05435	0.03446	0.01989	36.6
Ecuador	1950-1962	0.04771	0.02975	0.01796	37.6
	1962-1974	0.04490	0.03161	0.01329	29.6
Paraguay	1962-1972	0.03124	0.02033	0.01091	34.9
Peru	1961-1972	0.04923	0.02875	0.02048	41.6
Uruguay	1963-1975	0.00736	0.00682	0.00054	7.3
Venezuela	1950-1961	0.06143	0.03890	0.02253	36.7
	1961-1971	0.04580	0.03307	0.01273	27.8
Mean, South America					(36.3)
Asia					
Bangladesh	1961-1974	0.06613	0.02948	0.03665	55.4
India	1951-1961	0.03080	0.02152	0.00928	30.1
	1961-1971	0.03211	0.02173	0.01038	32.3
Indonesia	1961-1971	0.03739	0.02405	0.01334	35.7
Iran	1956-1966	0.04971	0.02813	0.02158	43.4
Iraq	1957-1965	0.06446	0.03497	0.02949	45.7
Japan	1955-1965	0.02857	0.01017	0.01840	64.4
	1965-1975	0.02382	0.01441	0.00941	39.5
Nepal	1961-1971	0.03323	0.02088	0.01235	37.2
Republic of Korea	1960-1970	0.06250	0.02468	0.03782	60.5
Sri Lanka	1953-1963	0.04650	0.02262	0.02388	51.4
	1963-1971	0.04281	0.02196	0.02085	48.7
Syrian Arab Republic	1960-1970	0.04869	0.03333	0.01536	31.5
Turkey[b]	1955-1960	0.05959	0.02324	0.03635	61.0
	1960-1970	0.05552	0.02117	0.03435	61.9
Mean, Asia					(46.6)

TABLE 11. *(continued)*

Major area or region and country	*Intercensal period*	*Annual intercensal population growth rate of urban areas (1)*	*Estimated annual urban rate of natural increase (2)*	*Estimated annual rate of urban growth from internal migration and reclassification (3)*	*Estimated percentage of growth attributable to internal migration and reclassification* $(4) = \frac{(3)}{(1)}$
Europe					
Austria	1961-1971	0.00884	0.00053	0.00830	94.0
Bulgaria	1956-1965	0.04472	0.01025	0.03447	77.1
Finland	1950-1960	0.02797	0.00866	0.01931	69.0
	1960-1970	0.03058	0.00460	0.02598	84.9
France	1962-1968	0.02817	0.01242	0.01575	55.9
Greece	1961-1971	0.02519	0.00364	0.02155	85.5
Hungary	1960-1970	0.01607	0.00197	0.01410	87.7
Ireland	1961-1971	0.01797	0.00934	0.00864	48.1
Luxembourg	1960-1970	0.01715	0.00830	0.00885	51.6
Norway	1950-1960	0.00892	0.00567	0.00325	36.4
	1960-1970	0.03583	0.00674	0.02909	81.2
Poland	1960-1970	0.01832	0.00879	0.00953	52.0
Romania	1956-1966	0.02860	0.00643	0.02217	77.5
Spain[b]	1950-1960	0.02344	0.00801	0.01543	65.8
Sweden	1960-1970	0.01870	0.00944	0.00925	49.5
Switzerland	1960-1970	0.02605	0.01313	0.01292	49.6
Mean, Europe					(66.6)
Oceania					
Australia	1961-1971	0.02370	0.01889	0.00481	20.3
New Zealand[b]	1951-1961	0.03620	0.01833	0.01788	49.4
Mean, Oceania					(34.8)
USSR	1959-1970	0.02788	0.01083	0.01705	61.1
Mean, sample (N = 65)					45.9
Mean, developing countries (N = 40) last observation only (N = 29)		0.04324	0.02533	0.01792	39.6 39.3
Mean, developed countries (N = 25) last observation only (N = 20)		0.02473	0.00975	0.01498	57.4 59.8

[a] Including the following countries of Latin America: Dominican Republic; El Salvador; Guatemala; Mexico; Nicaragua; Panama; and Puerto Rico.

[b] Urban definition differs from that used in chapter II but is internally consistent between censuses.

In several cases, the estimates presented in table 11 can be compared with alternative estimates of components of urban growth for similar or identical periods. In some of these instances, these additional estimates include information on the portion of growth assigned to reclassification, an important subject that has not been discussed. For the Soviet Union between 1959 and 1970, one writer[9] assigns 41 per cent of urban growth to natural increase, which is very close to the present estimate of 39 per cent for that period. Of the remaining 59 per cent, he assigns 15 per cent to the redefinition of previously rural settlements as urban and 44 per cent to net rural-urban migration *per se*. Thus, about a quarter of the "migration" component for this country is in fact attributable to reclassification.

[9] V. I. Perevedentsev, "Migratsiia naseleniia i ispol'zovanie trudovykh resursov". *Voprosy ekonomiki* (Moscow) No. 9 (September 1970), pp. 34-43.

Very similar figures are presented for the Republic of Korea for the period 1960-1966.[10] Natural increase contributed 42.1 per cent of urban growth, compared with the present estimate of 39.5 per cent for the more inclusive period 1960-1970. Net rural-urban migration contributed 40.6 per cent and reclassification of areas, 17.3 per cent. Once again, about a quarter of the migration/reclassification component given in this chapter is attributable to reclassification. Of the 17.3 per cent ascribed to reclassification, 9.3 per cent was attributable to the boundary expansions of urban areas and 8.0 per cent to the graduation of previously rural areas into the status or urban.[11] The figures for the Republic of Korea

[10] Eui-Young Yu, "Components of population growth in urban (*shi*) areas of Korea: 1960-1970", in Korean Institute for Family Planning, *Population and Family Planning in the Republic of Korea* (Seoul, 1974), vol. II, pp. 490-511.

[11] *Ibid.*, compiled from figures presented on p. 491.

and for the USSR take on added significance in view of the relatively high rates of migration/reclassification in these countries. When migration is slower, the components become more unstable because of a small base.

Using a very indirect procedure based on an assumed size distribution of rural places, it has been estimated that 6.7 per cent of urban growth in 1960-1970, for the world as a whole, was attributable to the growth of rural places beyond the urban-defining boundary.[12] For purposes of that exercise, a town size of 3,125 was used as the lower boundary of urban. The equivalent figure for developed areas was 6.6 and for less developed, 7.7 per cent. The figure previously cited for the Republic of Korea is in close agreement with this estimate. The estimate implies that about a fifth of the migration component in the average less developed countries, and about a tenth in the more developed countries, is attributable to graduation. Another source presents a figure of 29 per cent to represent the fraction of the migration component attributable to graduation in Turkey during the period 1960-1965.[13] This estimate is again in line with others' results. There is certainly variation in this percentage, however. In a study of urban growth in Latin America[14] between 1950 and 1960, it was found that, at its highest contribution, one third or more of "urban growth" in the decade was attributable to graduation in Chile, the Dominican Republic, El Salvador and Peru. It should be mentioned that the minimum size for an urban community in this study was set at the relatively high figure of 20,000. Graduation should become more important as a component of urban growth the higher is this cut-off point.[15]

Reclassification also includes boundary expansion, and there is much less basis for making general statements about the importance of this factor. Using the United States of America as an example for the period 1950-1960, it is estimated that, in advanced countries, reclassification through boundary expansion represents somewhere between 7 and 10 per cent of urban growth.[16] However, more direct analysis of the data for the United States suggests that the fraction has been higher. Other writers[17] calculate that 60 per cent of the growth of a large sample of metropolitan incorporated places between 1950 and 1960 was attributable to the population of territories that had been annexed during the decade. Between 1960 and 1970, the figure was 44 per cent. For non-metropolitan areas, the equivalent figures are 65 per cent for 1950-1960 and 89 per cent for 1960-1970. About six out of 10 places annexed territory during each of the decades, representing a large increase from earlier periods. However, the procedures used in this study over-represent areas that gained population by annexation in relation to those which lost, so that the results cannot be generalized according to national developments.

National practices with regard to boundary expansion of urban-defined areas undoubtedly vary a great deal, and experience in the United States cannot be assumed to represent practices elsewhere. It appears probable that urban growth through annexation is more common in more developed countries than in less developed countries because of their denser and more complex spatial networks, reflecting in part a more advanced transportation technology. Estimating the fraction of growth attributable to this source requires meticulous and complicated analysis at the national level and data that are often unavailable. There are very few examples of such analyses, and this factor remains a major unknown in the process of urban growth.

Several other examples of estimates of components of urban growth, however, can be compared directly with those presented here. It is calculated that 70 per cent of the urban growth in India during the period 1951-1961 was attributable to natural increase,[18] which is identical to the estimate presented in table II. In the United States, it was estimated that 65 per cent of the urban growth between 1950 and 1960 was attributable to natural increase,[19] which is also identical to the estimate in table 11. Arriaga[20] presents an estimate of urban intercensal growth components in Chile which suggests that 70.2 per cent of the growth between 1952 and 1960 in cities with over 20,000 population in 1960 was attributable to natural increase, compared with the present estimate of 63.4 per cent of urban growth for that period. The main reason for the discrepancy is probably that because that study deals with specific cities rather than with a size class, the procedures exclude graduation as a component of growth. The inclusion of this factor has undoubtedly reduced the estimated contribution of natural increase given in this chapter in relation to that presented by Arriaga.

His study raises the important issue whether components of growth vary systematically with the size of city.

---

[12] Kingsley Davis, *World Urbanization, 1950-1970*, vol. II, *Analysis of Trends, Relationships, and Development*, Population Monograph Series, No. 9 (Berkeley, University of California, 1972), p. 314.

[13] Frederic C. Shorter, *Computational Methods for Population Projections: With Particular Reference to Development Planning* (New York, The Population Council, 1974), p. 86.

[14] John D. Durand and César A. Peláez, "Patterns of urbanization in Latin America", *The Milbank Memorial Fund Quarterly*, vol. XLIII, No. 4, part 2 (1965), p. 180.

[15] This implication follows directly from the rank-size rule, according to which the number of cities is inversely proportional to their size. Chapter IV shows that this suggested regularity is rather closely adhered to for the world, the more developed regions and the less developed regions. With city growth rates that are independent of size, the number of and population in cities graduating to the next size class should be proportional to the population of that size class. However, as there will be fewer higher size classes the higher is the size that defines urban, the growth by means of graduation will increase as a fraction of all growth the higher is the minimum size of the class. This tendency should be reinforced by the tendency, also documented in chapter IV, for smaller cities to grow somewhat more rapidly than larger cities.

[16] K. Davis, *op. cit.*, p. 315-16.

[17] Vivian Z. Klaff and Glenn V. Fuguitt, "Annexation as a factor in th growth of U.S. cities, 1950-60 and 1960-70", *Demography*, vol. 15, No. 1 (1978), p. 11.

[18] K. E. Vaidyanathan, "Components of urban growth in India, 1951-61", in International Union for the Scientific Study of Population, *International Population Conference, London, 1969* (Liège, 1971), vol. 4, pp. 2941-2948.

[19] United States of America, Advisory Commission on Intergovernmental Relations, *Urban and Rural America: Policies for Future Growth* (Washington, D.C., Government Printing Office, 1968), p. 16.

[20] Eduardo Arriaga, "Components of city growth in selected Latin American countries", *The Milbank Memorial Fund Quarterly*, vol. XLVI, No. 2, part 1 (1968), pp. 237-252. He also suggests that 58.8 per cent of Mexican urban growth in 1950-1960 was due to natural increase and 53.3 per cent of Venezuelan growth in 1950-1961. A cut-off point of 10,000 was used. The Venezuelan estimate identifies as a separate component the growth of the foreign-born population.

In Chile, Venezuela and Mexico, they did not. There was, however, a tendency for natural increase to represent a smaller fraction of growth for cities in the largest size category (500,000+) than in the next largest (100,000-500,000).[21] But differences between this fraction in the largest category and in the all-urban group were small. An analysis by Camisa[22] of growth in six large cities of Latin America during the 1950s revealed 0.2-1.6 per cent higher annual net immigration rates than the figures given in this chapter suggest for urban areas in the respective countries as a whole. But direct comparisons are not possible because the writer deals only with the population aged 10 and over, eliminating the generally less migratory children. In a study covering a still earlier period,[23] 29 per cent of the increase in the eight largest agglomerations in Brazil during the period 1940-1950 was attributed to natural increase, while for cities of 5,000 or more natural increase contributed 51 per cent. Another report[24] extends some of the results obtained by Arriaga and Camisa into the decade of the 1960s. Between 1960 and 1970, migration is estimated to have accounted for 40.1 per cent of growth at Mexico City, 49.6 at Santiago, 62.1 at Rio de Janeiro and 72.1 at Sao Paulo. In three of four cases, these figures represent a decline from equivalent figures for the decade of the 1950s. The previously cited study of the Republic of Korea[25] revealed that a higher fraction of growth was due to net migration at Seoul, 1960-1966 (57.7 per cent plus 11.4 per cent due to annexation) than in urban areas as a whole (44.1 plus 10.1). However, the three largest metropolitan areas in Japan have had a smaller fraction of their growth attributable to net migration than have urban areas as a whole. For the period 1965-1975, an estimated 32.1 per cent of the growth of Tokyo, Keihanshin and Chukyo was attributable to net migration,[26] whereas the estimate for all urban areas covered in table 11 for this period is 39.5 per cent. By 1974, net migration into these three areas was virtually zero.

No generalization about the relationship between growth components and city size appears warranted on the basis of these scattered studies. The safest conclusion is that, where growth is exceptionally rapid, net migration is a disproportionately large contributor to that growth. Chapter IV shows that growth rates have not, in general, been most rapid in the largest cities, so it is not surprising that the contribution of net migration to that growth has not systematically been larger in those cities. On the other hand, in less developed countries, the very large cities have in fact been growing unusually rapidly, and one should expect the migration component to receive higher weight therein.

D. Sources of rural population change

Rather than acting additively, natural increase and migration/reclassification work against each other in determining rates of rural population growth. In each of the populations and periods examined in this chapter, rural natural increase is positive and net rural migration is negative. In developing countries, the balance of these forces produces positive rates of rural population growth. On average, as seen from the foot of table 12, rural out-migration is about one half of the value of rural natural increase. However, there is a great deal of variability in rural out-migration rates in these countries, the reasons for which are discussed below. On the other hand, the balance of natural increase and migration in developed countries is such as to produce, on average, rural population decline. The average rural growth rates in the 29 developing countries exceeds that in the 20 developed ones by 21.05 per 1,000, of which 77 per cent (0.02672-0.01046)/0.02105) is attributable to the higher rate of rural natural increase in developing countries and 23 per cent to the higher out-migration rate in the developed countries. As in the case of urban growth, contrasts in rates of rural population change between these countries are dominated by differences in rates of natural increase.

It is perhaps surprising that rural out-migration has recently been more rapid in the more developed countries than in the less developed countries. In part, this trend may reflect more rapid technical changes in agriculture in the more developed countries. However, it should be remembered that reclassification affects rural growth as well as urban. Although information is very limited, it appears that reclassification is about equally important as a source of urban growth in both the more developed and the less developed countries. But this equality implies that reclassification is a more important source of rural loss in the more developed countries, simply because their rural populations are generally a much smaller fraction of the total. Hence, it appears likely that a sizable fraction of the difference in rural out-migration rates between the less developed and the more developed countries results from higher reclassification-loss rates in the latter group. It should also be mentioned that international migration is more likely to distort estimates of both rural migration and natural increase in the more developed countries than in the less developed countries. For these reasons and because much policy interest has recently been focused on rural-urban migration in the less developed countries, the remainder of this section concentrates on this group.

Rural out-migration rates can be measured in two successive intercensal periods for 11 less developed countries as shown in table 12. The resulting rates show a good deal of stability. Figure III indicates that low out-migration countries in the earlier period tend also to experience low out-migration in the later period. Changes in the rates are generally quite small, but in eight of the 11 countries a rise was recorded, as well as in three of

[21] E. Arriaga, *loc. cit.*, p. 241.

[22] Zulma Carmen Camisa, "Effects of migration on the growth and structure of population in the cities of Latin America", *Proceedings of the World Population Conference, Belgrade, 30 August-10 September 1965*, vol. IV, *Selected Papers and Summaries: Migration, Urbanization, Economic Development* (United Nations publication, Sales No. 66.XIII.8), pp. 408-411.

[23] Jacqueline Beaujeu-Garnier, "Large overpopulated cities in the underdeveloped world", in Wilber Zelinsky, Leszek A. Kosinski and R. Mansell Prothero, *Geography and a Crowding World: A Symposium on Population Pressures upon Physical and Social Resources in the Developing Lands* (New York, Oxford University Press, 1970), pp. 269-278.

[24] Ligia Herrera and Waldomiro Pecht, *Crecimiento urbano de America Latina*, CELADE Series E, No. 22 (Santiago, Chile, 1976), p. 443. An alternative and less preferred method of estimating growth components gave migratory percentages that were much lower and that declined uniformly over time.

[25] E. Y. Yu, *loc. cit.*, p. 497. The figures for all urban areas differ from those presented above because only areas defined as urban in 1966 are considered; graduation is thus not a competing source of growth.

[26] Toshio Kuroda, "The role of migration and population distribution in Japan's demographic transition", Papers of the East-West Population Institute, No. 46 (Honolulu, Hawaii, East-West Center, 1977).

TABLE 12. SOURCES OF INTERCENSAL GROWTH OF RURAL POPULATIONS

Major area or region and country	*Intercensal period*	*Annual intercensal population growth rate of rural areas (1)*	*Estimated annual rural rate of natural increase (2)*	*Estimated annual rate of rural population loss from internal migration and reclassification (3)*	*Rural out-migration and reclassification as a percentage of natural increase* $(4) = \frac{(3)}{(2)} \times 100$
Africa					
Ghana	1960-1970	0.01631	0.02340	0.00710	30.3
Morocco	1960-1971	0.01603	0.02436	0.00832	34.2
South Africa	1951-1960	0.01664	0.02884	0.01221	42.3
	1960-1970	0.03027	0.03815	0.00787	20.6
Northern America[a]					
Canada	1951-1961	0.00287	0.02833	0.02546	89.9
	1961-1971	−0.00712	0.01791	0.02502	139.7
Dominican Republic	1950-1960	0.02667	0.03655	0.00988	27.0
	1960-1970	0.01350	0.02901	0.01552	53.5
El Salvador	1950-1961	0.02471	0.02928	0.00457	15.6
	1961-1971	0.03245	0.03765	0.00520	13.8
Guatemala	1964-1973	0.01853	0.02408	0.00555	23.0
Mexico	1960-1970	0.01543	0.03471	0.01928	55.5
Nicaragua	1950-1963	0.02155	0.02930	0.00775	26.5
Panama	1950-1960	0.03000	0.03908	0.00908	23.2
	1960-1970	0.01845	0.03245	0.01400	43.1
Puerto Rico	1960-1970	−0.01438	0.01423	0.02860	201.0
United States of America	1950-1960	−0.00090	0.01823	0.01913	104.9
	1960-1970	−0.00028	0.01276	0.01304	102.2
South America					
Argentina	1947-1960	−0.00901	0.02353	0.03254	138.3
Brazil	1950-1960	0.01269	0.03211	0.01942	60.5
	1960-1970	0.00862	0.03131	0.02269	72.5
Chile	1952-1960	−0.00035	0.02655	0.02690	101.3
	1960-1970	−0.01157	0.01721	0.02878	167.2
Colombia	1951-1964	0.01609	0.03383	0.01773	52.4
Ecuador	1950-1962	0.01884	0.02765	0.00881	31.9
	1962-1974	0.02555	0.03410	0.00855	25.1
Paraguay	1962-1972	0.02348	0.02984	0.00636	21.3
Peru	1961-1972	0.00453	0.02896	0.02443	84.4
Uruguay	1963-1975	0.00313	0.00567	0.00254	44.8
Venezuela	1950-1961	0.00518	0.04190	0.03672	87.6
	1961-1971	0.00020	0.03452	0.03473	100.6
Asia					
Bangladesh	1961-1974	0.02310	0.02597	0.00288	11.1
India	1951-1961	0.01854	0.02047	0.00193	9.4
	1961-1971	0.01971	0.02215	0.00244	11.0
Indonesia	1961-1971	0.01786	0.02046	0.00260	12.7
Iran	1956-1966	0.01617	0.02819	0.01201	42.6
Iraq	1957-1965	−0.00101	0.02528	0.02629	104.0
Japan	1955-1965	−0.02178	0.00888	0.03066	345.3
	1965-1975	−0.01507	0.00943	0.02449	259.7
Nepal	1961-1971	0.02037	0.02085	0.00048	2.3
Republic of Korea	1960-1970	0.00293	0.02357	0.02065	87.6
Sri Lanka	1953-1963	0.02097	0.02600	0.00503	19.3
	1963-1971	0.01758	0.02309	0.00551	23.9
Syrian Arab Republic	1960-1970	0.02130	0.03186	0.01055	33.1
Turkey	1955-1960	0.01845	0.03029	0.01184	39.1
	1960-1970	0.01142	0.02730	0.01589	58.2
Europe					
Austria	1961-1971	0.00144	0.01006	0.00862	85.7
Bulgaria	1956-1965	−0.01535	0.00789	0.02324	294.6
Finland	1950-1960	0.00038	0.01102	0.01064	96.6
	1960-1970	−0.01858	0.00247	0.02105	852.2
France	1962-1968	−0.02296	0.00859	0.03155	367.3
Greece	1961-1971	−0.01489	0.00528	0.02017	382.0
Hungary	1960-1970	−0.00574	0.00466	0.01040	223.2
Ireland	1961-1971	−0.00655	0.00183	0.00838	457.9
Luxembourg	1960-1970	−0.01033	0.00642	0.01674	260.7

TABLE 12. *(continued)*

Major area or region and country	*Intercensal period*	*Annual intercensal population growth rate of rural areas (1)*	*Estimated annual rural rate of natural increase (2)*	*Estimated annual rate of rural population loss from internal migration and reclassification (3)*	*Rural out-migration and reclassification as a percentage of natural increase* $(4) = \frac{(3)}{(2)} \times 100$
Norway	1950-1960	0.00932	0.01086	0.00154	14.2
	1960-1970	−0.00853	0.00889	0.01742	195.9
Poland	1960-1970	0.00249	0.01217	0.00968	79.5
Romania	1956-1966	−0.00190	0.01000	0.01190	119.0
Spain	1950-1960	−0.00217	0.00819	0.01035	126.4
Sweden	1960-1970	−0.03070	0.00071	0.03141	4 423.9
Switzerland	1960-1970	0.00045	0.01605	0.01560	97.2
Oceania					
Australia	1961-1971	−0.00296	0.02214	0.02509	113.3
New Zealand	1951-1961	0.00118	0.02786	0.02668	95.8
USSR	1959-1970	−0.00275	0.01599	0.01875	117.3
Mean, last observation					
Developing countries	(N = 29)	0.01303	0.02672	0.01369	
Developed countries	(N = 20)	−0.00802	0.01046	0.01848	

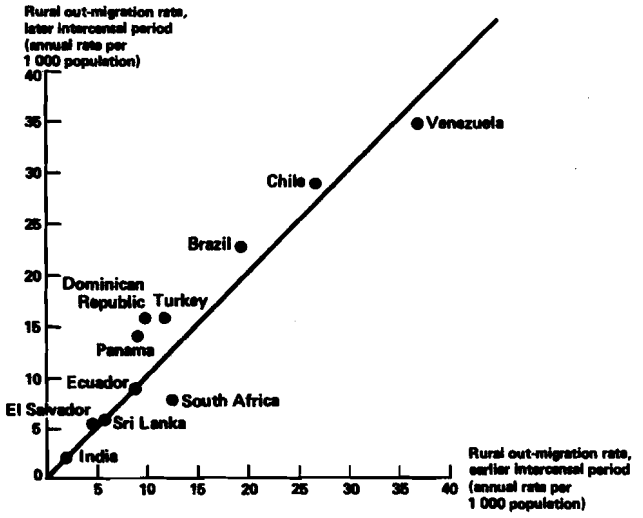
[a] Including the following countries of Latin America: Dominican Republic; El Salvador, Guatemala; Mexico; Nicaragua; Panama; and Puerto Rico.

the four where changes were larger than 3 per 1,000.[27] Only in South Africa was a relatively large decline recorded (4.34 per 1,000), but there a very active policy restricting urban growth may have interfered with natural processes.[28] A rise in rural out-migration rates is consistent with the tendency for more developed countries to have higher rates than less developed countries, as well as with the tendency documented below for economic level to be positively associated with rural out-migration rates in the less developed countries.

[27] A small rise in rural out-migration rates is not inconsistent with the small declines in the contribution of rural-urban net migration to urban growth that was suggested above for these same 11 countries. The point is simply that the same volume of rural-urban migration will represent a larger fraction of rural population and a smaller fraction of urban population as the urban proportion increases with time.

[28] For a discussion of these policies, see Brian J. L. Berry, *The Human Consequences of Urbanisation: Divergent Paths in the Urban Experience of the Twentieth Century* (London, Macmillan, 1973), pp. 111-112.

Figure III. Time trends in rural out-migration rates, 11 developing countries



On average, the countries of Latin America have had faster net movement out of rural areas than those of Africa or Asia.[29] The effects of this tendency on rural growth are partially offset by the typically higher rates of rural natural increase in Latin American populations. However, there remains enormous intraregional disparity in rural out-migration rates. In Middle America, such countries as El Salvador and Guatemala, have low rates, similar to those in Bangladesh, India and Sri Lanka; whereas Brazil, Chile and Colombia have rates many times higher, placing them in a group with Iraq and Turkey. Obviously, there are factors at work to promote or inhibit migration which cut across regional boundaries. The following section attempts to indicate certain of these influences.

E. Factors associated with national rates of net rural-urban migration

The estimates presented in table 12, although undoubtedly subject to measurement error as described above, probably represent the most accurate internationally comparable set of rural-urban migration rates that has been assembled. Therefore, it is useful to examine the relationship between estimated levels of migration and other socio-economic variables in order to identify more clearly the contexts most conducive to rapid or slow rural-urban migration. For reasons described above, the examination is limited to the less developed countries, where the issues are most salient.

Factors influencing the probabilities of a person's migration from a rural area to an urban area have been investigated in literally thousands of studies, and many useful generalizations have emerged.[30] Comparative studies of factors influencing the national volume of rural-urban migration, on the other hand, are quite uncommon. Undoubtedly, the causes of migration to urban areas are manifold and vary in type and intensity from population to population. But it appears reasonable to propose that three basic conditions are implicated in the global process and account in the main for the movement that has occurred in the past century:

(1) Rising levels of personal income;

(2) Income-inelastic demand for agricultural products: the tendency for increases in income to be disproportionately directed towards expenditure on non-agricultural products;

(3) Greater efficiency of urban as opposed to rural configurations in production and consumption of non-agricultural products. Their efficiency depends in a complex way upon transportation technology, which must be good enough to allow exchange between urban and rural areas but not so good as to render location irrelevant to production and consumption.

These three conditions are by themselves sufficient to account for increasing proportions living and working in dense, urban-type settlements, once a mechanism of factor mobility is introduced to allow workers and firms to locate in areas of higher productivity. There can be no doubt about the empirical validity of each of the three conditions. Incomes have risen in most areas of the world (and where they have not, or have risen very slowly, urbanization has also been very slow). Where it has been measured carefully, income elasticity of demand for food has commonly fallen well short of unity, although in very poor populations it can still be quite high.[31] Economies of scale and of agglomeration are obvious in the production of virtually all goods and services; although there are disagreements about the point at which agglomerative diseconomies may set in, as reflected in chapter IV, there is little question that the point or points are well beyond the population size required for a locality to be classified as urban.[32] Service aspects of these economies are often referred to as the "bright lights" syndrome and inappropriately assigned to non-economic, even irrational, factors.

These economic transformations and relations can be viewed as the basic engine of urbanization. But a wide variety of additional factors will modify the rate at which this engine proceeds to its destination. Among the most important of these factors are the following:

(a) *Unbalanced technological change.* Given a certain rate of technological and productivity growth in non-agricultural activities, the faster is productivity growth in agricultural activities the faster in general will be movement out of the agricultural sector;[33]

(b) *International economic relations.* Concentration of exports in one sector and of imports in another can attenuate or promote the internal structural transformations that typically produce urbanization. Ireland is sometimes cited as an example of slow urbanization attributable to concentration of production in agricultural exports;

(c) *Population growth rates.* High rates of natural increase in rural and urban areas can change relationships among factors of production. It appears to be commonly assumed that diminishing returns to labour are more prominent in rural than in urban areas because of limited supplies of land. In this case, more rapid rates of natural increase, even though equal in rural and urban areas, would depress rural incomes more than urban and lead to accelerated urbanization;

[29] Although only three observations are available in Africa, they all fall within the 0.005-0.010 range which is cited as typical in African countries. Derek Byerlee and others, "Rural employment in Tropical Africa: summary of findings", African Rural Economy Working Paper, No. 20, East Lansing, Michigan, Michigan State University, Department of Agricultural Economics, February 1977, p. 114 (mimeographed).

[30] For recent reviews, see Lorene, Y. L. Yap, "The attraction of cities", *Journal of Development Economics*, vol. IV (1977), pp. 239-264; and M. P. Todaro, *Internal Migration in Developing Countries* (Geneva, International Labour Office, 1976), chap. 5.

[31] For international documentation, see Food and Agriculture Organization of the United Nations, *Income Elasticities of Demand for Agricultural Products* (Rome, 1972), in particular, pp. 98-109.

[32] Recent contributions to the literature on agglomerative economies are David Segal, "Are there returns to scale in city size?", *Review of Economics and Statistics*, vol. 58, No. 3 (August 1976), pp. 339-350; Leo Sveikauskas, "The productivity of cities", *Quarterly Journal of Economics*, vol. 89, No. 3 (August 1975), pp. 393-413; Koichi Mera, "On the urban agglomeration and economic efficiency", *Economic Development and Cultural Change*, vol. 21, No. 2 (January 1973), pp. 309-324.

[33] This issue is obviously quite complex, involving price as well as income elasticities. A recent review concludes that productivity gains in the production of food-stuffs will accelerate rural-urban migration. J. Gaude, "Causes and repercussions of rural migration in developing countries: a critical analysis", World Employment Programme Research Working Paper, WEP/10-6/WP10, Geneva, International Labour Office, 1976.

(d) *Institutional arrangements governing relations among factors of production.* A land tenure system that reduces the absorptive capacity of rural areas may accentuate the response to population growth cited above in (c). So may financial systems that make capital formation easier in urban than in rural areas. The exclusionary land tenure system in much of Latin America is often cited as an important factor in its rapid rural-urban migration.[34] In a more general sense, price and tax distortions that discriminate against rural areas are pervasive and probably foster migration towards urban areas. A reverse situation is said to exist in Eastern Europe, where Governments are argued to have pursued an anti-urban policy in order to economize on resources available for investment;[35]

(e) *Biases in government services.* It is clear that health and educational expenditures in the less developed countries are directed towards urban areas disproportionately to urban population size.[36] It is not always so clear that this pattern should be termed a bias, since it may reflect the greater cost-effectiveness of urban expenditures in these as well as in other services. That is, the tendency may reflect agglomerative economies. To the extent that true bias creeps in, however, urbanization is independently accelerated;

(f) *Inertia.* Since physical movement is required, rural-urban migration will be more impeded the greater the attachments to place of birth or current residence. Such factors are said to have slowed rural-urban migration in India and elsewhere.[37] These factors are no doubt powerful, although they may affect the nature of rural-urban migration (short-term, family in stages, high turnover) more than its long-term volume;

(g) *Government policies on migration.* Governments in China, Indonesia, Paraguay, South Africa and elsewhere have actively attempted to reduce the volume of net rural-urban migration. To the extent that these policies are successful in deflecting the course of events, rural-urban migration will be slowed.

Many other factors also condition the flow of population from rural to urban areas. This section is not directed to identifying and interpreting the role of each of these factors. Instead, the aim is more modest: to show that there are regularities and patterns in rates of rural-urban migration in the less developed countries; and in particular that the rate of migration is closely associated with readily measured economic indices.

Bearing in mind these considerations, one should expect migration rates to be higher where economic growth is more rapid. There are certainly instances at the country level which support such an expectation. In the Republic of Korea, three censuses of relatively high quality taken in the decade 1960-1970 showed that "rural-urban migration was greatly intensified during the 1966-1970 period as the economy of Korea grew at an unprecedented rate".[38] Because of the inertia factor and imperfect information, it is unreasonable to expect instantaneous adjustment to economic growth and to accompanying changes in the structure of demand. Therefore, one might also expect migration rates to be higher in countries at higher levels of economic performance, where the accumulated volume of unaccomplished but desirable movement is greater. Another reason for expecting a positive effect of income level on migration rates is that income elasticities of demand for agricultural products typically decline with income level.

First to be examined are the zero-order correlations between rural net out-migration rates and a variety of indicators of factors that may be influencing them.[39]

Table 13 shows that initial income levels and income growth performance during the period of observation both have strong positive associations with the rate of net rural-urban migration. Rather than belabouring these associations, attention is now turned to results of multiple regression analysis based on ordinary least-squares techniques. Regression results are shown in table 14. Because no one model specification is clearly superior to others, a wide variety of regressions forms were estimated, not all of which are presented. Results are most efficiently summarized by discussing categories of variables.

TABLE 13. COEFFICIENTS OF ZERO-ORDER CORRELATION BETWEEN RURAL NET OUT-MIGRATION RATES AND VARIOUS INDICATORS

($N = 29$)

Independent variable	*Correlation coefficient*
Growth rate, gross domestic product *per capita*	0.356
Initial gross national product *per capita*	0.611
Absolute growth in gross domestic product *per capita*	0.548
Initial proportion urban	0.576
Rural rate of natural increase	0.085
Growth rate, total agricultural production	−0.084
Growth rate, agricultural production per rural resident	0.466
Asia categorical variable	−0.283
Africa categorical variable	−0.204

[34] For some empirical evidence, see R. P. Shaw, "Land tenure and the rural exodus in Latin America", *Economic Development and Cultural Change*, vol. 23, No. 1 (October 1974), pp. 123-132.

[35] Gur Ofer, "Industrial structure, urbanization, and the growth strategy of Socialist countries", *Quarterly Journal of Economics*, vol. X, No. 2 (May 1976), pp. 219-244.

[36] Michael Lipton, *Why Poor People Stay Poor: Urban Bias in World Development* (Cambridge, Massachusetts, Harvard University Press, 1977).

[37] Donald J. Bogue and K. C. Zachariah, "Urbanization and migration in India", in Roy Turner, ed., *India's Urban Future* (Berkeley, California, University of California Press, 1962), p. 29. On the other hand, the existence of a "traditionally" nomadic class without permanent attachment to the soil may have facilitated migration towards urban areas in Brazil. Thomas Lynn Smith, *Brazil: People and Institutions* (Baton Rouge, Louisiana State University Press, 1946), p. 297.

[38] E.-Y. Yu, *loc. cit.*

[39] Data on initial proportion urban and the rate of rural natural increase were produced in the course of the present study. Data on initial gross national product *per capita* were drawn from World Bank, *World Table IV* (Washington, D.C., January 1971), expressed in terms of 1964 dollars and interpolated where necessary. Data on the growth rate of gross domestic product *per capita* and of agricultural production were taken from World Bank, *World Tables 1976* (Baltimore, Maryland, Johns Hopkins Press), "Comparative economic Data", table 1. Interpolation was again used where deemed essential. The growth rate of agricultural production per rural resident was derived by subtracting the rural population growth rate from the agricultural growth rate. All variables refer to the intercensal period or, where preceded by the word "initial", to the first year of that period.

TABLE 14. REGRESSION EQUATIONS FOR PREDICTING NATIONAL LEVELS OF NET RURAL-URBAN MIGRATION IN LESS DEVELOPED COUNTRIES
(Annual rate of net out-migration per 1 000 rural residents)

Coefficients of:									
Growth rate, gross domestic product per capita *(annual percentage points)*	*Initial gross national product* per capita *(1964 dollars)*	*Initial proportion urban (x 1 000)*	*Annual rate of rural natural increase (per 1 000)*	*Growth rate, gross agricultural production (annual percentage points)*	*Growth rate, agricultural production per rural resident (annual percentage points)*	*Asia, categorical variable (1 if Asian)*	*Africa, categorical variable (1 if African)*	*Constant*	R^2
1.576[a]	0.02041[b]	0.01485[b]	0.1448					−5.33	0.494
1.189[b]	0.02351[a]	0.01755[b]	0.2291			3.002	−3.546	−9.02	0.521
1.486[b]	0.03178[c]		0.1408	0.2087				−3.06	0.465
0.948[b]	0.02538[a]	0.00715	0.1182		2.064[a]			−4.71	0.598
0.521	0.02845[c]	0.00620	0.1815		2.226[c]	1.272	−6.046[b]	−5.78	0.636

[a] *t*-value significant at 5 per cent.

[b] *t*-value insignificant at 5 per cent but coefficient larger than its standard error.

[c] *t*-value significant at 1 per cent.

National income level and growth

Three indicators of income level and growth were examined: level in the initial year; annual growth rate; and average annual absolute increment. However, because any one of the three indicators can be readily generated by a simple operation on the other two, it is not feasible to include all three in any particular equation. Omitting each of the three in turn produces little change in the explanatory power of the equations. Therefore, results are presented here only for the combination of income level and growth rate, the two most widely used of the variables. Equations were also estimated with the natural log of gross national product *per capita* replacing its untransformed value, but results were not appreciably altered.

Regression results clearly suggest that income level and income growth have positive effects on rates of rural out-migration. The income level term is usually highly significant. Its coefficient of approximately 0.03 suggests that each additional $100 of gross domestic product *per capita* increases rural out-migration rates by about 3 per 1,000. The income growth rate contributes additionally to explaining migration, although its coefficient typically falls slightly short of significance at 5 per cent. Its coefficient of 1-1.5 in the various equations suggests that a gain of 1 percentage point in the economic growth rate in an intercensal period typically increases annual migration by 1-1.5 per 1,000 during the period. It is interesting to observe that income growth is predicted to have only slightly larger effects on migration in the decade it occurs than in subsequent decades. That is, a 1 per cent gain compounded over a decade, when applied to the initial average income level of $275 in the sample, should result in about a $30 gain in *per capita* income. When combined with the coefficient of income level, this gain should raise out-migration rates by 1 per 1,000 in subsequent years.[40]

[40] A crude estimate of the expected response of migration to economic change can be made by examining a primitive model in which the agricultural and rural populations and labour forces are coterminous, where growth of income and agricultural productivity is exogenous, where the income elasticity of demand for agricultural products is constant, where natural increase is zero and where the share of the population in agriculture adjusts instantaneously by means of migration to shifts in the structure of demand. In such a world, by definition:

$$\epsilon = \frac{\frac{dA}{A}}{\frac{dY}{Y}}.$$

Since $\frac{dA}{A} = \frac{d\pi A}{\pi_A} + \frac{dR}{R}$, one has

$$-\frac{dR}{R} = -\epsilon\frac{dY}{Y} + \frac{d\pi A}{\pi_A} \qquad (1)$$

where ϵ = income elasticity of demand for agricultural products;
R = size of rural population;
A = total agricultural production;
Y = *per capita* income level;
π_A = agricultural production per member of the rural population.

If income growth rates and agricultural productivity growth rates are equal, the rate of change in the rural population becomes

$$-\frac{dR}{R} = (1-\epsilon)\frac{dY}{Y}. \qquad (2)$$

With income elasticities of demand for agricultural products less than unity, the rural population declines in proportion to the rate of income growth. Faster growth in agricultural productivity than in income would lead to still more rapid out-migration. (Obviously, price and many other effects are being ignored.) If income elasticity of demand for agricultural products declines linearly with income level, it is only necessary to add a term $b.dY$ to the right-hand sides of (1) and (2), where b is the rate of decline of elasticity per unit gain in income. This addition brings income level into the picture.

In terms of equation (2), the coefficient of income growth should be equal to one minus the income elasticity of demand for agricultural products (when agricultural productivity growth is absent from the equation). Because one measures migration on a per 1,000 and income growth on a per 100 basis, the coefficient must be divided by 10 to achieve comparability in measurement. The resulting coefficient of 0.1 or 0.15 would suggest an agricultural demand elasticity of 0.85 or 0.9, which is surely a tolerable implication. If faster rural-urban migration "produces" more rapid income growth, however, the coefficient of income growth will be biased upwards by the failure to account for this simultaneity.

The growth rate of agricultural production minus the growth rate of the rural population is a somewhat roundabout measure of agricultural productivity gains. This term is also closely and significantly related to rural out-migration rates; a percentage point increase in agricul-

tural productivity increases out-migration by about 2 per 1,000. This result would appear to provide some support for Gaude's conclusion that agricultural productivity gain, the focus of many rural development programmes, will speed rural-urban migration. However, it should be mentioned that there is a possibly serious ratio-correlation problem with the result. Out-migration rates, the dependent variable, also figure into the independent variable, as they are a component of rural population change. Errors in measuring rural growth will tend to produce a spurious positive correlation among the variables. It is useful to take note that zero-order correlations between out-migration and the agricultural productivity variable are not unusually large, suggesting that such spuriousness is not an overpowering problem; the importance of the productivity variable emerges primarily in the regression analysis. The simple growth rate of agricultural production, a variable uncontaminated by the ratio-correlation problem, falls far short of achieving statistical or substantive significance.

Natural increase

The gross association between rates of rural natural increase and rates of out-migration is very weak (table 13). However, when income factors are controlled, natural increase emerges as a relatively consistent predictor of out-migration, with its coefficient typically falling just short of its standard error. The results suggest that perhaps a fifth of incremental rural natural increase is being "drained off" to urban areas. Such a result should be carefully distinguished from the gross empirical comparison of rural rates of natural increase (averaging 26.7 per 1,000 in the sample) and rates of net out-migration (averaging 13.7). Metaphorically speaking, half of natural increase is being "drained off". But the more interesting question is how much additional migration a unit increment in natural increase would be expected to produce; the equations suggest, albeit in a very preliminary and tentative way, that the answer is on the order of 0.2 unit. Furthermore, it should be remembered that some of the measured influence of natural increase probably reflects reclassification instead of actual movement. Rural places are more likely to be annexed by urban areas, or to pass an urban-defining boundary, when natural increase is high than when it is low.[41]

These results therefore appear to support the widespread supposition that high rates of natural increase in rural areas contribute to the flight to cities. At the same time, however, they indicate that demographic solutions to problems of rapid rural-urban migration are only partial. According to the equations, a massive reduction of rural natural increase from 30 to 20 per 1,000 would slow migration by only 2 per 1,000, or by some 15 per cent of its average value for the sample as a whole. Obviously, the effects could be larger where diminishing returns to rural labour are unusually strong or where institutional arrangements interfere with rural labour absorption. Furthermore, second-order effects operating through rural income and agricultural productivity are ignored in the calculation.

[41] On the other hand, errors in measuring net migration will bias downward the measured influence of natural increase, which is derived by subtracting net migration from rural growth. The fact that the association is positive is some indication that the migration measurement given here is reasonably reliable. A negative association would also be produced by the tendency for out-migration to hollow out the age structure in rural areas.

Initial proportion urban

It is sometimes argued that urbanization is, in effect, a self-perpetuating social diffusion process where "messages" are transmitted from urban to rural residents and where rural residents respond by adopting the innovation described, i.e., an urban residence. The prevalence of urban-rural links within families and neighbourhoods gives some plausibility to this argument. In support of this argument, the simple correlation between the proportion urban and the rate of migration is strong and positive. But the influence of the urban proportion largely disappears when the initial income level is controlled. The implication of the partial coefficients is that when the urban percentage increases by 10 percentage points, the rate of net rural-urban migration increases by from 0.7 to 1.7 per 1,000 rural residents. The results are thus not inconsistent with the notion that rural-urban migration is a cumulative and partially self-perpetuating process. The initial state of the system does appear to influence migration during a period apart from other events of that period. But they do suggest that the initial income level may be a better indicator of the state of the system and the content of urbanizing "messages" than is the initial proportion urban itself.

Major areas

The following major areas are recognized in the analysis: Africa; East Asia; South Asia; and Latin America. So few countries of Africa are represented, however, that no generalizations about that major area should be drawn. The results suggest that countries of Asia have a rural out-migration rate that is slightly higher, by 1-3 per 1,000, than the rate for countries of Latin America, once other measured differences between the regions are accounted for. Regional differences, however, are far from having statistical significance.

In Latin America, the countries have higher crude rates of out-migration than those in Asia. But the results suggest that these differences are wholly explicable in terms of other variables, particularly the higher average income levels, income growth rates and rates of rural natural increase in Latin America. The slightly higher out-migration rate in Asia that is implied once these differences are controlled may reflect the activity of such important unmeasured variables as rural density.

In conclusion, the net flow of migrants from rural areas in developing countries appears to be fairly closely related to the level and rate of economic development of a country, contrary to the chaotic and unstructured appearance that is sometimes suggested at a national level. Residential shifts thus appear to play a highly integrated role in the process of economic and social development. There are also suggestions that higher rates of rural natural increase and of agricultural productivity growth, and a higher initial urban proportion accelerate net migration from rural areas. Since urban natural increase has been identified as the principal source of urban growth, the suggested importance of rural natural increase for migration towards urban areas re-emphasizes the importance of population growth as a factor in urban increase.

F. Components of urbanization

Urbanization is conventionally defined as the process of growth in the urban proportion, rather than in the

urban population *per se*. Neglecting the role of international migration, the urban proportion can grow either through urban excess in rates of natural increase or as a result of positive net migration (and reclassification of places) from rural to urban areas. The urban population can be growing primarily from natural increase; but if the rate of natural increase is equally high in rural areas, urbanization would not occur unless population transfers were occurring.

If urbanization is defined as the growth of the urban proportion, then the appropriate measure of the rate of urbanization is the difference between the growth rates of the urban population and of the national population. To demonstrate this result, define the urban proportion at time t as:

$$UP(t) = \frac{U(t)}{P(t)} \text{ and at } t + n \text{ as } \frac{U(t+n)}{P(t+n)}.$$

The growth rate of the urban proportion will be, by definition,

$$r_{UP} = \frac{\ln\left[\frac{UP(t+n)}{UP(t)}\right]}{n} = \frac{\ln\left[\frac{U(t+n)}{U(t)} \cdot \frac{P(t+n)}{P(t)}\right]}{n}$$

$$= r_U - r_P,$$

or the difference between urban and total population growth rates in the interval from t to $t + n$.

Having defined the rate of urbanization, it is convenient to examine the role of net migration in the process of urbanization by computing the ratio of urban net migration to the rate of urbanization:

$$\frac{NM_U}{r_U - r_P} = \frac{NM_U}{NM_U + (NI_U - r_P)},$$

where NI_U = urban rate of natural increase;
NM_U = urban rate of net migration.

When this ratio is equal to unity, all of the growth in the urban proportion is attributable to net migration; urban natural increase equals the national population growth rate, and in the absence of migration the urban proportion would be constant. When it exceeds unity, urban natural increase falls short of the national population growth rate; and, in the absence of net migration to urban areas, the urban proportion would decline. Lastly, when this ratio falls short of unity, net migration is contributing only the indicated proportion of urbanization; the remainder is contributed by an excess of urban natural increase over the national population growth rate.

As shown in table 15, the proportion of urbanization that is attributable to net rural-urban migration is very close to unity in practically all populations where urbanization is rapid enough to form a stable basis for judgement. The mean of the ratio for developing countries is 1.028 and for developed it is 1.014. The fact that these averages slightly exceed unity implies that urban rates of natural increase typically fall slightly short of the rate of national population growth. But the disparity is quite small and there are many instances where the urban rate of natural increase exceeds the national growth rate. In most cases, these differences reflect lower urban than rural mortality and urban age structures that are more middle-heavy and hence conducive to population growth. The age distributional differences are in turn attributable primarily to a past history of rural-urban migration.

The conclusion is quite obvious. In virtually all populations, urbanization occurs primarily because of net rural-urban migration. Without such migration, the urban proportion would typically be steady or show a slight tendency for slow decline. Although the major source of urban growth in most populations is natural increase, this factor typically plays an insignificant role in urbanization because it is counterbalanced by rural natural increase. The principal sources of urban growth and of urbanization are quite different; and for this reason alone, it is important to maintain a conceptual distinction between the two processes.

G. Sensitivity of results to mortality assumptions

The main assumption underlying the calculations in this chapter concerns the degree to which intercensal survival rates for the total population are applicable to the urban population. In more developed countries, it is safe to assume that the two sets of rates will be very similar, because urban/rural mortality differences appear to be very minor and the bulk of the population is urban.[42] In less developed countries, it appears that rural mortality typically exceeds urban by a fairly substantial amount, but it is not possible to identify a particular relationship that will be applicable in all situations.[43] In such a case, the appropriate strategy is to make a particular assumption and demonstrate how sensitive the results are to that assumption.

The procedure used here is to perform all calculations for the less developed countries twice, once assuming that urban and rural mortality rates by age are equal, and once assuming that rural rates exceed urban by 50 per cent. These assumptions are believed to bound the true relationship in the large majority of countries.[44]

The results presented in this chapter use the average of results of these two procedures. Thus, the two initial calculations will differ from the final estimate by the same absolute amount. Table 16 displays these differences for each country for both urban natural increase (or migration) and for rural. Since the urban growth rate is unaffected by the assumption, the changes produced in estimated natural increase will be equal (but opposite in sign) to those produced in estimated migration. The assumption that rural mortality exceeds urban produces in all cases reduced estimates of rural-urban migration, since more of the urban residents found at the second census are assumed to be survivors of those present at the first census. Reduced migration will in turn result in higher estimated urban natural increase and lower estimated rural natural increase.

[42] Evelyn Kitagawa and Philip Hauser, *Differential Mortality in the United States* (Cambridge, Massachusetts, Harvard University Press, 1973), chap. 7; Nathan Keyfitz and Wilhelm Flieger, *Population: Facts and Methods of Demography* (San Francisco, W. H. Freeman and Co., 1971), chap. 17.

[43] *Recent Levels and Trends in Mortality*, forthcoming United Nations publication.

[44] For the range of mortality that characterizes most of the developing countries studied herein, a 50 per cent difference in age-specific mortality roughly corresponds to a difference of 10 years in life expectancy at birth.

TABLE 15. RATES OF URBANIZATION AND CONTRIBUTION OF NET RURAL-URBAN MIGRATION TO URBANIZATION

Major area or region and country	*Intercensal period*	*Annual rate of urbanization (urban growth) rate minus national growth rate)*	*Proportionate contribution of rural-urban net migration to urbanization (urban rate of net in-migration and reclassification divided by rate of urbanization*
Africa			
Ghana	1960-1970	0.02263	0.875
Morocco	1960-1971	0.01691	0.899
South Africa	1951-1960	0.01024	1.462
	1960-1970	0.00209	[a]
Northern America[b]			
Canada	1951-1961	0.01228	1.062
	1961-1971	0.00886	1.038
Dominican Republic	1950-1960	0.02399	1.081
	1960-1970	0.02899	0.966
El Salvador	1950-1961	0.00516	1.470
	1961-1971	0.00260	[a]
Guatemala	1964-1973	0.00742	1.652
Mexico	1960-1970	0.01522	1.023
Nicaragua	1950-1963	0.01214	1.022
Panama	1950-1960	0.00797	1.698
	1960-1970	0.01454	1.237
Puerto Rico	1960-1970	0.02745	0.977
United States of America	1950-1960	0.00906	1.035
	1960-1970	0.00505	1.015
South America			
Argentina	1947-1960	0.01206	1.224
Brazil	1950-1960	0.02435	1.101
	1960-1970	0.01880	1.124
Chile	1952-1960	0.01449	1.015
	1960-1970	0.01141	0.963
Colombia	1951-1964	0.02076	0.958
Ecuador	1950-1962	0.01957	0.918
	1962-1974	0.01187	1.119
Paraguay	1962-1972	0.00491	[a]
Peru	1961-1972	0.02078	0.986
Uruguay	1963-1975	0.00073	[a]
Venezuela	1950-1961	0.02208	1.021
	1961-1971	0.01265	1.006
Asia			
Bangladesh	1961-1974	0.04009	0.914
India	1951-1961	0.01016	0.914
	1961-1971	0.01005	1.032
Indonesia	1961-1971	0.01637	0.816
Iran	1956-1966	0.02174	0.993
Iraq	1957-1965	0.03467	0.851
Japan	1955-1965	0.01897	0.970
	1965-1975	0.01085	0.867
Nepal	1961-1971	0.01238	0.998
Republic of Korea	1960-1970	0.03910	0.967
Sri Lanka	1953-1963	0.02116	1.129
	1963-1971	0.02001	1.042
Syrian Arab Republic	1960-1970	0.01639	0.937
Turkey	1955-1960	0.03110	1.169
	1960-1970	0.03048	1.128
Europe			
Austria	1961-1971	0.00363	[a]
Bulgaria	1956-1965	0.03610	0.955
Finland	1950-1960	0.01784	1.082
	1960-1970	0.02724	0.954
France	1962-1968	0.01705	0.923
Greece	1961-1971	0.02076	1.038
Hungary	1960-1970	0.01256	1.122
Ireland	1961-1971	0.01247	0.693
Luxembourg	1960-1970	0.00952	0.930
Norway	1950-1960	0.00027	[a]
	1960-1970	0.02788	1.043

TABLE 15. *(continued)*

Major area or region and country	*Intercensal period*	*Annual rate of urbanization (urban growth) rate minus national growth rate)*	*Proportionate contribution of rural-urban net migration to urbanization (urban rate of net in-migration and reclassification divided by rate of urbanization*
Poland	1960-1970	0.00787	1.211
Romania	1956-1966	0.01991	1.114
Spain	1950-1960	0.01536	1.004
Sweden	1960-1970	0.01123	0.824
Switzerland	1960-1970	0.01165	1.109
Oceania			
Australia	1961-1971	0.00432	[a]
New Zealand	1951-1961	0.01420	1.259
USSR	1959-1970	0.01468	1.161
Mean, last observation			
Developing countries (N = 25)			1.028
Developed countries (N = 18)			1.014

[a] Rate of urbanization less than 0.005, giving an unstable base for calculating proportion attributable to net migration.

[b] Including the following countries of Latin America: Dominican Republic; El Salvador; Guatemala; Mexico; Nicaragua; and Puerto Rico.

TABLE 16. SENSITIVITY OF ESTIMATED RURAL-URBAN MIGRATION TO MORTALITY ASSUMPTIONS

Country	*Estimated urban in-migration rate (per 1 000 urban residents) (1)*	*Maximum error from mortality assumption if rural age-specific mortality exceeds urban by anywhere from 0 to 50 per cent (2)*	*Estimated rural out-migration rate (per 1 000 rural residents) (3)*	*Maximum error from mortality assumption if rural age-specific mortality exceeds urban by anywhere from 0 to 50 per cent (4)*
Africa				
Ghana	19.88	2.51	7.10	0.90
Morocco	15.19	1.91	8.32	0.93
South Africa	8.75	0.25	7.87	0.22
Latin America				
Argentina	14.75	0.40	32.54	0.88
Brazil	21.14	0.71	22.69	0.77
Chile	10.99	0.92	17.21	2.41
Colombia	19.89	0.71	17.73	0.64
Dominican Republic	28.00	1.53	15.52	0.85
Ecuador	13.29	0.46	8.55	0.30
El Salvador	8.10	0.65	5.20	0.42
Guatemala	10.17	2.09	5.55	1.14
Mexico	15.55	0.66	19.28	0.82
Nicaragua	12.41	1.68	7.77	1.05
Panama	17.97	0.83	14.00	0.68
Paraguay	10.91	1.39	6.36	0.81
Peru	20.48	0.91	24.43	1.09
Puerto Rico	26.82	1.49	28.60	1.59
Uruguay	0.54	0.51	2.54	2.44
Venezuela	12.73	0.29	34.73	0.79
Asia				
Bangladesh	36.65	2.24	2.88	0.18
India	10.38	1.81	2.44	0.43
Indonesia	13.34	2.43	2.60	0.47
Iran	21.58	1.72	12.01	0.96
Iraq	29.49	1.45	25.28	1.25
Nepal	12.35	2.19	0.48	0.06
Republic of Korea	37.82	1.01	20.65	0.55
Sri Lanka	20.85	1.14	5.51	0.30
Syrian Arab Republic	15.36	1.34	10.55	0.92
Turkey	34.35	1.17	15.89	0.54
Mean		1.25		0.84

Table 16 shows that the average absolute "error" in urban in-migration is 0.00125 for the 29 countries. This figure represents 7.3 of the average rate of urban in-migration shown in table 11. The "error" in urban natural increase is necessarily the same in absolute amount, so that it represents 4.8 per cent of the average rate of urban natural increase (0.02606) shown in table 11. These amounts are not large enough to affect materially the major conclusions reached in this chapter.

The effect of the simulated errors on rural natural increase and migration will be larger than urban effects where the rural population is less than half of the total and will be smaller where it is a majority. This result follows simply from the fact that the error in estimated numbers of rural-urban migrants must be the same for both rural and urban populations; a differential effect of error on rates then can result only from differences in the size of the rural and urban populations that form the base of the rates. According to table 16, the average maximum error in estimated rural out-migration rates is 0.00084, or 6.3 per cent of the average out-migration rate for these populations and 3.1 per cent of the average rate of rural natural increase. These "errors" are still smaller than those for the urban population.

The main reason for the insensitivity of results to mortality assumptions is that the populations of developing countries are sufficiently youthful so that the majority of the populations are in ages where intercensal survival rates are close to unity. Varying mortality rates thus have a relatively small influence on results. It should also be mentioned that mortality rates below age 5 do not vary between the procedures, because the level of combined fertility and child mortality among migrants is inferred directly from standardized urban child/woman ratios.[45]

[45] The estimated number of migrants below age 5 will, however, still vary because the estimated number of female migrants in the childbearing period depends upon the mortality assumption.

IV. PATTERNS OF GROWTH AMONG CITIES

As agriculture declines as a fraction of national product or labour force, workers and industries become increasingly "footloose." Dependence of production upon proximity to natural resources is replaced by dependence upon a vast array of factors, such as physical and human capital, proximity to suppliers and consumers of products; availability of credit, transportation and insurance; and access to a stable and diversified labour supply. As the human and organizational factors of production become more important to the success of any enterprise, it is not surprising that economic activities become increasingly concentrated in areas where such factors are relatively abundant and diversified, i.e., in relatively dense agglomerations.

Although it is not difficult to understand why populations become more concentrated, there are no persuasive arguments to predict whether and when the process of concentration should end. If the advantages of agglomeration were sufficiently strong, one would predict that virtually all of the population of a country would come together on a tiny fraction of its land area. Such extreme concentrations are not observed except in unusual physical settings, but the large-scale release of labour from the land is a recent enough event in human history that earlier dispersion patterns still influence observed distributions.

The advantages and disadvantages of larger size undoubtedly vary from place to place. In one city, topography may prevent expansion or make it extremely costly; while in another, expansion may just make it economically feasible to form certain transportation linkages with other communities. A multiplicity of factors influence the desirability of added growth.[1] Nevertheless, there are probably some advantages and disadvantages of size that apply to many different places. These factors have been the subject of investigation from several points of view. Perhaps the most central concept in these analyses has been that of agglomerative economies: economies of operation that are external to a firm but result from the previous presence of other firms and of social infrastructure.[2] Such economies need to be carefully distinguished from economies of scale in one firm's operation, where productive efficiency is seen as a function of the size of that firm's operation. In the case of agglomerative economies, a firm's efficiency of operation is viewed as a function of the size and number of other firms in the immediate area. For example, a firm beginning operation in a large metropolis generally has access to a skilled labour force, banking and credit facilities, transportation and storage facilities, networks of buyers and sellers of intermediate goods or raw materials and a large local market of consumers. All of these advantages are external to the firm in the sense that they are not produced by expansion of the firm itself but by the expansion of the metropolis. In one source, "localization economies" which arise from intra-industry clustering (e.g., availability of a labour force skilled in the specialties required in one industry) are distinguished from "urbanization economies" which result from interindustry clustering.[3] The author also describes consumer agglomerative economies, which add variety and reduce the cost of consumer goods; and social agglomerative economies, which reflect efficiencies in providing public services to a larger population. Naturally, diseconomies of agglomeration may also occur within each of these types.

Most of the empirical research that has investigated agglomerative economies has focused on those involving businesses in developed countries, particularly the United States of America. Three separate studies conclude that large cities in the United States have higher productivity in manufacturing industries. In an examination of cross-sectional data for 1967,[4] the conclusion is reached that a doubling of city size is associated with a 6 per cent increase in labour productivity: the partial effect of population size on productivity was positive in all 14 industries and significant at the 95 per cent confidence level in 11 of the 14. It has been calculated that cities larger than 2 million had 8 per cent higher returns to capital and labour than smaller cities.[5] Another report[6] distinguishes localization and urbanization economies and finds the former to be positive and significant in 5 of 19 industries and the latter significant in 12 of 19.

Several studies are also available for other developed countries. An examination of Swedish cross-sectional data for 1965, 1967 and 1968[7] also concludes that labour productivity is higher in metropolitan and denser regions. Although differences in capital/labour ratios are the principal explanation for interregional differences in labour productivity, population density, as measured by the number of inhabitants within a 30-kilometre radius, also makes a significant contribution.

[1] For a detailed evaluation of growth advantages and disadvantages in one city, see Richard A. Appelbaum and others, *The Effects of Urban Growth: A Population Impact Analysis* (New York, Praeger, 1976).

[2] Niles M. Hansen, "Systems approaches to human settlements", Research memorandum RM-76-7, Laxenburg, Austria, International Institute for Applied Systems Analysis, January 1976.

[3] Gerald A. Carlino, *Economies of Scale in Manufacturing Location* (Leiden, Martinus Nijhoff, 1978), chap. 2.

[4] Leo Sveikauskas, "The productivity of cities", *Quarterly Journal of Economics*, vol. 89, No. 3 (August 1975), pp. 393-413.

[5] David Segal, "Are there returns to scale in city size?", *Review of Economies and Statistics*, vol. 58, No. 3 (August 1976), pp. 339-350.

[6] G. Carlino, *op. cit.*

[7] Yngve Aberg, "Regional productivity differences in Swedish manufacturing". *Regional and Urban Economies*, vol. III, No. 2 (1973), pp. 131-156.

Several Japanese studies[8] reveal agglomerative economies in Japan in the secondary and tertiary sectors, though not in the primary sector.

None of these studies of economic performance by size of place is able to reject an interpretation that is considerably less favourable to size *per se*. It is possible that larger places enjoy some natural advantage (e.g., a confluence of rivers, a particularly productive hinterland or location near raw materials) that confers some productive advantage. This advantage would attract a larger population earning higher wages, but what would appear to be returns to size are in fact returns to that natural advantage. Even so, it is necessary for large numbers of people to locate near the natural advantage in order to capitalize on it; a policy of population dispersal would not be indicated even if size *per se* did not account for higher productivity in an area.

Studies of size as an influence on economic productivity are, unfortunately, quite limited in less developed countries. One fairly comprehensive study of 18 cities in India[9] concludes that the infrastructure costs required for industrial expansion decline as a fraction of output as cities grow in the range of from 20,000 to slightly over 1 million. The large majority of the size economies were realized by expansion to 130,000. For Brazil, it was found that, holding constant capital per worker and size of enterprise, labour productivity was highest in the most densely populated regions.[10] In the absence of detailed analyses of factors influencing productivity, several authors have cited higher wages in large cities as *prima facie* evidence of higher productivity therein. Thus, evidence is cited on the relatively high average incomes available at São Paulo, Calcutta and Bombay.[11] And despite rapid population growth, high income in relation to national standards is reported at Mexico City[12] and at Bangkok and Jakarta.[13] In Sierra Leone, average earnings rise with the size of city.[14]

One may ask why higher productivity continues to characterize larger cities when economic theory might predict that productivity among areas would be equalized by population migration to areas where wages are highest. One explanation is that economies of agglomeration continue to manifest themselves throughout the range of size that has been achieved by the world's cities. Not until sizes larger than those currently witnessed are reached would diseconomies outweigh economies. A less sanguine explanation is that the diseconomies are external to firms and hence do not show up in indices of productivity but in air, water and noise pollution; congestion, disorder and physical blight—or in the higher social costs required to alleviate these problems that larger size entails. In this view, people require a premium to locate in large cities in order to compensate for the disamenities produced by large size.[15] Certain of these external diseconomies of size are indisputable. The most obvious of them is congestion, particularly as manifested in slower traffic movement and longer journeys to work.[16] Surveys suggest that large numbers of people are conscious of certain disamenities in large cities and would, in fact, require a premium to locate there. Thus, 25 per cent of the rural residents in Guyana cite too much crime and vice as a reason for not moving to Ciudad Guyana, and 15 per cent cite the hustle and bustle and the sheer size of the city. On the other hand, residents of the city are largely impervious to these problems.[17] In the United States, a widespread aversion to large cities has been detected;[18] 41 per cent of the respondents in a study indicated that size of place was important in their residential choice.

A third explanation of continued higher earnings in large cities pertains particularly to developing countries. Many analysts have argued that higher incomes in very large or primate cities do not reflect market forces at all but rather continuing political biases favouring them. In this view, large cities—in particular, capital cities—enjoy disproportionate political influence and attract more than their just share of national expenditure. Not only do such areas contain relatively large numbers of government employees who are often paid above prevailing market rates but they enjoy disproportionate infrastructural investments.[19] The capital and primate cities are thus seen as parasitically draining resources from other areas.[20]

The competing explanations of large-city economic advantages, and the failure to apply careful tests that would discriminate among the alternatives, urge caution upon those who would cite the basic data in support of one particular position.

A second important question about the desirability of small *versus* large cities relates to the relative costs of

[8] Summarized in Koichi Mera, "On the urban agglomeration and economic efficiency", *Economic Development and Cultural Change*, vol. 21, No. 2 (January, 1973), pp. 309-324.

[9] Stanford Research Institute, "Costs of urban infrastructure for industry as related to city size: India case study", *Ekistics*, vol. 20 (November 1969), pp. 316-320.

[10] C. A. Rocca, "Productivity in Brazilian manufacturing", in J. Bergsmann, ed., *Brazil: Industrialisation and Trade Policies* (London, Oxford University Press, 1970).

[11] K. Mera, *loc. cit.*

[12] Frederick C. Turner, "The rush to cities in Latin America: government policies have more effect than we recognize", *Habitat*, vol. 2. No. 1/2 (1977), p. 192.

[13] Richard Michael, "Bangkok, Jakarta, and Singapore: a comparative analysis of plans and problems", *Ekistics*, vol. 45 (January, 1978), pp. 4-12.

[14] Derek Byerlee, Joseph L. Tommy and Habib Fatoo, "Rural-urban migration in Sierra Leone: Determinants and policy implications", African Rural Economy Paper, No. 13, Njala, Sierra Leone, University of Sierra Leone, Njala University College, Department of Agricultural Economics, 1976, p. 67.

[15] Werner Z. Hirsch, "The supply of urban public services", in Harvey S. Perloff and Lowdon Wingo, Jr., eds., *Issues in Urban Economies* (Baltimore, Md., Johns Hopkins Press for Resources for the Future, 1968), pp. 477-526.

[16] According to one thorough analysis, reduced traffic congestion is the major advantage of pursuing a policy of decentralized growth in Australia. G. M. Neutze, *Economic Policy and the Size of Cities* (Canberra, Australia National University Press, 1965).

[17] Leatrice D. MacDonald and John S. MacDonald, "Motives and objectives of migration: selective migration and preferences towards rural and urban life in Guyana", *Ekistics*, vol. 28 (November 1969), pp. 321-327.

[18] Larry G. Blackwood and Edwin H. Carpenter, "The importance of anti-urbanism in determining residential preferences and migration patterns", *Rural Sociology*, vol. 45, No. 1 (1978), pp. 31-47.

[19] Alan Gilbert, "The argument for very large cities reconsidered", *Urban Studies*, vol. 13, No. 1 (February 1976), pp. 27-34.

[20] Paul Singer, "The changing role of the industrial base as a conditioning factor in urban expansion in LDC's," paper presented at the International Union for the Scientific Study of Population Conference on Economic and Demographic Change: Issues for the 1980s, Helsinki, 28 August-1 September 1978, pp. 3.1.3.1-3.1.3.12.

public services or of social and economic infrastructure. This question is particularly salient in light of aspirations frequently expressed in development plans to increase the fraction of population covered by adequate public services. Unfortunately, almost all of the research that bears on this question pertains to the more developed regions. Most of these studies conclude that economies of scale in municipal services are realized up to a population size in the range of 100,000-300,000.[21] Beyond that point, it appears that economies continue to pertain in some types of services, but that they are balanced against diseconomies in others or form a relatively small fraction of municipal expenditure. In general, the vertically integrated services appear to manifest economies of scale well into population sizes numbering in the millions. It has been concluded that cost-capacity functions for water-treatment plants, sewage disposal, pipelines and canals typically show large economies of scale over the range of available observation.[22] A similar conclusion has been drawn for gas and electrical supply.[23] Obviously, these cost functions can be discontinuous and show rising sections with notches representing stages where a major overhaul of plant is required to achieve economies of larger size. With regard to public transportation, it has been argued that cities with millions of inhabitants are required in order to make mass transit work efficiently.[24] On the other hand, it has already been noted that mass transit may "work" only in the sense that it alleviates transportation problems brought on by sheer size itself. It has been concluded that a population density of 12,500 per square mile is required in order to make omnibus service remunerative.[25]

An important qualification to these arguments has been raised for developing countries. Taking advantage of scale economies in the vertically integrated services requires good urban planning in a situation where urban governments may be very weak. It also makes heavy demands on capital investment and foreign exchange, both of which may be in short supply.[26] In view of these constraints, cities in developing countries may be forced to spend inordinate amounts of time on rising portions of their cost curves as populations expand before appropriate municipal responses are forthcoming.

With respect to horizontally integrated services—those which are readily expanded spatially in much the same form, such as police forces, fire brigades, hospitals and schools—it appears that cost curves are relatively flat after a size of 200,000 or so has been achieved.[27] However, some improvement in the quality of services may be achieved beyond that size, through specialization. For example, certain medical or educational specialists may require a larger population size in order to sustain an adequate demand for their services. In one of the first attempts to identify an optimal size for cities,[28] the availability of various types of services was used as a criterion for defining the optimum, it was found that cities in the range of 100,000-200,000 typically supplied all but the most specialized of services.

Against the background provided by this brief review of city-size advantages and disadvantages, it is instructive to examine recent patterns of demographic growth as related to size of city. In the remainder of this chapter, two distinct approaches to investigating city growth patterns are pursued. The first approach uses individual cities as the units of analysis and attempts to identify factors associated with their growth rates. The second deals with estimates and projections of the population within certain size classes of cities; the set of cities within a particular size class changes over time as cities graduate into and out of the limits that define the class.

A. Factors associated with recent growth of individual cities

In order to examine factors associated with city growth rates, a special data set was assembled. The procedure used by the United Nations Secretariat is to monitor the size of all of the world's cities once they reach 100,000 as recorded by a population census or other reliable observational procedure.[29] For purposes of identifying growth rates, it is necessary that a city be larger than 100,000 at the earlier of two observations; once a city has reached 100,000 population, its size continues to be recorded even if it subsequently falls below that level. The cities for which growth patterns are examined in this section are those which reached at least 100,000 in size at the first of the two most recent observations. There are 1,338 such cities. Because countries take population censuses at different times, the actual dates of observation vary somewhat from city to city, although they are identical for cities within a particular country. Most commonly, city growth rates are derived through a comparison of 1970 census round results with those of the 1960 round. The average of initial years of the observational period is 1962.

Table 17 shows the average growth rates of cities classified by their size at the initial of the two observations. It is first useful to mention that the cities with a population of 100,000 or more are growing at about the same rate as the total urban populations in the respective regions. Their average growth rate of 0.0276 in the world as a whole is very close to the world average urban growth rate of 0.0288 between 1960 and 1975. For the more developed regions, the equivalent rates are 0.0206 and 0.0195; and for the less developed regions, 0.0377 and 0.0394. Table 17 shows that, for the world as a whole and in particular for the less developed regions, the relationship between city size and city growth rates is U-shaped. For the world, the more developed regions and the less developed regions alike, the most rapid average growth has been occurring in the smallest cities

[21] A number of studies are reviewed in William A. Howard, "City-size and its relationship to municipal efficiency: some observations and questions", *Ekistics*, vol. 28 (November 1969), pp. 312-316.

[22] Roger Revelle and H. A. Thomas, "Population growth and environmental control", in Economic and Social Commission for Asia and the Pacific, *The Ecological Implications of Rural and Urban Population Growth—Report on a Regional Seminar, 25 August-3 September 1971*, Asian Population Studies Series, No. 10 (E/CN.11/1043) (Bangkok, 1974).

[23] W. Z. Hirsch, *loc. cit.*

[24] World Bank, *Urbanization*, Sector Policy Paper (Washington, D.C., June 1972), p. 36.

[25] Colin Clark, *Population Growth and Land Use* (London, MacMillan, 1967), p. 366.

[26] A. Gilbert, *loc. cit.*

[27] W. Z. Hirsch, *loc. cit.*

[28] Colin Clark, "The economic functions of a city in relation to its size", *Econometrica*, vol. 13, No. 2 (April 1945), pp. 97-113.

[29] As explained below, an exception is made in respect of China.

TABLE 17. AVERAGE ANNUAL CITY GROWTH RATES BETWEEN THE TWO MOST RECENT CENSUSES AS A FUNCTION OF SIZE OF CITY AT FIRST CENSUS, MAJOR AREAS

Size class of city (thousands)	*World*	*More developed regions*	*Less developed regions*	*Africa*	*Latin America*	*Northern America*	*East Asia*	*South Asia*	*Europe*	*Oceania*	*USSR*
4 000 or more	0.02724	0.01555	0.03893	0.02659	0.04552	0.01700	0.03580	0.02947	0.00970	—	0.00848
Number of cities	20	10	10	1	4	3	5	2	4	—	1
2 000-3 999	0.02355	0.01823	0.03196	—	—	0.01913	0.01731	0.04662	0.01745	0.02356	0.01005
Number of cities	31	19	12	—	—	6	6	6	10	2	1
1 000-1 999	0.02052	0.01178	0.03079	0.02609	0.03731	0.01529	0.02315	0.03550	0.00739	—	0.02138
Number of cities	74	40	34	3	8	9	17	9	22	—	6
500-999	0.02540	0.02127	0.03200	0.03422	0.04382	0.02702	0.02180	0.03798	0.01496	0.02473	0.02405
Number of cities	143	88	55	6	12	24	23	15	37	3	23
250-499	0.02706	0.01814	0.03806	0.04452	0.03902	0.02421	0.03668	0.03396	0.01091	0.03189	0.02394
Number of cities	288	159	129	20	20	35	48	50	73	2	40
100-249	0.02902	0.02229	0.03949	0.04701	0.03596	0.02024	0.03607	0.03698	0.01906	0.01415	0.02715
Number of cities	782	476	306	53	66	96	102	134	203	7	121
All cities	0.02759	0.02063	0.03768	0.04448	0.03782	0.02163	0.03293	0.03649	0.01603	0.02029	0.02574
Number of cities	1 338	792	546	83	110	173	201	216	349	14	192

reviewed, those in the range of 100,000-250,000 inhabitants. Although by no means universal among regions, this tendency is also observed in Africa, Europe and the USSR; and, with slight modification, in East Asia. To the extent that growth reflects the advantage of cities, the growth tendencies can perhaps be viewed as supportive of the position that the marginal advantages of city growth are largest in the range of 100,000-250,000. However, it is also possible that annexation of territory tends to occur more frequently at this range of city sizes and that the fairly modest growth differences simply reflect the differential impact of this factor.

For the world, the more developed regions and the less developed regions, the slowest growing cities are those in the range of from 1 million to 2 million. This pattern also occurs within Africa, Northern America and Europe; and, in slightly modified form, in Latin America. It is difficult to identify the factors that may be responsible for the slow-down that occurs in this range. It may be that urban growth is dominated by two sets of factors, one of which (e.g., agglomeration economies to firms or achievement of political influence) shows a continued positive relation to city size and the other of which (e.g., social agglomerative economies in public services or annexation tendencies) is negatively related to size in the range considered. The previous review of studies on these factors is not inconsistent with such an interpretation. The net effect of these two forces could be to produce a minimum growth rate in the middle of the urban size distribution. Only 74 cities fell into this class and over-interpretation of their growth rates should be avoided; nevertheless, the next two lowest average growth rates for the world and for the less developed regions occur in the adjacent size classes, giving some additional credibility to the designation of from 1 million to 2 million as a minimum.

Interesting regional differences appear in table 17. Latin America, with an exception in the range between 1 million and 2 million, has a steadily upward-sloping relationship between city size and city growth rates; on average, the larger the city the faster its growth. Africa and the USSR, on the other hand, show an inverse relationship between city size and city growth rates. It is thus also reasonable to view the over-all distribution of growth rates by size as reflecting the mixture of these two patterns, with relationships between size and growth in other regions being much less distinct and thus imparting less contour to the aggregated distribution. As is demonstrated below, the size distributions of cities between Latin America, on the one hand, and Africa and the USSR, on the other, are also quite distinct from each other, with Latin America showing a distribution more heavily weighted towards large cities. Thus, the patterns depicted in table 17 appear to be part of a more permanent set of differences in the climate for city growth between the regions.

The largest divergence between city growth rates in more developed and less developed regions occurs among the "giant" cities, those over 4 million in size. The 10 "giants" in the more developed regions are growing more slowly than the average city in that region; in the less developed regions, the 10 "giants" exceed the average growth rate and, in fact, rank second in terms of average growth. This divergence undoubtedly reflects a different role for primate cities in the two groups of regions and the unique historical influences on the very large cities in developing countries, including a history of colonial penetration and distortions in patterns of government expenditure.[30] It may also reflect quite different intensities of the economies of agglomeration that are operating in the two regions. The principal gains from agglomeration, of course, result from increased proximity to people and resources required in production; physical proximity is less important where good transportation systems facilitate contact.[31] Thus, the gains from agglomerating may be substantially less in the more developed regions which have, in general, developed superior transportation systems.

The relatively slow recent growth of very large cities in more developed countries has been noted in Japan, Italy, Norway, Sweden, the United States and else-

[30] World Bank, *Urbanization;* Janet Abu-Lughod and Richard Hay, Jr., eds., *Third World Urbanization,* (Chicago, Maaroufa Press, 1977); and Joseph Gugler and William G. Flanagan, *Urbanization and Social Change in West Africa* (Cambridge, Cambridge University Press, 1978).

[31] N. M. Hansen, *op. cit.*

where.[32] Many factors have been invoked to account for this "turn-round". In addition to continued improvements in transportation and communication that may have reduced the economies of agglomerating into very dense aggregates, other factors that have been suggested are increases in government transfer payments as a fraction of national product that may have allowed larger fractions of the population to locate in smaller areas without economic sacrifice; economic recession, which may have inhibited the formation of new firms that tend to locate disproportionately in large cities; high income elasticities of demand for out-door recreational opportunities that may have led increasing factions to locate outside a metropolis; and governmental deconcentration policies.[33] Separating out these and other influences will prove very difficult and can scarcely begin until the 1980 round of censuses provides more data on the types of cities involved in the turn-round and on its breadth and continuity.

In addition to the average growth rates in a class of cities, some interest is attached to the variance in growth rates. High variance implies unpredictability, which entails uncertainty and difficulty in urban planning. It has been suggested that large size imparts a form of inertia to city growth rates.[34] Large cities are typically more diversified industrially, and particularly so with respect to the export industries that transmit impulses of change to the local economy. This diversification should serve to cushion large cities against sudden growth or decline associated with the fortunes of a particular industry. The recent growth patterns of the 1,338 cities with over 100,000 population provides striking confirmation of the hypothesis cited above:

	Standard deviation of city growth rates	
Size class of city (thousands)	*More developed regions*	*Less developed regions*
4,000	0.00996	0.01290
2,000-3,999	0.01583	0.01610
1,000-1,999	0.01160	0.01656
500-999	0.01350	0.02091
250-499	0.01345	0.02344
100-249	0.02041	0.02625

In both groups of countries, the standard deviation of city growth rates is highest for the smallest group of cities and lowest, less than half the size, for the largest. This pattern appears to be the first demonstration on an international level that the variability in city growth rates is systematically associated with city size.

There are compelling reasons to argue that the dominant influence on the level of city growth rates is not city size but rather the population growth rate of the country in which the city is located. This relationship is brought out clearly in table 18. Without exception, cities in a particular size class experience more rapid average growth as the national population growth rate increases in increments of 1 per cent. All the categories in which average city growth rates exceed 4.5 per cent per annum occur among the group of nations in which national growth rates exceed 3 per cent. Undoubtedly, the difference in national growth rates accounts for the bulk of the difference between city growth rates in the less developed and the more developed regions. Within a particular category of national growth rates, the relationship between city size and city growth rates remains relatively flat, with a slight tapering off of city growth as size increases among the slow-growing countries and the emergence of a U-shaped curve as national growth rates increase.

The importance of national population growth rates for the growth of individual cities is confirmed by regression analysis. Growth rates in 1,322 of the 1,338 cities represented in tables 17 and 18 were compared with a variety of demographic and economic indicators pertaining to the initial census date or to the intercensal period.[35] By far the strongest correlate of the intercensal growth rate of a city is the intercensal population growth rate of the country in which the city is located. The zero-order correlation coefficient between the two variables is + 0.499. Coefficients of variables examined in the regression analysis are shown in table 19. Regressions were calculated on the basis of two data sets, one of which included and the other of which excluded the 110 Chinese cities, for which growth patterns are quite obscure. Because results did not differ appreciably, only the results that included Chinese cities are discussed.

The coefficient of the national population growth rate is 0.966 (or 1.002 excluding Chinese cities), carrying the reasonable implication that a 1 per cent increase in national population growth rates produces, on average, a 1 per cent increase in growth rates for large cities in that country. That this single demographic factor dominates all others in explanatory power is indicated by the extraordinarily high F-value for this variable. It is also indicated by the fact that, of the 30.6 per cent of total variance in growth rates explained by the equation, fully 81 per cent ($(0.499)^2/0.306$) is accounted for by population growth rates alone.

Other demographic and economic variables appear to operate on city growth rates in predictable ways. As described above, there is a slight but significant tendency for larger cities to grow more slowly.[36] For example, a city of 3 million, *ceteris paribus,* is expected to grow at

[32] Shunichi Inoue, "New stage of economic development and metropolitan growth in Japan"; and Antonio Golini, "Present interrelations between migration and urbanization: the Italian case", papers presented at the Conference of the Committee on Urbanization and Population Redistribution of the International Union for the Scientific Study of Population, Bellagio, Italy, 30 June-4 July 1978; John M. Wardwell, "Metropolitanization in developed countries: have the limits been reached?", paper presented at the International Union for the Scientific Study of Population, Conference on Economic and Population Change: Issues for the 1980s, Helsinki, 28 August-1 September 1978; D. R. Vining and T. Kontuly, "Increasing returns to city size in the face of an impending decline in the sizes of large cities: which is the bogus fact?", *Environment and Planning,* vol. 9, No. 1 (1977), pp. 59-62.

[33] The effect of government policies is reviewed in Niles M. Hansen, ed., *Public Policy and Regional Economic Development: The Experience of Nine Western Countries* (Cambridge, Mass., Ballinger Press, 1974). On some of the other influences, see J. Wardwell, *op. cit.*

[34] Wilbur Thompson, "Internal and external factors in the development of urban economies", in H. S. Perloff and L. Wingo, Jr., eds., *Issues in Urban Economics,* pp. 43-80.

[35] Cities in countries with less than 2 million population were dropped from the data set, as were cities in two countries for which economic information was unavailable.

[36] Although the relationships in tables 17 and 18 are U-shaped, there are relatively few cities in the upper size range where the downward slope is reversed. As a result, non-linear terms that would reflect this reversal were insignificant when added to the equation.

TABLE 18. AVERAGE CITY GROWTH RATES BETWEEN THE TWO MOST RECENT CENSUSES AS A FUNCTION OF CITY SIZE AND THE GROWTH RATE OF THE COUNTRY IN WHICH THE CITY IS LOCATED

Size class of city (thousands)	*Growth rate of country*			
	0-0.0099	*0.01-0.0199*	*0.02-0.0299*	*0.03 +*
4 000 or more	0.01228	0.03244	0.04045	0.05775
Number of cities	8	7	4	1
2 000-3 999	0.00923	0.02097	0.04188	—
Number of cities	11	10	10	—
1 000-1 999	0.01117	0.02516	0.03389	0.04123
Number of cities	36	23	11	4
500-999	0.01888	0.02476	0.03766	0.04541
Number of cities	71	38	25	9
250-499	0.01663	0.03117	0.03510	0.05190
Number of cities	130	72	64	22
100-249	0.01916	0.03115	0.03820	0.05323
Number of cities	349	199	176	58
All cities	0.01784	0.02980	0.03746	0.05171
Number of cities	605	349	290	94

TABLE 19. REGRESSION EQUATION PREDICTING CITY GROWTH RATES IN MOST RECENT INTERCENSAL PERIOD FOR CITIES WITH OVER 100 000 POPULATION AT BEGINNING OF PERIOD
(Per person)

Variables	*1 322 cities including those in China*		*1 212 cities excluding those in China*	
	Coefficient of variable	*F-value of additional explained variance contributed by variable after all other variables are in the equation*	*Coefficient of variable*	*F-value of additional explained variance contributed by variable after all other variables are in the equation*
Demographic				
National intercensal population growth rate (per person)	0.9659	111.25	1.0024	105.17
Log, initial city size	−0.00264	8.28	−0.00211	4.52
Initial proportion urban	−0.02982	39.28	−0.02859	32.48
Economic				
Initial level of gross national product *per capita* (thousands of 1964 dollars)	0.003304	10.64	0.003316	10.31
Intercensal annual growth rate of gross domestic product *per capita* (percentage)	0.002341	33.28	0.002395	33.30
Political				
Capital city categorical variable 1 if capital city 0 otherwise	0.006238	4.08	0.005895	3.36
Largest city categorical variable 1 if largest city in country 0 otherwise	0.003011	0.91	0.002920	0.78
Regional				
1 if in Latin America	0.006407	6.14	0.006142	5.35
1 if in Asia	−0.001554	0.77	−0.002234	1.41
1 if in Africa	−0.000198	0.00	−0.000249	0.01
Constant term	0.04904		0.04119	
R^2	0.306		0.312	

Notes: F-value significant at 1 per cent: 6.64; F-value significant at 5 per cent: 3.84.

a rate of 6 per 1,000 more slowly than a city of 300,000. The proportion urban in a country is also negatively related to city growth rates, probably reflecting in large part the fact that potential net migration to large cities declines as the cities occupy a larger fraction of the total national population. Economic level at the beginning of the intercensal period in the country in which the city is located is strongly and significantly related to city growth. The national rate of economic growth during the intercensal period is also positively and strongly related to city growth, although the direction of causation is not unambiguous because more rapid city growth could both contribute to and result from rapid economic growth. However, the contamination from this source should not be as large as it is for rural-urban migration, considered in chapter III, since the vast majority of the 1,322 cities in this data set are too small to have an appreciable impact on national economic indicators. The positive effects of national economic level and growth on the growth of an individual city is clearly congruent with their positive impact on rural-urban net migration. It is worth emphasizing that the results are based on two completely distinct data sets and are thus mutually reinforcing. The positive relations between city or urban growth and economic indicators is clearly quite different from the relationship that would be expected if cities were filling up primarily as a result of rural deprivation.

The political and regional variables perform less satisfactorily as a group. However, it is clear that, for the small minority of cities that are national capitals (71 of 1,322 cities) growth is substantially more rapid than for those which are not, by an estimated 6.2 per 1,000. Being the largest city in a country confers a growth increment about half as large as that pertaining to capitals, but the measured effect of this variable is statistically insignificant. The results are clearly consistent with the view that spatial patterns of government expenditure bias patterns of city growth towards the largest city and particularly towards capital cities. However, it would appear unwise to over-emphasize a political explanation of city growth in view of the small number of large cities that fall into these categories. Adding these two variables to the equation increases the amount of variance explained in city growth only from 29.1 to 30.6 per cent of the total variance, a statistically significant but relatively small gain in explanatory power.

Of the regional categorical variables examined, only one has substantive or statistical significance in accounting for city growth rate differences. Cities in Latin America are growing at an average annual rate of 6.4 per 1,000 more rapidly than would be predicted on the basis of their measured demographic, economic or political circumstances.[37] Combined with the aforementioned distinctiveness of Latin America in the size distribution of cities and in the size pattern of growth, this finding suggests that urbanization in Latin America has some very substantial process differences from urbanization in other areas.

It should be emphasized that a great deal of variance in city growth rates—69 per cent—is left unaccounted for by the variables given in table 19. There are clearly important factors unique to individual cities that have an important influence on their growth rates. Undoubtedly, important among these factors are annexation practices, topography and geography, the health of industries in which the city specializes, productivity trends in the immediate or distant rural hinterland, government investment patterns and redistribution policies and so on. But in view of the many local influences that affect the growth of a city, it is perhaps surprising that so much variance can be explained by only a handful of indicators in such a large data set.

Results of this analysis provide relatively little guidance for policy-makers concerned with slowing city growth. The regional variables are clearly not policy manipulable (though the coefficient for Latin America may be indicative of unusual policies in that region[38]). Moving the national capital or redirecting government expenditures away from the capital or largest city might have important effects for a minority of cities. Slowing economic growth rates is not a palatable option in most countries. The one variable that has major and widespread influence on city growth rates and that appears susceptible to admissible policy intervention is the rate of national population growth. Population distribution policies are widely perceived as being distinct from population growth policies. But if an aim of redistribution policies is to slow large city growth, as it seems to be in many parts of the world, it is clear that an integration of those policies with population growth and fertility policies is desirable.

B. Estimates and projections of city population

The administrative boundaries of cities are sometimes rather narrow, or rather wide, when compared with the extent of urbanized territory as delimited by other standards. Accidents of administrative history limit severely the comparability of city sizes when these sizes are determined within administrative territory. Furthermore, there is the possibility that two or several adjacent cities are separately administered, although jointly they form one combined urbanized region. One outstanding example is the Rhein-Ruhr region in the Federal Republic of Germany, though there are numerous other instances. Since the criteria for the outer delimitation of cities can be varied, it is impossible to say whether New York or Tokyo is currently the world's most populous city, nor which city now ranks next in size after these two, whether Mexico City or Shanghai.

Two auxiliary concepts are available to permit somewhat comparable measurements of cities by population size. One concept is that of agglomeration and the other that of metropolitan region. The first of these concepts concerns the population contained within the contours of contiguous territory inhabited at urban levels of residential density. The second, a more extensive concept, includes additional surrounding areas of lower settlement density but still under the direct influence of the

[37] Strictly speaking, the coefficient of 0.0064 measures the difference between city growth in Latin America and that in Northern America, Europe, Oceania and the USSR. As the cities of Asia or Africa do not differ substantially in growth from this latter group, however, it is possible to treat the coefficient as pertaining to cities in Latin America, as compared with those in all other regions.

[38] According to one analyst, population distribution policies in Latin America are characterized by relatively passive acceptance of centralization tendencies. Elsewhere, particularly in Europe and East Asia, it appears that more vigorous decentralization policies have been pursued. Jorge E. Hardoy, "Potentials for urban absorption: the Latin American experience", in Thomas T. Poleman and Donald K. Freebairn, eds., *Food, Population, and Employment: The Impact of the Green Revolution* (New York, Praeger, 1977).

city because of high frequencies of transport and communication.[39]

For the present purposes, the Population Division has endeavoured, to the extent possible, to use data or estimates approximating the concept of agglomeration. This goal could not be achieved in every instance, as for many countries data on administrative city areas only are available. Even these data can be quite adequate in many countries where local administrative changes occur with sufficient frequency so that it can be assumed that city boundaries tend to be widened in conformity with the expansion of the growing agglomerations. In many other countries, however, the local administrative limits are more rigid, so that this does not usually happen. For a number of countries, two types of data were found, namely, for administrative and for metropolitan areas; in these instances, the metropolitan data were usually preferred because they may differ from the agglomeration to a lesser extent than the administrative data, even though the size of the agglomeration may thereby be somewhat exaggerated. For these and other reasons, it cannot be claimed that strictly comparable population estimates have been achieved for all cities; hence, comparisons of their population sizes and trends should be made with all the necessary reservations.

Beginning with 1955, the successive annual issues of the United Nations *Demographic Yearbook* contain tables showing the population of all cities with at least 100,000 inhabitants according to the most recent official data or estimates. The data consists of most census results obtained between 1950 and recent dates, in addition to various other estimates. They comprise both "city proper" data (i.e., cities within administrative limits) and "agglomeration" data. In many instances, however, the latter data had not been supplied; and in some other instances, data more properly definable as "metropolitan region" had been substituted. Therefore, additional research had to be done to broaden the basis for more comparable estimation of city populations in terms of agglomerations. Furthermore, an attempt was made to record, from national census publications, population figures for cities below but approaching the 100,000 limit at the most recent date of concrete estimate. These cities are treated in the same way as all others for purposes of estimation and projection, although the printing of their population size was suppressed until such time as it exceeded 100,000.

The lower limit of 100,000 for presentation and analysis of data was observed for all countries except China. Unfortunately, because of sparse data and the large number of cities for which rather speculative estimates are required, cities in China enter the data base and analysis only if their estimated population in 1970 reached 200,000. The country-specific figures, presented in annex II (table 48), will enable the reader to extract Chinese figures from published totals where desired.

Dates for which concrete city-specific population estimates are available may be assumed to be the same as those for which urban and rural estimates are available, as presented in annex I. In a few instances, data from municipal censuses were used; but in these cases the results were processed by interpolation or extrapolation to the dates of rural and urban estimates presented in annex I before entering the computerized data base.

For purposes of presentation, concrete city population estimates were processed into the same sequence of dates as urban and rural estimates: 1950, 1955 . . . 2000. The procedure used for estimation during the period 1950-1975 was identical, with one exception, to that used for the urban population as described in chapter II. The exception is that the growth rate of a city minus the growth rate of the rest of the country was used in formulae in place of the urban/rural growth difference. For example, for purposes of interpolation between two concrete estimates, the difference in growth rates between the city and the rest of the country (rural areas plus other urban areas) was assumed to remain constant during the period. However, since the size of a particular city was not always recorded when the population was less than 100,000, there are instances when a city has only one concrete estimate in the data base. In these cases, the city is forward- and back-projected by substituting the urban/rural growth difference in the appropriate period for the (unavailable) city/non-city growth difference.

Projection of city populations is fraught with hazards. It is a commonplace observation in the social and physical sciences that the behaviour of large aggregates is more predictable and regular than that of the individual elements which constitute the aggregate. This dictum surely applies to urban aggregates and the individual places that comprise them. A city may experience sudden growth or decline from a huge number of local factors, some of which may become continuing features of the environment and others of which may be transitory. There are more than 1,600 cities in the data set, and it is obviously impossible to predict precisely the demographic future of most of them. City projections are presented because they serve to illustrate on a global basis the consequences of recent demographic trends if they were to be extended into the future. In most cases, national and local planners will have access to more detailed information about a particular place and could supply more reliable information about its prospects.

The method used for projecting city populations is similar to that used for urban populations. The city growth rate for 1970-1975 as derived through the method described above was successively modified during the projection period to approach linearly an expected value that is based on the size of the city and on the urban growth rate for the country. The relationship between the city-urban growth rate difference and the city size was computed on the basis of the most recent two observations for cities over 100,000 in the 110 largest countries. Although the correlation between the city growth rate and the log of city size was only —0.083, incorporating the implied relationship serves to dampen the growth of the largest cities in a realistic manner. The expected value of the city-urban growth difference, which is progressively approached during the projection period, is computed as:

$$\text{(City growth rate — urban growth rate)} = 0.024516 - 0.0019364\ ln\ \text{(city size)}.$$

Again, this hypothetical value is weighted at 0.2 for the period 1975-1980, 0.4 for 1980-1985, and so on up to

[39] For a further discussion of these concepts and their suitability for various purposes, see "Statistical definitions of urban population and their uses in applied demography", in *Demographic Yearbook 1972*. (United Nations publication, Sales No. E/F.73.XIII.1).

1.0 for 1995-2000. The projected size of the cities at the beginning of each five-year period, as presented in table 48 in annex II, is used in the formula, rather than a size fixed at the 1975 level. According to the equation, by 1995-2000 a city is projected to grow more slowly than the urban population of the respective country if the city exceeds 315,000 in population and to grow more rapidly if it falls short of that figure. A city of 10 million, for example, will be projected to grow at an annual rate that is 0.67 per cent slower than the total urban population in the country where it is located.

The complete formula for the city growth rate used in the projection for a five-year period beginning with t is:

$$\left[1-\left(\frac{t-1970}{25}\right)\right]\times\left(\begin{matrix}\text{growth rate of}\\ \text{city, 1970-1975}\end{matrix}\right)+\left(\frac{t-1970}{25}\right)$$

$$\left[0.024516+\left(\begin{matrix}\text{urban growth}\\ \text{rate, } t \text{ to } t+5\end{matrix}\right)\right.$$

$$\left.-0.0019364\ ln\ (\text{city size, year } t)\right]$$

It is important to note that the procedure just described was slightly modified when the aggregate of city populations in a particular country was projected under the procedure just described to grow more rapidly than the total urban population. This was a common occurrence because disaggregated population projections tend to grow more rapidly in total numbers than aggregated projections based on the same data. This disparity results from the fact that, in disaggregated projections, rapidly growing subcomponents form an ever-larger fraction of the aggregate. Such disparities clearly need to be reconciled, particularly since it is possible that the sum of subcomponents at some future point may exceed the component total in the aggregated projection. Furthermore, for reasons described above, it is expected that urban growth rates are more stable and reliable than city growth rates. Consequently, a dampening function was imposed on city growth rates. When the projected growth rate of the aggregate of cities in the data base in a particular country exceeded the urban growth rate for the same period, a quantity was subtracted from the growth rate of each city in the amount of:

$$\triangle r=\frac{\text{Population in cities}}{\text{Urban population}}\ (\text{city sum growth rate—urban growth rate}).$$

This function requires that the sum of cities grow no more rapidly than urban areas when the cities in the data set account for 100 per cent of the urban population. This occasionally happens in small countries where the definition of urban area includes only a small number of places. Even in this case, projected differences in growth rates among cities are still preserved. Where the cities are less than 100 per cent of the urban population, the city sum is permitted to grow more rapidly than the urban population. Where the identified cities are one half of the urban population, for example, and where the sum of city populations is projected to grow more rapidly than the urban population by, say, 0.01 per annum, then an amount of 0.005 is subtracted from the growth rate of each city in producing the final city-specific projections. This procedure replaces an earlier method used by the Population Division, which forced only small places or "rest of urban" to absorb and reconcile disparities between urban growth and the growth of cities.[40]

Example: Ireland

The population of Ireland found in censuses was:

	Census of 17 IV 1966	*Census of 18 IV 1971*	*Intercensal growth rate*
Ireland	2,884,002	2,978,248	0.006431
Dublin	734,967	778,127	0.011413
Cork	125,283	134,430	0.014094

The estimated and projected total and urban population of Ireland, as calculated by the Population Division, is:

Population (thousands)	*1965*	*1970*	*1975*	*1980*	*1985*	*1990*
Total	2,876	2,954	3,131	3,298	3,476	3,658
Urban[a]	1,401	1,528	1,713	1,905	2,115	2,337

[a] Calculated using procedures described in chapter II.

The estimated population of Dublin in 1970 was 769,000 and that of Cork was 133,000. In order to estimate the population of these cities in 1975, it is necessary to calculate the city/non-city growth difference in the intercensal period from 1966 to 1971. From the data given above, it can be calculated that this growth difference is 0.006714 for Dublin and 0.008018 in Cork. By assumption, this last-observed difference prevailed throughout the period 1970-1975, so that the ratio of each city to the rest of the country will grow at this rate between 1970 and 1975. The estimated ratio of Dublin to all other areas in 1975 is:

$$\begin{aligned}\frac{\text{Dublin (1975)}}{\text{Other areas (1975)}}&=\frac{\text{Dublin (1970)}}{\text{Other areas (1970)}}\times e^{5(0.006714)}\\&=\left(\frac{769}{2{,}954-769}\right)e^{5(0.006714)}\\&=0.35195(1.03414)\\&=0.36396.\end{aligned}$$

To solve for the size of Dublin in 1975, it is necessary to convert this ratio:

$$\text{Dublin}=\text{total population}\times\frac{\frac{\text{Dublin}}{\text{Other areas}}}{1+\frac{\text{Dublin}}{\text{Other areas}}}$$

$$=3{,}131\times\frac{0.36396}{1.36396}$$

$$=835.48.$$

This is the figure given in table 48 (annex II) for Dublin in 1975. Likewise, the population of Cork in 1975 is found by:

$$\begin{aligned}\frac{\text{Cork (1975)}}{\text{Other areas (1975)}}&=\frac{\text{Cork (1970)}}{\text{Other areas (1970)}}\times e^{5(0.008018)}\\&=0.047146(1.04090)\\&=0.049074\end{aligned}$$

[40] See "Trends and prospects in the population of urban agglomerations, 1950–2000, as assessed in 1973–1974" (ESA/P/WP.58).

$$= 3{,}131 \times \frac{0.049074}{1.049074}$$
$$= 146.46.$$

To project Dublin and Cork to 1980, first calculate their estimated growth rates 1970-1975 by:

$$\frac{ln\left(\frac{\text{Population 1975.5}}{\text{Population 1970.5}}\right)}{5}$$

These are the 1970-1975 growth rates used in the formula for projecting the cities. For the period 1975-1980, this growth rate is weighted at 0.8 and the hypothetical growth rate, computed according to the following formula, is weighted at 0.2.

Hypothetical city growth rate = urban growth rate + 0.24516 — 0.0019364 *ln*(city size)

The projected urban growth rate for 1975-1980, from the data given above, is $ln(1905/1713)/5 = 0.021247$. The city size of Dublin in 1975 is 835,480. So the hypothetical city growth rate for Dublin is:

$$0.021247 + 0.024516 - 0.0019364(13.6358) = 0.019359.$$

Thus, the growth rate for Dublin used in the projection from 1975 to 1980 is:

$$0.8(.016583) + 0.2(.019359) = 0.017138.$$

The projected population of Dublin in 1980 is:

$$\text{Dublin (1980)} = \text{Dublin (1975)}\ e^{5(0.017138)}$$
$$= 835.48 \times 1.08947$$
$$= 910.23$$

This is the number appearing in the output for Dublin in 1980. In order to project Dublin from 1980 to 1985, it is necessary to substitute new values for the urban growth rate (1980-1985 replaces 1975-1980) and for the size of the city (1980 replaces 1975), and to change the weights assigned to the 1970-1975 growth rate and to the hypothetical growth rate from (0.8, 0.2) to (0.6, 0.4). The complete formula for the growth rate of Dublin used for projection in 1980-1985 is:

$$0.6(0.016583) + 0.4(0.020915 + 0.024516 - 0.0019364 \times 13.721) = 0.0174945$$

$$\text{Dublin (1985)} = 910{,}230\ e^{5(0.0174945)} = 993{,}436.$$

The city size of Cork in 1975 is 146.46. So the hypothetical city growth rate for Cork is:

$$0.021247 + 0.024516 - 0.0019364(11.8945) = 0.0227305.$$

Thus, the growth rate for Cork used in the projection from 1975 to 1980 is:

$$0.8(0.0186515) + 0.2(0.0227305) = 0.019467.$$

The projected population of Cork in 1980 is:

$$\text{Cork (1980)} = \text{Cork (1975)}\ e^{5(0.019467)}$$
$$= 161{,}433.$$

For the growth rate of Cork used for projection in 1980-1985 is:

$$0.6(0.0186515) + 0.4(0.020915 + 0.024516 - 0.0019364 \times 11.9892) = 0.0200770$$

$$\text{Cork (1985)} = \text{Cork (1980)}\ e^{5(0.0200770)}$$
$$= 179.48.$$

In order to determine whether the *ex post facto* adjustment of city growth rates is necessary for 1975-1980, it is necessary to calculate the growth rate of the aggregate of Dublin and Cork for 1975-1980. The sum of the populations of these cities in 1975 was 981,940; and in 1980, it is 1,071,663. The growth rate of the aggregate is thus 0.01749, which is less than the projected urban growth rate for the period of 0.021247, so that the constraint on city growth rates does not become operative. If the cities had been projected at first to grow at an aggregate rate of 0.025 during the period 1975-1980, it would have been necessary to modify downwards each of their projected growth rates between 1975-1980 by:

$$(0.025 - 0.021247)\ \frac{\text{Dublin (1975)} + \text{Cork (1975)}}{\text{Urban (1975)}}$$

or by $0.003753\left(\frac{981{,}940}{1{,}713{,}000}\right) = 0.002151.$

C. Growth trends in various size classes

Estimates and projections of the population of each city in the data base are presented in table 48 (annex II). In table 20, the estimates are processed into regional summaries of the cumulative population above certain size thresholds. The figures are not extended beyond 1975 because cities not contained in the data base will be surpassing the various minimum thresholds as the century progresses. Rather than make guesses regarding their identity, number and size, projections shown below focus on the population in categories not likely to be appreciably affected by the début of new cities.

Despite the weak relationships described above between city size and city growth rates, it is very clear from table 20 that the class of largest cities is growing much more rapidly than smaller classes. Cities with a population of over 4 million grew by 30 per cent in the short space of time between 1970 and 1975, or at an annual rate of 5.27 per cent. During the same period, cities with a population between 2 million and 4 million grew by 16 per cent, those between 1 million and 2 million by 13 per cent, between 500,000 and 1 million by 24 per cent, and between 250,000 and 500,000 by 17 per cent. The largest class of cities is growing most rapidly simply because graduation of cities occurs into that class, but no graduation occurs out of it. The 5.27 per cent growth rate of the class of cities above 4 million is in sharp contrast to the average annual intercensal growth rate of 2.72 per cent for cities that began their last intercensal period with more than 4 million population.

By dealing with cumulative numbers above various sizes, a series of open-ended categories, out of which no graduation occurs, can be generated. While the population of places larger than 4 million grew by 30 per cent between 1970 and 1975, that in places with more than 2 million population grew by 25 per cent; of 1 million, by 21 per cent; of 500,000, by 22 per cent; and of 250,000, by 21 per cent. The equivalent series in less developed regions shows considerably more rapid growth: 55 per cent for the cities with more than 4 million population,

TABLE 20. POPULATION, NUMBER OF CITIES AND PERCENTAGE OF URBAN POPULATION IN PARTICULAR SIZE CLASS OR ABOVE, WORLD, MORE DEVELOPED AND LESS DEVELOPED REGIONS, AND MAJOR AREAS, 1950-1975

(Population in thousands)

Size class of city (thousands)	*1950*	*1955*	*1960*	*1965*	*1970*	*1975*
			World			
4 000+						
Population	71 133	89 699	125 380	156 128	189 790	241 809
Number of cities	11	13	18	21	24	30
Percentage urban	9.82	10.56	12.39	13.30	14.01	15.49
2 000+						
Population	121 710	146 641	198 531	250 568	298 801	375 153
Number of cities	30	33	46	57	63	78
Percentage urban	16.81	17.27	19.62	21.35	22.06	24.04
1 000+						
Population	186 830	234 529	294 639	360 338	433 100	525 389
Number of cities	77	95	115	138	159	185
Percentage urban	25.80	27.62	29.11	30.70	31.98	33.66
500+						
Population	254 735	314 634	388 822	470 192	562 713	685 719
Number of cities	176	213	250	297	345	412
Percentage urban	35.18	37.06	38.42	40.06	41.55	43.93
250+						
Population	320 823	388 833	480 471	577 150	693 011	837 818
Number of cities	371	431	516	610	726	853
Percentage urban	44.30	45.80	47.47	49.17	51.17	53.68
100+						
Population	408 004	492 897	597 220	709 438	833 058	971 656[a]
Number of cities	953	1 121	1 277	1 462	1 615	1 655[a]
Percentage urban	56.34	58.05	59.01	60.44	61.51	62.25[a]
			More developed regions			
4 000+						
Population	55 655	72 175	82 937	100 183	108 250	121 235
Number of cities	8	10	10	12	12	13
Percentage urban	12.40	14.25	14.48	15.66	15.40	15.80
2 000+						
Population	85 694	98 907	125 588	151 000	168 448	193 721
Number of cities	19	20	26	32	34	39
Percentage urban	19.09	19.53	21.93	23.60	23.97	25.25
1 000+						
Population	124 485	151 192	181 193	212 368	239 168	271 153
Number of cities	46	56	65	77	85	95
Percentage urban	27.73	29.85	31.64	33.20	34.03	35.34
500+						
Population	166 599	198 958	237 972	276 775	312 257	351 071
Number of cities	107	127	147	170	188	205
Percentage urban	37.11	39.28	41.55	43.26	44.43	45.75
250+						
Population	208 471	244 238	290 648	335 400	380 899	432 942
Number of cities	230	259	299	342	392	443
Percentage urban	46.44	48.23	50.75	52.43	54.19	56.42
100+						
Population	259 628	306 591	360 706	413 228	461 635	510 228[a]
Number of cities	575	678	759	846	904	907[a]
Percentage urban	57.83	60.54	62.98	64.59	65.68	66.50[a]

TABLE 20. *(continued)*

(Population in thousands)

Size class of city (thousands)	*1950*	*1955*	*1960*	*1965*	*1970*	*1975*
			Less developed regions			
4 000+						
Population	15 478	17 524	42 443	55 945	81 540	120 574
Number of cities	3	3	8	9	12	17
Percentage urban	5.62	5.11	9.66	10.48	12.52	15.19
2 000+						
Population	36 016	47 734	72 943	99 568	130 353	181 432
Number of cities	11	13	20	25	29	39
Percentage urban	13.09	13.93	16.60	18.65	20.01	22.86
1 000+						
Population	62 345	83 337	113 446	147 970	193 932	254 236
Number of cities	31	39	50	61	74	90
Percentage urban	22.65	24.32	25.82	27.71	29.77	32.04
500+						
Population	88 136	115 676	150 850	193 417	250 456	334 648
Number of cities	69	86	103	127	157	207
Percentage urban	32.02	33.76	34.33	36.22	38.44	42.17
250+						
Population	112 352	144 595	189 823	241 750	312 112	404 876
Number of cities	141	172	217	268	334	410
Percentage urban	40.82	42.20	43.21	45.27	47.91	51.02
100+						
Population	148 376	186 306	236 514	296 210	371 423	461 428[a]
Number of cities	378	443	518	616	711	748[a]
Percentage urban	53.91	54.38	53.83	55.47	57.01	58.15[a]
			A. *Africa*			
4 000+						
Population	—	—	—	4 608	5 480	6 415
Number of cities	—	—	—	1	1	1
Percentage urban	—	—	—	7.35	6.82	6.23
2 000+						
Population	2 466	3 027	3 725	4 608	7 519	10 937
Number of cities	1	1	1	1	2	3
Percentage urban	7.75	7.65	7.52	7.35	9.36	10.62
1 000+						
Population	3 503	5 293	7 482	8 918	15 415	23 130
Number of cities	2	3	4	4	8	12
Percentage urban	11.01	13.38	15.11	14.22	19.18	22.45
500+						
Population	6 853	10 278	12 842	16 935	22 924	36 932
Number of cities	7	11	12	15	19	33
Percentage urban	21.54	25.98	25.94	27.01	28.52	35.85
250+						
Population	9 989	12 959	17 116	24 706	35 431	50 983
Number of cities	16	20	25	40	56	74
Percentage urban	31.39	32.76	34.57	39.41	44.08	49.48
100+						
Population	15 130	19 988	26 949	35 355	46 399	60 955[a]
Number of cities	50	67	88	107	122	133[a]
Percentage urban	47.55	50.52	54.44	56.39	57.73	59.16[a]
			B. *Latin America*			
4 000+						
Population	5 251	6 074	20 969	26 098	32 567	44 837
Number of cities	1	1	4	4	4	5
Percentage urban	7.78	7.15	19.67	19.75	20.06	22.60
2 000+						
Population	13 638	16 946	20 969	30 757	43 277	61 113
Number of cities	4	4	4	6	8	11
Percentage urban	20.20	19.95	19.67	23.27	26.66	30.81

TABLE 20. *(continued)*

(Population in thousands)

Size class of city (thousands)	*1950*	*1955*	*1960*	*1965*	*1970*	*1975*
	B. *Latin America (continued)*					
1 000+						
Population	17 276	22 316	30 988	42 939	56 383	77 589
Number of cities	7	8	11	15	17	22
Percentage urban	25.59	26.28	29.07	32.49	34.73	39.11
500+						
Population	20 808	29 993	38 496	52 362	69 293	93 020
Number of cities	12	20	22	29	35	44
Percentage urban	30.82	35.32	36.11	39.62	42.68	46.89
250+						
Population	26 625	35 348	46 373	60 578	80 729	106 814
Number of cities	28	36	44	53	69	85
Percentage urban	39.44	41.62	43.50	45.84	49.72	53.85
100+						
Population	33 356	42 655	56 129	74 207	96 542	122 429[a]
Number of cities	71	84	110	143	173	175[a]
Percentage urban	49.41	50.23	52.65	56.15	59.46	61.72[a]
	C. *Northern America*					
4 000+						
Population	21 331	24 845	29 039	40 986	44 697	48 297
Number of cities	3	3	3	5	5	5
Percentage urban	20.12	20.88	21.79	27.82	28.02	28.33
2 000+						
Population	31 307	36 287	44 207	57 880	65 669	75 857
Number of cities	7	7	8	12	13	15
Percentage urban	29.53	30.49	33.17	39.28	41.17	44.49
1 000+						
Population	40 536	50 539	63 509	77 576	88 079	101 417
Number of cities	14	17	21	27	29	33
Percentage urban	38.23	42.47	47.65	52.65	55.22	59.48
500+						
Population	50 579	62 226	78 284	93 981	108 904	124 936
Number of cities	29	34	42	52	59	66
Percentage urban	47.71	52.29	58.74	63.79	68.28	73.28
250+						
Population	60 355	74 199	92 119	108 876	125 988	143 846
Number of cities	57	68	80	95	110	120
Percentage urban	56.93	62.35	69.12	73.89	78.99	84.37
100+						
Population	72 348	88 526	107 819	123 553	139 597	156 336[a]
Number of cities	135	160	177	185	191	191[a]
Percentage urban	68.24	74.39	80.90	83.86	87.53	91.69[a]
	D. *East Asia*					
4 000+						
Population	12 517	19 821	28 348	33 552	48 781	57 863
Number of cities	2	3	4	4	6	6
Percentage urban	11.10	13.68	14.56	14.78	18.40	18.73
2 000+						
Population	23 129	30 560	43 693	53 474	62 575	79 504
Number of cities	6	7	10	11	11	14
Percentage urban	20.50	21.09	22.44	23.56	23.60	25.73
1 000+						
Population	33 771	46 477	62 117	74 656	90 495	110 674
Number of cities	14	19	24	27	31	37
Percentage urban	29.94	32.07	31.90	32.89	34.13	35.82

TABLE 20. *(continued)*

(Population in thousands)

Size class of city (thousands)	*1950*	*1955*	*1960*	*1965*	*1970*	*1975*
			D. *East Asia (continued)*			
500+						
Population	47 310	59 494	79 167	91 651	110 874	135 766
Number of cities	34	37	48	50	60	74
Percentage urban	41.94	41.06	40.65	40.37	41.82	43.95
250+						
Population	53 334	68 554	90 655	108 270	131 690	158 534
Number of cities	53	63	84	98	121	141
Percentage urban	47.28	47.31	46.55	47.69	49.67	51.31
100+						
Population	67 360	85 619	106 454	125 465	146 886	171 272[a]
Number of cities	147	173	181	202	213	214[a]
Percentage urban	59.71	59.09	54.67	55.27	55.40	55.44[a]
			E. *South Asia*			
4 000+						
Population	4 446	4 945	9 560	11 016	17 172	37 776
Number of cities	1	1	2	2	3	7
Percentage urban	4.24	4.03	6.51	6.19	7.90	14.22
2 000+						
Population	7 347	10 517	20 990	30 058	39 442	58 205
Number of cities	2	3	7	9	10	14
Percentage urban	7.00	8.57	14.29	16.88	18.15	21.92
1 000+						
Population	19 360	25 962	33 267	45 191	58 837	75 321
Number of cities	11	14	16	20	23	25
Percentage urban	18.46	21.15	22.65	25.37	27.08	28.36
500+						
Population	26 621	32 622	40 753	56 863	75 880	103 018
Number of cities	21	23	26	39	50	65
Percentage urban	25.38	26.58	27.74	31.93	34.92	38.79
250+						
Population	36 649	45 423	57 845	75 312	96 460	127 503
Number of cities	52	61	74	92	107	135
Percentage urban	34.94	37.01	39.38	42.29	44.39	48.01
100+						
Population	50 694	61 871	76 411	96 609	122 854	154 574[a]
Number of cities	147	171	198	236	281	303[a]
Percentage urban	48.33	50.41	52.01	54.24	56.54	58.21[a]
			F. *Europe*			
4 000+						
Population	22 747	28 479	31 179	33 058	33 988	35 033
Number of cities	3	4	4	4	4	4
Percentage urban	10.22	11.73	11.72	11.27	10.68	10.20
2 000+						
Population	36 359	40 745	53 059	58 711	64 215	72 335
Number of cities	8	9	13	14	15	17
Percentage urban	16.33	16.78	19.94	20.01	20.17	21.06
1 000+						
Population	61 784	71 819	80 301	88 875	97 765	106 714
Number of cities	25	30	32	35	39	42
Percentage urban	27.76	29.58	30.18	30.29	30.71	31.07
500+						
Population	85 075	94 163	106 789	117 704	127 781	137 294
Number of cities	58	63	71	76	82	85
Percentage urban	38.22	38.78	40.14	40.11	40.14	39.97

TABLE 20. *(continued)*

(Population in thousands)

Size class of city (thousands)	*1950*	*1955*	*1960*	*1965*	*1970*	*1975*
			E. *Europe (continued)*			
250+						
Population	106 269	117 091	130 779	144 227	158 529	172 946
Number of cities	121	130	142	154	174	189
Percentage urban	47.74	48.22	49.16	49.15	49.79	50.35
100+						
Population	131 077	145 181	161 497	178 739	193 724	208 126[a]
Number of cities	289	320	344	374	397	401[a]
Percentage urban	58.88	59.79	60.71	60.91	60.85	60.59[a]
			G. *Oceania*			
4 000+						
Population	—	—	—	—	—	—
Number of cities	—	—	—	—	—	—
Percentage urban	—	—	—	—	—	—
2 000+						
Population	—	—	2 141	4 487	5 021	5 614
Number of cities	—	—	1	2	2	2
Percentage urban	—	—	20.50	37.43	36.72	35.92
1 000+						
Population	3 136	3 564	4 021	4 487	5 021	5 614
Number of cities	2	2	2	2	2	2
Percentage urban	40.54	39.52	38.50	37.43	36.72	35.92
500+						
Population	3 136	4 079	5 191	6 442	7 865	8 911
Number of cities	2	3	4	5	6	6
Percentage urban	40.54	45.23	49.71	53.74	57.51	57.01
250+						
Population	4 538	5 256	6 055	7 180	8 137	9 468
Number of cities	6	6	6	7	7	8
Percentage urban	58.66	58.28	57.98	59.89	59.50	60.58
100+						
Population	5 105	5 968	6 955	8 142	9 317	10 779[a]
Number of cities	10	11	12	14	15	17[a]
Percentage urban	65.99	66.18	66.60	67.92	68.13	68.96[a]
			H. *Union of Soviet Socialist Republics*			
4 000+						
Population	4 841	5 535	6 285	6 810	7 105	11 588
Number of cities	1	1	1	1	1	2
Percentage urban	6.84	6.43	6.01	5.63	5.16	7.46
2 000+						
Population	7 464	8 559	9 747	10 593	11 083	11 588
Number of cities	2	2	2	2	2	2
Percentage urban	10.55	9.94	9.32	8.75	8.05	7.46
1 000+						
Population	7 464	8 559	12 954	17 696	21 105	24 930
Number of cities	2	2	5	8	10	12
Percentage urban	10.55	9.94	12.39	14.62	15.33	16.05
500+						
Population	14 353	21 779	27 300	34 254	39 192	45 842
Number of cities	13	22	25	31	34	39
Percentage urban	20.28	25.29	26.10	28.31	28.47	29.52
250+						
Population	23 064	30 003	39 529	48 001	56 047	67 724
Number of cities	38	47	61	71	82	101
Percentage urban	32.59	34.84	37.80	39.67	40.72	43.60

TABLE 20. *(continued)*

(Population in thousands)

Size class of city (thousands)	*1950*	*1955*	*1960*	*1965*	*1970*	*1975*
H. *Union of Soviet Socialist Republics (continued)*						
100+						
Population	32 934	43 089	55 006	67 368	77 739	87 185
Number of cities	104	135	167	201	223	221
Percentage urban	46.54	50.04	52.59	55.67	56.48	56.13

[a] Not including some cities that graduated into size class 100 000+ between 1970 and 1975.

then 39, 31, 34 and lastly 30 per cent for cities larger than 250,000. As in the case of general urban growth, Africa shows the most rapid growth of any major region in the class of large cities. Places in Africa with more than 250,000 population grew by 45 per cent in the short space of time between 1970 and 1975. In Latin America, populations in this category grew by 32 per cent, as did South Asian population; and East Asia (excluding Japan) grew by 22 per cent. In contrast, Northern American cities in this class gained only 14 per cent in population and European cities 9 per cent.

The more rapid growth of population in these open-ended categories in developing regions reflects two reinforcing tendencies: more rapid growth in cities that began a period above the minimum size; and more rapid graduation of cities into a particular size class by virtue of rapid population growth in cities that began the period below that size. The factor of graduation cannot be neglected, since it accounts for a substantial fraction of growth in all regions. Table 21 shows the fraction of growth between 1970 and 1975 that is attributable to graduation. The amount of population gained by graduation is readily calculated as the number of cities added to the size class in the period multiplied by the minimum population size required for entering that class. That is, at the point of graduation, a city has just attained that minimum size.

Table 21 shows that graduation has been an important contributor to the growth of population in cities with over 250,000 population and also in those larger than 1 million in the period 1970-1975. On average, 22 per cent of the growth in places larger than 250,000 was attributable to graduation, and 28 per cent of that in places with more than 1 million population. There are no important differences in the fraction of growth attributable to graduation between the less developed and the more developed regions, which reflects the fact that both graduation into a class and growth in cities already above that class are more rapid in the less developed regions. Africa and the USSR experienced the highest contribution of graduation to large city growth during the period, which reflects the fact that distributions of cities by size in these two areas are more steeply sloped than elsewhere, as is demonstrated below. Because the ratio of population in smaller cities to that in larger cities is greater in these areas, more cities are on the verge of graduating into a class in relation to the number of cities already in that class.

For the world as a whole, the percentage of urban population that lives in cities larger than 250,000 has grown at a steady rate from 44.3 per cent in 1950 to 53.7 per cent in 1975. The fraction living in the largest cities of more than 4 million inhabitants has increased even more rapidly, from less than 10 per cent in 1950 to greater than 15 per cent in 1975. These same growth tendencies are apparent within both less developed and

TABLE 21. FRACTION OF POPULATION GROWTH TO VARIOUS SIZES OF CITY CATEGORIES ATTRIBUTABLE TO GRADUATION, MAJOR AREAS, 1970-1975

	Cities with over 250 000 population			*Cities with over 1 million population*		
Major area	*Population change, 1970-1975 (thousands)* (1)	*Number of cities added to class 1970-1975* (2)	*Percentage growth in population attributable to graduation*[a] (3)	*Population change, 1970-1975 (thousands)* (4)	*Number of cities added to class 1970-1975* (5)	*Percentage growth in population attributable to graduation*[b] (6)
World total	144 807	127	22	92 289	26	28
More developed regions	52 043	51	24	31 985	10	31
Less developed regions	92 764	76	20	60 304	16	27
Africa	15 552	18	29	7 715	4	52
Latin America	26 085	16	15	21 206	5	24
Northern America	17 858	10	14	13 338	4	30
East Asia	26 844	20	19	20 179	6	30
South Asia	31 043	28	23	16 484	2	12
Europe	14 417	15	26	8 949	3	34
Oceania	1 331	1	19	593	0	0
USSR	11 677	19	41	3 825	2	52

[a] Column (2) × 250 ÷ column (1)
[b] Column (5) × 1 000 ÷ column (4).

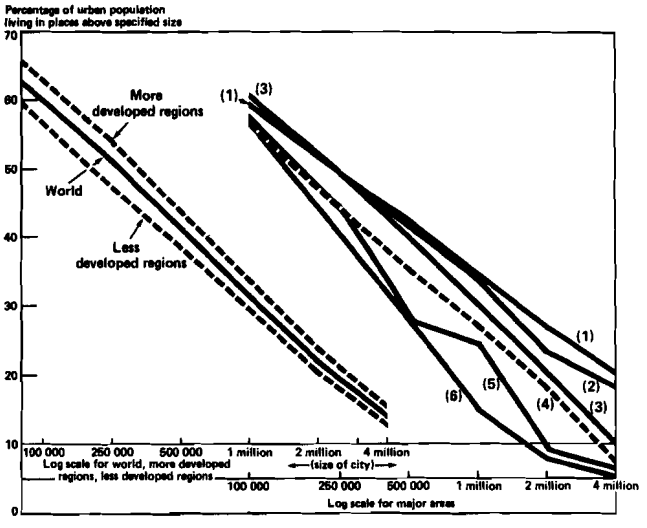
more developed regions, but the frequency of graduation of cities into higher size classes has been more rapid in the less developed regions. As the most extreme example, the number of cities in the less developed regions with more than 4 million inhabitants grew from only 3 in 1950 to 17 by 1975. During the interval, 105 million persons were added to this size class, a majority of whom (14 × 4 million = 56 million) were added by graduation. Even in the more slowly growing more developed regions however, the number of million-cities doubled, rising from 46 to 95 between 1950 and 1975.

D. Size distributions of cities

Many researchers have observed that the distribution of population among cities of various sizes very often follows closely a quite simple statistical rule, usually termed the "rank-size" distribution. According to one version of this statistical generalization, when size-of-place categories are selected so that the upper and lower limits of each size class represent a doubling of those in the next lower size class, then the amount of population in each size group will tend to be constant.[41] If the amount in each class so defined is constant, then the population above a minimum size should decline at a constant rate as the size is increased along a logarithmic scale. Graphic presentation of the data in this format is particularly well suited to summarizing characteristics of city distributions in different regions that are presented in table 20. Rather than dealing with total population numbers, however, figure IV plots the percentage of the urban population living in places above a certain size in order to normalize the distributions of the different regions.

The figure shows that the rank-size distribution is rather closely approximated by the world and its major regions in 1970.[42] Strong linearity can be seen in the relationship between the log of city size and the percentage of urban population above that size for all major regions. Differences in the distributions between the more developed and the less developed regions are relatively small and even so are undoubtedly exaggerated by unusual statistical practices in the United States of America, where a more inclusive procedure for identifying the population of specific cities elevates sharply the percentage of urban population above each minimum size. Excluding Northern America (not plotted), each of the major areas has a strikingly similar fraction of its urban population in places with over 100,000 population. This proportion occupies the very narrow range of 56-61 per cent. However, regional differences in the slope of the relationship are quite evident. Although they begin with nearly the same percentage above 100,000, Latin America and East Asia lose smaller fractions of their urban population as they proceed to higher size classes than do the remaining regions. In other words, the population in very large cities in relation to the population in smaller cities is higher in Latin America and East Asia. Reasons for these regional differences are obviously very complex. Certainly, various forms of contact between these areas and the European countries have been quite intensive for several centuries. These contacts were facilitated by high ratios of coastline to surface areas, and European contact is said to have facilitated a coastal bias in the development of city systems. As a main purpose of European penetration was trade and exploitation of natural resources, it was to be expected that relatively few cities with good harbours would come to dominate the urban hierarchy. Note has been taken of the extreme coastal concentration of the largest cities in Latin America.[43] In recent years, the forces of concentration have often been accelerated by patterns of economic and social development that stimulate population growth in the largest cities.

Figure IV. Size distributions of urban populations in major areas of the world, 1970



Key: (1) Latin America; (2) East Asia; (3) Europe; (4) South Asia; (5) Africa; (6) USSR.

Major areas with the sharpest slope of the relationship between city size and the percentage of urban population in cities above that size are Africa and the USSR. In these major areas, smaller cities are unusually prominent in relation to large cities. In Africa, this pattern may result in part from the highly fractionated political division of the continent, so that the geographical sphere of influence of a city is more narrowly circumscribed. Relatively poor transportation technology may also reduce the range of influence. An additional factor that has been suggested is that a difficult coastline favoured the development of small towns.[44] Extreme primacy does not, in general, characterize the least developed countries but rather appears to emerge after development has proceeded somewhat, later to recede.[45] Because of relatively

[41] For a review of research on the rank-size distribution, see *The Determinants and Consequences of Population Trends*, vol. I, *New Summary of Findings on Interaction of Demographic, Economic and Social Factors* (United Nations publication, Sales No. E.71.XIII.5), pp. 215-217.

[42] 1970 is chosen because the population in places with 100,000 or more population is probably increasingly underestimated in subsequent years as cities not in the data set graduate past this boundary. For 1970, an adjustment was made for cities between 100,000 and 200,000 in China, which were not recorded in the data base. Application of the rank-size rule suggests that there should have been 16,320,000 persons in China in cities of between 100,000 and 200,000 population. This total was added to the population in this class in East Asia, the less developed regions and the world before the points were plotted on figure IV.

[43] J. E. Hardoy, *loc. cit.*

[44] J. Gugler and W. G. Flanagan, *op cit.*, chap. 2.

[45] William Alonso, "Urban and regional imbalances in economic development", *Economic Development and Cultural Change*, vol. 17, No. 1 (October 1968), pp. 1-14.

poor transportation systems and also the dominance of the primary sector, it is difficult for the poorest countries to achieve a great concentration of activity and labour force in one or a few cities. This reasoning is consistent with the position of Africa, as well as that of Latin America and East Asia, shown in figure IV. It would not explain the location of the USSR, where restricted definitions of the area of specific cities may account for the bottom-heavy urban hierarchy. It is also possible that policies dating from the 1930s to discourage the growth of the largest cities have had a major effect on the size distribution within the Soviet Union.[46] In any case, it is evident from table 17 that differences between Latin America and Africa/USSR in their city size distributions were reinforced during the most recent intercensal period.

Table 22 presents regional projections of the number and population of cities in various categories to the end of the century. Because cities generally enter the data base only if they have achieved 100,000 in population, it is certain that the number and population of cities above this size is increasingly deficient after 1970. Consequently, figures for the category 100,000-250,000 are not shown beyond that date, nor are cities of 250,000-500,000 in 1990 and beyond, nor cities of 500,000-1 million in 2000. It is, of course, possible to graduate the urban distribution at subsequent points by some variant of the rank-size rule. In exchange for this loss of comprehensiveness that this procedure would provide, the present procedure has the virtue of allowing identification of each of the cities in a size class at subsequent points.

[46] *Urbanization in the Second United Nations Development Decade* (United Nations publication, Sales No. E.70.IV.15), p. 27.

According to the data in Table 22, there will be an enormous expansion in the number and population of cities of 1 million or more for the rest of the twentieth century. Whereas there were 185 cities larger than 1 million in 1975, there are expected to be 439 by the end of the century. The combined population in such places is expected to grow by 260 per cent in the last quarter of this century, or at an annual rate of 3.82 per cent. In contrast, the total urban population is expected to grow by 206 per cent. Again, it must be mentioned that the principal source of disparity between the two figures is the graduation of places into the million-plus category. Without the increment of 254 million attributable to this source, million-plus cities would grow by 211 per cent, almost identical to the urban growth factor.

The number and population of cities with more than 4 million population will grow at even more rapid a rate. Beginning at 30 in 1975, these cities are expected to number 86 by the year 2000, and their combined populations are expected to increase by 307 per cent. Such accretion will be even more rapid in the less developed regions. In 1975, there were slightly fewer persons in cities larger than 4 million in the less developed regions than in the more developed regions. However, by 2000, both the number and population of cities in this category among the less developed regions is expected to be well over twice that of the more developed regions. By 2000, it is expected that 71 per cent of the cities with more than 4 million inhabitants, and an equivalent percentage of the population in these cities, will be located in the less developed regions.

The identity of the largest cities in the world at various

TABLE 22. POPULATION AND NUMBER OF CITIES IN A PARTICULAR SIZE CLASS, MAJOR AREAS, 1975-2000

(Population in thousands)

Size class (thousands)	*1975*	*1980*	*1990*	*2000*
		World		
Urban population	1 560 859	1 806 808	2 422 292	3 208 027
4 000+	241 809	311 462	465 112	742 323
Number of cities	30	38	52	86
2 000-3 999	133 344	154 711	242 957	279 835
Number of cities	48	58	86	105
1 000-1 999	150 236	186 838	275 583	344 519
Number of cities	107	139	204	248
500-999	160 330	176 552	222 687	
Number of cities	227	255	327	
250-499	152 099	172 302		
Number of cities	441	497		
		More developed regions		
Urban population	767 301	834 400	969 225	1 092 469
4 000+	121 235	141 610	170 610	207 272
Number of cities	13	16	19	25
2 000-3 999	72 486	72 658	99 006	96 451
Number of cities	26	27	36	36
1 000-1 999	77 432	99 370	118 906	131 119
Number of cities	56	74	89	94
500-999	79 918	79 763	98 330	
Number of cities	110	116	149	
250-499	81 871	89 710		
Number of cities	238	259		
		Less developed regions		
Urban population	793 558	792 408	1 453 067	2 115 558
4 000+	120 574	169 852	294 502	535 051
Number of cities	17	22	33	61

TABLE 22. *(Continued)*

Size class (thousands)	*1975*	*1980*	*1990*	*2000*
		Less developed regions (continued)		
2 000-3 999	60 858	82 053	143 951	183 384
Number of cities	22	31	50	69
1 000-1 999	72 804	87 468	156 677	213 400
Number of cities	51	65	115	154
500-999	80 412	96 789	124 357	
Number of cities	117	139	178	
250-499	70 228	82 592		
Number of cities	203	238		
		A. *Africa*		
Urban population	103 032	132 951	219 202	345 757
4 000+	6 415	7 464	19 703	67 982
Number of cities	1	1	3	11
2 000-3 999	4 522	10 522	32 808	45 953
Number of cities	2	4	12	17
1 000-1 999	12 193	18 499	30 852	40 685
Number of cities	9	14	22	29
500-999	13 802	17 747	22 538	
Number of cities	21	26	32	
250-499	14 051	15 300		
Number of cities	41	44		
		B. *Latin America*		
Urban population	198 366	240 592	343 304	466 234
4 000+	44 837	59 485	102 998	165 323
Number of cities	5	6	10	17
2 000-3 999	16 276	26 643	34 033	22 226
Number of cities	6	10	11	8
1 000-1 999	16 476	15 173	27 136	44 609
Number of cities	11	11	21	32
500-999	15 431	17 574	26 024	
Number of cities	22	25	38	
250-499	13 794	20 508		
Number of cities	41	61		
		C. *Northern America*		
Urban population	170 501	183 281	212 393	239 199
4 000+	48 297	54 189	63 328	80 544
Number of cities	5	6	7	10
2 000-3 999	27 560	27 262	47 300	43 877
Number of cities	10	10	17	16
1 000-1 999	25 560	33 097	33 807	34 659
Number of cities	18	23	26	25
500-999	23 519	25 129	23 742	
Number of cities	33	37	36	
250-499	18 910	17 367		
Number of cities	54	50		
		D. *East Asia*		
Urban population	308 943	359 457	476 462	622 441
4 000+	57 863	71 072	103 095	142 175
Number of cities	6	7	10	14
2 000-3 999	21 641	25 066	35 265	55 607
Number of cities	8	9	13	22
1 000-1 999	31 170	35 772	52 910	63 772
Number of cities	23	26	38	46
500-999	25 092	29 844	37 644	
Number of cities	37	42	53	
250-499	22 768	25 973		
Number of cities	67	72		
		E. *South Asia*		
Urban population	265 568	329 760	515 685	790 685
4 000+	37 776	61 372	102 764	194 852
Number of cities	7	10	12	21
2 000-3 999	20 429	21 957	46 271	64 290
Number of cities	7	9	16	24
1 000-1 999	17 116	22 550	50 050	69 021
Number of cities	11	17	37	50

TABLE 22. *(Continued)*

Size class (thousands)	*1975*	*1980*	*1990*	*2000*
	E. *South Asia (continued)*			
500-999	27 697	33 565	41 791	
Number of cities	40	49	61	
250-499	24 485	28 139		
Number of cities	70	83		
	F. *Europe*			
Urban population	343 503	369 285	423 290	476 952
4 000+	35 033	45 713	59 854	72 872
Number of cities	4	6	8	10
2 000-3 999	37 302	34 897	35 016	36 133
Number of cities	13	13	13	14
1 000-1 999	34 379	36 516	41 517	46 413
Number of cities	25	27	30	34
500-999	30 580	31 888	44 129	
Number of cities	43	46	65	
250-499	35 652	40 507		
Number of cities	104	117		
	G. *Oceania*			
Urban population	15 630	17 829	22 590	27 145
4 000+	—	—	—	4 194
Number of cities	—	—	—	1
2 000-3 999	5 614	6 176	7 248	3 888
Number of cities	2	2	2	1
1 000-1 999	—	1 009	4 655	5 345
Number of cities	—	1	4	4
500-999	3 297	2 747	1 176	
Number of cities	4	3	2	
250-499	557	954		
Number of cities	2	3		
	H. *Union of Soviet Socialist Republics*			
Urban population	155 316	173 653	209 366	239 614
4 000+	11 588	12 167	13 370	14 381
Number of cities	2	2	2	2
2 000-3 999	—	2 188	5 016	7 861
Number of cities	—	1	2	3
1 000-1 999	13 342	24 222	34 656	40 015
Number of cities	10	20	26	28
500-999	20 912	18 058	25 643	
Number of cities	27	27	40	
250-499	21 882	23 554		
Number of cities	62	67		

points from 1950 to 2000 is shown in table 23. It is worth repeating that the rankings depend upon the relative inclusiveness of city boundaries and therefore do not necessarily correspond to the rankings that would obtain if uniform criteria could be applied in establishing city boundaries.

The list of largest cities reflects the same redistribution towards the less developed regions during the course of the century that is evident in other aspects of urban growth. In 1950, 11 of the 15 largest cities were located in more developed regions. By 1975, 8 of 15 were in the more developed regions; and in 2000, it is expected that only 3 of the 15 will be located in the more developed regions—Tokyo, New York and Los Angeles.

In 2000, there are expected to be 25 cities larger than 10 million in population, compared with only seven in 1975. Mexico City is projected to be the world's largest city in 2000, with an estimated population of 31.0 million. This position is based on a rapid rate of national population growth, a rapid rate of urbanization and a rapid increase at Mexico City in relation to the total urban population. Whether such size can actually be attained is, of course, questionable. It has been noted, for example, that population growth at Mexico City threatens to destroy tree cover that is necessary to prevent erosion and flooding.[47] Water-supply also appears to be a potentially constraining factor in this case. Natural or social limits to growth could be encountered well before a size of 31 million is reached, or of 26 million for São Paulo, and so on down the line. These projected figures are obtained despite the fact that the projection procedure has incorporated a negative relationship between city size and city growth rates, as discussed above. However, the relationship is necessarily based on an extrapolation of tendencies observed among smaller cities, and the relationship could be quite different in the range

[47] *Report of Habitat: United Nations Conference on Human Settlements, Vancouver, 31 May-11 June 1976* (United Nations publication, Sales No. E.76.IV.7), "Recommendations for national action", item 10 of provisional agenda.

of city population sizes to be approached in the rest of this century. The basic point to be stressed is that the world is entering uncharted territory at the upper end of its city size distribution. By 2000, there are expected to be six cities larger than any city in 1975. Projecting into this range is an act of faith that past growth patterns can be continued without radical alteration as unprecedented city sizes are approached.

TABLE 23. THIRTY LARGEST AGGLOMERATIONS IN THE WORLD, RANKED BY SIZE. 1950-2000
(Population in millions)

Rank	*1950*	*Population*	*1975*	*Population*	*1990*	*Population*	*2000*	*Population*
1.	New York/north-eastern New Jersey	12.3	New York/north-eastern New Jersey	19.8	Tokyo/Yokohama	23.4	Mexico City	31.0
2.	London	10.4	Tokyo/Yokohama	17.7	Mexico City	22.9	São Paulo	25.8
3.	Rhein/Ruhr	6.9	Mexico City	11.9	New York/north-eastern New Jersey	21.8	Tokyo/Yokohama	24.2
4.	Tokyo/Yokohama	6.7	Shanghai	11.6	São Paulo	19.9	New York/north-eastern New Jersey	22.8
5.	Shanghai	5.8	Los Angeles/Long Beach	10.8	Shanghai	17.7	Shanghai	22.7
6.	Paris	5.5	São Paulo	10.7	Peking	15.3	Peking	19.9
7.	Greater Buenos Aires	5.3	London	10.4	Rio de Janeiro	14.7	Rio de Janeiro	19.0
8.	Chicago/north-western Indiana	4.9	Greater Buenos Aires	9.3	Los Angeles/Long Beach	13.3	Greater Bombay	17.1
9.	Moscow	4.8	Rhein/Ruhr	9.3	Greater Bombay	12.0	Calcutta	16.7
10.	Calcutta	4.4	Paris	9.2	Calcutta	11.9	Jakarta	16.6
11.	Los Angeles/Long Beach	4.0	Rio de Janeiro	8.9	Seoul	11.8	Seoul	14.2
12.	Osaka/Kobe	3.8	Peking	8.7	Greater Buenos Aires	11.4	Los Angeles/Long Beach	14.2
13.	Milan	3.6	Osaka/Kobe	8.6	Jakarta	11.4	Cairo/Giza/Imbaba	13.1
14.	Mexico City	3.0	Chicago/north-western Indiana	8.1	Paris	10.9	Madras	12.9
15.	Philadelphia/New Jersey	2.9	Calcutta	7.8	Osaka/Kobe	10.7	Manila	12.3
16.	Rio de Janeiro	2.9	Moscow	7.4	Cairo/Giza/Imbaba	10.0	Greater Buenos Aires	12.1
17.	Greater Bombay	2.9	Greater Bombay	7.0	London	10.0	Bangkok/Thonburi	11.9
18.	Detroit (Michigan)	2.8	Seoul	6.8	Rhein/Ruhr	9.3	Karachi	11.8
19.	Naples	2.8	Cairo/Giza/Imbaba	6.4	Bogotá	8.9	Delhi	11.7
20.	Leningrad	2.6	Milan	6.1	Chicago/north-western Indiana	8.9	Bogotá	11.7
21.	Manchester	2.5	Jakarta	5.7	Madras	8.8	Paris	11.3
22.	Birmingham	2.5	Philadelphia/New Jersey	4.8	Manila	8.6	Teheran	11.3
23.	São Paulo	2.5	Detroit (Michigan)	4.8	Moscow	8.5	Istanbul	11.2
24.	Cairo/Giza/Imbaba	2.5	Manila	4.5	Teheran	8.3	Baghdad	11.1
25.	Tientsin	2.4	Delhi	4.4	Istanbul	8.3	Osaka/Kobe	11.1
26.	Boston (Massachusetts)	2.2	Tientsin	4.4	Baghdad	8.2	London	9.9
27.	Shenyang (Mukden)	2.2	Teheran	4.3	Delhi	8.1	Dacca	9.7
28.	Peking	2.2	Leningrad	4.2	Karachi	7.9	Chicago/north-western Indiana	9.4
29.	Berlin [West]	2.2	Madras	4.1	Bangkok/Thonburi	7.5	Rhein/Ruhr	9.2
30.	San Francisco/Oakland	2.0	Bogotá	4.0	Milan	7.4	Moscow	9.1

V. OCCUPATIONAL CHARACTERISTICS OF URBAN AND RURAL LABOUR FORCES

From an ecological point of view, the study of urbanization can be regarded as a study of the spatial organization of human residence and activities, most importantly labour force activities. The visible differentiation of territory between urban and rural is actually a physical manifestation of the functional differentiation of economic activities. In a rural village economy, peasant exchanges product with peasant in the village marketplace.[1] There are few full-time non-agricultural specialists. This is not to say that non-agricultural activities are not performed. It is rather that these activities—often involving the preparation of clothing, tools, furniture etc.—are more often performed by the peasants themselves, in their own homes or on a highly local basis.[2] The emergence of non-agricultural industries in modernized countries is related not so much to the inherent nature of the activities performed by the industries as to the fact that the work is pursued at locations which are spatially removed from farms.

Even in a small-town economy where some specialization in non-agricultural activities exists, the seller of a product is quite often also its producer, and the exchange is made directly between producer and consumer on a face-to-face basis. The extent of the market for most products is only a local trade area accessible to consumers in less than one day's travel. There are some non-agricultural specialists but the division of labour is not carried very far. A consumable product may be produced by a single person working alone. Some specialization existed even in antiquity; but still the names of many of the pre-industrial occupations often suggested whole products or group of products—baker, cobbler, butcher, tanner, winer, miller and the various types of smiths.[3] Occupations in industrial societies more often carry the name of a specialized activity not associated with a total product, for example, welder, lathe operator, crane operator, quality control chemist, typist, computer programmer, medical technician, script writer or engineer. These specialized workers must perform in combination with many other specialists in order to provide a total product or service.[4]

It has been suggested that multiplicity of functions is perhaps the essence of the difference between urban and rural places, and this is said to be the fundamental factor giving rise to the greater size and density of the urban places upon which so many statistical definitions are based.[5] For if a large variety of finely divided and interdependent tasks are to be performed and coordinated, they must usually be performed by large numbers of persons working within a small enough space for sufficient interaction to occur at less than prohibitive cost. Agriculture, however, cannot be spatially concentrated to a similar extent, either locally or regionally, because of land and climatic requirements. In countries where village settlement has been historically prevalent among agricultural workers, the smaller cities may still contain a significant proportion of population engaged in agriculture. In no country, however, are agricultural workers prevalent in large cities, except where the boundaries of the cities are delineated in such a way that much peripheral land under cultivation is included within the city limits for administrative purposes.

The spatial dispersal of agriculture prohibits an extreme degree of specialization or bureaucratization, and as a result the percentage of workers in non-agricultural pursuits has often been considered an index of modernization. It is true that agriculture in modernized countries is more rationally organized than agriculture elsewhere, and the differences between agricultural and urban life are greatly reduced. However, problems dictated by spatial imperatives cannot be entirely eliminated. Consumer services such as fire brigades and police forces, public transportation, education and medical services are especially difficult to organize in a spatially dispersed rural environment. This is, perhaps, why the occupation of farming has traditionally been learned at home rather than in formally organized educational institutions. Moreover, public expectations with regard to the quality and quantity of consumer services provided on a local basis are rising rapidly because of technical advances achieved in the major cities.

The growth of transportation and communications has facilitated the non-local organization of work activities. Organization implies contact. Although transportation has increased opportunities for direct face-to-face contacts, the telephone and other forms of electronic transmission have increasingly provided the means for exchange of information without face-to-face contact, thus

[1] N. S. B. Gras, *An Introduction to Economic History* (New York, Harper and Brothers, 1922), p. 105.

[2] In a study of rural employment in tropical Africa, it was found that non-farm activities, such as trading, tailoring and blacksmithing, were indeed important claimants on the time of farmers and their family. The proportion of male inputs devoted to non-farm activities varied considerably from about 11 per cent in Sierra Leone to 47 per cent in the north of Nigeria, in part because of a variation in the length of the dry season when most non-farm activity tends to be concentrated. Derek Byerlee and others "Rural employment in tropical Africa," African Rural Employment Economy Working Paper, No. 20, Michigan State University, East Lansing, Michigan, Department of Agricultural Economics, February 1977, p. 157 (mimeographed).

[3] See, for example, the discussion by Gordon V. Childe in *What Happened in History* (New York, Penguin Book Co., Inc., 1946), pp. 87-88.

[4] As recently as 1775, when Adam Smith wrote his textbook, the idea of the division of labour and its advantages appear to have been so little recognized that considerable explanation was required. It was in this regard that he offered his famous example of the pin factory in which 10 men working together with a division of labour could produce approximately 48,000 pins per day while a single man working alone might not be able to produce even one pin in a day. Adam Smith, *The Wealth of Nations*, book I, chap. I.

[5] *Demographic Yearbook, 1972* (United Nations publication, Sales No. E/F.73.XIII.1).

expanding greatly the possible scale and complexity of non-local organization. Detailed co-ordination of activities occurring at widely distant locations gradually became a reality as networks of telecommunications rapidly spread to even the most remote localities. The widespread dispersal of telecommunications minimized the necessity for spatial structuring of settlements, since activities in remote localities, or even in ships at sea, could be co-ordinated and brought within the scope of modern enterprise organization.

Transportation development has been an extremely important factor both in the growth of cities and in the arrangement of their internal structure. The proliferation of railways in Europe and Northern America during the second half of the nineteenth century is said to have been largely responsible for the increased concentration of population and employment in large cities. The larger cities gained at the expense of smaller, and the smaller cities became increasingly dependent upon the largest city in the vicinity. This development was largely due to the geometry of railways. An evenly dispersed square grid system of railways which would give more equal advantage to all geographical locations is too costly. Instead, the railways were constructed in wagon-wheel configurations centred around a single metropolis which tended to grow at the expense of other surrounding cities. These outer cities were then wedded to the central city with "bands of steel".[6]

At the same time that railways were concentrating ever more population and employment in large cities, power elevators were being introduced into large cities to facilitate spatial concentration in the third dimension through vertical transportation. As early as the 1860s, visitors were impressed by the elevators of New York City hotels. At first, these devices were hydraulic and were limited to a height of 18 or 20 storeys. To be liberated from this ceiling in height, architecture needed the electric elevator, which was introduced in the late 1880s. The electric elevator, together with the development of cast-iron and steel-skeleton construction frames, made possible the construction of skyscrapers. The first very high structure of cast-iron and steel was completed in 1889 in Paris: the Eiffel Tower, rising to almost 1,000 feet above the ground, as high as the Empire State Building constructed in New York City half a century later. As skyscrapers began to proliferate in large city business districts, office types of employment began to locate in these areas and there developed an office industry.[7] In contrast to older types of urban service employment which were heavily weighted with personal service occupations, the service employment located in skyscrapers often comprises business services offered to the largest of modern national and multinational bureaucracies. Much office industry in larger cities today is actually basic economic activity in the sense that much of the service output is non-locally consumed. As smaller firms are integrated into larger conglomerates, managements are consolidated and this process often results in reductions in local staff and increases in headquarters staff which require central location.[8]

For reasons that are still not clearly understood, it appears that the initial stages of industrial development of the old industrial countries, such as England, France and the United States of America, occurred at lower levels of urbanization than comparable industrial development in the more recently developed economies, such as Japan and the Soviet Union.[9] The currently less developed countries, which are only at early stages of development, are experiencing even higher levels of urbanization at low levels of development. These countries are sometimes referred to as "over-urbanized" in relation to degree of economic development.[10]

In a previous United Nations study,[11] a comparison was made between an urbanization indicator (the percentage of population in urban areas) and an economic indicator (the percentage of gross domestic product derived from agriculture) in Sweden at each decade after 1870, with values of the same two indicators around 1960 for 14 less developed countries. In 12 of the 14 countries, the economic indicator lagged behind the level of urbanization. In India, for example, the level of urbanization around 1960 was roughly equivalent to the urbanization level of Sweden during the first decade of this century, but the economic indicator for India was some 30 years behind, being equivalent to Sweden during the 1870s. In Brazil, Morocco and Mexico, the economic indicator was some 35-40 years behind the urbanization level. It is elsewhere argued,[12] similarly, that Asia, which was about 13 per cent urban in 1950, was over-urbanized in relation to its level of economic development since its proportion of non-agricultural labour force (30 per cent) was low in relation to that of the United States (1850s), France (1860s), Germany (1880s) and Canada (1890s) which had approximately 55 per cent of their labour force engaged in non-agricultural occupations at the time when they were at the 1950 level of urbanization in Asia.[13]

One could speculate that perhaps technological ad-

[6] Adna Ferris Weber, *The Growth of Cities in the Nineteenth Century*, 2nd ed. (Ithaca, New York, Cornell University Press, 1963), pp. 200-202. This work was originally published in 1899 for Columbia University (by the Macmillan Company, New York), as volume XI of *Studies in History, Economics and Public Law*.

[7] Jean Gottmann, "The skyscraper amid the sprawl", in Jean Gottmann and Robert A. Harper, eds., *Metropolis on the Move* (New York, John Wiley and Sons, 1967), pp. 127-138. See also Homer Hoyt, *According to Hoyt* (Washington, D.C., Homer Hoyt Associates, 1970), p. 46; and the discussion of vertical expansion in R. D. McKenzie, *The Metropolitan Community* (New York, Russell and Russell, 1933; 1967 ed.), p. 221-225.

[8] Edgar M. Hoover, *An Introduction to Regional Economics* (New York, Alfred A. Knopf, 1971), pp. 332, 346 and 348.

[9] Economic Commission for Asia and the Far East Secretariat, "Economic causes and implications of urbanization in the recent experience of countries in Asia and the Far East", in Philip M. Hauser, ed., *Urbanization in Asia and the Far East* (Calcutta, UNESCO, 1957), p. 133.

[10] See, for example, *ibid.*; and Kingsley Davis and Hilda Hertz Golden, in P. H. Hauser, ed. *op. cit.* For a critique of this concept, see N. V. Sovani, "The analysis of 'over-urbanization'", *Economic Development and Cultural Change*, vol. 12, No. 2 (January 1964), pp. 322-30.

[11] "Urbanization and economic and social change", prepared by the Population Division of the United Nations Secretariat in collaboration with Sidney Goldstein, *International Social Development Review, No. 1* (United Nations publication, Sales No. E.68.VI.1), p. 27 and fig. VI.

[12] Bert F. Hoselitz, "Urbanization and economic growth in Asia", *Economic Development and Cultural Change*, vol. 6 (October 1957), p. 44.

[13] In a study of economic and urbanization variables related to development, Hazel Moir concludes that neither urbanization level nor relationships between urbanization level and the industrial structure of the labour force have any effect on subsequent levels of economic development. See her "Dynamic relationships between labor force structure, urbanization, and development", *Economic Development and Cultural Change*, vol. 26, No. 1 (October 1977), p. 40.

vances, such as the greater scale and capitalization of manufacturing processes at later dates, may have been an important factor with regard to over-urbanization. A more commonly offered explanation has been the greater density of rural population at recent dates, which is postulated to have resulted in a greater outward "push" from the rural areas to the cities. The latter explanation appears quite plausible on logical grounds, though empirical evidence on this point has not especially supported this view, as is illustrated in chapter III. It has also been observed that over-urbanization is found in countries where there is little or no pressure on the land in the rural countryside. Most of the countries of Middle and South America and many in Africa are in this category. Thus, there appears to be no invariant correlation between rural pressure and over-urbanization.[14] In a repetition and extension of Sovani's correlation analysis of over-urbanization using three measures of cultivated land density, no significant correlation was found between level of urbanization and density.[15] Contrary to the implication of the over-urbanization thesis, two sources actually report a negative relationship between measures of agricultural density and level of urbanization.[16] Such a result is not implausible because highly developed countries at high levels of urbanization rely on mechanized agricultural technology which requires relatively little labour force and large, open fields unobstructed by residential buildings. Low rural densities in these countries result from a rural "technological push" combined with a "pull" of urban employment opportunities. Undoubtedly, the variety of results that have been obtained in studies of the relationship between rural density and level of urbanization reflects a diversity of factors operating in different circumstances. Probably, excessive density of rural population has acted as a "push" factor influencing people to migrate to cities in selected places. It is argued, for example, that this has been the case in Asia.[17]

Many of the larger cities in the less developed areas were established primarily as links to external foreign markets in the developed countries and were thus more a part of the development of these countries and less the result of indigenous economic development. These cities often continued to have an external orientation, serving as a link between the local élite and the outside world, rather than as an economic focus of the national economy.[18] This circumstance has no doubt been a factor in the over-urbanization of the less developed economies relative to levels of domestic development.

Lastly, it has been observed that the alternative to "over-urbanization" is probably continued "over-ruralization"—that is, a continued surplus of redundant underemployed labour in rural areas.[19] As between over-urbanization and over-ruralization, it has often been argued that over-urbanization is more burdensome to the society because it confers upon society the necessity to provide expensive new urban infrastructure in the form of housing, roads, sanitation, electricity etc. that would not have been necessary if the redundant population had remained in the countryside.[20] To a certain extent, it would be more precise to say that the infrastructure needs of a dispersed rural population can more easily be overlooked than those of a concentrated urban population which has much greater visibility. Additionally, urban residents benefit from mere spatial proximity to education and urban occupations which provide opportunity to obtain the knowledge and skills required for participation in modern employment areas, at least in the second generation if not sooner. There is, lastly, exposure to modern life-styles which facilitates personal adjustment to an increasingly urbanized world. Some experts on urbanization have suggested with considerable justification that the new-comers to urban areas who often constitute the excessive squatter-slum population whose economic participation is largely in the informal service sector are really "pioneers" and builders of a new order in their societies who facilitate the transition from rural to urban life in many ways.[21]

A. Dynamics of labour force composition

The dynamics of labour force composition is summarized by Clark as follows:

> "... as time goes on and communities become more economically advanced, the numbers engaged in agriculture tend to decline relative to the numbers in manufacture, which in their turn decline relative to the numbers engaged in services."[22]

Essentially the same stage theory of development was earlier elaborated by Fisher[23] and this theory has become known in the literature as the "Clark-Fisher hypothesis".[24] This type of model of labour force development has arisen primarily from two main categories of considerations. On the demand side, it has been observed that the income elasticity of demand for food and agricultural products is lower than it is for products of the

[14] N. V. Sovani, *loc. cit.*, p. 327.

[15] David R. Kamerschen, "Further analysis of overurbanization", *Economic Development and Cultural Change*, vol. 17, No. 2 (January 1969), pp. 235-53. An earlier study prepared by the United Nations Secretariat in collaboration with Sidney Goldstein also showed no relationship between level of urbanization and rural density; *loc. cit.*, p. 23.

[16] K. Davis and H. H. Golden, *loc. cit.*; and S. M. Pandey, "Nature and determinants of urbanization in a developing economy: the case of India", *Economic Development and Cultural Change*, vol. 25, No. 2 (January 1977), pp. 265-278.

[17] B. F. Hoselitz, *loc. cit.*, p. 45.

[18] See, among others, Philip M. Hauser, "The social, economic, and technological problems of rapid urbanization", in *Proceedings of the Chicago Conference on Social Implications of Industrialization and Technical Change*, 15-22 September 1960, prepared by the International Social Science Council (Paris, UNESCO, 1963), pp. 778-779.

[19] Michael L. Yoder, "Urbanization, development, and labor force changes in Brazil, 1950-1970", CDE Working Paper 75-2, Madison, Wisconsin, University of Wisconsin, February 1975 (mimeographed).

[20] Madavo argues that although it has become fashionable recently to argue for rural development as a means of keeping potential migrants "down on the farm", experience has shown that "back-to-the-land" movements have generally not succeeded, except in those countries employing force verging on outright denial of human rights. Callisto Eneas Madavo, "Uncontrolled settlements", *Finance and Development*, a quarterly publication of the International Monetary Fund and the World Bank, vol. 13, No. 1. (March 1976), p. 17. Specific instances of such harsh actions are described in William A. Hance, *Population, Migration, and Urbanization in Africa* (New York, Columbia University Press, 1970), pp. 277-279.

[21] C. E. Madavo, *loc. cit.* p. 16.

[22] Colin Clark, *The Conditions of Economic Progress* (London, Macmillan and Company Ltd., 1957), p. 492.

[23] Allan G. B. Fisher, "Capital and the growth of knowledge", *Economic Journal* (1933), pp. 374-389.

[24] For a discussion of these stage theories as well as earlier antecedents, see M. A. Katouzian, "The development of the service sector: a new approach", *Oxford Economic Papers*, vol. 22, No. 3 (November 1970), pp. 362-382; and Joseph R. Ramos, *Labor and Development in Latin America* (New York, Columbia University Press, 1970), pp. 133-147.

secondary and tertiary sectors. Early consumer budget studies demonstrated that poor families spend a larger proportion of their income on food than do more affluent families. Likewise, a larger proportion of the labour force of poorer countries is engaged in agriculture than in rich countries. The human capacity to eat is more limited than the capacity to expand incomes. Appetites for food are relatively easily satiated as incomes rise.[25] After food, it appears that needs for other material goods are next to be met when sufficient income is available. It is believed, however, that even the desires for material goods can approach satiation at high levels of income. After all, there are storage limitations for tangible goods, particularly in urban areas where modern populations tend increasingly to live. Thus, at high levels of income it is believed that tastes will turn increasingly to the intangible services of the tertiary sector and increasing proportions of labour force will become engaged in this sector.[26]

The second type of consideration that has led to development models of the Clark-Fisher type relates to the technology of supply. The earliest labour-displacing technological developments were those of the agricultural revolution which released much labour force from the land to live in the cities and resulted in a commercialized agriculture to feed the growing city populations. A substantial proportion of the displaced agricultural labour force became absorbed in manufacturing in the cities. Eventually, however, industrial technology has been increasingly automated to the point where the labour force is again being displaced and the relative proportion of the labour force in services is rising.

Essentially, however, these two types of considerations have been merely mutually reinforcing aspects of a single historical process. In the modern sense, an increase in national income is an improvement in labour-saving technology which permits a greater output *per capita* from existing resources. Technological advances, however, tend to occur first in activities for which there is greatest demand. The essence of technological advancement is not discovery but implementation. Historical records are full of antecedents to modern machines which were never implemented. Implementation usually occurs in response to demand.[27] This is perhaps why technological improvements occurred first in agriculture, later in manufacturing and only recently in services. But each time a technological advance is implemented, a new increment of income is thereby generated and with it further demand which eventually absorbs the labour displaced by labour-saving technology—unless, of course, some market imperfection intervenes.

At its initial stages of invention, mechanized industrial technology was labour-intensive, rather than capital-intensive as it is today. Moreover, the work involved was mainly manual, rather. than mechanical. Workers were actually referred to as "hands". According to the description of Adam Smith, a contemporary of pre-nineteenth century economic development writing in 1775, much of the economic benefit of that day was derived more from the mere division of human labour rather than from the application of the very simple machines of the day. According to Smith, it was mere specialization within the group context of a common workhouse that brought with it invention of more powerful technology. Persons specialized in a specific, repetitive activity tend to notice opportunities for slight improvements in technology which can have large pay-offs in increased output, even in the short run.[28] He notes that a large proportion of the simple machines utilized at that time in manufactures where labour was most subdivided were originally the inventions of the workmen themselves.[29]

By the time Weber wrote at the end of the nineteenth century, more than a century after Smith, conditions in the more developed countries had changed remarkably, though they were still antiquated by the most modern standards. Industry had become significantly less labour-intensive and sufficient capital had been accumulated so that these countries could enjoy full employment within the context of a somewhat capital-intensive technology of manufacture. By comparison with current standards, the more developed countries at that time could be said to have been at a middle level of development. Yet even then, Weber (writing in 1899) was led to the observation that "manufacturing in a country where it has reached a stage of self-sufficiency employs a constant or even declining proportion of the population".[30] This conclusion was derived from statistical evidence concerning the pattern of employment in Europe during the last half of the nineteenth century. By 1933, the advanced countries were described as then on the "threshold" of a

[25] Adam Smith put it this way: "The desire of food is limited in every man by the narrow capacity of the human stomach; but the desire of conveniences and ornaments of building, dress, equipage, and household furniture seems to have no limit or certain boundary." *Op. cit.*, book I, chap. XI, part II.

[26] Early economists believed that only agricultural activity was "productive". Given the low levels of income prevailing in those days, such an evaluation was probably relevant since food is the most urgent human necessity and at low levels of income many other items are unnecessary luxuries. Later in the development of economic thought, it was admitted that manufacturing activities could be "productive" and today it is generally admitted that services can also be productive.

[27] This is not to deny that there are individual instances in which technological break-throughs appear to have precipitated increased demand. Such a circumstance can occur in the case of a price-elastic product, i.e., a product in which sales are highly responsive to price changes. The most outstanding examples have been new products, such as calculators and television, at early stages of development. Technological advances in these products resulted in substantial price reductions which stimulated increased demand as well as employment in these industries. In the long run, however, one can expect that once a maximum level of demand has been met, further labour-saving technological advances will result in labour displacement.

[28] Here it is only necessary to quote Adam Smith's own apocryphal account of the process by which such a specialized worker made an important technological discovery:

> "In the earliest fire-engines (steam engines), a boy was constantly employed to open and shut alternately the communication between the boiler and the cylinder, according as the piston either ascended or descended. One of those boys, who loved to play with his companions, observed that, by tying a string from the handle of the valve which opened this communication to another part of the machine, the valve would open and shut without his assistance, and leave him at liberty to divert himself with his play-fellows. One of the greatest improvements that has been made upon this machine, since it was first invented, was in this manner the discovery of a boy who wanted to save his own labour."

Op. cit., book I, chap. I.

[29] *Ibid.*

[30] A. F. Weber, *op. cit.*, p. 228. It has been observed that in Great Britain, the ratio of numbers engaged in manufacturing to the entire working population (excluding those engaged in agriculture and mining) rose to a maximum in 1851 and declined thereafter despite the need of the country to produce manufactured goods for exportation in exchange for its imports of food and raw materials. See Colin Clark, "The economic functions of a city in relation to its size", *Econometrica*, vol. 13, No. 2 (April 1945), p. 98.

tertiary stage of economy in which the problems of production in manufacturing had been solved and there would be opportunity to devote an increasing amount of effort to services.[31]

It was concluded from an analysis of long-term time series data for developed countries ranging from pre-twentieth century to mid-twentieth century that in most countries the relative rise in the share of the industry sector in labour force was significantly smaller than the relative rise in its share in total product,[32] reflecting undoubtedly increasingly labour-saving technology in this sector. Conversely in the service sector, he noted rising shares in labour force and constant or declining shares in countrywide product.

Colin Clark provides abundant time-series data for the developed countries in support of his view that in the course of past economic development industrial employment has displaced agricultural employment and service employment, in turn, has continuously displaced industrial employment.[33] In examining similar time series for less developed countries in which these data are available, however, Sabolo reaches the conclusion that the process Clark observed in the currently more developed countries has only partial relevance to conditions in the less developed countries.[34] In these latter countries, the secondary, or manufacturing, sector has not been as important as a middle phase in economic development in the past because of the low levels of investment in manufacturing industry, and it will not play as large a part in the present or future because contemporary industrial technology is now capital-intensive rather than labour-intensive, as it was in the past. At the time in the past when manufacturing technology was still labour-intensive the less developed countries were still primarily agricultural, with little investment in secondary activities except for handicrafts. Even at the beginning of the twentieth century, a larger proportion of the labour force was absorbed by the tertiary sector than the secondary sector in almost all of the developing countries considered.[35] Moreover, a very high negative correlation has been observed at the beginning of the century, between shares of employment in the primary and tertiary sector, which implies that it was mainly from the primary to the tertiary sector that transfers of employment occurred[36] Inspection of more recent data indicates that although the share of employment in the primary sector has shrunk significantly, the secondary sector has shown little capacity to absorb the growth in non-primary labour force in most of the less developed countries. The share of secondary employment in total employment has increased by only 4-5 per cent in most of these countries, while the share of the tertiary sector has become very important, varying between 30 and 50 per cent.[37] Implicit in the transfers from primary to tertiary employment is heavy rural-to-urban migration, as service employments are mainly available in the cities.

The shortfall of industrial employment in Latin America has been demonstrated in relation to several of the more developed countries at past dates when they were at similar levels of non-agricultural employment.[38] In 1969, when agricultural labour force represented 42 per cent of the total labour force of Latin America, only 31 per cent of its non-agricultural labour force was engaged in industry. By contrast, when the percentage of agricultural employment stood at 42 per cent in some of the more developed countries the percentage of non-agricultural employment in industry was as follows: United States (1890) 48 per cent; France (1921) 57 per cent; Sweden (1924) 60 per cent; Italy (1950) 52 per cent.

A comparative study of recent time trends in 15 Latin American countries also finds that the middle stage of high secondary type employment was apparently being bypassed.[39] In contrast, there appeared to be a strong movement of employment from the primary sector into the tertiary sector. For the group of countries as a whole, almost the entire decline in primary employment (5.9 percentage points) was taken up in increased tertiary employment (4.2 percentage points). The secondary sector showed little change, on average, with about half the countries increasing and half decreasing.[40] Inspection of the same trend data for males and females listed separately, however, revealed that males were experiencing increases in secondary employment in most of the countries, as the Clark-Fisher hypothesis predicts. The net shift of total labour force into tertiary employments appeared to be heavily influenced by increases in female employment in the tertiary sector. Thus, in addition to the two types of considerations relating to the Clark-Fisher hypothesis which were discussed earlier (income elasticity of demand and labour-displacing technology) the sex composition of the labour offered may, itself, be a factor influencing the composition of the total employed labour force.[41]

Whatever may have been the past sequence of development in the more developed and the less developed countries, it is clear that future expansion of employment is likely to include increasing proportions of services. At least in the more developed countries, one

[31] A. G. B. Fisher, *loc. cit.*, p. 380. For a list of advanced countries currently containing more than 50 per cent of their labour force in service employments, see David H. Freedman, "Employment perspectives in industrialized market economy countries", *International Labour Review*, vol. 117, No. 1, p. 8.

[32] Simon Kuznets, *Modern Economic Growth: Rate, Structure and Spread* (New Haven, Connecticut, Yale University Press, 1966), pp. 110 and 146-149.

[33] C. Clark, *The Conditions of Economic Progress.*

[34] Yves Sabolo, *The Service Industries* (Geneva, International Labour Office, 1975), pp. 16-18. See also W. Paul Strassman, "Construction productivity and employment in developing countries", *International Labour Review*, vol. 101, No. 5 (May 1970), p. 521; and Paul Bairoch, *Urban Unemployment in Developing Countries* (Geneva, International Labour Office, 1973), pp. 11-13.

[35] According to Bairoch, fully 20 per cent of the labour force in the less developed countries was engaged in services in 1970 as against only 13 per cent in industry. *Op. cit.*, p. 11. Statistics documenting the deficiency in manufacturing industry in South Asia are provided in Gunnar Myrdal, *Asian Drama* (New York, Pantheon, 1968), vol. I, p. 505. Turnham has assembled some data which tend to indicate that nineteenth-century industry in the currently more developed countries was more important in relation to services than it is in the less developed countries of the twentieth century. David Turnham, *The Employment Problem in Less Developed Countries: A Review of Evidence*, Development Centre Studies, Employment Series No. 1 (Paris, Organization for Economic Co-operation and Development, 1971).

[36] Sabolo, *op. cit.*, pp. 15-23.

[37] *Ibid.*

[38] Raúl Prebisch, *Change and Development—Latin America's Great Task*, report submitted to the Inter-American Development Bank (New York, Praeger, 1971), p. 33.

[39] J. R. Ramos, *op. cit.*

[40] This pattern of development without a secondary stage was confirmed in a long-run time series dating back to 1920 and earlier for five countries of Latin America. J. R. Ramos, *op. cit.*

[41] Further discussion of female participation in services is contained in chapter VI, which is devoted to women in the labour force.

can expect that it will be primarily the more productive services which will grow. Three categories of services—each with a different potential in expanding employment and income—have been distinguished: traditional services (such as street trading and domestic service); complementary services (such as transport and commerce); and new services (such as education, recreation and health).[42] In the more developed countries, at least, traditional services, such as domestic service, have tended to diminish in relation to other services. Domestic service is one of the services in which productivity per hour of labour cannot increase much because of the nature of the work.[43] As a result, when this occupation has to compete with others for labour the price of domestic service will show a steady rise through time, compared with other goods and services. If the demand for such a service is price-elastic (i.e., declining with increases in price), such an occupation may tend to disappear in response to rising prices, as has been the case with domestic service. Households have increasingly been able to exist without domestic service despite the fact that increasing proportions of married women are found in the labour force. No doubt, smaller families, technological improvements, the ability to afford household appliances and the increasing commercialization of household work (for example, food processing and ready-to-wear clothing) have been important. Clark believes that business demand for services may be more price-inelastic (i.e., inflexible) than household demand; hence, less retraction in that area might be expected.

Employment in the "new services" has expanded rapidly in most countries. The major reason appears to be a redirection of consumer expenditures towards these products as income rises (high income—elasticity of demand), combined with relatively slow improvements in labour productivity.[44] A marked upward tendency in government services has been observed in many countries.[45] An enormous increase in demand for health services, both public and private, has been especially noticeable in recent years. The emergence of health insurance as a population institution and its incorporation in many employee fringe benefit programmes have also been enormously important in the more developed countries. In the developed countries where discretionary incomes have risen considerably, the demand for travel services has risen. International travel, which was once the prerogative of the very wealthy, is now becoming increasingly common. Educational services have also been greatly in demand in all countries.

This brief review has suggested that the spatial organization of economic activity tends to be co-ordinated with its organization by occupation and industry. Rural areas are traditionally identified with agricultural activities and urban areas with non-agricultural pursuits. However, these correspondences have been established rather loosely because authors studying labour force composition typically do not distinguish between rural and urban areas, and those studying urban/rural growth processes have not concerned themselves with the respective industrial/occupational structures of the two areas. In an attempt to clarify the relationship between occupational and residential distributions, a large-scale comparative analysis of occupational structures within urban and rural areas was undertaken.

[42] Y. Sabolo, *op. cit.*, pp. 143-145.

[43] C. Clark, *The Conditions of Economic Progress.*

[44] A. J. Jaffe and Joseph Froomkin, *Technology and Jobs* (New York, Frederick A. Praeger, 1968).

[45] C. Clark, *The Conditions of Economic Progress.*

B. Concepts and definitions

Economic activities can be described by either industry definition, i.e., a classification of employees according to the output of the establishments where they are employed, or by occupation, i.e., a classification of the nature of productive activities of individuals.

As long as the productive activities of individual workers are associated with the manufacture of a complete product or service, there is no distinction between occupation and industry. In industrialized countries, however, many occupations are not especially associated with any particular industry. A typist may be employed in almost any type of business. The same is true for lawyers, accountants, electricians and many other occupations. The occupation defines what type of work activity the individual performs. The industry defines the principal type of product or service output of the establishment in which he is employed. The distinction between occupation and industry is now clearly understood in modern census tabulations of industrialized countries, but was introduced in the United Kingdom only in 1921, and even later in the other industrialized countries. In many countries, the distinction had not yet been introduced by mid-century.[46] There are currently two separate international codes for classification of economic activities: one for industries;[47] the other for occupations.[48] The categories of industry are typically summarized into three major branches of agriculture, industry and services.[49] The service group generally contains an amorphous mixture of activities in which the common element is simply an intangible output, as contrasted with the manufacturing sector where the output is generally both tangible and transportable. Admittedly, many of these distinctions are necessarily quite arbitrary in individual cases.[50] The services sector comprises a

[46] *Ibid.*, p. 405. Clark gives an example by way of illustration. A large electrical works might employ a truck driver to cart their materials around for them, while a large road-haulage business might employ an electrician to do maintenance work on their vehicles. The former person is occupationally a transport worker but industrially an electrical worker. The latter is occupationally an electrician and industrially a transport worker.

[47] *International Standard Industrial Classification of all Economic Activities*, Statistical Papers, series M, No. 4, rev. 2 (United Nations publication, Sales No. E.68.XVII.8). This code is commonly known as ISIC.

[48] International Labour Office, *International Standard Classification of Occupations*, rev. ed., 1968 (Geneva, 1969). This code is commonly known as ISCO.

[49] The International Labour Organisation has grouped the various branches of industrial distribution as follows: (*a*) "agriculture", comprising agriculture, forestry, hunting and fishing; (*b*) "industry", comprising mining and quarrying, manufacturing and construction and utilities; and (*c*) "services", comprising commerce, transport, storage and communications, as well as public and private services. See Samuel Baum, "The world's labour force and its industrial distribution, 1950 and 1960", *International Labour Review*, vol. 95, Nos. 1-2 (January-February 1967), p. 96; and "The world's working population: its industrial distribution", *International Labour Review*, vol. LXXIII, No. 5 (May 1956), p. 502.

[50] Conventional practice with regard to the classification of transportation, communications and public utilities which provide non-material outputs is particularly variable. In some studies, they are classified as services; while in others, they appear in the industry group. See, for example, the review of a number of studies using alternative classifications in this regard in Victor R. Fuchs, *The Service Economy*, National Bureau of Economic Research, General Series, No. 84 (New York, Colum-

great variety of economic activities, ranging from professional pursuits demanding high skill and large investment in training to domestic service and other unskilled personal services; from activities with large capital investment, such as residential housing, to those requiring no material capital; from pursuits closely connected with the private market, such as trade, banking and related financial and business services, to government activities, including defence, in which market considerations are limited.[51] The service industries have been called a "promiscuous ensemble".[52]

The question of service *versus* industrial employment has usually been formulated in previous studies in terms of the industry classification of economic activities. There have been relatively few international studies of occupations.[53] An effort has been made in the present study to approach the question of agricultural, service and industrial employment using occupational data. For this purpose, a three-way classification of occupations into agriculture, industry and services similar to the industrial scheme of classification has been made. The general criterion of tangible *versus* intangible individual output has been used to distinguish between industrial occupations and service occupations among the major International Labour Organisation (ILO) categories of occupations as shown in the list below.[54] An exception had to be made in the case of transportation equipment operators, who produce a non-material output and would thus qualify as a service category according to the classification scheme used here, but who in the ILO classification are grouped with the industry type of occupations.[55] Thus, the present category of "industry" comprises both those who produce goods and those who move goods. The occupational classification used in the present study is based on the 1968 revised International Standard Classification of Occupations (ISCO)[56] as follows:

Agriculture

(a) *Major group 6:* agricultural, animal husbandry and forestry workers, fishermen and hunters;

Industry

(a) *Major group 7/8/9:* production and related workers, transport equipment operators and labourers (including miners, quarrymen, well drillers and related workers);

Services

(a) *Professional and administrative*
  (i) *Major group 0/1:* professional, technical and related workers;
  (ii) *Major group 2:* administrative and managerial[57] workers;

(b) *Clerical and sales*
  (i) *Major group 3:* clerical and related workers;
  (ii) *Major group 4:* sales workers;[58]

(c) *Traditional services*
  (i) *Major group 5:* service workers;

Other and unknown[59]

(a) *Major group X:* workers not classifiable by occupation;

(b) *Armed forces:* members of the armed forces.

In this study, the service sector is further broken down into three categories which serve to distinguish broadly the relative modernization of the service categories. The professional and managerial group is composed for the most part of the most modern occupations

bia University Press, 1968), pp. 14-15. As Fuchs observes, even within the work of a single author, variations in definition are evident. Kuznets included transportation, communications and public utilities in the service sector in much of his early work, but excluded them in a later study. Compare Simon Kuznets, "Quantitative aspects of the economic growth of nations; III, Industrial distribution of income and labor force by states, United States 1919-21 to 1955", *Economic Development and Cultural Change*, vol. 6, No. 4 (July 1958), with his *Modern Economic Growth*.

[51] This discussion was drawn directly from S. Kuznets, *Modern Economic Growth*, p. 143. Kuznets continues: "They [the services] have one basic feature in common: none of the activities represents in any significant way the *production of commodities;* each renders a product that is intangible and not easily embodied in a lasting and measurable form". (Brackets added).

[52] George J. Stigler, *Trends in Employment in the Service Industries* (Princeton, New Jersey, Princeton University Press National Bureau of Economic Research, 1956), p. 166.

[53] Existing comparative international studies of occupations include the following: "The world's working population: its distribution by status and occupation", *International Labour Review*, vol. LXXIV, No. 2 (August 1956), pp. 174-192; Abdelmegid M. Farrag, "The occupational structure of the labour force: patterns and trends in selected countries", *Population Studies*, vol. XVIII, No. 1 (July 1964), pp. 17-34; and *idem*, "The value of occupation-industry data for forecasting purposes", *International Labour Review*, vol. 95, No. 4 (April 1967), pp. 327-353.

[54] The present classification of service occupations resembles the category of "tertiary occupations" described by Manuel Diégues Júnior to include—in addition to traditional services—transport, sales, banking, educational and health services. See his "Urban employment in Brazil", *International Labour Review*, vol. 93, No. 6 (June 1966), p. 645. A variety of service categories are mentioned in Bhalla's comparative study of services in two countries, including commerce, government, business, recreation, banking and financial, personal domestic, education, health and professional. A. S. Bhalla, "The role of services in employment expansion", *International Labour Review*, vol. 101, No. 5 (May 1970), pp. 519-539.

[55] Although most types of transportation equipment operators are grouped with industry type occupations (major group 7/8/9) in the International Labour Organisation scheme, the following are grouped with professional, technical and related workers (major group 0/1): aircraft pilots, navigators and flight engineers; ships' deck officers and pilots; ships' engineers. Other transportation workers, such as railway station masters, transport and communications supervisors and transport conductors, are classified as clerical workers (major group 3). In the previous ISCO (1958), all transportation workers were combined in a single classification entitled "Workers in transport and communication occupations".

[56] For a listing of the occupations included in each major groups, see International Labour Office, *International Standard Classification of Occupations*, pp. 25-33.

[57] The category of administrative and managerial workers is rather narrowly defined and appears to include primarily public employees rather than managers in private industry. An attempt is made to exclude supervisory personnel in charge of a group of workers who are all in the same profession. In such cases, the supervisor is classified according to the category of occupation which he supervises and not with major group 2. Examples include farm managers, who are classified with agricultural workers in major group 6; and chief chemists or senior hospital physicians, who are classified in major group 0 as professional.

[58] The category of sales worker appears to pertain mostly to workers within retail or wholesale establishments. It is not clear whether this category would also include workers in the marketing branch of a production establishment.

[59] In the tables given in chapter V and VI, this category is listed as simply "unknown" since the unknown component is believed to be the largest in most countries.

which require extensive formal training in advanced technical disciplines. The second group, the sales and clerical occupations, usually require some degree of literacy and formal education, although sales occupations may include a considerable proportion of peddlers and street vendors, who do not require formal education. The third category of traditional service occupations do not typically require a modern education. Included in this category are such occupations as innkeepers, maids, caretakers, cooks, waiters, launderers, hairdressers, firemen and policemen.

The three-way occupational classification of workers by agriculture, industry and services used in the present study differs in principle from the similar three-way industrial classification of workers used in previous studies. Workers are classified according to what they actually do as individuals in the production process rather than according to the output of the establishments in which they work. Industrial establishments, for example, typically employ many non-production types of personnel who are chiefly service personnel. These persons would include such familiar occupations as typist, bookkeeper, lawyer, engineer, personnel and administrative staff, and sales and marketing staff. These are occupations in which relatively less automation has occurred than has in the fabrication and assembly of material goods. Labour force response to technical change, therefore, is not reflected entirely in establishment output by industry classification but also in the intra-establishment deployment of labour resources by occupations. Thus, the industry classification, although it answers certain critical output questions in this regard, may tend to understate the expansion of actual employment in service occupations. However, the reverse is probably not the case. There would probably be few instances of persons in industrial occupations who are engaged in service establishments, since tangible products used by service establishments are normally not produced within service establishments by their own employees but rather procured through exchange in the market-place and physical shipment from place of manufacture to place of use.

Because industrial and occupational classifications are often used to address the same issues without explicit attention being given to their differences, it is useful to examine the extent of their correspondence. This question can best be addressed by applying both classification systems to the same set of data. Of the populations providing data for this chapter, 18 were also included in an earlier study conducted by the Population Division.[60] This study used the standard ILO industrial classification (ISIC) to group workers into agricultural, industrial and services activities. The resulting industrial distribution of the labour force is compared with the occupational distributions used herein in table 24. The percentages in a particular sector according to the two classifications are plotted in figures V-VII.[61] It is evident

[60] "Agriculture, industry and services in the urban and rural labour force". (ESA/P/WP.57).

[61] In the occupational distribution, persons with unknown occupations are added to service workers; in the industrial distribution, they are prorated.

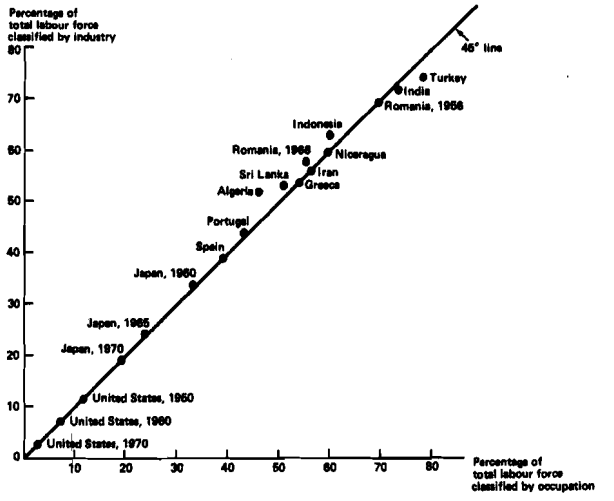
TABLE 24. COMPARISON OF LABOUR FORCE DISTRIBUTION BY OCCUPATION AND BY INDUSTRY
(Percentage)

Country	Year	Proportion of total labour force in agriculture		Proportion of total labour force in industry		Proportion of total labour force in services		
		By industry	By occupation	By industry	By occupation	By industry	By occupation + Unknown	By occupation − Unknown
Africa								
Algeria	1966	51.8	45.9	17.4	21.1	30.8	20.0	33.1
Asia								
India	1961	72.3	72.9	11.7	15.9	16.0	11.0	11.2
Indonesia	1971	63.2	59.6	9.7	11.8	27.1	22.7	28.7
Iran	1956	56.3	55.5	20.1	22.6	23.6	18.2	21.8
Japan	1960	32.8	32.6	29.7	32.7	37.5	34.2	34.7
	1965	24.6	24.5	32.6	34.9	42.8	40.0	40.5
	1970	19.3	19.2	34.7	36.5	46.0	43.8	44.3
Sri Lanka	1953	52.9	51.3	12.7	16.3	34.4	30.3	32.4
Turkey	1960	74.9	78.0	9.8	12.4	15.3	9.6	9.6
Latin America								
Nicaragua	1963	59.6	58.9	16.2	18.9	24.2	21.9	22.2
Northern America								
United States of America	1950	12.4	11.9	35.1	39.7	52.5	47.0	48.3
	1960	6.7	6.7	35.4	35.6	57.8	52.8	57.7
	1970	3.7	3.0	34.4	35.0	61.9	58.0	62.0
Europe								
Greece	1961	53.9	53.7	19.2	22.1	26.9	20.4	24.1
Portugal	1960	43.6	43.4	28.9	31.4	27.5	24.2	25.3
Romania	1956	69.6	68.7	16.7	16.3	13.7	14.9	14.9
	1966	57.1	55.4	24.6	25.9	18.2	18.7	18.7
Spain	1960	39.7	39.5	28.7	31.5	31.6	23.9	28.9

Source: "Agriculture, industry and services in the urban and rural labour force" (ESA/P/WP.57), Annex II.

that the two classification systems yield highly comparable figures, particularly for the agricultural labour force. The industrial labour force according to ISIC tends to fall a few percentage points short of that produced by ISCO. The situation is reversed for the service sector. Some of these disparities are attributable to the different treatment of transportation equipment operators, who are grouped with industry in the occupational classification and with services in the industrial classification. But the small discrepancies should not obscure the fact that the distributions produced by the independent application of two alternative classification systems are extremely highly correlated. Generalizations about the three sectors that are reached in this chapter would certainly be applicable in the main to an analysis based on the industrial classification.

Figure V. Comparison of percentage of total labour force in agriculture by industrial and occupational classifications



C. Data

The data used in this study are taken primarily from national census publications, with occasional reliance on sample surveys. Data were utilized only when an urban/rural occupational breakdown by sex was available. Occasionally, requisite information was extracted from various issues of the *Demographic Yearbook;* and the information base was also supplemented by a special national inquiry undertaken for purposes of this study by the United Nations Statistical Office. In searching through census publications, an attempt was made to ensure broad geographical representation of the populations included. This attempt was largely successful, with the notable exception of sub-Saharan Africa, where only a handful of populations provided any data, some of which had to be excluded for various reasons.

A variety of criteria were applied to a set of data before it was admitted into the final set and analysed. The occupational classification used had to permit the construction of categories approximately comparable to those employed in the 1968 revision of the International Classification of Occupations. This criterion led to numerous exclusions, particularly in Eastern Europe. The urban definition used also had to be roughly comparable to international norms. Comparability in this respect was judged largely on the basis of a scatter-gram

Figure VI. Comparison of percentage of labour force in industry by industrial and occupational classifications

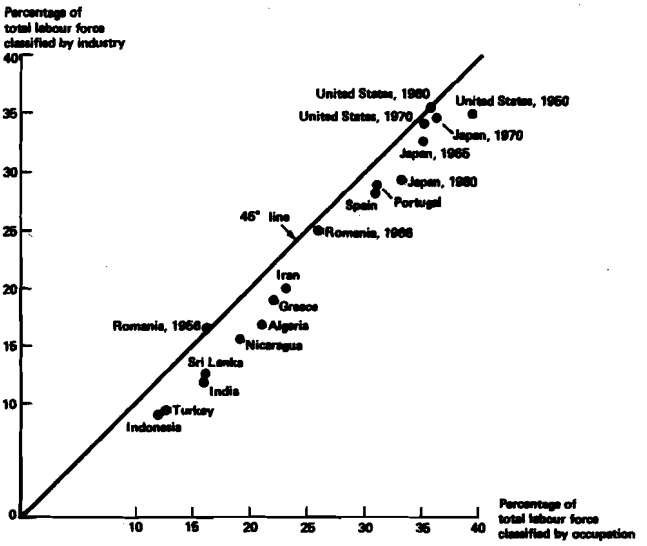
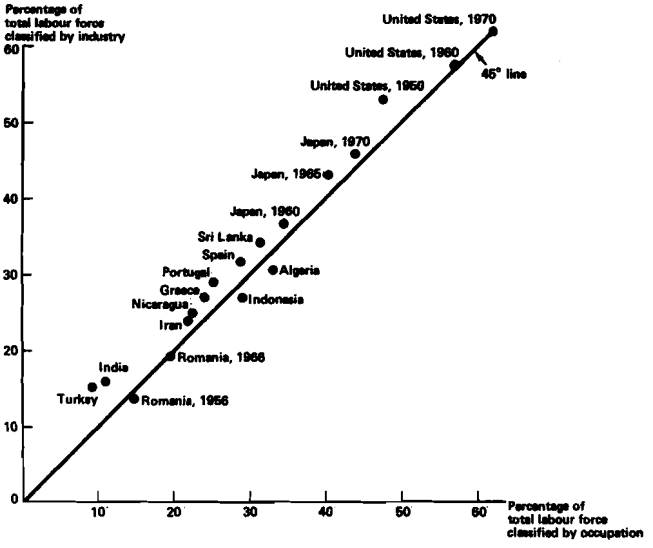


Figure VII. Comparison of percentage of labour force in services by industrial and occupational classifications



relating the urban proportion to the agricultural proportion of the labour force. Thus, England and Wales (using conurbations) and Luxembourg (using the capital city only) were excluded from the final set of countries analysed. Lastly, a data set was excluded if the labour force consisted of more than 15.0 per cent of persons with unknown occupations.

The data utilized in this study are presented in Annex III (tables 51-53). Three features of the labour force of a country are shown: the occupational composition of the total, urban and rural sectors (table 51); the proportion of each occupation residing in urban areas (table 52); and the sex composition of occupations in the total, urban and rural labour forces (table 53). It should be mentioned that urban/rural distinctions apply to place of residence rather than to place of work, and that commuting patterns may result in different patterns by place of work than by place of residence.

Occupational data in the tables given below are shown for agriculture, industry and services, classified by five

levels of development as measured by the percentage of total labour force in agriculture, ranging from 65 per cent or more at the lowest level of development to 15 per cent or less at the highest level. Throughout the chapter, the urban and rural categories refer to the place of residence of employed persons rather than to their place of employment.

D. Degree of urbanization in occupations

Table 25 describes the urban/rural residence composition of the various categories of occupations by means of the proportion urban in each occupation at each of the five levels of development. In order to have enough observations to form a stable basis of comparison, countries that could supply data at several dates were allowed to be represented more than once. In this sense, this and many subsequent tables pool cross-sectional and time-series data. As expected, the agricultural category tends to be overwhelmingly rural throughout the range of countries examined. On the other hand, industry and service pursuits tend to be urban even in the least developed countries, despite the importance of rural home handicraft and agricultural services therein. All of the occupations, including agriculture, become increasingly urbanized at progressively higher levels of development. Industry and services are about one half urban at the lowest level of development and roughly three fourths or more urban at the highest level, though the professional and managerial occupations and the sales and clerical occupations become somewhat more urbanized than do manufacturing (i.e., industry) and traditional service occupations. In agriculture, the degree of urbanization rises from about 4 per cent urban at the lowest level of development to about 15 per cent at the next to the highest level. At the very highest level of development, a slightly reduced level of urbanization occurs, which is discussed below. In sum, all of the major occupational groups tend to become more highly urbanized as development proceeds. In the case of industry and services, this tendency reinforces a pre-existing urban dominance; in the case of agriculture, it removes only a small part of a pre-existing rural dominance.

E. Labour force structures of urban and rural areas in relation to developmental level

Table 26 is designed to show the percentage composition of total labour force at each of the five levels of development in both urban and rural areas. In the present definition of development, the percentage in agriculture necessarily declines as development proceeds. The decline in agriculture occurs within both rural and urban areas. The decline is especially marked in rural areas, where the percentage in agriculture is reduced from an average of 87 to an average of 27 in the course of development. Obviously, the identification of rural areas with agricultural activities becomes less and less appropriate as economic development proceeds. This "de-agriculturalization" of rural areas occurs even though the vast preponderance of agricultural activities continues to occur in rural areas. In urban areas, the percentage of agricultural employment at the three lowest levels of development—from 12 to 18 per cent—is reduced to less than 5 per cent at the two highest levels. It is likely that at lower levels of development, many smaller urban places are not highly differentiated from rural areas. This is particularly likely in areas where the traditional form of rural settlement has been village clusters rather than dispersed individual landholdings, and where the agricultural labour force commutes to fields in the vicinity. Such clusters may frequently be classified as urban rather than rural because they can attain considerable size. Also, a considerable proportion of the urban labour force in less developed areas may produce a significant amount of food supply in backyards or kitchen gardens. Such labour force may be classified as agricultural if enumerated at a time when they are retired or otherwise unemployed in urban occupations.[62]

In the urban areas, manufacturing remains remarkably constant at an average of a little more than a third of the labour force at all levels of development. This is

[62] Also, over-bounding of urban areas may result in the classification of some farm land as urban. However, this can happen at any level of development and thus would not necessarily influence the trends shown here.

Table 25. Average proportion urban in various occupations classified by level of development of country

Percentage of total labour force in agriculture	*Number of observations*	*Agriculture*	*Industry*	*Professional and administrative services*	*Clerical and sales services*	*Traditional services*	*Unknown*
65.0 or more[a]	14	3.8	50.0	51.2	57.0	59.0	33.7
50.0-64.9[b]	13	5.7	53.7	59.7	64.9	60.9	51.3
35.0-49.9[c]	14	13.2	60.1	74.0	75.3	70.8	53.4
15.0-34.9[d]	9	14.5	67.2	77.3	78.1	74.8	59.1
15.0 or less[e]	9	13.0	72.1	82.2	84.5	78.0	72.5

[a] N = 14: Bolivia, 1963; Central African Empire, 1960; Guinea, 1955; India, 1961; Morocco, 1951; Romania, 1956; Sarawak, 1970; Sudan, 1956; Thailand, 1970, 1954; Turkey, 1970, 1960, 1950; United Republic of Tanzania, 1967.

[b] N = 13: Bulgaria, 1956; Ecuador, 1962; Guatemala, 1973; Greece, 1961; Indonesia, 1971; Iran, 1956; Morocco, 1971, 1960; Nicaragua, 1963; Romania, 1966; Sabah, 1970; Sri Lanka, 1970, 1953.

[c] N = 14: Algeria, 1966; Costa Rica, 1973, 1963; Cyprus, 1960; Ecuador, 1974; Greece, 1971; Libyan Arab Jamahiriya, 1964; Nicaragua, 1971; Peninsular Malaysia, 1970; Peru, 1972, 1961; Portugal, 1960; Spain, 1960; Tunisia, 1966.

[d] N = 9: Chile, 1970; Hungary, 1970; Israel, 1961; Japan, 1970, 1965, 1960; Puerto Rico, 1960; United States of America, 1940; Venezuela, 1961.

[e] N = 9: Canada, 1971, 1961; Puerto Rico, 1970; Scotland, 1961; Sweden, 1970, 1960; United States of America, 1970, 1960, 1950.

TABLE 26. PERCENTAGE COMPOSITION OF URBAN AND RURAL LABOUR FORCE, BY SECTOR OF ECONOMIC ACTIVITY AND LEVEL OF DEVELOPMENT

Percentage of total labour force in agriculture	*Total (sum of cols. 2, 3, 4 and 8) (1)*	*Agriculture (2)*	*Industry (3)*	*Services (sum of cols. 5, 6 and 7) (4)*	*Professional and administrative services (5)*	*Clerical and sales services (6)*	*Traditional services (7)*	*Unknown (8)*	*Service-to-industry ratio (9)*
Total									
65.0 or more	100.0	77.3	9.7	9.6	2.9	4.0	2.7	3.6	99
50.0-64.9	100.0	55.7	19.5	21.2	5.0	9.0	7.2	3.7	109
35.0-49.9	100.0	42.5	25.7	25.9	5.7	11.6	8.6	5.9	101
15.0-34.9	100.0	23.1	34.7	39.6	11.6	18.4	9.6	2.5	114
15.0 or less	100.0	8.4	38.4	50.1	17.1	22.2	10.8	3.2	130
Urban									
65.0 or more	100.0	18.2	34.2	39.6	10.6	17.3	11.7	8.0	115
50.0-64.9	100.0	10.5	36.3	47.2	10.5	21.2	15.5	6.0	130
35.0-49.9	100.0	12.0	35.6	45.5	10.1	21.0	14.4	6.9	128
15.0-34.9	100.0	4.7	39.6	52.8	15.2	25.3	12.3	2.8	133
15.0 or less	100.0	1.4	38.2	57.2	19.6	26.0	11.6	3.3	150
Rural									
65.0 or more	100.0	87.1	5.4	4.7	1.4	2.0	1.3	2.7	87
50.0-64.9	100.0	74.3	12.1	11.0	2.7	4.4	3.9	2.6	91
35.0-49.9	100.0	65.9	17.7	11.3	2.3	4.7	4.3	5.0	64
15.0-34.9	100.0	49.8	26.8	21.4	6.2	9.3	5.9	2.0	80
15.0 or less	100.0	26.9	38.4	31.6	10.7	12.4	8.5	3.1	82

not to say that manufacturing has always represented the same fraction of urban employment. It may well be the case that manufacturing was a more important component of the urban labour force at earlier dates in the currently developed countries. But, for recent years, the level of development attained by a country appears to have little bearing on the dependence of its urban labour force upon manufacturing.

Structural differences with regard to manufacturing have occurred mostly in the rural areas. Whereas manufacturing comprises only about 5 per cent of the rural labour force at the lowest level of development, this proportion is increased at each higher level of development until it reaches 38 per cent at the highest level. It is interesting to take note that at this level of development the percentage of manufacturing in the urban labour force is also 38 per cent. Although manufacturing remains a decidedly urban activity in the sense that three quarters of it is contained in urban areas at the highest level of development, as shown in table 25, it is approximately equally prominent in both urban and rural labour forces at this level.

Total services rise progressively with the level of development in both urban and rural areas, though they remain considerably more important in urban than in rural areas. Whereas rural services are almost nonexistent in the least developed group, standing at only about 5 per cent of the labour force, rural services in the most developed group of countries represent almost a third of the rural labour force. Such a level of service participation is not far below the urban level at the lowest level of development. Each of the three categories of services tends to increase in rural areas from virtually zero to roughly 10 per cent of the labour force. In urban areas, sales and service workers tend to increase fairly steadily with development from 17 per cent at the lowest level of development to 26 per cent at the highest level. The traditional services increase somewhat at the very lowest levels of development but thereafter tend to decline steadily with development until the percentage of traditional services at the highest level of development approximately equals that of the lowest level. Perhaps the increase in traditional services in the urban areas of countries at intermediate levels of development represents urban residents who are otherwise unemployed but who can find at least partial or temporary employment in these occupations. It has been suggested that the countries which are currently in the process of modernization appear to experience a certain lag between the onset of massive population urbanization and the absorption of the inflated urban labour force into modern types of employment. Once the urban economy becomes better organized, much of the surplus underemployed labour in this category of occupations can presumably find more productive employment elsewhere, and the structural importance of the traditional services in the urban labour force can recede to its previous level.

Professional and managerial services do not show any increase in importance in urban areas until a country reaches the two highest levels of development. At this point, these services show considerable change, increasing from 10 to 15 per cent and ultimately to 20 per cent of total urban labour force.

The increasingly non-agricultural nature of rural activities undoubtedly reflects in large part differences in transportation systems. The increasingly widespread ownership of motor-cars in rural areas, combined with vastly expanded rural highway networks, has permitted functions to be spatially distributed in a new way which is neither urban nor rural in character. As we observed earlier, smaller urban places at lower levels of development are sometimes difficult to distinguish from clustered rural settlements because a substantial proportion of the labour force are engaged, on a full- or part-time basis, in agriculture. At the other end of the scale, in the most developed areas, certain rural areas are now sometimes difficult to classify because they contain so much dispersed non-agricultural activity. Highways traversing largely open agricultural fields are at intervals lined with factories surrounded by spacious lawns and parking

areas. At other intervals, there are commercial developments surrounded also by parking space. Elsewhere along the highways, modern residential developments consisting of several hundred houses can be seen, set back only a short distance from the road and surrounded by cultivated fields.

It is perhaps significant to note in this regard that the United States Bureau of the Census observes a distinction within rural areas between "rural farm" residence and "rural non-farm" residence.[63] Already in 1920, when the categories were first introduced, the rural non-farm category contained almost 40 per cent of the rural population. During the years since then, the rural farm component of rural population in the United States has continuously declined, while the rural non-farm component has increased; by 1970, the rural non-farm category contained almost 85 per cent of the rural population.[64] Meanwhile, the correspondence between category of rural or urban residence and category of agricultural or non-agricultural employment has been eroding rapidly because of extensive cross-commuting between farm and non-farm areas by motor-cars, On the one hand, the farm-resident population is becoming increasingly engaged in non-farm work (both rural and urban). The proportion of farm-resident labour force employed solely or primarily in agriculture actually declined to only one half by 1974.[65] The other half commuted to non-farm employment. On the other hand, there is also increased commuting in the opposite direction. Of the labour force employed solely or primarily in agriculture in 1974, only about three fifths lived on farms and the remaining two fifths commuted from off-farm residences.[66]

The main result of table 26 with regard to the structure of urban and rural labour force can be summarized as follows. In populations where a high proportion of the labour force is occupied in agricultural activities, the rural labour force is highly specialized in agricultural pursuits. As development proceeds, however, the rural labour force becomes more diversified until only about a quarter is engaged in agriculture. The urban labour force, on the other hand, is predominantly non-agricultural at all developmental levels and undergoes much less structural change. Manufacturing (i.e., industry) tends to be a stable component of the urban labour force, with declines in urban agriculture offsetting gains in urban services. The index of dissimilarity in rural labour force structures between populations at the highest and lowest development levels given in table 26 is 0.597.[67] For the urban labour force, the coefficient is only 0.217 for these same populations. This difference is a numerical representation of the larger shift in rural than in urban labour force structures. The result is a convergence of the rural labour force to the relatively stable urban form. At the lowest developmental level given in table 26, the index of dissimilarity between rural and urban labour force structures is 0.690, more than two thirds of the numerical ceiling on the index. At the highest developmental level, however, it is only 0.257. Occupational differentiation between urban and rural areas is clearly greatest at lowest developmental levels.

The availability of information on urban and rural labour force structures in populations at different levels of developments permits the decomposition of changes in the occupational structure of the total labour force into three components:

(*a*) The amount due to changes in the occupational structure of the rural labour force;

(*b*) The amount due to changes in the occupational structure of the urban labour force;

(*c*) The amount due to shifts in the rural/urban residential composition of the labour force.

It might be thought that the third factor dominates occupational change, but it has just been shown that the rural labour force itself undergoes a major change as development proceeds and the urban labour force a lesser change. In order to quantify these components, use is made of a conventional procedure first formalized by Kitagawa.[68] In particular, component (*a*) is measured by weighting changes in the rural occupational structure by the average proportion rural; changes in component (*b*) by weighting changes in the urban occupational structure by the average proportion urban; and component (*c*) by weighting changes in proportion rural by the average difference between rural and urban labour force compositions. The formulae and results are shown in Table 27. For simplicity, only the average labour force structures of the least advanced populations (agricultural percentage greater than 65) are compared with those of the most advanced (agricultural percentage less than 15).

The results given in table 27 indicate that changes in urban labour force structure are a relatively minor component of over-all changes, contributing as much as a quarter of the change only to the growth of professional and administrative employment. The remaining two components contribute roughly equal amounts to changes in occupational structure for all occupations except manufacturing, where two thirds of the growth is attributable to increases in manufacturing employment in the rural labour force. The implications of the data in table 27 are clear: changes in occupational structure are not merely a passive concomitant or by-product of shifts of the population from rural to urban areas. Instead, the rural labour force itself is a dynamic contributor to occupational change and undergoes major modifications in the course of development.

One cannot use such results to infer causal relationships. The processes of occupational and residential changes are closely interrelated, and the decompositional analysis is a rather arbitrary accounting device. One of

[63] A similar classification is in use also in Canada.

[64] Computed from United States of America, Department of Commerce, Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970*, Bicentennial edition, part 1 (Washington, D.C., 1975), pp. 12-13.

[65] United States of America, Department of Commerce, Bureau of the Census, *Current Population Reports, Series* P-27, No. 46 (Washington, D.C., December 1975), p. 4.

[66] *Ibid.*

[67] The index of dissimilarity is interpretable as the minimum percentage of either distribution which would have to shift categories in order to equalize the two distributions (that is, to produce identical proportions in the six occupational categories in the two comparison populations). It is computed by the following formula:

$$\text{Index of dissimilarity} = \frac{\Sigma_i \, 0_{1i} - 0_{2i}}{2},$$

where 0_{1i}, 0_{2i} are the proportions of populations 1 and 2, respectively, who are located in occupation *i*. The index can take on any value between zero (identical distributions) and 1 (completely non-overlapping distributions).

[68] Evelyn Kitagawa, "Components of a difference between two rates", *Journal of the American Statistical Association*, vol. 50 (1955), pp. 1168-1194.

TABLE 27. COMPONENTS OF CHANGE IN OCCUPATIONAL DISTRIBUTIONS BETWEEN HIGHEST AND LOWEST LEVELS OF DEVELOPMENT

Occupational group	*Average proportion of total labour force in occupation when percentage in agriculture ≤ 15.0* (1)	*Average proportion of total labour force in occupation when percentage in agriculture ≥ 65.0* (2)	*Difference in proportions* (1)-(2) (3)	*Percentage of difference (3) due to change in occupational structure of rural labour force* (4)	*Percentage of difference (3) due to change in occupational structure of urban labour force* (5)	*Percentage of difference (3) due to shift of population from rural to urban residence* (6)
Agriculture	0.084	0.773	−0.689	49.5	10.4	40.1
Industry	0.384	0.097	0.287	65.1	6.0	28.9
Professional and administrative	0.171	0.029	0.142	36.6	26.8	36.6
Clerical and sales	0.222	0.040	0.182	32.4	21.4	46.1
Traditional service	0.108	0.027	0.081	50.6	0.0	49.4

Notes:

[a] Formula for column (4):

$$\left[\pi^{i1}(R) - \pi^{i2}(R)\right]\left[\frac{R^1 + R^2}{2}\right]$$

[b] Formula for column (5):

$$\left[\pi^{i1}(U) - \pi^{i2}(U)\right]\left[\frac{U^1 + U^2}{2}\right]$$

[c] Formula for column (6):

$$\left[R^1 - R^2\right]\left[\frac{\pi^{i1}(R) + \pi^{i2}(R)}{2} - \frac{\pi^{i1}(U) + \pi^{i2}(U)}{2}\right]$$

where $\pi^{i1}(U)$, $\pi^{i2}(U)$ = proportion of urban labour force in occupation i in populations of class 1 and 2;

$\pi^{i1}(R)$, $\pi^{i2}(R)$ = proportion of rural labour force in occupation i in populations of class 1 and 2;

R^1, R^2 = proportion rural of total labour force, populations of class 1 and 2;

U^1, U^2 = proportion urban of total labour force, populations of class 1 and 2.

the interesting aspects of table 27 that serves to demonstrate the interrelatedness of the changes is that all of the components of change operate in the same direction. The decline in agriculture and the rise in other occupations occur systematically within both urban and rural areas and is accompanied by residential changes that reinforce the intrasectoral shifts. But it is worth emphasizing that the rural population, in particular, is quite flexible in its occupational distribution and makes a very substantial, if not dependent, contribution to the structural changes associated with modernization.

F. RELATIVE RISE OF URBAN SERVICES

The rise of service employment in relation to industrial employment is summarized in the final column of table 26, which shows the numbers of service workers per 100 industrial workers at each level of development.[69] For the total labour force, the service-to-industry ratio rises from 99 at the lowest level of development to 130 at the highest level. At all levels of development, the urban ratio is considerably above 100—that is to say, the number of service workers exceeds by a generous margin the number of industrial workers. Conversely, at all levels of development, the rural ratio falls below 100. In rural areas, industrial workers consistently outnumber service workers by a large margin. There are at least two types of reasons for this urban/rural disparity. On the one hand, the urban population uses a number of services that are less necessary or more difficult to supply in rural areas—fire brigades and police forces, trash removal etc. On the other hand, the urban areas provide many services, such as medical services and entertainment, which are utilized not only by urban residents but by rural residents in the vicinity.[70] The propensity of service activities to locate in urban areas perhaps arises in part from their very intangibility. Whereas tangible agricultural or manufactured goods can usually be shipped anywhere for use, many services, especially personal services, must often be supplied on a face-to-face basis and thus require central urban locations which have maximum accessibility to consumers.[71] With increasing development of long-distance communications, some business services can be performed at a distance from the user, though in many there is a continuing need for centralized face-to-face contact.[72]

Not only are urban service-to-industry ratios higher than rural ratios, but urban ratios tend to increase with development. At the lowest level of development, the urban ratio of service workers per hundred industrial workers is only 115, while at the highest level it stands at 150. The rural ratios, conversely, show no discernible trend by level of development. The urban increase in the service-industry ratio results from an absolute increase in urban services (except the traditional services), combined with a relatively stable industrial base.

During the early stages of development, services of the traditional type tend to increase by a modest amount in both urban and rural areas. As discussed earlier, this category is believed to include a high proportion of underemployment. As illustrated in table 26, these ser-

[69] A similar, though inverse, ratio of manufacturing to tertiary employment is used by Galenson, who defines tertiary employment to include all sectors of employment outside manufacturing except agriculture, mining; and electricity, gas and water. Walter Galenson, "Economic development and the sectoral expansion of employment", *International Labour Review*, vol. LXXXVII, No. 6 (June 1963), pp. 508-512.

[70] Turnham observes also that service activities tend not to appear in rural employment statistics because they are secondary activities. In urban areas, specialization is more developed and many such "do-it-yourself" services are likely to be purchased from the service "specialists". This point is said to apply particularly perhaps to commercial activities. See D. Turnham, *op. cit.*, p. 114.

[71] Because of the face-to-face relationship with the consumer in many services, the consumer frequently plays some part in the production of the service, as for example in the modern supermarket, laundrette or bank where the consumer actually works to perform "self-service". V. R. Fuchs, *op. cit.*, p. 194-195.

[72] Such factors are discussed in C. Clark, "The economic functions of a city in relation to its size", pp. 97-98.

vices tend to decline in urban areas at later stages of development in relation to the other classes of services. In urban areas, the unknown category is also believed to be largely composed of traditional service employments. Moreover, both traditional services and the unknown category show a similar downward trend in urban areas with level of development. If the urban unknown category is added to the urban traditional service category, this combination occupies fully one fifth of the labour force in the three lower categories of development. The volume of traditional service employment in the urban areas of the less developed countries may actually be closer to one fourth of the urban labour force, since a substantial proportion of the sales workers listed separately in the category of urban clerical and sales workers may be simply street peddlers with only a marginal, intermittent livelihood rather than modern, literate sales employees with full-time occupations.

Table 26 indicates that clerical and sales services begin to assume an increasing share of the urban labour force structure at an early stage in development. These services are largely brought forth as a by-product of development itself and a concomitant increasing scale of enterprise. Clerical services are record-keeping skills. The need for these services multiplies as enterprises increase in size and the limited number of face-to-face relationships based on memory which characterize very small business undertakings are replaced by almost limitless numbers of paper relationships based on written records and files.

Selling emerges as a specialized full-time occupation when the scale of output becomes too large for workers specialized in production to do the marketing of their own output themselves. Where small-scale handicraft production prevails, inventories are small and selling occupies relatively much less time and effort than production. Even where specialized urban merchants exist, inventory acquisition is problematical, as a single seller must procure inventory from a multiplicity of small-scale producers. With increasing development and automation, the inventory of a single manufacturing enterprise can be considerable, requiring the services of large full-time marketing staffs. Inventory distribution, rather than inventory acquisition, becomes relatively more problematical. The scale of markets must be increased from merely local to regional and national, and even international. In such a context, the service of selling assumes increasing importance in relation to production.

As shown in table 26, urban professional and administrative services do not begin to increase in importance as a component of urban labour force structure until relatively high levels of development have been achieved. At low levels of development, administrative expertise is mainly governmental and even this use is loose and limited. Economic activities are, in general, on too small a scale to require systematic, professional administration. With development and the growth in scale of enterprise, however, considerable capabilities in management and administration are necessary to co-ordinate successfully the productive activities of business organizations. Moreover, the larger scale of extended territorial markets brings with it a need for ever more detailed and comprehensive government administration to ensure orderly and secure conditions for the organization of production and exchange.

Needless to say, the complex technology in use at high levels of development brings with it an increasing need for professional and technical services. Although certain of these services are rendered to individuals, especially medical and educational services, an increasing proportion is enterprise-oriented, providing not only scientific and engineering services to businesses but legal, accounting, marketing and other services essential to the rationalization of business procedures.

In addition to the proliferation of business services, there is an extension and upgrading of personal services at higher levels of development. As needs for material goods, both agricultural and manufactured, are increasingly satiated, consumer demand is increasingly directed towards services. Educational services increase both because of their value for increasing earning potential and their attractiveness as objects of personal consumption. Health services increase as people are increasingly able to afford good health and as demographic changes increase the fraction of the population at ages where chronic health impairments are most prevalent. Institutional care of the elderly is another service which appears destined to become a major factor, as low birth rates combine with low mortality rates to augment the proportion of elderly, while the rapid drift of women from the home to the labour force has drastically reduced the potential for care of the elderly in family homes. Recreation and travel also are apparently destined to increase dramatically. In a crowded world, where accumulation of tangible goods is necessarily limited by spatial restrictions, the consumption of intangible services is likely to assume relatively greater importance.

As discussed earlier, there is considerable concern in the less developed countries that industry, distorted by labour-saving technology imported from the more developed countries, will be unable to absorb a growing urban labour force which is currently unemployed or underemployed in marginally productive services. It is probably true that the less developed economies of today will not experience as high a relative level of industrial employment as the currently developed countries did at comparable levels of development when industrial technology was labour-intensive. However, along with the labour-saving industrial technology, the currently less developed countries also inherit a labour-absorptive service technology which has been remarkably improved in quality.[73] Though a large proportion of the labour force in the less developed countries will remain in service types of employment, there is opportunity to upgrade these workers through education and training. To the extent that workers can be absorbed into the business type of services, they may enhance even further the productivity of industrial production and distribution. To the extent that they are absorbed into modern, more productive types of consumer-oriented services, they will contribute directly to improved quality of life.[74]

[73] Approximately two thirds of the value of health services in the United States of America represents labour input. Somewhat less than one sixth represents input of physical capital and the remainder represents goods and services purchased from other industries. Victor R. Fuchs, "The contribution of health services to the American economy", *Milbank Memorial Fund Quarterly*, vol. XLIV, No. 4 (October 1966), part 2, p. 71.

[74] Relative productivity in service activities is difficult to measure. Measurement difficulties arise in part because of the in-

It was concluded from an international study of manufacturing and tertiary employment that the bulk of the new employment in newly developing countries will probably be found in the tertiary sector rather than in manufacturing.[75] The report emphasizes, however, that it is, nevertheless, the manufacturing sector which is likely to be the "dynamic force" in generating new employment. The reasoning is that this development will occur through an "employment multiplier effect" in which the additional product generated by a highly productive manufacturing sector results in an increase in the effective demand for the goods and services of the other sectors and thus permits an increase in employment in these other sectors. According to this view, the possible losses in manufacturing employment due to labour-saving technology can be more than offset by the increases thus generated in the tertiary sector.

G. Trends in occupation/residence relations

In this section, a comparison is made between the relations just described (developed from data for 39 countries at 59 dates) and actual time-series data for a more limited sample of 16 countries at 36 dates. Such a comparison indicates whether recent history in selected countries supports the inferences drawn above from the pooled cross-sectional and time-series data or whether newly emergent trends can be observed. Countries are ordered in the time-series tables which follow by level of development (i.e., by percentage of total labour force in agriculture) at the most recent date, beginning with the least agricultural country, the United States of America. For expositional convenience, countries are also grouped into two discrete categories: the less agricultural, those with less than 35 per cent of total labour force in agriculture; and the more agricultural, which contain more than 35 per cent of total labour force in agriculture. This cut-off point corresponds to the dividing line between the two highest and the three lowest development categories in the cross-sectional tables. The urban category of England and Wales in the time-series tables pertains only to conurbations.[76] It has been included here because the sample of time trends for more developed countries is very small, and the time trends for England and Wales thus defined appear to be fairly consistent with those of the other time series for more developed countries.

Agriculture

Tables 28 and 29 reveal that virtually all of the countries with trend data are becoming less agricultural in both rural and urban areas. These trends clearly support the previous pooled-data analysis. Urban areas of the less agricultural countries are already so low in agricultural employment (less than 3 per cent of the urban labour force) that only limited further declines can be achieved per decade. More substantial decade declines of 2-5 percentage points are still being achieved in the urban areas of the less developed countries, where the percentage of agricultural employment in individual countries can still be as high as 15 per cent. In the rural areas, substantial declines in percentage of agricultural employment are being achieved in both the more developed and the less developed countries. In the pooled-data analysis, the percentage of rural labour force in agriculture declined from an average of almost 90 per cent in the lowest development class to an average of about one fourth in the most developed class. Time-series data from the United States, the longest time series, indicates, however, that the floor which can be reached in rural agricultural employment may be much lower than one fourth. During the three decades shown here, agricultural employment declined in the United States from almost one half to about 10 per cent of the rural labour force. Such limited rural agricultural employment is all the more noteworthy when it is remembered that the United States is a major food exporter.

Industry and services

It was observed in the cross-sectional table that the average percentage of industrial employment in urban areas is remarkably similar in the more developed and the less developed countries, on average remaining at somewhat more than one third of the urban labour force. The time trends reveal, however, that in the urban areas of the less agricultural countries there has been an almost universal downward trend in percentage of industrial employment, except in Sweden, which changed very little. The relative declines in industrial employment in the urban areas of more developed countries has been accompanied by relative increases in service employments. As shown in the last column of table 28, the urban service-to-industry ratio among the more developed countries has risen in every country except Sweden. As observed earlier, the rise of service employment in relation to industrial employment has long been anticipated in the more developed countries.

The direction of change in percentage of industrial employment in the urban areas of more agricultural countries is less consistent. Of the 10 countries, three increased (Greece, Sri Lanka and Romania), four decreased (Ecuador, Nicaragua, Morocco and Turkey) and three remained about the same (Costa Rica, Peru and Thailand). Thus the pooled-data results, suggesting little systematic change in urban industrial employment with development, are supported by trends in these countries. Meanwhile, urban service employment has increased in a clear majority of these countries (7 out of 10), while decreasing in only Romania and Sri Lanka, and remaining virtually unchanged in Morocco. The

---

tangibility of service output which in general does not result in comparable physical units of output which can be easily counted. Service productivity will often be reflected in differences in quality of output rather than quantity. Another difficulty arises from the circumstance that much of the technological improvement in the services is not a matter of improved physical equipment but is rather "labour-embodied". If, for example, newly trained physicians, after receiving the same amount of schooling as their predecessors, know more about disease and are more effective in treating sick people, one should attribute the increase in output to labour-embodied technological change. Even more difficult to measure is the extent to which technological improvement in services is actually "consumer-embodied". To continue the medical illustration, the quality of the medical history the patient is able to give in the physician's office may influence significantly the productivity of the physician. Productivity in banking is affected by whether the clerk or the customer makes out the deposit slip—and whether it is made out correctly. This element, in turn, is likely to be a function of the education of the customer, among other factors. V. R. Fuchs, *The Service Economy*, pp. 194-199, provides an interesting discussion of such factors.

[75] W. Galenson, *loc. cit.*

[76] England and Wales was not included in the pooled time-series cross-sectional analysis because conurbations are clearly under-bound in relation to standard urban definitions. However, there is no reason to discard its data on trends.

TABLE 28. PERCENTAGE COMPOSITION OF URBAN LABOUR FORCE, BY SECTOR OF ECONOMIC ACTIVITY, COUNTRIES WITH AT LEAST TWO OBSERVATIONS

(Percentage points)

Country	Date	Total (sum of cols. 2, 3, 4 and 8) (1)	Agriculture (2)	Industry (3)	Services (sum of cols. 5, 6 and 7) (4)	Professional and administrative services (5)	Clerical and sales services (6)	Traditional services (7)	Unknown (8)	Service-to-industry ratio (9)
Less agricultural countries[a]										
Canada	1961	100.0	1.5	38.3	57.6	20.6	23.5	13.5	2.6	150
	1971	100.0	1.6	28.8	59.4	18.9	28.6	11.9	10.3	206
Japan	1960	100.0	2.4	42.9	53.9	10.9	32.8	10.2	0.7	126
	1965	100.0	2.0	40.9	56.4	11.7	34.6	10.1	0.7	138
	1970	100.0	1.8	39.6	58.1	14.0	34.0	10.1	0.6	147
Puerto Rico	1960	100.0	3.0	37.8	58.2	18.7	25.2	14.3	1.0	154
	1970	100.0	1.3	36.6	59.0	23.8	23.9	11.3	3.1	161
Sweden	1960	100.0	1.9	40.6	56.9	19.6	26.1	11.2	0.6	140
	1970	100.0	1.9	41.0	56.3	23.7	22.3	10.3	0.7	137
United Kingdom										
England and Wales	1951	100.0	0.8	50.5	47.1	9.5	26.9	10.7	1.6	93
	1961	100.0	0.7	44.7	52.5	11.3	30.3	10.9	2.1	117
United States of America	1940	100.0	0.8	41.5	57.0	14.1	27.7	15.2	0.8	137
	1950	100.0	0.8	41.9	56.2	17.8	26.5	11.9	1.1	134
	1960	100.0	1.1	34.9	58.6	17.6	28.7	12.3	5.4	168
	1970	100.0	0.6	32.6	62.5	24.2	26.9	11.4	4.3	192
More agricultural countries[b]										
Costa Rica	1963	100.0	6.8	31.5	55.6	13.0	25.1	17.5	6.0	177
	1973	100.0	5.1	31.8	57.9	17.2	23.2	17.5	5.2	182
Ecuador	1962	100.0	10.6	37.9	43.3	7.4	21.0	14.9	8.1	114
	1974	100.0	7.5	33.9	48.4	11.9	22.4	14.1	10.1	143
Greece	1961	100.0	8.7	42.6	41.8	8.3	21.6	11.9	6.8	98
	1971	100.0	5.6	44.9	46.1	10.5	25.0	10.6	3.4	103
Morocco	1960	100.0	5.3	36.5	43.5	6.7	19.2	17.6	14.7	119
	1971	100.0	4.7	34.8	43.4	8.4	17.3	17.7	17.2	125
Nicaragua	1963	100.0	16.3	38.9	44.4	6.4	21.4	16.6	0.5	114
	1971	100.0	11.3	36.8	48.9	10.9	20.6	17.4	3.1	133
Peru	1961	100.0	18.1	31.0	43.7	8.3	20.2	15.2	7.3	141
	1972	100.0	15.3	31.2	45.9	11.9	21.6	12.4	7.6	147
Romania	1956	100.0	16.5	41.4	42.0	20.8	12.4	8.8	0.1	101
	1966	100.0	14.6	46.3	39.0	20.5	10.8	7.7	0.1	84
Sri Lanka	1953	100.0	5.9	24.1	66.3	9.7	26.1	30.5	3.7	275
	1970	100.0	8.8	38.2	52.8	12.2	26.5	14.1	0.2	138
Thailand	1954	100.0	12.2	31.3	49.8	9.1	30.5	10.2	6.7	159
	1970	100.0	7.9	31.0	60.6	14.9	30.8	14.9	0.5	196
Turkey	1950	100.0	22.8	38.0	32.9	15.7	10.9	6.3	6.2	87
	1960	100.0	19.0	44.5	36.5	15.8	9.8	10.9	0.0	82
	1970	100.0	11.3	23.5	36.7	10.2	16.2	10.3	28.6	156

[a] Countries with less than 35 per cent of labour force in agriculture.
[b] Countries with more than 35 per cent of labour force in agriculture.

net effect of these various changes in the less developed countries on the service-to-industry ratio has been to increase it in every country except two: Romania and Sri Lanka. The rising trend in urban service-to-industry ratio in both the less developed and the more developed countries tends to confirm the cross-sectional tendency described previously.

The situation with regard to industry in the rural areas of the more developed countries is mixed. Substantial increases in percentage of industrial employment were registered in three countries (Japan, Puerto Rico and the United States); comparatively modest declines occurred in two countries (England and Wales, and Sweden); and one country changed very little (Canada). Meanwhile, rural services increased in all of the more developed countries except Sweden (which was similarly an exception in urban areas) and service-to-industry ratios increased in all but two of the more

TABLE 29. PERCENTAGE COMPOSITION OF RURAL LABOUR FORCE, BY SECTOR OF ECONOMIC ACTIVITY, COUNTRIES WITH AT LEAST TWO OBSERVATIONS
(Percentage points)

Country	Date	Total (sum of cols. 2, 3, 4 and 8) (1)	Agriculture (2)	Industry (3)	Services (sum of cols. 5, 6 and 7) (4)	Professional and administrative services (5)	Clerical and sales services (6)	Traditional services (7)	Unknown (8)	Service-to-industry ratio (9)
Less agricultural countries[a]										
Canada	1961	100.0	40.5	29.8	27.3	11.0	7.3	9.0	2.5	92
	1971	100.0	27.5	29.2	32.1	9.9	13.4	8.8	11.1	110
Japan	1960	100.0	54.2	25.4	20.1	4.6	12.6	2.9	0.4	79
	1965	100.0	45.0	29.5	25.2	5.8	15.7	3.7	0.3	85
	1970	100.0	38.0	33.3	28.4	6.8	17.3	4.3	0.4	85
Puerto Rico	1960	100.0	43.9	32.5	22.0	5.4	8.7	7.9	1.7	68
	1970	100.0	19.2	49.0	29.6	8.8	10.3	10.5	2.1	60
Sweden	1960	100.0	27.3	41.6	30.4	10.1	12.5	7.8	0.7	73
	1970	100.0	38.0	38.9	22.7	9.1	7.5	6.1	0.4	58
United Kingdom England and Wales	1951	100.0	8.4	48.6	38.4	8.3	20.0	10.1	4.7	79
	1961	100.0	5.9	45.5	44.9	11.0	23.8	10.0	3.7	99
United States of America	1940	100.0	45.6	28.1	25.5	7.6	10.1	7.8	0.8	91
	1950	100.0	35.9	35.1	27.3	9.5	11.5	6.3	1.7	78
	1960	100.0	21.9	37.5	36.9	11.2	16.5	9.2	3.6	98
	1970	100.0	10.8	42.5	43.8	17.5	16.6	9.7	2.9	103
More agricultural countries[b]										
Costa Rica	1963	100.0	70.9	11.6	13.2	2.7	5.6	4.9	4.3	114
	1973	100.0	58.8	18.2	16.9	3.4	6.4	7.1	6.0	93
Ecuador	1962	100.0	80.7	11.7	6.4	1.2	2.7	2.5	1.1	55
	1974	100.0	73.6	14.2	7.8	2.1	3.8	1.9	4.4	55
Greece	1961	100.0	80.2	10.1	9.6	1.8	3.3	2.6	1.9	95
	1971	100.0	72.5	15.2	11.3	2.5	5.2	3.6	1.0	74
Morocco	1960	100.0	79.9	6.5	7.1	2.1	2.7	2.3	6.5	109
	1971	100.0	76.9	10.7	8.5	2.6	2.8	3.1	4.0	79
Nicaragua	1963	100.0	87.2	5.7	7.1	0.5	2.2	4.4	0.1	125
	1971	100.0	80.0	8.5	9.0	1.3	2.7	5.0	2.4	106
Peru	1961	100.0	79.9	10.9	6.8	1.2	2.9	2.7	2.4	62
	1972	100.0	81.2	9.8	5.5	1.6	2.3	1.6	3.5	56
Romania	1956	100.0	87.0	7.5	5.4	2.7	1.6	1.1	0.0	72
	1966	100.0	77.4	14.8	7.7	3.5	2.1	2.1	0.0	52
Sri Lanka	1953	100.0	59.6	14.9	23.8	3.9	8.1	11.8	1.8	160
	1970	100.0	58.7	21.9	19.2	4.8	8.3	6.1	0.2	88
Thailand	1954	100.0	92.6	2.6	4.5	1.1	2.8	0.6	0.4	173
	1970	100.0	89.4	5.1	5.5	1.2	3.1	1.2	0.1	108
Turkey	1950	100.0	92.6	4.0	2.5	1.4	0.8	0.3	0.9	63
	1960	100.0	91.6	5.0	3.4	1.5	0.9	1.0	0.0	68
	1970	100.0	86.0	4.0	5.2	2.2	1.6	1.4	4.7	130

[a] Countries with less than 35 per cent of labour force in agriculture.
[b] Countries with more than 35 per cent of labour force in agriculture.

developed countries (Puerto Rico and Sweden).

The percentage of both industry and services rose in a majority of the rural areas of the less developed countries. This is the pattern of change that would have been anticipated on the basis of the cross-sectional analysis, which showed systematically higher percentages of both industry and services in rural areas at each higher level of development. The direction of the service-to-industry ratio in rural areas of most of the less developed countries is clearly downward. The downward trend in rural service-to-industry ratios in the less developed countries, and the upward trend in the more developed, suggests a U-shaped relationship, which is again supported by the pooled analysis presented previously in table 26.

It remains to discuss the structure of the several service occupations. From the cross-sectional analysis it was observed that the level of urban traditional ser-

vices in the next to the lowest category was conspicuously higher than the level at the lowest level of development. This finding was interpreted as evidence that urban migrants were seeking part-time or temporary employment in marginal traditional services because of the lack of more productive employment at the initial stages of development. At each successively higher level of development thereafter, the percentage of traditional services in urban areas was reduced, until at the highest level of development the level of traditional urban services was again approximately equal to that of the lowest level. Presumably, at higher levels of development more productive types of employment are organized in urban areas, which tend to draw off traditional workers until at the highest level of development some minimum number remain. The time-series data tend to confirm what has been concluded from the cross-section. It is fortunate that the time-series sample contains at least two countries (Thailand and Turkey) in the highest agricultural category since many such countries are new in census-taking. As would have been predicted from the cross-sectional analysis, these two countries are the only two in the time-series sample which showed significant increases in urban traditional services. At other levels of development, all countries showed downward movement in urban traditional services or little change.

The cross-sectional analysis shows a steady upward trend in rural traditional services from the least developed to the most developed. This trend cannot be confirmed or denied in the particular sample of time series at hand. In both the more developed and the less developed groups of countries, the pattern of change in the rural areas is very mixed, with some countries increasing in percentage of traditional services while others are decreasing. Also, according to the cross-sectional analysis, the percentage of clerical and sales workers increases with the level of development in both urban and rural areas. This trend is not very well illustrated in the sample of time series, except perhaps in the rural areas of the more developed countries, where Sweden is the only exception to the upward trend.

An irregular increase in urban professional and administrative workers is described in the pooled-data analysis. The percentage of such workers was shown to remain relatively constant at the three lowest levels of development and thereafter to increase substantially at the two highest levels of development. In the time series, almost all countries in both the more developed and the less developed categories show increases in urban professional and administrative workers, excluding Romania and Turkey, which are relatively low in the developmental scale, and Canada. In rural areas, the percentage of professional and technical workers was shown to increase substantially in the pooled-data analysis as between low and higher levels of development. This is emphatically confirmed in the time series where most countries showed substantial increases over time. (Canada is again an exception, together with Sweden.)

Ideally, the trend data could be used to make some judgement about the role of urban population growth in the changing structure of the urban labour force. It is often argued that the urban service sector in developing countries is inflated because of large increases in labour supply resulting from urban population growth. Because entry requirements in service jobs are typically less stringent than in industrial jobs, it is alleged that the increment in labour supply will tend to be absorbed disproportionately into the service sector. These arguments have been reviewed and found unconvincing.[77] Furthermore, the author examines a "natural experiment" in Colombia, where rural disturbances led to a rapid labour flow to Bogotá. The influx of workers, however, did not appear to depress the size of the manufacturing sector nor to inflate that of services. Instead, it is argued that the distribution of workers among sectors is determined primarily by demand factors related to income growth and government policy. Another report[78] also questions the prevailing model, particularly the assumption that the service sector plays a predominant role as a point of entry into the labour force for migrants to urban areas.

An inference about the relation between urban growth and service employment based on the present data is hazardous. Few trend observations are available and occupational changes tend to be small and hence could easily be produced by a change in classification systems or in their application. Furthermore, the range of urban growth rates among the less developed countries providing trend data is very narrow. Of the nine countries of Africa, Asia (excluding Japan) and Latin America listed in table 28, seven have average annual urban intercensal growth rates in the range of 0.0410-0.0453. Only Thailand (0.0393) and Turkey (0.0555) lie outside of this narrow range. Interestingly, despite its slower urban growth, Thailand exhibits the largest gain in the relative size of the urban service sector of any developing country. By the classical hypothesis, one might have expected its gain to be smallest. Perhaps more pertinent is the general absence of relative growth in the urban service sector in the less developed countries during intercensal periods when urban populations typically grew by a factor of 50-60 per cent. If urban population growth were a powerful factor in increasing the size of the service sector, such amounts of growth should have left a visible imprint. Net of professional and administrative services, intercensal growth in the urban service sector in more agricultural countries was more than 1 percentage point only in Thailand and Turkey. The sector fell by more than 1 percentage point in Costa Rica, Morocco, Peru, Puerto Rico and Sri Lanka. These results are consistent with the positions cited above and fail to buttress what appears to be the conventional position.

Table 30 shows time trends for the relative urbanization (i.e., proportion urban) of the various sectors of economic activity. These trends correspond to the cross-sectional trends given in table 25. The pooled-data analysis showed increasing urbanization in all sectors of economic activity in the course of development. The only exception was in agriculture, which showed slightly lower urbanization at the highest level of development than at the next highest level. This slight reversal in the trend towards greater urbanization of agriculture at higher levels of development was not upheld in the time trends. All countries except one, at all levels of development including the highest, showed increasing urbanization of agriculture over time. The

[77] Alan T. Udall, "The effect of rapid increase in labor supply on service employment in developing countries", *Economic Development and Cultural Change*, vol. 24, No. 4 (July 1976), pp. 765-785.

[78] Dipak Mazumdar, "The urban informal sector", *World Development* (August 1976), pp. 655-679.

TABLE 30. PROPORTION URBAN, BY SECTOR OF ECONOMIC ACTIVITY, COUNTRIES WITH AT LEAST TWO OBSERVATIONS

Country	Date	Agriculture (1)	Industry (2)	Professional and administrative services (3)	Clerical and sales services (4)	Traditional services (5)	Unknown (6)
More developed countries[a]							
Canada	1961	9.6	78.2	83.9	90.1	80.8	74.8
	1971	17.9	78.7	87.7	88.9	83.5	77.7
Japan	1960	3.1	54.7	63.1	65.1	71.2	56.7
	1965	3.9	55.8	64.7	66.6	71.3	65.1
	1970	4.9	56.2	68.9	67.9	71.8	63.3
Puerto Rico	1960	6.5	54.6	78.2	75.1	65.3	37.8
	1970	11.8	59.6	84.2	82.0	68.1	74.7
Sweden	1960	7.8	53.7	69.8	71.3	63.2	49.3
	1970	19.6	83.9	92.8	93.6	89.2	89.9
United Kingdom England and Wales	1951	6.2	42.1	44.5	48.4	42.8	43.9
	1961	6.9	39.2	40.1	45.5	41.7	40.6
United States of America	1940	2.6	69.9	74.4	81.2	75.3	61.5
	1950	4.6	72.0	80.1	83.2	80.2	59.6
	1960	12.3	71.8	81.1	82.7	78.6	80.6
	1970	13.9	70.7	81.3	83.6	78.7	82.3
Less developed countries[b]							
Costa Rica	1963	5.4	61.3	73.8	72.5	67.9	44.8
	1973	6.2	57.3	79.4	73.6	65.5	39.8
Ecuador	1962	6.5	63.1	76.0	80.8	75.6	79.8
	1974	6.8	63.1	80.7	80.9	84.0	62.2
Greece	1961	6.0	71.3	72.7	79.4	72.9	67.7
	1971	6.6	73.0	79.1	81.4	73.1	76.1
Morocco	1960	2.8	70.6	57.8	75.5	76.9	49.1
	1971	3.2	64.0	63.6	77.0	75.9	70.3
Nicaragua	1963	11.0	82.0	89.0	86.8	71.7	72.7
	1971	11.7	80.2	88.6	87.9	76.4	54.5
Peru	1961	18.3	73.8	87.1	87.2	84.7	75.4
	1972	23.7	84.0	92.4	93.8	92.5	78.2
Romania	1956	6.3	66.0	73.2	72.5	73.2	80.2
	1966	9.2	62.7	75.8	73.0	66.2	59.4
Sri Lanka	1953	1.8	22.7	31.2	37.0	31.9	27.5
	1970	2.8	24.8	32.3	37.7	30.3	16.7
Thailand	1954	0.8	42.3	34.1	39.9	51.7	50.4
	1970	1.0	40.0	58.3	51.8	58.1	37.5
Turkey	1950	4.6	64.7	67.8	72.7	80.9	58.4
	1960	4.6	67.2	71.2	71.8	70.8	0.0
	1970	4.3	66.8	61.7	77.8	71.7	67.7

[a] Countries with less than 35 per cent of labour force in agriculture.
[b] Countries with more than 35 per cent of labour force in agriculture.

urbanization of agriculture in the United States of America, which ranked as the most developed country in the sample, increased considerably—from about 3 per cent in 1940 to about 14 per cent in 1970.

H. REGIONAL AND TEMPORAL FACTORS IN LABOUR FORCE STRUCTURE

The relationships depicted in tables 25-30 give a general impression of the variations in labour force structure that typically correspond to differences in level of development. They also indicate the degree of urbanization in the various occupations at different levels of development. It was not possible to deal simultaneously with developmental influence and with trends, and no consideration was given to regional variation in the occupational residential relationships. The present section attempts to fill these gaps. This section examines the degree to which labour force structures, controlled for

development level, vary regionally and over time. That is, region and date of observation are explicitly introduced as variables whose role in urban and rural labour force structures is to be determined. This attempt is not straightforward because, to a moderately important extent, region and developmental level are varying in tandem, so their mutual effects are not readily disentangled. However, there is sufficient interregional overlap in developmental levels to permit the possibility that truly structural factors can be extracted and thereby to allow regional and temporal patterns to be isolated. It seems pointless to identify regional differences in labour force structures without attempting to control developmental level, for the simple reason that the results would principally recapitulate those presented above. The structures change so systematically with development level that level of development would tend to overwhelm any other differences that might be present.

The strategy for this analysis is to estimate equations of the following form:

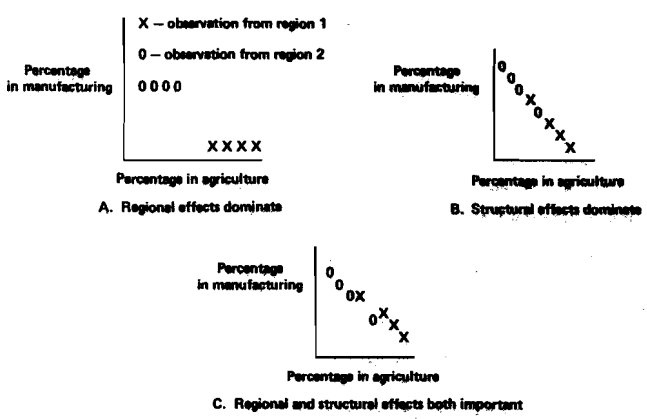
$$P(i) = I + B_1 \cdot P(A) + B_2 \cdot P(A)^2 + \Sigma_i Ci \cdot Di + G \cdot T + e,$$

where $P(i)$ = proportion of labour force in occupation i;
$P(A)$ = proportion of total labour force in agriculture;
Di = series of categorical variables representing regions;
T = categorical variable representing observations of 1970 or later;
I, B_1, B_2, Ci, G = parameters to be estimated;
e = error term.

In other words, a second-degree polynomial is fitted to the relationship between the percentage in occupation i and the percentage in agriculture ($I + B_1 \cdot P(A) + B_2 \cdot P(A)^2$), and simultaneously regional and temporal deviations about this polynomial relationship are identified. The purpose of making the identification simultaneous is to avoid attributing structural effects to regions and also to avoid attributing regional influences to structural factors. It is useful for heuristic purposes to distinguish between two polar cases, described graphically in figure VIII.

In A and B of hypothetical data, regions 1 and 2 differ in average development level (continuing to measure this level in terms of percentage in agriculture). In case A, however, the regional influences clearly dominate the developmental, since within regions there is no relationship between development level and the dependent variable; furthermore, at equivalent development levels, representatives of regions 1 and 2 differ substantially in their score on the dependent variable. In this case, the present procedures woud identify large regional differences and no role for developmental level (in effect, the polynomial would be a horizontal line). In case B, however, there is clearly a smooth and systematic relationship between development level and the dependent variable, both within and between regions. In this case, a polynomial would fit the data points extremely well and there would be no additional role for regional variables. The measured influence of region would be nil. In case C, both developmental level and region would be identified as influential in labour force structures. Thus, the parameters Ci measure the degree to which regions differ from one another, controlling the regional differences in developmental levels by means of polynomial equations. The same procedure is obviously available for studying differences over time in labour force structures, with the Xs and Os representing data referring to different periods rather than to different regions.

Figure VIII. Hypothetical relationships between percentage in agriculture and percentage in manufacturing



The results of this activity are probably best presented in the conventional format of multiple classification analysis. Table 31 shows deviations about the mean in the labour force structure of each region, adjusted for developmental level (percentage of total labour force in agriculture) and for the time at which observations were recorded. The figure of −1.405 in the upper left-hand corner means that, controlling for percentage in agriculture and the time to which observations refer, countries in Latin America fall short of the mean percentage in manufacturing by 1.4 percentage points. The sum over occupations of these deviations for any particular region must be zero. That is, any occupation that is unusually prominent in a region implies that an equal deficit must exist in some other occupation.

By and large, table 31 fails to reveal impressive regional variation in labour force structures. In the total (urban plus rural) labour force, no occupation/region combination has an adjusted deviation from the mean as large as 5 percentage points. In fact, the only deviation as large as 3 is an excessively high percentage of persons with unknown occupation in Africa. These results therefore suggest that developmental level plays an overwhelmingly important role in determining total labour force structure. The scope for regional variation therefore appears to be quite limited.

Nevertheless, certain persistent regional tendencies are apparent in the table, particularly when the three developing regions are contrasted to more developed countries. Controlling the percentage in agriculture, countries in Latin America, Asia and Africa alike have low proportions in manufacturing in the total and, especially, in the urban labour force. In urban areas, the countries in all three areas have a deficit of 5-6 percentage points in manufacturing, in relation to more developed countries. This deficiency in urban manufacturing workers has been the subject of much discussion, as previously stated. It has been identified by comparing the less developed countries with earlier data for the more developed countries. These results indicate that it

TABLE 31. REGIONAL DEVIATIONS IN LABOUR FORCE STRUCTURE, CONTROLLING PERCENTAGE OF TOTAL LABOUR FORCE IN AGRICULTURE AND DATE OF OBSERVATION

	Adjusted deviation from the mean in: (percentage points)			
	Latin America (N = 14)	*Asia (N = 18)*	*Africa (N = 10)*	*Europe and Northern America (N = 17)*
Total labour force				
In agriculture[a]	0.000	0.000	0.000	0.000
In industry	−1.405	−0.575	−1.008	2.359
In professional/technical	0.140	0.297	−1.911	0.695
In clerical/sales	0.421	0.953	−1.732	−0.337
In traditional services	1.759	−0.328	−0.160	−1.008
In "occupation unknown"	−0.915	−0.346	4.810	−1.709
Urban labour force				
In agriculture	0.203	−2.958	5.929	−0.522
In industry	−1.812	−1.031	−2.102	3.822
In professional/technical	0.956	0.454	−5.955	2.234
In clerical/sales	−0.240	3.944	−4.782	−1.166
In traditional services	2.206	−0.027	0.070	−1.828
In "occupation unknown"	−1.313	−0.382	6.843	−2.539
Rural labour force				
In agriculture	6.998	−4.378	−3.738	1.072
In industry	−3.216	1.091	0.230	1.357
In professional/technical	−1.260	0.932	−0.547	0.368
In clerical/sales	−1.471	1.783	−0.425	−0.425
In traditional services	0.072	0.073	0.001	−0.804
In "occupation unknown"	−1.124	−0.132	4.478	−1.568

[a] Because the percentage in agriculture of the total labour force is controlled, regions cannot deviate from the adjusted mean in this category.

also shows up in data that are essentially contemporaneous. The occupations that compensate for this deficit, however, are by no means so consistent. The countries in Latin America have a sizable surplus of urban workers in the traditional services; countries in Asia experience an urban surplus in the clerical/sales category; and countries in Africa have an urban surplus of agriculture. This latter result may reflect a substantial seasonality of urban residence in Africa, as a result of which a substantial portion of urbanites cite as their principal occupation, their activity in rural areas. Even more prominent in Africa than a manufacturing deficit in urban areas is a deficiency of professional and technical workers, which may reflect a shortage of the highly educated workers who normally occupy these positions.

It is interesting to note that the manufacturing deficit does not extend to rural areas except in Latin America. It appears that home handicraft activities in Asia and Africa are sufficiently prominent in rural areas that rural manufacturing proportions are not unusually low. It may be that manufacturing has urbanized to such an extent in Latin America, with corresponding economies of scale and agglomeration, that small-scale rural manufacturing activities in rural areas simply cannot compete effectively.

What is strikingly irregular about rural labour force structures among the less developed regions is the importance of agriculture. Controlling the developmental level, the rural regions in Latin America are much more highly specialized in agricultural activities than are those in Africa and Asia. In fact, in Latin America, the adjusted rural agricultural percentage exceeds that of Asia and Africa by 10-11 percentage points. This agricultural surplus occurs at the expense of every other rural occupation except traditional services, which mirrors to a limited extent the abundance of this occupation in urban structures in Latin America. Another way to state the result is to say that rural areas in Latin America have not experienced the diversification of labour force structures that is implied by national progress to intermediate levels of development. Instead, the non-agricultural occupations have tended to locate in far greater than expected proportions in urban areas. Part of the regional discrepancy could reflect differences in the manner of classifying urban and rural populations. If predominance of non-agricultural activities is a more important criterion for determining urban status in Latin America, the remaining rural populations would be more likely to have a selectively agricultural character. This does not, however, appear to be a major consideration, because urban labour force structures in Latin America are no less agricultural than would be expected at their developmental level.

The earlier pooled-data analysis suggested that every occupation becomes increasingly concentrated in urban areas as development proceeds. But there are striking regional variations about these normal patterns. The analytical strategy for identifying these differences is identical to that pursued above: estimation of polynomial regression equations with region and date of observation explicitly introduced. It is only necessary to substitute a new set of dependent variables, the proportion of each occupation whose practitioners live in urban areas. The percentage of the total labour force that is in agriculture, and the percentage in agriculture squared, remain the indicators of development level. Results of this procedure are shown in table 32. In interpreting this table, it is wise to bear in mind that the numbers being predicted are usually much larger than those in the equivalent table 31, since the occupations are being divided among only two claimants, rural and urban

TABLE 32. VARIATIONS IN URBANIZATION OF OCCUPATIONS, MAJOR AREAS
(Percentage points)

Occupational category	Adjusted deviation from mean in percentage of particular occupations whose members reside in urban areas in:			
	Latin America (N = 14)	East and South Asia (N = 18)	Africa (N = 10)	Europe and Northern America (N = 17)
Agriculture	1.075	−1.189	2.713	−1.224
Industry	9.218	−8.915	−3.252	3.763
Professional/technical	14.297	−9.412	−11.067	4.703
Clerical/sales	8.731	−7.373	−4.956	3.534
Traditional services	8.712	−7.537	−2.684	2.386
Occupation unknown	8.148	−6.358	−8.594	5.079

areas, rather than the labour force among six different occupations.

The urbanization of agriculture does not show any interesting regional variation. In each region, the fraction of agriculturalists who live in urban areas is about as expected, after taking account of respective developmental levels. What is provocative about the table is the enormous regional variation in the urbanization of other occupations among the less developed countries. In Latin America, the countries have an 8-14 percentage point higher representation of each of the non-agricultural occupations in urban areas than expected, while countries in Asia have a deficit of 6-10 points, and those in Africa, a deficit of 3-11. When compared directly with countries in Asia, those in Latin America have an urban excess in non-agricultural occupations of 16-24 percentage points. That the discrepancies in Latin America are not simply attributable to higher developmental levels is indicated both by the fact that developmental level is controlled in the comparison and also by the fact that the more developed countries as a group show no sizable urban surplus in non-agricultural occupations. Since the countries of Asia and Africa are relatively similar (below urban expectations largely because Latin America has inflated such expectations), it seems reasonable to view Latin America as the anomalous case.

This result reinforces the earlier finding that rural areas in Latin America have an unusually high prevalence of agricultural occupations. Those pursuing non-agricultural occupations in Latin America are over-represented in urban areas, leaving rural areas to be, in unusual degree, agricultural enclaves. The spatial division of labour thus appears to be more specialized in Latin America than elsewhere. The regional differences cannot be explained away by differences in statistical treatment of farm wives. As is shown in chapter VI, rural women are unusually prominent in non-agricultural activities in Latin America and deficient in agricultural activities. Latin America has a high urban proportion in relation to its non-agricultural population, and the urban surplus extends to each major non-agricultural occupation, though not to agriculture itself.

I. SYNTHETIC TIME TRENDS

The data on labour force structures can be examined for time trends as well as for regional differences. That is, one can ask whether the occupational structures of total, urban and rural labour forces have been similar in recent years to their structures of earlier years, controlling for the total percentage in agriculture and for the regions from which observations are derived. Once again, this analysis is made by constructing a categorical variable, in this case representing whether observations were recorded in the 1970 round of censuses (value = 1) or earlier (value = 0). Table 33 shows the results of this procedure.

The main result of this procedure is that labour force structures (the distribution of rural and urban occupations as a function of the percentage in agriculture) show a considerable stability over time. In only one of the 17 instances shown in table 33 do observations for 1970 differ from the adjusted mean by more than 2 percentage points. The exception is suggestive, however. Manufacturing occupations in urban areas are 4 percentage

TABLE 33. CHANGES OVER TIME IN LABOUR FORCE STRUCTURE, CONTROLLING PERCENTAGE OF TOTAL LABOUR FORCE IN AGRICULTURE AND REGIONS FROM WHICH OBSERVATIONS DERIVE
(Percentage points)

Occupational category	Adjusted deviation from the mean in:					
	Total labour force		Urban labour force		Rural labour force	
	1970 census round (N = 21)	Earlier than 1970 (N = 38)	1970 census round (N = 21)	Earlier than 1970 (N = 38)	1970 census round (N = 21)	Earlier than 1970 (N = 38)
Agriculture	0.000[a]	0.000[a]	−1.070	0.591	−0.163	0.090
Industry	−1.607	0.888	−2.554	1.411	−0.440	0.243
Professional/technical	0.308	−0.170	0.507	−0.280	−0.017	0.009
Clerical/sales	0.281	−0.155	1.249	−0.690	0.046	−0.025
Traditional services	−0.335	0.185	0.001	−0.001	−0.476	0.263
Occupation unknown	1.353	−0.748	1.868	−1.032	1.047	−0.579

[a] Because the percentage in agriculture of the total labour force is controlled, periods cannot deviate from the adjusted mean in this category.

TABLE 34. TIME TRENDS IN URBANIZATION OF OCCUPATIONS
(Percentage points)

Occupational category	*Adjusted deviation from mean in percentage of particular occupations whose members reside in urban areas*	
	Observation in 1970 census round (N = 21)	*Earlier observations (N = 38)*
Agriculture	−1.083	0.598
Industry	−1.482	0.819
Professional/technical	−1.434	0.792
Clerical/sales	−1.379	0.762
Traditional services	−0.825	0.456
Occupation unknown	−3.155	1.743

points lower (slightly more than 10 per cent of the expected value) in 1970 than they were for earlier observations. This tendency reinforces in a sense the earlier results for regions, where the less developed countries were shown to have a 5-6 percentage point deficit in urban manufacturing in relation to expectations based on the more developed countries and "normal" patterns. But these trend results do not indicate where the structures are changing. For this purpose, one would require a series of region-time interactive variables, and there are simply too few observations to make viable such an approach. Perhaps the most cautious approach is to re-examine the time-series results given in table 28. Since urban manufacturing shows almost no association with developmental level, any large changes in this proportion is unexpected. Table 28 shows that the actual declines that can be documented in the proportion of the urban labour force in manufacturing tend to occur in the more developed, rather than in the less developed countries. The notable exception is Turkey, but here a large increase in "unknown occupation" has distorted the results. Although the less developed countries typically experience a manufacturing deficit in urban areas, there is no evidence that this deficit is growing substantially. Rural and urban occupational structures tend to be very stable, and the major instability—a decline in urban manufacturing—appears to be concentrated among the more developed countries. However, one must stress that these inferences are based on a small number of observations.

One version of the over-urbanization thesis would suggest that, over time, occupations should become more highly urbanized than is warranted by the relative size of the non-agricultural population of a country. This suggestion is not supported by the data at hand. As shown in table 34, there is no tendency for occupations to be more highly urbanized in 1970 than in earlier years, apart from the normal changes associated with declines in the relative size of the agricultural labour force. In fact, there is a slight but very consistent tendency for occupations to fall short by 1 percentage point of their expected urban concentrations in 1970. As described above, manufacturing activities have lost ground in urban areas, but so have they in rural. The proportion of manufacturing workers who live in urban areas shows only a very modest decline. The over-urbanization process appears to have more validity for recent years if seen as a process of structural change involving manufacturing and service proportions rather than as an unusual change in urban proportions *per se*. Regional discrepancies in occupational/residential relations—particularly between Latin America and other less developed regions—are clearly more noteworthy than are changes over time.

VI. OCCUPATIONS OF WOMEN IN THE URBAN AND RURAL LABOUR FORCE

The degree of participation of women in economic activities has varied in both kind and amount among societies at different developmental levels. At pre-modern levels of development, both historical and contemporary, much of female work, like male, is agricultural. Relying on the fragmentary data that are available, Ester Boserup developed some generalizations about the relationship between agricultural technology and the role of women in rural economic activities.[1] Though numerous exceptions could perhaps be listed, she finds that women tend to be heavily involved in agriculture where agricultural technology involves considerable manual labour. This situation was common in Africa, where women frequently did most of the agricultural work and left rather little for the men to do. In Asia, where population densities are much higher than in Africa and where labour-intensive land preparation techniques, such as irrigation, must be applied to provide adequate food supply, the labour of both men and women is often required. On the other hand, she finds that in such areas as Northern Africa and Western South Asia, where hand-plough technology replaced manual labour in agriculture, women were rendered rather useless in agriculture and, being useless, were often held in low social esteem. Plough technology was also introduced into Latin America. Women there have responded to the lack of opportunity for females in agriculture by turning to other occupations, especially domestic service employment. Such an alternative was often culturally prohibited for Middle Eastern women.

The agriculture of the more modernized countries of Northern America and Europe relies heavily today on heavy field machinery, but rural women in those countries have more access to transportation and thereby opportunities to obtain non-farm employments such as work in canning and food processing factories. Quite recently, there has appeared to be some evidence to indicate that in Canada, the United States of America and a number of European countries, there is increasing participation of women in agriculture in relation to men. In some countries, the number of women working in agriculture is merely declining less rapidly than the number of men. In other countries, however, the number of women workers in agriculture is actually rising in the face of decreasing male participation.[2] In Japan, a new type of "housewife farming family" is becoming increasingly prevalent in which the husband finds urban employment, while the wife remains on the farm relying on hired male workers to fulfil occasional needs for heavy labour.[3] In response to a United Nations questionnaire concerned with the role of women in economic and social development which was circulated in 1967, both Japan and Yugoslavia replied that the role of women in the agricultural sector was becoming increasingly important in view of the fact that men are migrating to urban areas.[4] At a recent seminar on the subject of women, conducted by the Economic and Social Commission for Asia and the Pacific, participants stressed the need for training of women in agricultural skills and in modern methods of agriculture which would improve production and increase their income.[5] In general, recent increases in female labour force participation have been attributed to smaller families, rising wage levels and greater mechanization of household work. These factors are important also in inducing greater participation of farm women in agricultural activities.[6] Also important, however, is the greater mechanization of farm machines which renders them more easily manageable by women.[7]

While farm mechanization has only recently become a significant factor attracting rural female labour force in a few highly developed countries, early industrial

[1] Ester Boserup, *Woman's Role in Economic Development* (New York, St. Martin's Press, 1970).

[2] "Global review of human settlements" (A/CONF. 70/A/1), paper prepared for the United Nations Conference on Human Settlements, Vancouver, 31 May-11 June 1976, pp. 36-37. See also E. Boserup, *op. cit.*, pp. 80-81; Abdelmegid M. Farrag, "The occupational structure of the labour force: patterns and trends in selected countries", *Population Studies*, vol. XVIII, No. 1 (July 1964), pp. 17-34; and M. T. de la Rivière, *La formation des femmes rurales malgaches* (Paris, Bureau pour le développement de la production agricole, 1962), processed.

[3] Because of the rapidly rising prices of land in Japan it is often practical for the wife to remain on the land and farm it so that it can be sold later at a higher price or, alternatively, used as a retirement residence. "Global review of human settlements", p. 36. See also Takashi Koyama, *The Changing Social Position of Women in Japan* (Paris, UNESCO, 1961), pp. 81-82 and 89.

[4] *Participation of Women in the Economic and Social Development of Their Countries* (United Nations publication, Sales No. E.70.IV.4), p. 11.

[5] "Report of the United Nations Regional Seminar on the Participation of Women in Political, Economic and Social Development with Special Emphasis on Machinery to Accelerate the Integration of Women in Development", Kathmandu, Nepal, 15-22 February 1977 (SR/ESA/SER.B/10), p. 9.

[6] Joann S. Lublin, "The rural wife", *Wall Street Journal*, 2 June 1975.

[7] In the United States of America, for example, tractors are being made more comfortable for women and easier to operate with such options available as power-assisted clutches and air-conditioned, carpeted cabs. J. S. Lublin, *loc. cit.* Also, more women in the United States are seeking an agricultural education. Gene I. Maeroff, "Agriculture schools are gaining; women and urban youth enroll", *The New York Times*, 21 November 1976. Similar trends are being promoted in the Union of Soviet Socialist Republics. In the late 1960s, the USSR Council of Ministers adopted a resolution entitled "O bolee shirokom privlechenii zhenshchiv k uchastiyu v kvalifitsirovannom trude v sel'skom khozyaistve" (On the wider enlistment of women in participation in skilled labour in agriculture). One fundamentally new element in this resolution was that the ministries engaged in farm machinery manufacture were charged, beginning in 1970, to produce tractors with seating assemblies, cabs and levers adjustable to the height and weight of women as well as other features such as enclosed driver's cabs and shock absorbers and mufflers for reducing vibration and noise in the driver's seat. Training programmes are also being organized to train women to operate farm machinery. See complete text of the resolution in *Pravda* and *Izvestia* of 6 February 1969; and also M. Sonin, "Mesto prekrasnoi poloviny", *Literaturnaya Gazeta*, No. 16, (16 April 1969); and S. Isyev, "Komu upravlyat' traktorom", *Pravda*, 19 August 1971.

mechanization in Europe, according to Marx,[8] was immediately responsible for increased employment of women and even children in urban factories, since it reduced the amount of muscular power required for production. There was also a training factor. Craft skills often had to be learned through apprenticeship, which was unavailable to women. When these occupations were mechanized into factory work, the skills required were simple enough to be learned quickly without apprenticeship and thus became available to women, except where male-dominated unions conspired to keep them out.[9]

It is difficult to assess the net impact of mechanized technology on the economic activities of women since women also produced textile products at home with hand technology for sale in the market, both before and after the introduction of mechanized technology. The process by which women transfer from household work to paid employment[10] is not basically different from that which has previously transferred most men from subsistence household economy to paid employment outside the household. Those households in which the husband alone obtains income outside the household are in this sense partially subsistence households.[11] In the mid-nineteenth century, when Marx wrote, the market system was not as yet able to organize a significant portion of women's household work, and thus he was perhaps correct in his attitude that the additional employment of wives in factories was a type of enslavement.[12]

In general, the concept of economic activity remains more ambiguous for females than for males because of the important and multifaceted role women continue to play in household production. Women in less developed countries, especially in Africa, often function as sellers in traditional market-places, and as such they receive a cash payment for produce sold; however, the individual stalls of traditional markets are managed by family members and much of the produce sold is produced within the household economy. Similarly, women in Latin America often find paid employment as domestics in urban areas. This, again, is a form of household organization of labour, albeit not the household of the domestic servant herself, and as such this type of employment may be more appropriately included in the traditional category of household activity.[13]

As married women are increasingly entering the non-household labour force on a career basis, many activities, such as child care and care of the sick and the elderly, are being organized in non-household institutions. Thus, they are paid for in cash and become "economic" activities. In the more developed countries, a myriad of power appliances are provided by industry for sale to the household in order to replace partially the work of women. Clothing is infrequently manufactured within the household, except as a hobby. Food production is for some becoming more of a hobby rather than a time-consuming necessity, as food-processing work has been increasingly absorbed by industrial and commercial establishments. Household services are now available commercially, such as laundry and child care and institutional care of the elderly.[14] Today in the less developed countries, the

[8] Karl Marx, *Capital*, vol. I, part IV, section 3, "The proximate effects of machinery on the workman". See also Dorothy Atkinson, "Marx and the vanishing housewife", *Wall Street Journal*, 25 June 1976; and Ross Davies, *Women and Work* (London, Hutchinson, 1975), chap. 3, "The industrial revolution".

[9] Paula M. Hudis, Amy L. Miller and David Snyder, "Changes in the structure of work and the sexual composition of occupations: 1870-1900", paper prepared for presentation at the 73rd Annual Meeting of the American Sociological Association, San Francisco, 4-8 September 1978, pp. 21-25.

[10] The transfer of women to non-household work has perhaps gone furthest in the Union of Soviet Socialist Republics, where about 90 per cent of women are employed in the national economy or are studying without holding a job. V. Nikolayeva-Tereshkova, "Zhenskii vopros v sovremennoe obshchestvennoi zhizni".

[11] In Peter A. Morrison and Judith P. Wheeler, *Working Women and "Woman's Work": A Demographic Perspective on the Breakdown of Sex Roles*, Rand paper series P-5669 (Santa Monica, California, the Rand Corporation, 1976), pp. 4-5, housework is described as the "last great cottage industry".

[12] K. Marx, *op. cit.* A study of the female labour force during the industrial revolution concludes, on the basis of available statistical evidence, that the fears prevalent at the time of the disastrous consequences of the factory system on the home life of the working classes rested on an exaggerated idea of the extent of the labour force participation of married women. The statistical evidence that was available suggests that few married women were employed at the time. Ivy Pinchbeck, *Women Workers and the Industrial Revolution, 1750-1850* (London, George Routledge, 1930), pp. 197-199.

There was additionally, of course, the fact that the female contemporaries of Marx bore more children than do modern women in the European countries which Marx was describing and were thus even more burdened by family responsibilities than modern women. The issue of family size *versus* employment of women is complex. On the one hand, the presence of children obviously imposes an extra work burden on wives which often discourages them from seeking work outside the household. On the other hand, the presence of children, particularly adolescent children, can sometimes create a need for extra cash income to educate them which can push a married woman into the labour force. There is also the consideration, often expressed, that it may be the very presence of job opportunities for women which motivates them to limit their family size, rather than the scarcity of children which motivates them to seek jobs. In the United States of America, for example, the labour force participation rates of mothers have risen steadily in recent years, apparently as a result of increased employment opportunities. United States Department of Labor, Employment Standards Administration, Women's Bureau; and Japanese Ministry of Labor, Women's and Minors' Bureau, *The Role and Status of Women Workers in the United States and Japan* (Washington, D.C., Government Printing Office, 1976), p. 3.

[13] Women often participate in remunerative labour within the household, such as farming or taking in boarders or sewing. In a recent study of women in the United States of America, it was estimated that the percentage of women engaged in remunerative labour has not changed since 1930, merely the location of women's labour. What is new about women's gainful work in the United States is that much of it is now located outside the household. Another concomitant change is the increasing tendency of women to work full time in remunerative employment as there are fewer opportunities for part-time labour outside the household. Joann Vanek, "Variations in a sixty hour week", *Ekistics*, vol. 40, No. 236 (July 1975), p. 38.

[14] A certain countertrend must be admitted here. It often happens that a certain amount of labour is pushed back by industry into the household. Increasingly, furniture, toys and other items require final assembly in the home. Sometimes "do-it-yourself" kits are sold in which pre-made parts are offered for sale and the entire operation or assembly and finishing is performed by the household. Consumers in modern stores often provide much of the labour of retailing themselves in the form of "self-service". The increasing availability of household machinery may also call forth certain house and garden production which could not otherwise have been contemplated. This and other interesting considerations concerning the relative efficiencies of household production as opposed to non-household production are discussed by Scott Burns in *Home Inc.* (Garden City, New York, Doubleday, 1975). An interesting discussion of the impact of electric and safety razors on the barber-shop industry is contained in Victor R. Fuchs and Jean Alexander Wilburn, *Productivity Differences Within the Service Sector*, National Bureau of Economic Research, Occasional Paper No. 102 (New York, Columbia University Press, 1967), p. 75. Prior to this technological innovation, men spent considerable time and money in barber shops getting shaves, trims and shampoos. When the new

availability of commercial nursing formulas is frequently an important factor which permits mothers to be employed outside the household.[15] Although there is increased demand for certain industrial products, such as household appliances, as a result of increased female labour force participation, probably the greatest additional need is for increased service labour force.[16] And it is often the working women, themselves, who are employed in the service industries.[17] In this sense, the process of increase in female labour force participation feeds on itself in important ways.

A simple calculation of the increment in income paid to women probably overstates the welfare gains from their increased labour force participation. Clearly, some of the income gain simply reflects monetization of tasks that were formerly performed within the household economy. Women who work outside the home probably work longer hours and with greater intensity and less autonomy than they would at home, and there is the additional physical and financial burden of commuting to work. Some of the effort that is expended in the non-household economy is consumed in the costs of distribution (advertising, delivery, wholesaling and retailing), which are bypassed in subsistence household production. Furthermore, there is a sacrifice either of leisure time or of the quality of accomplishment of household tasks.[18] At least some of the household labour is typically passed to other members of the household. Children are often left for long hours to care for themselves and husbands frequently have to assume responsibility for some of the household tasks.[19] Additionally, the costs of the household machines which perform some of the household work automatically could be charged against the profits of women's paid employment, though some of these machines are wanted for their own sake and would often be purchased anyway.

To summarize, the increasing participation of women in paid, non-household employment can be seen as part of the basic process by which mechanization transforms the economy from subsistence household economy to non-household economy. Implicit in this process is the monetization of activities formerly performed within the household and the consequent redefinition of such activities as "economic" or "productive".

A. Female labour force participation and economic development

As noted, some studies have indicated that a positive relationship exists between level of development and non-agricutural labour force participation rates of women.[20] However, other evidence is suggestive of a more complex relationship, namely, one that is U-shaped.[21] Sinha suggests that the U-shaped pattern might be the result of a longitudinal process in which previous employment opportunities in traditional occupations at the lowest levels of development are lost at the middle stages of development as a result of contraction in agriculture and traditional occupations and industries, while at the same time women are at a disadvantage in competition with men for jobs in the modern sector under conditions of unemployment and underemployment that commonly plague countries in transition. A rising level of family income relaxes pressure upon women to be employed as supplementary

razors came into widespread use, much of this work was transferred back to the household. Similarly, the advent of wash-and-wear fabrics has facilitated the cleaning of clothing within the household and thereby reduced the need for the services of laundry and dry-cleaning establishments.

[15] Similarly, the availability of sterilized milk and infant-feeding apparatus made of non-rubber tubes was apparently an essential requirement in the employment of married women in factories in the industrialized countries of the late nineteenth century. See Adna Ferrin Weber, *The Growth of Cities in the Nineteenth Century* (Ithaca, New York, Cornell University Press, 1963), p. 361. (Originally published in 1899.)

[16] The problem of providing increased services for working women is often discussed in the Union of Soviet Socialist Republics. See for example, V. Guseinov and V. Korchagin, "Voprocy trudovykh resursov", *Voprosu ekonomiki*, No. 2 (February 1971); R. Galetskaya, "Demograficheskaya situatsia v stranakh-chlenakh SEV", *Voprosu ekonomiki*, No. 4 (April 1974); and T. Vecheslova, "O nac, zhenshchinakh" *Pravda*, 24 February 1969. Recent developments in household services for working women in China are described in Claudie Broyelle, *Women's Liberation in China* (Atlantic Highlands, New Jersey, Humanities Press Inc., 1977), Part Two entitled "Socializing housework". Even where considerable services and household appliances are available, however, the strain of combining a full-time job with housework is nevertheless considerable. In the United States of America, for example, it is estimated that the combined workload of job and housework is roughly 60 hours a week for employed women. J. Vanek, *loc. cit.*

[17] In the United States of America, for example, which was the first country to become a "service economy" during the decade of the 1960s, in the sense that more than half of its employed population is not engaged in production of tangible goods, women held almost half of all jobs in the service sector compared with only one fifth in the industrial sector. Victor R. Fuchs, *The Service Economy*, National Bureau of Economic Research, General Series, No. 87 (New York, Columbia University Press, 1968), pp. 1-2, 10 and 184.

[18] A comparative study of time budget data in 12 countries, including both socialist and market economies, revealed that although working women participate extensively in the formal, paid work force, their responsibilities at home remain sharply defined by their sex role. Whereas women were responsible for 32 per cent of all time registered in formal work over all the study sites, they contributed 78 per cent of the total time taken up by housework and related family obligations. Alexander Szalai, ed., *The Use of Time* (The Hague, Mouton, 1972) as described in *Concerned Demography*, Special Issue on Women, vol. 4, No. 1 (Spring 1974).

[19] Sociological studies in the Union of Soviet Socialist Republics have reportedly shown that the higher the education a woman has, the easier it is for her to shift part of her housekeeping concerns to the other members of the family. M. Pavlova, "Zhenshchina doma i na robote", *Literaturnaya gazeta*, No. 22 (27 May 1970). Similarly, current articles about younger couples in the United States of America reportedly suggest that the college-educated husbands tend to be less rigid about traditional sex roles in performing household activities. United States Department of Labor and Japanese Ministry of Labor, *op. cit.*, p. 34. A recent study within the United States, however, indicated that husbands of employed women spent no more time in housework than husbands of non-employed women; study described in J. Vanek, *loc. cit.*, p. 39.

[20] See, for example, studies and evidence described in Nadia Youssef, *Women and Work in Developing Societies* (Berkeley, California, University of California, Institute of International Studies, 1974) pp. 9-10.

[21] J. N. Sinha, "Dynamics of female participation in economic activity in a developing economy", summarized in *Proceedings of the World Population Conference, Belgrade, 30 August-10 September 1965*, vol. IV, *Selected Papers and Summaries: Migration, Urbanization, Economic Development* (United Nations publication, Sales No. 66.XIII.8), pp. 336-337. Discussion in the present publication refers to Sinha's article as described in John D. Durand, *The Labour Force in Economic Development: A Comparison of International Census Data, 1946-1966* (Princeton, New Jersey, Princeton University Press, 1975), pp. 131-132. The U-shaped pattern was found also in the International Labour Organisation (ILO) study of the cross-section of female activity rates recorded in various countries as of 1960 and was taken as a basis for ILO labour force projections for the period 1965-1985. See International Labour Office, *Labour Force Projections 1965-1985, part VI, Methodological Supplement*, 1st ed., 1971 (Geneva, 1973).

earners. Thus, the less developed countries might be high or low in female labour force participation, depending upon their stage of development. The trend of diminishing opportunity is reversed at later stages of development, when larger growth of labour demand in the modern industries and occupations outweighs the contraction in traditional fields of employment. One might add that the participation level of females would perhaps not reach the peak pre-industrialization level because of factors similar to those which have reduced male participation at higher levels of development: namely, more extended periods of education and earlier retirement. On the other hand, however, unprecedentedly low fertility levels in the more developed countries may eventually permit unprecedentedly high levels of female economic activity outside the household. A comprehensive investigation of labour force trends conducted by Durand[22] indicates that the U-pattern of female participation exists not only in the total population but in both urban and rural sectors and also in the agricultural and non-agricultural sectors.

Longitudinally, there exists some support for a U-shaped hypothesis in the European experience. In pre-industrial England, women were heavily engaged in subsistence agriculture and clothing manufacture for own use. The output from the household activities carried out by women and their children was said to have been equivalent to the amount of output necessary for their own subsistence and that of the children. The wages paid to husbands were not sufficient to purchase what would have been needed for the maintenance of the entire family in the absence of the household production.[23] The rise of mechanized production was necessarily accompanied by increased urbanization. Wives who moved to cities with their employed husbands were thereby cut off from most of their previous opportunities for productive employment in rural areas as there was no land for subsistence farming and many aspects of clothing manufacture were accomplished outside the household. Moreover, the high level of fertility at the earlier stages of industrialization did not permit the employment of most women outside the household. Urban women were thus cut off during this period from opportunity for productive activity. Eventually, however, job opportunities opened up for women in the cities; and increasing numbers of women, particularly married women, currently obtain non-household employment.

The women who remained in the countryside were likewise cut off from work opportunities by the advent of urbanization and by the rise of commercial agriculture.[24] Whereas women had previously been heavily involved in subsistence agriculture, which was performed at the site of the household and involved considerable hand work, women were never very much absorbed in the work of commercial agriculture.[25] As discussed earlier, it is only very recently that there have been any indications of increasing involvement of women in commercial agriculture.

The longitudinal U described so far is based on cross-sectional averages of countries at varying levels of economic development combined with longitudinal evidence from some selected countries. Cross-sectional studies, however, have revealed another interesting finding, namely, that the variation among countries with respect to female participation rates is very high at low levels of development and decreases at higher levels.[26] Countries at low levels of development may be either very low or very high in female participation, whereas countries at a high level tend to converge around a narrower range of levels. The U pattern is merely an average pattern. Those countries which begin the development process with high levels of female labour force participation may indeed experience a U pattern over time. However, those countries which begin the development process with low levels of female participation may experience something like a steady upward trend in female participation. A longitudinal tendency towards greater uniformity at recent dates than at earlier dates was found in a study of the experience of 15 currently developed countries during the first half of the twentieth century.[27]

It is argued convincingly, on the basis of a comparative study of Arab countries in Northern Africa and Western South Asia *versus* countries in Latin America, that cultural factors can be important determinants of the level of female labour force participation.[28] Although these two less developed areas stand at similar levels of economic development, the levels of non-agricultural female labour force participation are remarkably different, being very low in the Arab countries of Northern Africa and Western South Asia, and very high in Latin America.[29] The non-agricultural female activity rate in the least developed country in the Latin American group (Honduras) was six times as high as the female activity rate of the most developed country in the group of Arab countries (Iraq). Such a finding is consistent with the Durand finding described above, which was based on a study of many areas of the world that at lower levels of development female participation rates in the non-agricultural labour force may be either quite high or quite low.

Consideration was given in the Youssef study to the possibility that the nature of industrial and occupational opportunities available in the Arab countries of Northern Africa and Western South Asia might be less favourable to women than that in Latin America. It was observed that economies which specialize in light industries, such as textiles, tobacco, food and beverages, tend to more readily accommodate women workers. In

[22] J. D. Durand, *op. cit.*, p. 132.

[23] Ivy Pinchbeck, *op. cit.* A similar situation may exist in contemporary Africa and Asia, where women's subsistence type of production is said to lower the male wage rate to something less than a full "family wage". Carmen Diana Deere, "Rural women's subsistence production in the capitalist periphery," *The Review of Radical Political Economics*, special issue on women and the economy, vol. 8, No. 1 (Spring 1976), pp. 10-12.

[24] Ivy Pinchbeck, *op. cit.*

[25] Women are similarly losing some of their role in subsistence agriculture as a result of modernization in contemporary Africa. Women's Programme Unit, Human Resources Development Division, United Nations Economic Commission for Africa, "Africa's food producers: the impact of change on rural women," *Ekistics*, vol. 40, No. 236 (July 1975), pp. 46-51.

[26] J. D. Durand, *op. cit.*, pp. 138-142 and 152-154. The same finding was earlier demonstrated by Nadia Youssef, "Social structure and the female labor force: the case of women workers in Muslim Middle Eastern countries", *Demography*, vol. 8, No. 4 (November 1971), pp. 428-430.

[27] C. E. V. Leser, "Trends in women's work participation", *Population Studies*, vol. XII, No. 2 (November 1958), p. 101.

[28] N. Youssef, *Women and Work in Developing Societies.*

[29] The measure of economic development was the activity rate of males in non-agricultural pursuits. Countries with high rates were considered to be more developed than those with lower rates.

heavy industries, however, women are more frequently excluded. On the basis of comparative investigation of the industrial and occupational structure of the countries in the two regions, however, it was concluded that there is considerable uniformity between the two areas in this respect, thus eliminating the possibility that variations in labour market demands are at the root of the female differential in female employment rates.

In the major areas of non-agricultural labour force participation (factory work, trade and services, the professions other than nursing or teaching, and clerical), the participation of women is very limited in the Arab countries of Northern Africa and Western South Asia, whereas in Latin America these areas offer substantial opportunities for female employment.[30] A decisive factor in those countries is the relative absence of women from employment in domestic service which has elsewhere been a major source of female employment at early stages of development.[31] The relative absence of those women from factory work is perhaps attributable to the fact that they have not even been associated with the traditional handicrafts, such as spinning and weaving, which have elsewhere been performed by women.[32]

Youssef is led ultimately to the opinion that the differences between the Middle East and Latin America with regard to female non-agricultural labour force participation are related to differences in cultural definitions of what type of work is deemed appropriate for women. Long-standing patterns of female seclusion in the Arab countries, combined with a tradition of family security for women, even in cases of divorce or widowhood, have been instrumental in implementing a cultural tradition in which most work situations are defined as unsuited for women.

In conclusion, it appears that at low levels of economic development a diversity of culture and technology may result in either high or low levels of economic activity on the part of women, whereas countries at high levels of economic development derive their wealth from a single technology which perhaps brings with it a more homogenous set of cultural and economic alternatives with regard to women.[33]

[30] N. Youssef, *Women and Work in Developing Societies.*

[31] In the United States, for example, nearly half of all women working in 1900 were domestic servants or farmhands. E. J. Kahn, Jr., *The American People* (New York, Weybright and Talley, 1973), p. 148. In many cities of Latin America and the Caribbean, from one third to one half of working women are employed in domestic service. Andrew Collver and Eleanor Langlois, "The female labor force in metropolitan areas: an international comparison", *Economic Development and Cultural Change*, vol. 10, No. 4 (July 1962), p. 367.

[32] N. Youssef, *Women and Work in Developing Societies.*

[33] Two recent international bibliographic sources containing references to publications concerning women in the labour force have been compiled: Mayra Buvinic, *Women and World Development: An Annotated Bibliography* (Washington, D.C., Overseas Development Council, 1976); and May Rihani and Jody Joy, *Development as if Women Matter: A Third-World Focus: An Annotated Bibliography* (Washington, D.C., Secretariat for Women in Development of the New Trans-Century Foundation, 1978). In 1977, the International Labour Organisation began publication of a journal entitled *Women At Work*. Each issue contains an extensive list of relevant publications. The ILO has recently published an extensive collection of articles concerning labour force participation in many countries. Many of these articles are concerned specifically with female labour force participation. See Guy Standing and Glen Sheehan, eds., *Labour Force Participation in Low-Income Countries* (Geneva, International Labour Office, 1978). Both economic and family roles of women in individual developing countries are described in the substantial collection of articles prepared for a conference on women and development held in June 1976 and published in *Women and National Development: The Complexities of Change* (Chicago, University of Chicago Press, 1977).

B. Feminization of occupations in relation to developmental level

Previous discussion of women in the labour force has most often been in terms of over-all participation rates rather than occupational distribution. In the past, women's occupations were deeply rooted in long-standing traditions, and thus everyone knew which occupations were "women's work". It was often work requiring skills similar to those of the housewife. Domestic service, char-woman, maid, waitress, child care (including teaching) and nursing are examples. Today, however, increasing labour force participation of women in many places has brought with it changes in the occupational structure of women's work. The purpose of this section is to explore contemporary trends in women's employment and to identify the economic sectors that are the locus of women's work in both the more developed and the less developed countries.

The organization of data and tables in this chapter parallels that of the previous chapter on occupational structure of the total labour force. As before, the focus is on occupational comparisons between urban and rural areas—this time for women only—at varying levels of economic development, defined as the percentage of total labour force (male and female, urban and rural) in agriculture. The classification of levels of development is the same as before, i.e., five levels of development ranging from the lowest at 65 per cent or more of the labour force in agriculture to the highest at 15 per cent or less of the labour force in agriculture. The percentage of female workers in each occupational category is shown for urban and rural areas of each country individually in annex III (table 53).

One important definitional dilemma arises in the study of female labour force that is not as important in the case of male labour force. This is the problem of distinguishing between housework and economic activity. Males are generally identified with an occupation and even when they are not actually engaged in one, they can usually be classified by their usual occupation. On the contrary, women not engaged in an occupation are often considered to be fully engaged in housework. Housework is generally considered to be a non-economic activity because the output from housework does not enter the market-place, even though housework contributes greatly to the family sustenance and comfort in very material ways. Such a standard has generally not been applied to males who engage in subsistence farming for own use, which has usually been considered an economic activity. The difficulty of distinguishing between females engaged in housework and those engaged in economic activity is especially great in the case of agriculture, because this activity is often performed in the vicinity of the household and farm chores can be easily combined in various ways with housework chores. In some places, kitchen gardens provide an important part of the family food supply. It is difficult to say, however, whether this type of food production should be considered a type of farming or merely an aspect of daily food preparation within the household. Each country has its own conventions with regard to the definition of females in the agricultural labour force and there is less

TABLE 35. AVERAGE PERCENTAGE OF SPECIFIED OCCUPATIONS IN URBAN AND RURAL AREAS OCCUPIED BY FEMALES AMONG COUNTRIES CLASSIFIED BY LEVEL OF DEVELOPMENT

Percentage of total labour force in agriculture	*Agriculture*	*Industry*	*Professional and administrative services*	*Clerical and sales services*	*Traditional services*	*Unknown*
Total						
65.0 or more	44.9	16.5	17.0	19.6	31.5	33.7
50.0-64.9	24.0	18.6	28.8	23.4	42.9	26.2
35.0-49.9	13.4	13.5	30.9	21.4	47.4	17.3
15.0-34.9	26.0	19.8	34.3	37.4	60.4	17.1
15.0 or less	10.2	15.0	33.9	54.3	58.0	28.8
Urban						
65.0 or more	30.6	12.2	18.9	19.6	32.6	31.2
50.0-64.9	16.1	15.6	30.7	25.1	46.7	23.5
35.0-49.9	10.1	12.8	32.2	23.1	50.2	17.2
15.0-34.9	20.2	20.0	33.6	38.3	60.2	17.0
15.0 or less	9.3	15.8	33.3	54.8	56.6	28.6
Rural						
65.0 or more	45.3	20.4	15.1	18.7	28.5	33.1
50.0-64.9	24.2	20.5	26.3	18.6	37.4	27.5
35.0-49.9	13.9	15.6	27.9	15.7	41.1	18.6
15.0-34.9	26.4	19.9	36.6	32.5	62.6	17.3
15.0 or less	10.5	12.6	38.0	51.5	63.1	29.9

comparability from one country to another than in other aspects of labour force classification.

Table 35 shows the average percentage of jobs in each occupational category which are held by females in rural and urban areas for countries classified by development level. At the lowest level of development, almost half of agricultural jobs in the rural areas are held by females, and females hold almost a third of urban agricultural jobs. At all levels of development, the female share of agricultural employment is somewhat higher in rural areas than in urban areas, perhaps due to the fact that spatial isolation in rural areas may prevent some females from combining non-household employment with family obligations. The urban/rural differences in this regard are largest in countries at the lower levels of development, where rural isolation is more problematical, than in the more developed countries, where rural isolation has been largely overcome by motor-car transport. In both urban and rural areas, the share of females in agriculture declines at progressively higher levels of development, until at the highest level of development the female share averages roughly 10 per cent in both the urban and the rural agricultural labour force. In an important sense, this finding contradicts a prevailing impression, illustrated above, that development and increased mechanization bring with them an increasing role for women in agriculture.

Although the share of females in industry of the rural areas is irregularly related to development level, it can at least be said that the share of females in the most developed category is considerably less than in the other categories, perhaps reflecting the disappearance of rural home handicraft industries, which were often the job of women, in the more developed countries. Thus, not surprisingly, at low levels of development the female share in industry is higher in the rural areas than in urban areas, while the reverse is true at the higher levels. There is no discernible trend in female share of urban industry by level of development. One might presume that female participation in industrial activities outside the household is more a matter of custom and cultural practice within the various regions than of degree of modernization. Evidently, the relatively static role of manufacturing in developmental changes in the urban labour force that was documented in chapter V extends to females and males alike.

In contrast to industry and agriculture, persistent increases are registered at successively higher levels of development in the female share of each of the tertiary categories in both urban and rural areas. Since the output of these jobs is usually non-material, they do not require an extraordinary amount of physical strength. As the pattern of development is similar in tertiary activities of the urban and rural areas, only the average pattern for both areas combined is discussed here. The most feminine of the tertiary categories is the category of traditional services. Even at the lowest level of development, this category is almost one third female. At the higher levels of development, the female share exceeds one half. Included in this category are many domestic servants, waitresses, and hotel maids who utilize fundamentally housekeeping skills in their work. Although domestic service was once an important source of female employment in the developed countries, it is now rapidly vanishing. However, females remain important in serving and housekeeping duties in non-household institutions. Domestic service can be an important source of female employment in areas where non-household employment of females is not as yet well organized. It is currently an important avenue of mobility in Latin America, where rural girls are often taken into urban households as paid servants.

The second most feminine of the tertiary employment categories is the clerical and sales category. At the lowest level of development the share of females in these employments is a distinct minority; the female share averages only 20 per cent. However, at the highest level of development, the females become a majority in these employments (54 per cent). In the professional and administrative category, the female share at the lowest level is only 17 per cent. Although the female share does not achieve a majority in this category as it does in the other tertiary categories at high levels of development, still the female share of one third in the highest development category is double the female share at the lowest level of development. It is noteworthy, however, that

TABLE 36. PERCENTAGE FEMALE OF OCCUPATIONS IN URBAN AREAS, COUNTRIES WITH AT LEAST TWO OBSERVATIONS

Country	Date	Agriculture	Industry	Professional and administrative services	Clerical and sales services	Traditional services	Unknown
Less agricultural countries[a]							
Canada	1961	4.9	12.6	26.7	53.0	49.7	26.5
	1971	10.2	12.6	38.6	54.5	44.8	38.2
Japan	1960	33.2	23.9	24.2	38.5	65.1	3.7
	1965	37.3	25.1	24.3	43.6	62.5	5.0
	1970	39.9	25.4	23.4	45.8	59.7	5.0
Puerto Rico	1960	2.2	21.1	35.5	36.5	56.1	45.6
	1970	3.4	22.5	35.5	47.2	38.0	55.0
Sweden	1960	9.4	14.5	33.3	57.4	72.3	4.5
	1970	12.6	16.0	38.9	62.3	71.3	10.0
United Kingdom England and Wales	1951	8.6	22.5	31.3	48.7	69.2	22.6
	1961	9.3	19.7	30.3	53.0	66.1	37.2
United States of America	1940	6.6	15.7	31.8	37.0	56.4	36.2
	1950	11.1	16.6	26.8	49.1	55.1	37.5
	1960	7.8	14.8	31.6	51.1	59.7	38.2
	1970	17.5	17.7	31.4	63.7	53.7	33.3
More agricultural countries[b]							
Costa Rica	1963	2.8	14.0	48.1	25.7	72.8	11.7
	1973	2.2	12.6	41.8	30.6	68.4	16.2
Ecuador	1962	4.8	15.8	44.2	25.6	68.3	13.5
	1974	3.4	11.9	38.7	32.6	68.1	16.3
Greece	1961	25.2	19.0	28.8	20.7	45.3	38.2
	1971	23.1	15.2	32.0	28.5	41.3	11.4
Morocco	1960	4.1	15.4	21.5	11.6	32.0	3.5
	1971	10.8	15.9	20.2	14.1	39.7	23.2
Nicaragua	1963	3.5	19.3	48.6	44.4	82.8	22.9
	1971	3.4	16.3	37.2	47.3	80.1	31.8
Peru	1961	11.2	13.5	35.1	30.4	59.9	14.3
	1972	7.3	10.6	32.5	32.8	57.0	27.6
Romania	1956	51.8	19.6	32.8	39.9	55.5	54.7
	1966	59.7	22.5	41.9	53.3	61.2	43.2
Sri Lanka	1953	14.1	7.1	22.0	6.7	24.2	39.2
	1970	9.7	13.5	27.5	12.6	34.7	0.0
Thailand	1954	44.9	21.6	30.2	36.8	45.2	1.5
	1970	41.8	27.4	29.7	47.3	56.0	35.3
Turkey	1950	29.6	8.6	11.1	9.0	12.6	45.4
	1960	7.6	6.9	16.3	1.3	10.1	0.0
	1970	17.6	12.9	22.2	12.9	9.4	4.6

[a] Less than 35 per cent of labour force in agriculture.
[b] More than 35 per cent of labour force in agriculture.

much of this increase is achieved between the lowest and the next lowest level of development. Increases in feminization at higher levels of development are modest. Two professions in the professional category—teaching and nursing—are probably important sources of female employment at all levels of development, since the care of the young and the ill involve some degree of traditional female household skills. At higher levels of development, however, both of these professions rely increasingly on technical skill learned in formal institutions outside the household. In the more developed countries, moreover, the selection of technical professions open to women is increasing rapidly.

C. TRENDS IN FEMINIZATION OF OCCUPATIONS

As before, a comparison is made between the pooled data (table 35) and the time-trend data for individual countries (tables 36 and 37). Table 35 shows that the average percentage participation of females in agriculture tends to decline, in both urban and rural areas, though irregularly, as level of development increases. In-

TABLE 37. PERCENTAGE FEMALE OF OCCUPATIONS IN RURAL AREAS, COUNTRIES WITH AT LEAST TWO OBSERVATIONS

Country	Date	Agriculture	Industry	Professional and administrative services	Clerical and sales services	Traditional services	Unknown
Less agricultural countries[a]							
Canada	1961	10.5	6.8	36.3	51.0	50.0	24.4
	1971	19.6	8.3	49.1	52.3	53.1	35.8
Japan	1960	52.3	27.1	27.2	40.8	62.4	2.8
	1965	52.1	27.5	27.6	44.1	62.6	3.3
	1970	53.7	29.2	27.7	47.4	61.7	1.9
Puerto Rico	1960	1.7	21.3	32.5	20.8	53.5	51.0
	1970	2.1	22.9	37.1	34.8	37.7	60.5
Sweden	1960	8.3	9.8	33.2	54.2	79.7	4.7
	1970	21.5	9.9	47.9	57.2	76.8	6.0
United Kingdom							
England and Wales	1951	9.1	15.6	34.4	46.5	70.4	21.0
	1961	9.4	14.1	31.2	50.9	68.3	34.8
United States of	1940	5.7	9.3	36.9	28.3	62.9	34.1
America	1950	8.3	11.3	30.9	43.7	64.8	39.0
	1960	8.6	13.8	35.9	49.2	70.5	35.1
	1970	8.2	18.8	32.7	64.5	62.2	52.9
More agricultural countries[b]							
Costa Rica	1963	1.6	12.8	44.0	13.1	62.9	5.0
	1973	1.5	10.5	38.8	18.0	57.5	12.5
Ecuador	1962	7.8	35.0	43.1	18.4	68.8	6.9
	1974	4.6	21.5	35.2	19.2	56.2	11.2
Greece	1961	40.9	20.5	28.7	12.0	25.4	42.4
	1971	37.3	13.2	30.3	17.7	26.6	20.8
Morocco	1960	7.7	19.1	2.3	2.6	32.3	3.1
	1971	11.2	14.9	2.9	2.2	33.2	15.5
Nicaragua	1963	4.3	23.9	55.3	55.9	89.5	55.3
	1971	3.2	13.8	40.9	34.5	70.3	31.9
Peru	1961	14.5	30.3	36.3	25.9	60.4	15.6
	1972	9.0	29.3	23.3	27.9	51.7	24.9
Romania	1956	54.3	9.7	29.8	19.6	34.1	35.7
	1966	58.5	6.9	41.5	25.0	31.5	41.6
Sri Lanka	1953	28.0	25.7	25.1	11.1	22.0	50.3
	1970	27.3	19.1	28.7	7.7	27.8	0.0
Thailand	1954	51.3	28.4	17.6	48.1	44.1	0.1
	1970	49.8	30.7	26.1	56.7	38.2	40.1
Turkey	1950	50.9	20.7	5.2	5.9	8.2	44.8
	1960	51.8	15.7	6.8	1.5	3.5	0.0
	1970	52.5	31.7	23.3	4.8	6.0	12.3

[a] Less than 35 per cent of labour force in agriculture.
[b] More than 35 per cent of labour force in agriculture.

spection of individual countries in tables 36 and 37, however, reveals that declining feminization in agriculture occurs predominantly in the less developed countries. All six of the more developed countries listed registered increases in agricultural feminization over time in both urban and rural areas. These divergent patterns in female share of agricultural employment between the more developed and the less developed countries are perhaps related to the factor of physical strength. Non-mechanized agriculture typically requires a lot of hand digging and picking, which is time-consuming but often does not require great physical strength for many of the tasks involved. Early mechanization of agriculture often involves the use of fairly crude machinery which is difficult for females to operate and this may be a factor in their declining participation in the agricultural sector of the less developed countries. As discussed previously, however, the field technology in the more developed countries which was once very difficult for females to manage has now been improved and automated to the point where females are more able to operate the necessary machinery.

Aside from the fact that the female share in industry was low in the rural areas of the highest category of development, no particular feminization tendency was observed in the pooled-data analysis in manufacturing (i.e. industry) in either urban or rural areas. The time-trend data given in tables 36 and 37 are likewise inconclusive, except that in the rural areas of the less developed countries the feminization trend in industry is mostly downward, probably reflecting reductions in rural home handicraft industries. The female share in industry increased in urban and rural areas of several of the more developed countries, but such increases, where they occurred at all, were mostly small ones. In recent years, women in certain developed countries have increasingly sought out blue-collar jobs in industry, but tradition in most areas of the world assigns these jobs to men.[34] This derives in part from the fact that some blue-collar jobs require considerable physical strength. However, those requirements are easing a bit. Many blue-collar jobs in capital-intensive industry require only occasional acts of unusual strength and it has been observed that among men it is not uncommon for younger and stronger men to perform occasional chores that require extra muscle to ease the burden on elderly or less muscular men.[35] An additional factor limiting female employment in manufacturing has been legislation designed to protect women against presumed physical or safety hazards.[36]

In the pooled-data analysis it was observed that, among the three categories of services, the traditional services are the most feminine and exhibit a pronounced tendency to absorb a greatly expanded percentage of females at higher levels of development. This apparent trend is not at all born out by the time trends. Traditional services became somewhat less feminine over time in urban areas of all of the more developed countries and in most of the rural areas as well. This is perhaps mainly due to declines in the domestic service component of the traditional services sector which was traditionally a feminine occupation in the more developed countries. In the United States, at least, some of this work is currently being done by men employed in professional cleaning services who go to households to clean on a contractual basis.[37]

Reinspection of the urban and rural pooled data for feminization of the traditional services given in table 35 does reveal a small reversal in the upward trend in the urban areas of the most developed category. Although this reversal was difficult to interpret in the absence of time-trend data, the universally negative time-trend data in the more developed countries seem to confirm that such a reversal is to be expected. Although the time trends of the rural areas of the developed countries were also somewhat negative, no downward trend was indicated in the pooled-data analysis at the highest level of development, indicating that the force of the rural reductions in feminization of traditional services is probably not as strong, nor as universal, as the urban trend. The incremental increase in feminization of rural traditional services at the highest level was, however, very small compared with other levels. In view of the negative character of the time trends, this may be interpreted as evidence of incipient decline in average feminization of this category.

Among the more agricultural countries, the time trends also indicate decreasing feminization in traditional services in both urban and rural areas, though there are some increases. Decreases in feminization are particularly prevalent among the Latin American countries of this group, where domestic service has been especially prevalent and traditionally feminine.

Clerical and sales services were observed to be the second most feminine of the services in the pooled-data analysis and, like the traditional services, showed a trend towards large increases in feminization as development progresses. This tendency is clearly born out in the time trends in urban and rural areas of both more developed and less developed areas.

In the pooled-data analysis, professional and administrative services, which are the least feminine of the tertiary categories, showed an increase in feminization from the lowest to the next lowest level of development, with relative stability thereafter. Stagnation also occurs in the trend data for most of the more developed countries, particularly in the urban areas. In the United States, the percentage of persons in this category who are women did not increase over the 30-year period from 1940 to 1970 in either urban or rural areas. Interestingly, however, its neighbour, Canada, which is economically similar to the United States in many ways, did show a sizable increase in feminization of this category in both urban and rural areas in only a 10-year interval. There was also substantial increase in Sweden in both urban and rural areas. In the less developed countries the pattern is mixed, with some countries showing increases and others decreases.

The grouping of professional and administrative together in a single category was somewhat unfortunate for present purposes since the degree of feminization in these two occupational categories is quite different. Census data are shown below for percentage of female employees in these two categories listed separately in the United States:

	Professional, technical and related workers	*Administrative and managerial workers*
1940	43.9	13.6
1950	39.5	11.5
1960	39.7	13.2
1970	40.1	16.6

From this example it can be seen that the professional category is much more feminine than the administrative category. Professional workers are roughly 40 per cent feminine while administrative workers are only about 15 per cent feminine.[38] However, the observation stated earlier with regard to stagnation in the combined category still stands. Both components have shown no direction of change in feminization over the 30-year period. Although quantitatively stagnation in the United States in these occupations cannot be denied, it could probably be shown, if appropriate data were assembled,

[34] Helen Icken Safa, "The changing class composition of the female labor force in Latin America", *Latin American Perspectives*, vol. IV, No. 4 (Fall 1977), pp. 126-136.

[35] Morris Stone, "A backlash in the workplace", *The New York Times*, 11 June 1978.

[36] Ross Davies, *Women and Work* (London, Hutchinson, 1975), pp. 43-44. This volume also recounts the attempts of women to circumvent the legislation, occasionally by disguising as men.

[37] "Employment plan for housewives is urged by a Rutgers economist", *The New York Times*, 12 December 1976.

[38] See also A. J. Jaffe and Joseph Froomkin, *Technology and Jobs* (New York, Frederick A. Praeger, Publishers, 1968), p. 101.

that a qualitative improvement has occurred in the United States in the professional category, as the variety of professions open to women appears to have increased.

D. Regional variations in feminization of occupations

Regional variations are considerably larger in the feminization of occupations than in the urbanization of occupations or in occupational structure itself. In part, this variability may reflect the importance of the cultural factors alluded to above, and it undoubtedly reflects inconsistency of statistical practices with respect to the treatment of female workers. Variations in feminization among major areas or regions are identified through the same technique used in the previous chapter for studying regional variation in occupational distributions: computing regional average deviations from relationships between the percentage female in an occupation, on the one hand, and the development level (percentage of total labour force in agriculture) and date of observation, on the other.[39] Table 38 summarizes the results of this activity.

It is clear from this table that women in Africa are under-represented (in relation to expectations) in all occupations in both rural and urban areas. Their deficit is particularly large in the service occupations. It should be recognized that, of the 10 observations in Africa, 7 are derived from Northern Africa. Thus, the results probably reflect the pattern of female seclusion discussed by Youssef,[40] as well as the female-exclusionary agricultural technology in the Arab countries of Northern Africa and Western South Asia that Boserup[41] described. That the largest female deficit in Africa occurs in service occupations, where face-to-face contact is probably most frequent, is additional suggestion of the influence of female seclusion on women's work here. Youssef suggests that the female deficit would be even larger if foreign women were to be excluded from the calculation:

> "In the Middle Eastern context the differences displayed point systematically in one major direction: female workers there show a distinctively strong seclusion pattern in the sense that they avoid occupational sectors which involve public activity or presuppose contact with men... As a consequence, occupations which in other countries became predominantly feminine from early industrialization onwards (such as service occupations, domestic work, factory work, retail and clerical jobs) are in the Middle East staffed by men or by foreign women."[42]

[39] In particular, regressions of the following form were computed separately for each occupation/rural-urban combination:

$$F_i = A_i + B_i \cdot (PA) + C_i\ (PA)^2 + \sum_j D_{ij} \cdot R_j + E_i \cdot T + \epsilon$$

where F_i = percentage of occupation i in area (rural or urban) which is female;
PA = percentage of total labour force in agricultural occupations;
R_j = series of regional categorical variables;
T = categorical variable for date of observation;
ϵ = error term;
$A_i, B_i, C_i, D_{ij}, E_i$ = parameters to be determined.

The values of D_{ij} indicate the degree to which observations for region j deviate from those of other regions, and from this information the deviation from the sample mean can be computed. This latter deviation is presented in table 38.

[40] N. Youssef, *Women and Work in Developing Societies.*
[41] E. Boserup, *op. cit.*
[42] N. Youssef, *Women and Work*, pp. 36-37.

Table 38. Variations in feminization of occupations, major areas
(Percentage points)

	Adjusted deviation from mean in proportion female in various occupations			
	Latin America (N = 14)	*East and South Asia (N = 18)*	*Africa (N = 10)*	*Europe, Northern America, Oceania (N = 17)*
Total labour force				
In agriculture	−16.365	11.326	−9.929	7.328
In manufacturing	0.959	3.123	−6.335	−0.370
In professional/technical	8.945	−4.249	−15.138	6.039
In clerical/sales	6.178	−3.759	−17.578	9.235
In traditional services	17.820	−9.769	−18.214	6.384
In occupation unknown	5.065	−4.417	−7.784	5.084
Urban labour force				
In agriculture	−11.111	4.180	−4.586	7.423
In manufacturing	−0.053	0.459	−6.605	3.445
In professional/technical	8.077	−3.840	−13.068	5.101
In clerical/sales	6.540	−5.665	−16.909	10.562
In traditional services	15.918	−9.456	−19.444	8.344
In occupation unknown	6.059	−6.312	−6.110	5.287
Rural labour force				
In agriculture	−16.745	11.519	−10.340	7.678
In manufacturing	3.918	5.505	−6.504	−5.232
In professional/technical	9.984	−4.385	−19.136	7.677
In clerical/sales	3.980	0.180	−17.642	6.911
In traditional services	19.780	−7.636	−17.381	2.020
In occupation unknown	4.382	−3.106	−9.327	5.166

On the other hand, women in Latin America are over-represented among all occupations in both rural and urban areas, excluding solely agriculture and urban manufacturing. Their excess is particularly large—from 15 to 20 percentage points—in traditional services, but the higher status services also achieve substantially higher than expected feminization in Latin America. Combined with the earlier finding that rural occupations in Latin America are unusually highly agricultural, the female agricultural deficit in rural areas implies that rural males are exceptionally highly concentrated in rural occupations in Latin America. The female deficit in agriculture in Latin America is related to its female surplus in urban services.[43] As in Northern Africa and Western South Asia, agricultural technology in Latin America (relying heavily on animal draught power) leaves little for women to do in rural areas other than domestic duties. Since these tasks can for the most part be accomplished by mothers, poor farmers send their daughters into domestic service in towns and wealthier farmers send their daughters into clerical jobs. Unlike the Arab countries of Northern Africa and Western South Asia, cultural biases against female work are not sufficiently strong in Latin America to prevent the accession of women into non-agricultural jobs.

Countries in Asia represent an intermediate case with respect to the feminization of occupations. In both urban and rural areas, Asian women are over-represented in the predominantly manual occupations of agriculture and manufacturing and under-represented (though not nearly to the same degree as in Africa) in services. Examination of the urban labour force alone, where classification differences related to farm wives should not seriously affect results, suggests that women play a very different economic role in Asia from their role in Latin America. Latin American women are unusually prominent in the services, while Asian women sustain a large deficit in this sector; in manufacturing and agriculture, exactly the reverse situation pertains though manufacturing differences are not large.

In Europe, Northern America and Oceania, women are unusually prominent in all sector/occupation categories except rural manufacturing. Their largest surplus occurs in clerical/sales occupations in urban areas, although they are also unusually prominent in higher and lower status services. Except for a striking difference in the role of women in agriculture, the pattern of feminization in these countries, particularly in the urban labour force, is not profoundly different from the pattern in Latin America. This similarity may reflect in part a carry-over of European cultural attitudes towards women's work into Latin America.

[43] E. Boserup, *op. cit.*, pp. 186-188.

E. Discussion

Although the results presented in this chapter do not bear directly upon the hypothesized *U*-shaped relation between female labour force participation and development, they are clearly supportive. Women were shown to play a very important role in rural agriculture among countries at low levels of development. Their role in agriculture declines as this sector simultaneously becomes a less important component of the labour force (although there is a recent reversal of this tendency in more developed countries). Women's relative prevalence in manufacturing declines with development in rural areas and remains roughly constant in urban ones at a level below their prevalence in rural agriculture. Thus, the shift from agriculture to manufacturing in the course of development typically is associated with a declining role for women. However, the shift into services, which has tended to come later in the development process, leads to a re-emergence of women in the labour force. It is not the case that women always occupied an important position in the service labour force. Rather, they tend to occupy about double the fraction of positions in each of the three service occupations in a highly developed country as compared with a country at low developmental level. However, recent trends in "traditional" services suggest that women's roles therein may be declining rather than increasing.

Despite the apparent success of the *U*-shaped hypothesis, there are several reasons for cautioning against adopting a highly mechanistic and developmental approach to the study of women's occupational roles. First, as noted directly above, recent time trends are not always in close accord with cross-sectional findings. Secondly, the urban-rural distinction seems to throw relatively little light on factors associated with women's prevalence in various occupations. Where women are prominent in a particular sector in rural areas they also tend to be prominent in that sector in urban ones, suggesting that the spatial factors that are so decisively associated with occupational structures are much less influential in the sex-structure of occupations. Lastly, and most important, there are enormous regional disparities in the occupational roles of women even when developmental level is "controlled". These differences seem to be associated both with technological differences and with cultural norms. As such, they can be expected to exert an important influence on women's occupational participation for some time to come.

VII. THE FAMILY IN RURAL AND URBAN SETTINGS

This chapter examines relations between an important social process, urbanization, and a major social institution, the family. In particular, it focuses on similarities and differences between families in rural and urban settings. The topic is difficult because of the conceptual confusion surrounding the word "family", because of the wide variety of family forms in different societies and because of the relative absence of data as comparable and precise as are found in other fields of demography.

In societies undergoing modernization, families are faced with basic changes in role structure, in decision-making patterns, in the socialization of the young and in the ways in which the family relates to increasingly complex non-family organizations. For example, in some rural societies the family functions as a complete productive unit, working the land and educating offspring to assume the same tasks. In urban areas, adults typically take jobs in organizations outside the family and children attend school and are socialized to roles that can be quite different from those of their parents. Urbanization is associated with a greater distinction between the home and the work-place and with the transfer of functions previously within the province of the family to other institutions. It is often associated with increased economic activity for women outside the home, which is likely to be associated with changed roles within the family.

Families in transitional and modern societies are reported[1] to be affected by three fundamental processes: the assumption of roles outside the family by all members; the involvement of persons outside the family in the socialization process and in social control of members; and the increased need for families to develop competencies to meet the requirements of their external participation and to choose among various forms of external participation. The basic fact of modern urban life is that family members are faced with many alternatives for meeting the contingencies of life. They must continually make choices with respect to jobs, schools and housing. The development of competence to make the best choices is one of the new demands or functions of the family.

Families differ in their ability to adapt to modernization. Very little is known about which types of families or kinship arrangements facilitate adaptation even in a single cultural setting. This chapter attempts to summarize some of what is known about the types of families and kinship groups in a variety of settings and to suggest how they are affected by and in turn affect the urbanization process.

Although the family may be viewed as "a powerful agent of social change", it is also influenced by change.[2] Major societal changes, planned or unplanned, are usually accompanied by adjustments in family type and function. Urbanization and industrialization have produced many benefits for families and societies. Yet the nature and pace of urbanization also exert pressures on the family. As family function and structure change in response to urbanization, an understanding of the nature of such changes is imperative both for social planning and for the development of social science. This chapter describes the structure and functions of the family in rural and urban settings and discusses changes that typically or often occur during the process of urbanization.

A. Basic concepts

The word "family" is ambiguous; it has many different meanings in everyday and scientific usage. This attempt at clarification does not resolve the ambiguity. The most that can be done is to review some of the main human groups commonly discussed under the heading "family" and to indicate which concepts are stressed in this chapter.

It should be emphasized that this is not an idle exercise in semantics, because some of the more important generalization about the "family in urban and rural settings" may be valid or invalid depending upon what is meant by "family". Does urbanization involve the breakdown or destruction of the family? Are "extended families" more common in urban or rural societies; among the rich or the poor? Is the "family" likely to disappear in post-industrial societies? The answers to these questions depend in part upon what is meant by the word "family". Thus, in order to discuss changes in family structure and function, it is necessary to work from a clear definition. Although there is no universally accepted definition of the family, one that is widely used is as follows:

> "A family is (1) a set of persons related to each other by blood, marriage or adoption, and constituting a social system whose structure is specified by familial positions and (2) whose basic societal function is replacement."[3]

This definition is more comprehensive than some common definitions which limit the term "family" to residential groups, for example, that which defines the family as "those related persons who live together within a household, usually with common eating as the criterion of co-living".[4] For census purposes, the definition recommended by the United Nations is:

[1] Marvin B. Sussman, "Family systems in the seventies: analyses, policies and programs", *Annals*, No. 396 (1971), pp. 40-56. See also "Adaptive, directive and integrative behavior", *Family Process*, vol. 7 (1968), pp. 224-249.

[2] *Report of the United Nations World Population Conference, 1974*, Bucharest, 19-30 August 1974 (United Nations publication, Sales No. E.75.XIII.3).

[3] Robert F. Winch, *The Modern Family*, 3rd ed. (New York, Holt, Rinehart and Winston, 1971), p. 26.

[4] Irene B. Taeuber, "Change and transition in family structures", in Arthur B. Campbell and others, eds., *The Family in Transition*. Fogarty International Center, Proceedings No. 3 (Bethesda, Maryland, National Institute of Health, 1971), p. 18.

"The family is defined as those members of the household . . . who are related, to a specific degree, through blood, adoption or marriage. The degree of relationship used in determining the limits of the family is dependent upon the uses to which the data are to be put and so cannot be precisely set for world-wide use."[5]

When standing by itself, without qualifiers, the word "family" may be taken to refer to a group of relatives, a kinship group. The existence of kinship relationships is largely a matter of objective fact; but individuals, groups and societies differ in their recognition of kin (second and third cousins may be virtually unknown to one another) or in the meaning and importance of kin (an uncle may be someone who is visited occasionally and with whom emotional ties are weak, or he may be someone with whom the niece or nephew has close emotional ties and strong, well-defined mutual obligations). Thus, families differ quantitatively in the number of kin recognized and qualitatively in terms of the kinds of ties among kin, whether a kin relationship involves emotional closeness or distance, frequent or infrequent interaction, strong or weak obligations of support, loyalty and so forth. The concept of family used in this chapter focuses on the rights and duties associated with membership in the group as well as on the functions of the group. As such, the family is one of several substructures or institutions necessary to perform necessary social functions.

B. Family types and forms

The family is the social unit through which a society replaces itself. The family has primary responsibility for the reproduction and care of children nearly everywhere. Even in those societies where alternatives to family responsibility for nurturing the next generation exist, they are not widespread, e.g., the kibbutz in Israel, which involve only a small fraction of the total population of Israel. These basic functions of reproduction and nurture are associated with numerous other functions and together lead to a variety of family types which differ from one society to another, and in different sectors of the same society.

In a study of comparative family structure, a key distinction is that between the nuclear family and the extended family. The nuclear family is the group typically consisting of husband, wife and their children. In terms of kinship, it is the group of persons each of whom is related to every other by one of three relationships: husband-wife; parent-child; sibling-sibling.[6] A group in which one of the spouses is missing often is considered a variant form of the nuclear family, sometimes referred to by such terms as "one-parent" or "incomplete" (nuclear) family.

The extended family is a group containing persons, at least some of whom are related by other, more distant relationships, such as grandparent and grandchild, uncle and niece/nephew, brother-in-law and brother-in-law, cousin and cousin. By this definition, the typical person in any society "has" or "belongs to" an extended family, because he or she has a variety of kin other than siblings, spouse, parent or children. But societies differ greatly in the extent to which an extended family is recognized as an important social and economic group in its own right, whether it stands apart and has important social, economic and psychological functions. Another way of describing this dimension of family structure is in terms of whether the nuclear family or some form of the extended family tends to take precedence in social organization. In some societies, the nuclear family stands relatively self-sufficient and independent of wider kinship units (though these ties never disappear entirely); in others, the nuclear family is deeply embedded in a larger extended family (though almost never disappearing as a recognizable entity).

Another important point about the extended family is that it can take many different forms. A nuclear family always contains the same set of kin. But different extended families can be described by naming different sets of relatives. For example, there is the extended family consisting of an elderly male, his spouse, his male descendants in the direct line (sons, grandsons etc.) and their spouses and unmarried children—often called the "patriarchal family". Or there is an extended family consisting of two brothers, their spouses and children—in effect, two nuclear families in the same generation combined—often called a "joint family". Much has been written on types of extended families, but no standard system of classification and terminology exists.

Members of kinship groups are bound by a system of mutual aid. This network of rights and obligations encompasses such functions as care of the children and support of the aged. In traditional societies, the primary obligation was that of children to their parents. Parents could expect to be taken care of when they could no longer work. The reverse appears to be true in modern societies where parents must provide care and especially education for their children and rely on a variety of social security programmes for care of aged parents. In transitional societies, adults often face a double obligation of providing for both parents and children, and the stress associated with such obligations affects all family members.

Families and households

A household refers to a group of individuals who live together. "Living together" in turn is defined as sharing the same house or other dwelling unit, or having a common domestic budget and eating most or, at least, the principal meals together. The criterion for membership is co-residence. "A household or domestic group... is made up of people who live in the same house or compound. . . . It is a spatial, or 'local group' ".[7]

Definitions of household make no reference to kinship. Thus, the members of a household may or may not be related to one another. And a group of totally unrelated persons (in the kinship sense) living together constitute a household. In fact, in most times and places, most households contain families, that is, groups of related persons living together in the same dwelling, and this fact has given rise to enormous confusion. A recent United Nations study states that the concepts of "household" and "family" are often confused because of their close relationship to each other and because unambigu-

[5] *Principles and Recommendations for the 1970 Population Censuses* (United Nations publication, Sales No. E.67.XVII.3), p. 20.

[6] Paul Bohannan, "An alternate residence classification", in Paul Bohannan and John Middleton, eds., *Marriage, Family and Residence* (New York, The Natural History Press, 1968).

[7] *Ibid.*, p. 318.

ous definitions are lacking for both of them.[8] In short, the terms "household" and "family" refer to sets of human beings which are overlapping, but seldom co-extensive.

As stated earlier, it is common in social science literature to define the term "family" as a group of relatives who live together, thus combining the criteria of kinship and co-residence. This is especially common in demographic and other studies relying on census data, because censuses conduct their enumerations in terms of discrete households and collect kinship information only on persons sharing the same household. Thus, the only family groups that can be defined using typical census data are those who reside in the same household.[9]

This definition of family is also found in other disciplines, notably anthropology, sociology and, more recently, historical demography. For example, one influential work defines the family as a social group characterized by common residence, economic co-operation and reproduction.[10] An historian[11] defines the family as the related members of a coresident domestic group. If the above-mentioned usage is adopted, then the phrase "extended family" must logically refer to a group of extended kin who live together, and some other term must be used to refer to sets of related persons who do not share the same residence. Such terms as kinship group, kinship network or simply kin can serve this purpose.

A final set of terms refers to a group of kin who occupy separate households, but households in close proximity to one another. In English, these groups are often referred to as "compounds". A rough equivalent in French is *concession* (see the census of Benin, 1961). The term "houseful"[12] has been suggested for this group.

The broad generic meaning of the word "family" as persons who are related by kinship, regardless of where they live, is adopted in this chapter. Where necessary its meaning will be modified by the addition of qualifiers such as census family or residential family, or extended family household, as opposed to a nuclear family household.

Family functions

Certain basic social functions must be performed in order for any society to survive. A list of such functions generally includes reproduction of personnel, socialization of the young, the production and distribution of goods and services, a mechanism for protection of individual members and for handling conflict, and some mechanism for integrating individuals into society and for handling emotional crises. In addition to the basic societal functions, the family and other social institutions satisfy certain basic needs of individuals.

Where a society is small and relatively simple, the family tends to be the all-encompassing structure, taking care of the production and distribution of goods, the maintenance of order and the performance of religious rituals, as well as the reproduction and socialization of the young. As societies become more complex, a more specialized social structure emerges with differentiated and distinct social structures associated with each function. For example, in modern urban, industrial societies based on highly advanced technologies, parents are not expected directly to provide for the formal education of their children. This function is performed by the schools, supplemented by parents, peers and other sources. Similarly, other functions have moved from the family to specialized social agencies and institutions. Indeed, the number and type of institutions may be used as an index of the complexity of a society, as in differentiating rural and urban types of societies.

The human species has moved through various forms of social organization from hunting and gathering societies, through independent agricultural villages, through feudal organization of villages, to the development of national States and international social systems. Such changes are not necessarily unidirectional and all societies will not experience every type. Neither will adjustments in institutions (such as the family) be the same in all societies as they move from agricultural-village types to industrial-urban types of societies. As broad societal changes occur, however, they are generally accompanied by changes in institutions, in political, economic and religious institutions as well as the family.[13] Because the shift from one type of society to another is neither unidirectional nor complete, at any point in time a specific society may contain family structures typical of both pre-modern and modern societies. A "cultural lag" in various institutional arrangements often exists during the transition from one type of society to another.

C. Family structure in polar types of societies

Much of what has been written about rural/urban differences in the family is based on contrasts between family systems in relatively stable, agrarian societies and in highly urbanized societies. Insights based on such contrasts have validity, though limited applicability to the current world situation in which both urban and rural populations are undergoing rapid change and increasingly effective communication systems link the two sectors. Such insights can, however, serve as a useful starting-point for a discussion of more difficult questions relating to transition.

An examination of polar types of societies suggests that households and families in rural societies tend to be larger and more complex and, as stated earlier, to perform more social and individual functions than in highly urbanized societies. The evidence for this assertion is ample, though seldom quantitative, and is difficult to summarize in a systematic comparative way. Until fairly recently, family sociologists maintained the view that an inverse relation existed between the level of industrialization and urbanization, on the one hand, and family size, particularly the existence of the extended family, on the other.[14]

[8] *Manual VII. Methods of Projecting Households and Families* (United Nations publication, Sales No. E.73.XIII.2).

[9] There are some exceptions in the censuses of sub-Saharan Africa.

[10] George P. Murdock, *Social Structure* (New York, The Free Press, 1965).

[11] Peter Laslett, ed., *Household and Family in Past Time* (Cambridge, Cambridge University Press, 1972), p. 28.

[12] *Ibid.*, pp. 36-38.

[13] Steven Polgar, "Cultural development, population and the family", in *The Population Debate: Dimensions and Perspectives, Papers of the World Population Conference, Bucharest, 1974*, vol. II (United Nations publication, Sales No. E/F/S.45.XIII.5), pp. 239-251.

[14] Clifford Kirkpatrick, *The Family as Process and Institution*, 2nd ed. (New York, Ronald Press, 1963), pp. 137-139; see also William Kephart, *The Family Society and the Individual*, 2nd ed. (Boston, Houghton-Mifflin, 1966), pp. 58-60.

A comparative study[15] covering roughly a 50-year period in the west, sub-Saharan Africa, India, China and Japan demonstrates change in family structure with industrialization but takes note that the nature of the relationship is not clear. The concept of polar types of families was also challenged more than 25 years ago by the work of Hsu[16] on the traditional Chinese family, and again a decade ago in a series of papers by Levy and Burch.[17] Levy's argument, that because of economic and demographic factors the extended family could not become the predominant form in any society, was substantiated empirically by Burch and by a United Nations study of households.[18]

This section is less concerned with documenting the existence of differential family size in urban/industrial areas and rural/agricultural areas than with identifying other differences which explain, in part, the differences in family type, size and function in rural and urban settings. These differences are described below, not necessarily in order of importance, and without attention to the complex interactions among them. Some demographic influences are given special attention, not because they are the most important, but because of the nature of this work and the fact that they have been relatively overlooked in previous work.

Rural high fertility

Agrarian societies have typically been characterized by high fertility. A direct consequence of this high fertility is that the typical member of a rural society is apt to have at any age a larger number of close kin than is the typical member of a highly urbanized, low-fertility society. This is true with respect to all categories of kin, except for ascendants in the direct line. That is, no matter what the level of fertility, a given person has only two parents, four grandparents etc. When fertility is high, that person has more children and grandchildren, more siblings, more cousins, more aunts and uncles, more nieces and nephews. This point is more or less obvious, but has not been sufficiently appreciated until recently due to the absence of calculations which could show the size of the effect of fertility on numbers of kin and due to an emphasis in the literature on the contrary effects of mortality.[19]

Levy,[20] among others, has suggested that high mortality prevented the attainment of large, complex households in pre-modern societies. This statement clearly is true in so far as it involves the simultaneous survival of three or more persons in a direct line of descent, or of other specific combinations of kin. The probability of the survival of a grandfather, or of a father, son and grandson being alive simultaneously under conditions of high mortality is small indeed. Thus, certain types of family households, such as the classic patriarchal family of China, are precluded as a modal form. What the results of Goodman, Keyfitz and Pullum make clear, however, is that under most demographic régimes (the exception would be low fertility and high mortality) any given person is likely to have a large number of surviving kin of various types with whom he could reside. Thus, various complex residential family forms or household forms have been possible, demographically speaking, in most societies past and present.

Residential stability and compact settlement

Meaningful comparisons among societies as to degree of residential mobility or migration are difficult to make in precise quantitative terms. But for pre-modern societies that have passed the hunting-gathering or nomadic stage to reach that of settled agriculture, the degree of spatial mobility is typically less than in modern urban societies.[21] Movement that does occur more often is a collective rather than an individual matter, involving movement of a family or even several families from a local community. An individual is more likely to live in close proximity to his kin during most of his lifetime. In addition, local communities tend to be small and compact, so that frequent, even daily contact with kin was not only possible but likely. In a modern metropolis, kin may live at a considerable distance from one another and have little occasion to see one another in their daily round of activities, so that interaction with one's kin may require a special effort.

Occupational homogeneity

Another feature of agrarian societies which promotes kinship solidarity is the fact that most members of such societies pursue the same or very closely related occupations. In a word, most people are farmers. This situation ties them to the land, to which they may have rights of ownership or use, a fact which reinforces the residential stability noted above. Often, rights to land are held jointly by a kinship group, or at least children anticipate ownership through inheritance because their occupational future too depends upon land. Further, prior to the increased population growth rates that accompany early stages of modernization, the problem of excess numbers of heirs does not arise, so that sons are not driven to seek new lands or new occupations elsewhere.

Lastly, if most members of a kinship group are agriculturists, it is natural for them to turn to one another for help and advice; and economic collaboration among

---

[15] William J. Goode, "The family as an element in the world revolution", in Peter Rose, *The Study of Society* (New York, Random House, 1967), pp. 528-538 (reprint of the material originally published by Institute of Life Insurance); and William J. Goode, *World Revolution and Family Patterns* (New York, The Free Press of Glencoe, 1963).

[16] Francis L. K. Hsu, "The myth of Chinese family size", *American Journal of Sociology*, vol. 48 (March, 1943), pp. 555-572.

[17] Marion J. Levy, Jr., "Aspects of the analysis of family structure" in Ansley J. Coale and others, *Aspects of the Analysis of Family Structure* (Princeton, New Jersey, Princeton University Press, 1965), pp. 1-63; see also Thomas K. Burch, "The size and structure of families: a comparative analysis of census data", *American Sociological Review*, vol. 32, No. 3 (1967), pp. 347-363.

[18] *Manual VII. Methods of Projecting Households and Families.*

[19] Relevant formulae and data have been given in recent articles by Goodman, Keyfitz and Pullum, in which they calculate the number of kin a person has at various ages for stable populations under different fertility and mortality régimes. L. Goodman, N. Keyfitz and T. Pullum, "Family formation and the frequency of various kinship relationships", *Theoretical Population Biology*, vol. 5 (1974), pp. 1-27. See also "Family formation and the frequency of various kinship relationships: addendum", *Theoretical Population Biology*, vol. 6, No. 3 (December 1975), pp. 376-381.

[20] M. J. Levy, Jr., *loc. cit.*

[21] *The Determinants and Consequences of Population Trends*, vol. I (United Nations publication, Sales No. E.71.XIII.5), p.171; and K. C. Zachariah, *A Historical Study of Internal Migration in the Indian Sub-continent, 1901-1931* (New York, Asia Publishing House, 1964).

kin is the rule rather than the exception. This situation contrasts with that in urban societies, where an extensive division of labour results in kin commonly being in different and unrelated occupations.[22] Even mutual understanding of one another's work becomes difficult, much less extensive mutual help. Collaboration among kin in economic production disappears in the typical case, remaining primarily in the case of small, family-held businesses.

Lack of institutional alternatives

Reliance on kin or kin-based institutions is great in agrarian societies partially for the simple reasons that institutional alternatives are less common. There are few if any hospitals or schools or banks. Needs must be filled in the community at large, which usually means first and foremost by kin. These may be viewed as informal arrangements. In fact, however, in agrarian societies, they are likely to be very formal, in the sense of being routine and matters of strict obligation, according to prevailing social norms.[23]

Poverty

Pre-modern agrarian societies tend to be "poor" societies in terms of *per capita* income. Life is close to the margin of subsistence, and the chances of catastrophe are high (crop failure, fire, sickness, death, flood). For the average individual or small family group, the prospects for a totally self-reliant life are slight indeed. Coupled with the absence of specialized "helping" institutions mentioned above, this means that one must often look for help outside of oneself and one's own resources. Again, the natural and obvious place to look is towards one's relatives.

This probably is the meaning of demographic data showing a direct relationship between income and headship rates (see below). Other things being equal, poor people, who are less able to maintain their own households, "double up." With greater wealth, a higher proportion of adults stand on their own residentially.

D. The household in rural and urban settings

The attempt to learn more about families in rural and urban settings has often led researchers to analyse census or sample survey data on households. Although families and households are not quite the same thing, this research approach makes sense, since families and households are closely related. In most societies, most households contain a group of kin or related persons, that is, a family group. And in some societies, the word "family" has come close to meaning "the group of kin I live with". But the main reason for the frequency of this approach is simply that more detailed statistical data are available for households than for family or kinship groups in the broader sense. The basic unit of enumeration in a modern population census is the household. And data on individual household members allow one to study the size of households, as well as their composition in terms of age, sex, marital status and relationship to household head.

One of the best documented findings in household demography relates to the association between urbanization and household size, Broadly speaking, urban residence is associated with smaller residential groupings (households or residential families). This is so in three separate though related senses: (1) in contemporary international comparisons, highly urbanized countries have appreciably smaller households, on average, than do less urbanized countries; (2) for those countries where long time series of data are available, household size tends to decline as urbanization occurs (along with the closely intertwined processes of industrialization and modernization), (3) within contemporary populations, average household size among the urban segment tends to be smaller than among the rural segment. Documentation and discussion of each of these findings follow.

Data on household size are readily available for a large number of populations. A recent United Nations report lists more than 100 countries and territories for which distributions of households by size were available in the 1960 round of population censuses.[24] Convenient compilations of these data have been published in the *Demographic Yearbook* for the years 1955, 1962, 1963, 1968, 1971 and 1973.[25]

A recent summary of these data shows that for the developing countries, most of which have not reached high levels of urbanization, average household size is approximately 5.2 persons, compared with an over-all average of 3.5 persons for the more developed countries, most of which are highly urban.[26] Broadly speaking, then, average household size in the less urbanized countries tends to be approximately 50 per cent greater than in the more urbanized countries.

For the world as a whole, the distribution of individual countries and territories by average household size is distinctly bi-modal, that is, there is relatively little overlap between the separate distributions for the more developed and the less developed countries. In a recent compilation, the modal category for the more developed countries was from 3.00 to 3.49, and only 10 out of 42 had average household sizes of 4.0 or greater. The modal category for less developed countries was from 5.00 to 5.49, and only 3 out of 72 had average household sizes of 4.0 or less.[27] These data suggest a fairly strong and consistent, though far from perfect, cross-sectional association between degree of urbanization and size of household. As is shown below this is due in large part to the inverse association between urbanization and fertility, and to the fact that societal

[22] For an example of the diversity and complexity of occupations in contemporary urban societies see United States of America, Department of Labor, *Dictionary of Occupational Titles* (Washington, D.C., Government Printing Office 1977). The diversity of status of the occupations is discussed in C. B. Nam and Mary G. Powers, "Changes in the relative status levels of workers in the U.S.; 1950-1960", *Social Forces*, vol. 48 (1968), pp. 158-177; and in Mary G. Powers and Joan J. Holmberg, "Occupational status scores: changes introduced by the inclusion of women", *Demography*, vol. 15, No. 2 (1978), pp. 183-204.

[23] Claude Levi-Strauss, "Reciprocity, the essence of social life", in R. L. Coser and Rosenberg, eds., *Sociological Theory* (New York, The Macmillan Co., 1957), pp. 84-94; and Marcel Maus, *The Gift* (New York, The Norton Co., 1967). See also the description of kin-based economic obligations in Nigeria in John A. Caldwell, "Toward a restatement of demographic transition theory", *Population and Development Review*, vol. 2 (September-December 1976), pp. 321-366.

[24] *Manual VII. Methods of Projecting Households and Families*. Table 1, pp. 7-10.

[25] United Nations publications, Sales Nos. 55.XIII.6, E.63.XIII.1, E.65.XIII.1, E.69.XIII.1, E/F.72.XIII.1 and E/F.74.XIII.1.

[26] *The Determinants and Consequences of Population Trends*, vol. I, p. 337, table X.1.

[27] *Ibid.*, p. 338, table X.2. See also T. K. Burch, *loc. cit.*

TABLE 39. AVERAGE HOUSEHOLD SIZE, RURAL AND URBAN POPULATIONS, ACCORDING TO RECENT NATIONAL CENSUSES

Country	*Date of census*	*Urban*	*Rural*	*Absolute difference (rural/urban)*	*Ratio of rural to urban*
Africa					
Benin	1961	4.5	4.5	0.0	1.00
Mauritius	1962	4.9	4.8	−0.1	0.98
Morocco	1960	4.3	5.1	0.8	1.19
Southern Rhodesia[a]	1962	4.0	5.4	1.4	1.35
Latin America					
Argentina	1960	3.5	4.3	0.8	1.23
Bahamas	1963	4.0	4.2	0.2	1.05
Brazil	1960	4.8	5.4	0.6	1.12
British Honduras	1960	4.8	4.7	−0.1	0.98
Chile	1960	5.2	6.0	0.8	1.15
	1970	5.0	5.5	0.5	1.10
Costa Rica	1963	5.4	6.0	0.6	1.11
Dominican Republic	1960	4.8	5.1	0.3	1.06
Ecuador	1962	5.4	5.0	−0.4	0.93
Guatemala	1964	5.2	5.3	0.1	1.02
Guyana	1960	5.1	5.0	−0.1	0.98
Jamaica	1960	3.0	4.3	1.3	1.43
Mexico	1961-1962	5.3	5.8	0.3	1.09
Nicaragua	1963	5.8	6.3	0.5	1.09
Panama	1960	4.4	4.9	0.5	1.11
Peru	1961	4.8	4.9	0.1	1.02
Puerto Rico	1960	4.4	5.2	0.8	1.18
St. Lucia	1960	3.7	4.2	0.5	1.14
St. Vincent	1966	4.4	3.9	−0.5	0.89
Northern America					
Canada	1966	3.6	4.1	0.5	1.14
United States of America	1960	3.2	3.6	0.4	1.12
	1970	3.1	3.4	0.3	1.10
Asia[b]					
India	1960	5.2	5.2	0.0	1.00
Indonesia	1960	4.9	4.3	−0.6	0.88
Iran	1966	4.9	5.0	0.1	1.02
Israel	1966	3.6	4.0	0.4	1.11
Japan	1965	3.8	4.4	0.6	1.16
	1970	3.5	4.1	0.6	1.17
Jordan	1961	5.5	5.1	−0.4	0.93
Pakistan	1960	5.5	5.4	−0.1	0.98
	1968	5.6	5.8	0.2	1.04
Republic of Korea	1960	5.4	5.6	0.2	1.04
Sikkim	1960	4.3	5.6	1.3	1.30
Syrian Arab Republic	1961-1962	6.0	5.9	−0.1	0.98
Turkey	1965	5.3	5.9	0.6	1.11
Europe					
Albania	1960	5.3	6.1	0.8	1.15
Austria	1961	2.6	3.7	1.1	1.42
Bulgaria	1965	2.9	3.5	0.6	1.21
Czechoslovakia	1961	3.0	3.3	0.3	1.10
Denmark	1960	2.7	3.3	0.6	1.22
Finland	1960	2.8	3.8	1.0	1.36
	1970	2.7	3.4	0.7	1.26
France	1962	3.0	3.3	0.3	1.10
	1968	3.1	3.3	0.2	1.06
German Democratic Republic	1971	2.6	2.9	0.3	1.12
Greece	1961	3.6	4.1	0.5	1.14
Hungary	1963	2.7	3.1	0.4	1.15
	1970	2.7	3.2	0.5	1.19
Iceland	1960	3.5	4.2	0.7	1.20
Ireland	1966	4.1	4.0	−0.1	0.98
Norway	1960	2.6	3.4	0.8	1.31
Poland	1960	3.1	3.9	0.8	1.26
Portugal	1960	4.0	3.9	−0.1	0.98

TABLE 39. *(continued)*

Country	Date of census	Urban	Rural	Absolute difference (rural/urban)	Ratio of rural to urban
Europe *(continued)*					
Sweden	1965	2.7	3.0	0.3	1.11
Switzerland	1960	3.0	3.6	0.6	1.20
United Kingdom					
England and Wales	1961	3.0	3.1	0.1	1.03
Northern Ireland	1966	3.5	3.8	0.3	1.09
Scotland	1961	3.0	3.3	0.3	1.10
Yugoslavia	1961	3.3	4.4	1.1	1.33
Oceania					
Australia	1966	3.4	3.7	0.3	1.09
New Zealand	1966	3.7	3.9	0.2	1.05
Samoa	1966	6.7	5.6	−1.1	0.84

Sources: Demographic Yearbook, 1968, 1971, 1973 (United Nations publications, Sales Nos. E.69.XIII.1, E/F.72.XIII.1 and E/F.74.XIII.1), tables 12, 11 and 24, respectively.

Note: Not including countries with population under 100 000.

[a] African population only.

[b] Including Cyprus, Israel and Turkey.

fertility is a major determinant of average household size. With fertility beginning to decline appreciably in many less urbanized countries, this bi-modal distribution of countries by household size presumably is breaking down, with more of the developing countries moving into the intermediate range.

The figures just cited refer to the average of the distribution of private households by size: they provide the size of an average household. A related statistic is the average of the distribution of population by size of household in which they are living. This statistic can also be viewed as a weighted average of the distribution of households, where the weights are the various household sizes (1, 2, 3 etc.). This measure in effect indicates the size of the household in which the average person lives. Since larger households receive greater weights, this later measure tends to be larger than the simple household size, although this is so for any distribution, so that the comparative standing of various populations is not much affected by which measure is used, as is illustrated below for a wide range of values:

Country and date	Average household size	Size of household of average person
Sweden, 1960	2.8	3.6
New Zealand, 1956	3.6	4.5
Japan, 1960	4.6	5.5
Philippines, 1957	5.7	6.6

Source: Compiled from *Demographic Yearbook, 1962* (United Nations publication, Sales No. E.63.XIII.1), table 12, pp. 398-413.

Long time series on average household size for individual countries are rare and come mostly from urbanized countries.[28] Most of these time series show a clear downward trend (though not without short-term rises along the way) concomitant with urbanization and industrialization. In the United States, for example, household size declined from 5.8 in 1790 to 3.3 in 1965; in Japan, from 5.0 in 1920 to 3.7 in 1970; in the United Kingdom, from 4.6 in 1801 to 3.0 in 1966. One of the few available long time series for a less urbanized country is for India, where average household size fluctuated between 4.9 and 5.2 from 1901 to 1961, with no apparent trend. Such time-trend data suggest, once again, a link between urbanization and declining average household size, although they do nothing to measure the strength of the association or to assign a major causal role to urbanization as such, in contrast with industrialization, modernization or other related processes.

Within countries, recent compilations of data on household size indicate that households in rural areas (as defined by respective national censuses) tend to be larger, on average, than households in urban areas (see table 39). The relationship is not completely consistent; out of 67 population censuses (from a slightly smaller number of different countries), there are 14 cases in which average household size in rural areas is the same as or smaller than in urban areas. Nor are the differences between rural and urban areas consistently large, either in absolute or relative terms. Where rural households are larger than urban, in very few cases is the difference greater than 20 per cent. The largest differences are found for Austria (1961) and Jamaica (1960), where rural households are, respectively, 42 per cent and 43 per cent larger than urban. In the few cases where urban households are larger than rural, the differences between the two are even smaller, typically less than 10 per cent. The largest difference is found in Samoa, where rural households are 16 per cent smaller than urban households, on average. Several of the instances where urban household size exceeds rural occur where urban proportions are low but where urban growth is quite rapid. In part, this reversal may reflect pressure on urban housing stocks, leading to frequent doubling-up. Developing countries where temporary migrants form a large fraction of the urban population (for example, Indonesia) should also be expected to have relatively large urban households.

Less is known about variation in household composition than about household size, partially because size is a simpler variable to define and measure. In demographic and related studies, the study of variation in household composition and structure has centred around the notion

[28] *The Determinants and Consequences of Population Trends*, table X.3, pp. 341-342.

of complexity, most broadly defined in this context as the extent to which adults other than husbands and wives tend to share a residence with one another. Households can be made more complex through the addition either of unrelated persons, such as servants, guests, boarders and lodgers, or of related persons or kin. In broad comparative perspective, complexity due to the addition of non-relatives typically has not been quantitatively important. That is, even in populations where households are fairly complex, the average number of non-relatives per household remains small.[29] Seldom does the average number of non-relatives account for as much as 10 per cent of average total household size. In the contemporary world, non-relatives are particularly important in households in Latin America where the institution of live-in domestic servants is widespread. But even there, non-relatives are less important than kin as a source of household complexity.[30] Historically, it is argued that changes in the size of households in Great Britain over time have been due in part to important changes in the number of domestic servants.[31] But these are exceptions.

Is there a simple relationship between urbanization and household complexity? The conventional view, both in the popular mind and in sociological literature, has been that there is—that rural households tend to be more complex than urban. Indeed, a major theme of writing on the family has been that of the "breakdown" of the extended family with urbanization and industrialization and of its replacement with the isolated nuclear family as the typical urban form.[32] The typical rural household, according to this view, is the classic extended family, comprising three or more generations of kin in a direct line plus a variety of collateral relatives all living "under one roof". A powerful image of this large and complex household dominates the literature on traditional, rural family systems. The image is associated especially with the patriarchal family systems of Asia (notably in China, India and Japan), but also frequently is invoked with respect to family systems of the west (for example, the rural family in nineteenth-century Europe and the United States).[33]

Over time, this image of the rural household has come under increasing attack, as various researchers have put forward evidence to show that the extended family household, far from being typical or commonplace, is rare; or have advanced theoretical arguments as to why their frequent occurrence would be unlikely. As early as 1943, one writer[34] discussed the "myth" of Chinese family size. Subsequently, another work, dismissing the image as stereotype, spoke of the "classical family of Western nostalgia".[35] A review of international data on households concludes that "the nuclear family (husband-wife-children) is the predominant living arrangement almost everywhere in the world", and speaks of the contrary view as "a sociological tradition more than as a statistical reality".[36] In another study, a detailed theoretical argument is developed to show that "the general outlines and nature of the actual family structures (including household composition) have been virtually identical in certain strategic respects in all known societies in world history for well over 50 per cent of the members of those societies".[37] Burch interpreted a variety of contemporary census data on household size and composition as being broadly supportive of Levy's thesis.[38] As a result of the writings of these and other researchers, the old conventional view of the rural household as invariably complex has been partially replaced by the view that households are virtually the same everywhere and at all times, that there are no important differences in household composition between urban and rural populations.

All things considered, this new view is as exaggerated and misleading as the old view it was supposed to correct. It is exaggerated in that, although the differences in household complexity between rural and urban populations may not be as great as implied by the older view, there are non-trivial differences. A variety of data suggest that, on average, households in rural societies have tended to be more complex than those in urban societies. The newer view also is misleading in so far as it focuses attention on the household as a residential group to the neglect of broader kinship groups, since it is largely the latter that manifest the "family complexity" characteristic of rural social systems.

The direct statistical evidence on rural/urban differences in household complexity is fragmentary at best—there is much less systematic coverage in time and space than for household size. But some relevant data do exist.

The household headship rate—the proportion of the population in some age-sex group who are household heads—is in effect an inverse measure of household complexity. The higher the proportion of adults maintaining their own households, the fewer there are to double up with other adults to produce the more complex forms.

In a comparison of headship rates among more developed and less developed countries, it was found that the pattern differed by sex. Male headship rates tended to be slightly higher in the more developed countries, female headship rates slightly lower.[39] In neither case are the absolute differences large, although the relative differences between female rates in the two sets of countries are large, because female headship rates generally are low. On balance, these data suggest a generally inverse relation between national developmental level and household complexity. In developed societies, more adults maintain their own households; fewer double up with relatives.

A similar pattern emerges from a correlation analysis of headship rates and urbanization. Age-specific headship rates and the degree of urbanization show moderate positive correlations for males (the highest being 0.57 at ages 25-34) and a mixed picture for females—small positive correlations for the 15-24 and 65+ age groups and from small to moderate negative correlations for the

[29] T. K. Burch, *loc. cit.*, p. 359, table 7.
[30] *Ibid.*
[31] P. Laslett, *op. cit.*, pp. 125-158.
[32] William F. Ogburn and M. F. Nimkoff, *Technology and the Changing Family* (Boston, Houghton-Mifflin, 1955); W. J. Goode, "The family as an element in the world revolution".
[33] For example, C. Kirkpatrick, *op. cit.*, pp. 137-139; W. Kephart, *op. cit.*, pp. 58-60; William Petersen, *Population*, 3rd ed. (New York, Macmillan, 1975), pp. 413-416.
[34] F. L. K. Hsu, *loc. cit.*
[35] W. Goode, *World Revolution and Family Patterns.*
[36] Donald J. Bogue, *Principles of Demography* (New York, John Wiley and Sons, 1969), pp. 369-370.
[37] M. J. Levy, Jr., *loc. cit.*, pp. 41-42.
[38] T. K. Burch, *loc. cit.*
[39] The high female rates in the less developed countries may reflect the large number of countries of Latin America in the sample. Thus, the data may not be representative of the situation in Asia and Africa. See *The Determinants and Consequences of Population Trends*, vol. I, pp. 349-350.

other female age groups.[40] Similar results were obtained for the correlation between headship rates and *per capita* income and between headship rates and percentage of the labour force in non-agricultural activities.

In terms of time trends, a recent United Nations study concludes on the basis of the small amount of evidence available—pertaining to Europe, the United States of America and Japan—that "generally headship rates have increased over time in all sex-age groups except in the middle-age groups of females".[41] To the extent that these time trends in headship rates are associated with trends in urbanization they may offer additional evidence that higher headship rates are part and parcel of the urban way of life.

Systematic comparisons of headship rates for rural and urban populations within countries are rare. Data from a very small set of countries (Norway, Finland and Japan) suggest that headship rates tend generally to be higher in urban localities within these countries; but the relationship is far from uniform—there are exceptions for many age, sex or marital status groups.[42]

Data on non-nuclear relatives and on non-relatives per household similarly suggest that households in less urbanized and less modernized countries tend to be more complex, though the relationship is not particularly strong. Data have been compiled that show the number of "other" or non-nuclear relatives per household in India or Nicaragua to be approximately six times as large as in the United States and approximately 15 times as large as in the Netherlands. A concrete interpretation is that "in India many, probably most, families contain at least one 'other relative' of the head; in the United States or in the Netherlands, very few do".[43] Some illustrative data are given in table 40. These same data show that there is a wide range of household complexity among the less developed countries and that some less developed countries—for example, Thailand—have relatively low indices of complexity.

If one turns to rural/urban differences within contemporary countries, the picture is even less clear and consistent. In an analysis of other relatives per household for India, Venezuela and the United States, small and inconsistent differences were found. Rural households were slightly more complex than urban in India and the United States (only 8 per cent more so in India), but slightly less complex in Venezuela.[44]

On the basis of available data, limited as they are, it appears that rural/urban differences in household complexity are larger and more consistent in comparisons over long periods and among countries than in comparisons between rural and urban sectors of contemporary national populations.

Firmer and more detailed generalizations on these questions must await more empirical research on available census and survey data, and the development of a fuller understanding of the determinants of household complexity. From a formal demographic point of view, it is clear that household complexity is a function of age/sex/marital status-specific headship rates, on the one hand, and of the age/sex/marital status composition of the adult population, on the other. But the socio-economic and cultural determinants of headship rates and of marital patterns are little understood.

TABLE 40. NUMBER OF NON-NUCLEAR RELATIVES AND OF NON-RELATIVES PER HOUSEHOLD, SELECTED NATIONAL CENSUSES

Country	Date of census	Persons per household by relationship[a]	
		Non-nuclear relatives	Non-relatives[b]
Brazil	1950	0.42	0.25
Chile	1960	0.78	0.41
Costa Rica	1963	0.57	0.17
	1950	0.58	0.28
Cuba	1953	0.70	0.17
Guatemala	1950	0.63	0.17
Honduras	1950	0.79	0.23
India	1951	1.20	0.07
Mexico	1960	0.49	0.10
	1950	0.44	0.19
Netherlands	1947	0.08	0.09
Nicaragua	1963	1.15	0.27
	1950	1.02	0.43
Panama	1960	0.78	0.25
Thailand	1947	0.38	0.05
United States of America ..	1960	0.19	0.05
Venezuela	1950	0.88	0.61

Source: Thomas K. Burch, "The size and structure of families: a comparative analysis of census data", *American Sociological Review*, vol. 32, No. 3 (1967), p. 350, table 7.

[a] Data pertain to persons of all ages, i.e., not just adults.

[b] Non-relatives include servants, boarders, guests and so forth.

E. VARIATION AND CHANGE IN THE CONTEMPORARY FAMILY

Attempts to summarize social science knowledge of family structure and change inevitably lead to oversimplifications. It is convenient, for example, to think in terms of polar types of societies and of sharp contrasts between rural and urban family systems. Cultural and historical uniqueness is played down in favour of generalization. Systems are viewed as static rather than as continuously changing, as sharply distinct rather than as intermingled. The present section tries to serve as a partial corrective to these tendencies by stressing some of the complexities of contemporary family structure and change, and some uncertainties concerning the future of the family both in the developing and the developed regions.

As stated earlier, much of what has been written about rural/urban differences in the family is based on contrasts between polar types of societies. Currently, however, most urban communities, especially those in developing countries, have resulted from rapid growth and include among their populations migrants from rural areas with rural values and behaviour, and also long-term residents who adhere to social structures that existed in the pre-industrial era of the city. Similarly, the rural areas include among their inhabitants many persons who have had direct urban experience of living in cities as migrants and many more who know urban

[40] *Manual VII. Methods of Projecting Households and Families*, p. 79. The negative correlation for women aged 25-64 may reflect declining rates of widowhood with urbanization; thus, a higher proportion of married women living with their husbands, who are reported as household heads.

[41] *The Determinants and Consequences of Population Trends*, vol. I, p. 350. The exception presumably relates to lower rates of widowhood.

[42] *Manual VII. Methods of Projecting Households and Families*, pp. 38-39 and 70-71.

[43] T. K. Burch, *loc. cit.*

[44] *Ibid.*, p. 359, table 7.

life from radio, films and communication with relatives who migrated. The effect of these factors, the relatively recent village character of many cities and the large number of migrants, is to reduce whatever intrinsic rural/urban differences may exist. This section examines some specific instances of the diversity of family types found in contemporary urban and rural settings.

A recent study[45] focuses on the varieties of the domestic social organization that existed at Isfahan, Iran, a large city of 425,000 and once the capital of Iran. The city has grown rapidly during the past 20 years and contains large mechanized textile mills, some food-processing plants and an airport. But like many other cities in that region, it retains aspects that are village-like or pre-industrial in character. Various features of its social structure are not very different from comparable aspects of village social structure in Iran. Of particular interest here is the importance of extensive kinship ties. A study was made of a core of 175 families in three different sections of Isfahan: a part of the old city with the old type of residential compound architecture; another part in a newer area of the city; and an area in one of the squatter settlements. Because the main focus of the research was on the readiness of married couples to practise family planning, the sample was drawn from recent family planning patients at a university clinic. These families and other related or unrelated families who lived in the same residence unit or compound were included in the study. They are not necessarily representative of all residents of Isfahan.

The focus was on the compound and on families who lived in the same compound. These are essentially houses which share a common courtyard and a single entry way into the courtyard. The compound is an entity of ownership and may contain several households. The household according to the definition used by the authors (and by the Iranian census) consists of a group of people who both live together in the same dwelling and regularly eat together. Isfahan compounds contain from one to six households. Almost all the households in the sample consisted simply of nuclear or simple families: husband; wife; and their unmarried children. Complex households included nuclear families with one additional relative as well as two or three related nuclear families. Many of the compounds also contained separate households that did not eat together but were related to one another.

Of major interest for purposes of this chapter is the wide variety of domestic types found. Of the 140 compounds in the sample, 55 contained single households and 49 contained only two households. Only 18 of the 55 single-household compounds were complex; that is, they included a simple nuclear family plus other relatives. Although most cultures in this area of the world are presumed to be patricentic, that review of the complex households revealed the presence of matrilateral relationships. In both single-household compounds and multiple-household compounds, most people were related and were related both through the wives and through the husbands.

Compounds and households are always defined and described at one point in time but, in fact, they change a good bit over time. An important finding in the research cited above is the vast amount of change that occurred in living arrangements within the short period of one year. There were major changes in 47 of the 140 compounds involving moving in and out of individuals, families or even entire households. The types of moves in the 47 households involved all sorts of domestic patterns. Some were temporary changes, such as a pregnant married sister of a husband moving from the village to the town in order to be with her parents while she had the baby, or an unrelated family coming to live in the house each summer, or a mother-in-law moving out to live with another son. Although there was no single, predominant pattern of family or household type, one general sequential trend was evident: that of living with both parents and siblings right after marriage, followed by the death of one or both parents. Some couples continued to live with siblings, others to move out into separate households. Residence early in marriage with the wife's or husband's mother was another observed pattern. Yet, as time goes on, there is a tendency to live apart from parents and siblings, first as a tenant in a house and later as an owner of one of the housing units. The main conclusion is that there is no such thing as "the urban family"; but in a city like Isfahan, there are various forms of family and household which represent an adaptation to urban life.

There were few single-person households (about 6 per cent), each of them was included in a larger compound and most of the people involved were related to one or more persons in at least one other household in the compound. For example, the husband's mother might live in a separate household in the same compound. Furthermore, the 77 simple households that did not live with relatives were hardly isolated urban families. In fact, most of the married couples in simple households who were not living in the same compound with other relatives did have other relatives living in the vicinity and did, in fact, have regular and frequent contact with them. There were only about 20 families out of the total 175 that might be regarded as relatively isolated and most of these families were recent migrants to Isfahan.

The hypothesis that urbanization, modernization and industrialization modify traditional family types towards some sort of conjugal household and nuclear family was tested with data from the West Malaysia (currently called Peninsular Malaysia) family survey of 1966-1967.[46] The increasing urbanization and modernization of Peninsular Malaysia has been well documented. The investigators examined the extent of extended family participation and observed that nuclear families were not uncommon in Malaysia and that extended families among the Malays could involve either set of parents.

Three ethnic groups were in the sample: the Chinese; the Indians and Pakistanis; and the Malaysians. Some differences in the extent and type of extended family participation were found among the three ethnic groups. Chinese or Indian and Pakistani women in extended families were more likely to have lived with their husband's parents than with their own, whereas Malay women were more likely to live with the wife's parents.

[45] John Gulick and Margaret Gulick, "Varieties of domestic social organization in the Iranian City of Isfahan", *Annals of the New York Academy of Science*, vol. 220, No. 6 (11 March 1974), pp. 441-469.

[46] James A. Palmore, Robert E. Klien and Ariffin bin Marzuki, "Class and family in a modernizing society", *American Journal of Sociology*, vol. 76, No. 3 (November 1970), pp. 375-398.

They found no evidence that the equivalent of the extended family has lessened over time. In fact, younger women in their sample were more likely to have lived with their parents right after marriage than were older women. Neither urban/rural residence nor level of education was highly related to extended family participation. In fact, wives in metropolitan areas and the more highly educated women were more likely to have lived with their parents right after marriage than were rural women with less education. Women in the moderate income group were more likely to have experienced living in extended families than either high- or low-income women.

The definition of extended family used consisted of "a married couple in a common household with parents of either the husband or wife or with other married couples".[47] The operational definition of extended family participation was household-sharing. The researchers observed that this usually involved other types of sharing, such as income and meals. This research is one of the few to take into account the effects of mortality and migration. That is, it was not possible for some couples to live with parents right after marriage because of either parental mortality or migration. These two factors obviously influenced the extent to which young couples might live with parents and was taken into account in the research. Among women with both sets of parents available right after marriage, 42 per cent lived with the husbands' parents and 27 per cent with the wives' parents. Among those with only the husband's parents available, however, 58 per cent lived with them; and among those with only the wife's parents available, 52 per cent lived with them.

The study concludes that rural and small-town residents were somewhat more likely to be living with parents at the time of the interview, but less likely to have done so directly after marriage. Essentially, ethnicity and age are the two variables on which extended family participation varied most, given control for availability of parents or relatives. The results certainly call into question the notion of almost automatic replacement of traditional family forms with the simple nuclear family as urbanization and socio-economic development proceed. Both of the studies discussed above describe great diversity in family and household residential structure, a diversity that appears to be influenced only in minor ways by rural/urban distinctions.

Much traditional thinking about social change inappropriately assumes that city, village and town are significantly different in life-style. The assumption that the city is different from the countryside usually is linked with an assumption that the urban community is the centre of change. That is, innovation diffuses outwards from the city to the countryside as a result of contacts with businessmen, government officials and particularly with migrants who were born in the village and lived or worked in the city and returned to the village. It is also usually assumed that such change is very slow, that innovation diffuses very slowly outwards from the urban metropolis to the rural countryside. Studies attempting to examine the effect of the city or metropolis on villages and rural communities in the vicinity throw additional light on the extent to which different family types characterize the two residential areas.

[47] *Ibid.*

An attempt has been made to examine the effect of the city of Delhi in India on a village about 11 miles distant.[48] Specifically, the researcher attempted to determine whether the behaviour and attitudes of village men or women who had lived or worked at Delhi differed from those villagers who lacked such urban experience. One focus of difference was whether the urban-influenced villagers lived more in nuclear families than joint or extended families. Another concerned educational and occupational goals for their children.

In the village, there was no significant difference in the proportion of joint families among families headed by urban-oriented men as compared with those with no urban experience. In response to the question whether they preferred living in joint houses or separately, a majority favoured the joint family. Again, there was no significant difference between urban-oriented and village-oriented people. In fact, there was no significant difference by caste or sex either. The strong preference for the joint family was expressed by all groups and reflected more an ideal pattern of life than the actual living arrangements, since in fact only 41 of the 110 families in the study were joint families. The reasons given for the preference were predominantly economic, and the notion of mutual aid was mentioned in most of the favourable answers. The results showed no evidence of either breakdown or reduction in kinship ties resulting from urban contacts. All the villagers preferred the joint family at least as an ideal, although there was some evidence that the function of kinsmen might be changing in that more of the urban-oriented individuals depended upon their own efforts to find jobs rather than depending upon relatives or other village relationships.

An extension and distortion of the view that the extended family is characteristic of rural societies and that nuclear families characterize urban life is another common view that rapid urbanization leads to deterioration and disorganization of family life. Evidence for this view is often no more than pointing to the overcrowded slums and squatter settlements in any rapidly growing city, particularly those in developing countries. Squatter settlements, in particular, have been viewed as the epitome of social disorganization. A review of 10 years of research on squatter settlements in Peru[49] dispels many of the myths perpetrated by newspapers, social workers, politicians and middle-class residents alike that the residents of the shanty-towns are uneducated, unambitious, disorganized and an economic burden. This research, based on 10 years of observation of a Peruvian *barriada,* suggests, to the contrary, that the *barriada* residents were as educated as the city population in general and far removed from a rural culture, with an average of nine years of urban residence. Incomes, although low, were substantially higher than in the poorest slum areas, and the *barriada* families were relatively stable compared with those in the city slums and the rural provinces. Delinquency and prostitution, which were common in the city slums, were rare in the *barriada.*

The studies also reveal that the *barriada* residents believe strongly that the current situation is far prefer-

[48] Stanley A. Freed, "Attitudes, behavior and urban influences in a north Indian village", *Annals of the New York Academy of Sciences,* vol. 220, No. 6 (11 March 1974), pp. 411-424.

[49] William Mangin, "Squatter settlements", *Scientific American,* vol. 217, No. 4 (October 1967), pp. 21-28. See also "Latin American squatter settlements: a problem and a solution", *Latin American Research Review,* vol. 2 (Summer 1967), pp. 65-67.

able to what they had in the provinces or in the central city slums and that they have an investment in the future for themselves and their children in the property they have acquired in the squatter settlement. Research conducted at Bogotá, Colombia,[50] tends to support findings of the Peruvian study.[50]

F. Marital status in urban and rural populations

An important feature of the prevailing family system is the structure that it imposes on a person's passage through family-related stages. For adults, the most direct manifestation of this structure is the distribution of the population among the various marital statuses. Rural/urban differences in these distributions tend to reflect fundamental differences in family systems and thus are an important indicator of the salience of urban or rural residence for a person's life course. Furthermore, variations in marital status distributions have repercussions for the composition of households and families and for the fulfilment of their social and economic needs.

This section builds upon two previous working papers[51] of the Population Division. In these papers, voluminous data on the marital status composition of rural and urban populations in various countries are presented in raw and processed form. Furthermore, it is stated that important regional differences exist in many aspects of marital distributions. In particular, countries in which the population is predominantly of European extraction, including those of the western hemisphere, were shown to differ systematically from those of Africa and Asia. The present section takes advantage of this observation for purposes of concise exposition by presenting data in the form of unweighted country averages for populations in each of these two groups: group I comprises countries of Europe, Northern America and Latin America; group II consists of countries of Africa and Asia. The data base, however, has been updated to include information derived from more recent censuses. The countries and dates of observation used in this discussion are shown directly below. For Benin, Gabon and Mali, the data are derived from population surveys; and for Ethiopia, an (undated) observation was supplied directly by the Government. In all other cases, the information was derived from population censuses:

1960: Denmark, Portugal, Turkey and United States of America;
1961: El Salvador, Honduras and Pakistan;
1963: Nicaragua and Sri Lanka;
1964: Colombia;
1965: Bulgaria and Iraq;
1966: England and Wales (United Kingdom), Luxembourg and Tunisia;
1967: United Republic of Tanzania (Zanzibar);
1968: France;
1970: Brazil, Chile, Cuba, the Dominican Republic, Finland, Hungary, Japan, Norway, the Philippines, Sabah (Malaysia), Sarawak (Malaysia), Spain, Switzerland, Syrian Arab Republic and Thailand;
1971: Austria, Canada, India, Indonesia, German Democratic Republic, Greece and Morocco;
1972: Peru;
1973: Costa Rica;
1974: Bangladesh;
1975: Republic of Korea and Uruguay.

Because crude percentage data only were available for Benin, Ethiopia and Mali, but no absolute figures permitting cross-classification, those three countries were omitted in some parts of the analysis.

Four types of marital-status are distinguished: single; married; widowed; and divorced. Where there were data referring also to consensual unions, these data were included among the married. In some countries, divorces are not legally recognized, though there are data on "separated" unions; in other countries the "divorced" and "separated" are distinguished as two categories; for the present purpose, all these have been included among the divorced.

Table 41 presents some of the most important indices describing rural and urban marital-status distributions in the two groups.[52] The groups are identified on a purely geographical basis, although in several instances the indices for a particular country may have been more characteristic of the other geographical area.[52]

The first four panels of table 41 show the average crude percentage of population aged 15 and older in the various marital categories. It should be remembered that crude percentages will reflect age-distributional differences between the regions, since age schedules of marital status show important changes with age. The populations above age 15 are typically younger in the group II countries, so it is to be expected that single persons will be relatively over-represented there and widowed persons under-represented. Urban/rural comparisons within a region should be much less affected by age distributional factors than interregional comparisons.

The most striking rural/urban differences in the crude percentages occur in the categories of the single and married population. In group II, the proportion single is 7-8 percentage points higher in urban than in rural areas for both males and females. Virtually all of this difference is reflected in the married population, where rural areas exceed urban areas by 7-8 percentage points. There is a slight tendency for both males and females to be widowed more frequently in rural areas, perhaps reflecting higher rural mortality conditions. In contrast, the divorced are somewhat more common in urban areas.

In the countries in group I, rural/urban differences are much less distinct. Nevertheless, females show much the same pattern as in the countries of group II, albeit in more muted form. Rural women are much more likely to be currently married than urban women, by some 7 percentage points. An urban excess exists for females in each of the other marital statuses, of which the single is numerically most important. Males in group I are clearly the anomalous case. Urban males differ very little from rural males in their propensity to occupy

[50] William L. Flinn and D. G. Cartano, "A comparison of the migration process to an urban barrio and to a rural community: two case studies", *Inter-American Economic Affairs*, vol. 24, No. 2 (1969), pp. 527-539.

[51] "Urban-rural differences in the marital-status composition of the population" (ESA/P/WP.51); and "Up-dated study of urban-rural differences in the marital-status composition of the population" (ESA/P/WP.59).

[52] Bulgaria, Greece and Peru are instances where a distributional typology would have produced a different classification than a geographical grouping. Turkey is placed with the group II populations in the present section.

TABLE 41. SUMMARY OF URBAN AND RURAL MEASURES CONCERNING MARITAL STATUS OF EITHER SEX AND URBAN/RURAL DIFFERENCES IN THESE MEASURES

Measure and group[a]	Males			Females		
	Urban	Rural	Difference	Urban	Rural	Difference
A. *Crude percentage single, ages 15 +*						
Group I	33.1	34.7	−1.6	29.1	24.8	+4.3
Group II	38.1	30.2	+7.9	22.4	14.5	+7.9
B. *Crude percentage married, ages 15 +*						
Group I	62.3	60.8	+1.5	56.3	63.4	−7.1
Group II	58.0	66.2	−8.2	62.4	70.8	−8.4
C. *Crude percentage widowed, ages 15 +*						
Group I	2.7	3.4	−0.7	11.3	10.5	+0.8
Group II	2.1	3.1	−1.0	11.3	12.4	−1.1
D. *Crude percentage divorced, ages 15 +*						
Group I	2.0	1.1	+0.9	3.3	1.3	+2.0
Group II	1.8	1.6	+0.2	3.8	2.4	+1.4
E. *Percentage aged 25-29 single*						
Group I	34.2	36.5	−2.3	23.1	17.2	+5.9
Group II	39.3	28.1	+11.2	13.0	6.9	+6.1
F. *Percentage aged 45-49 married*						
Group I	85.9	84.2	+1.7	73.9	82.2	−8.3
Group II	89.8	91.5	−1.7	75.7	80.6	−4.9
G. *Percentage aged 65-69 widowed*[b]						
Group I	10.0	10.9	−0.9	38.4	33.3	+5.1
Group II	12.2	12.6	−0.4	60.9	56.6	+4.3
H. *Expected years lived in the single state, ages 15-65*						
Group I	14.2	15.4	−1.2	13.2	11.0	+2.2
Group II	13.2	11.0	+2.2	7.3	5.2	+2.1
I. *Expected years lived in the married state, ages 15-65*						
Group I	34.0	33.2	+0.8	31.2	35.0	−3.8
Group II	34.6	36.6	−2.0	33.3	36.5	−3.2
J. *Expected years lived in the widowed state, ages 15-65*						
Group I	0.8	0.9	−0.1	3.7	3.2	+0.5
Group II	1.3	1.5	−0.2	7.7	7.1	+0.6
K. *Expected years lived in the divorced state, ages 15-65*						
Group I	1.1	0.6	+0.5	1.9	0.8	+1.1
Group II	1.0	0.8	+0.2	1.7	1.2	+0.5

[a] Group I comprises countries of Europe, Northern America and Latin America; group II comprises countries of Africa and Asia.

[b] In a few countries, the age groupings of the census data do not permit the separate identification of the 65-69 age group. In these cases, the nearest approximation that could be obtained was substituted. The following substitutions were made: Nicaragua (65-74); Bangladesh, Greece and Turkey (65 +); Benin and Pakistan (60 +).

the various marital categories. None of the urban/rural differences reaches 3 percentage points. The minor differences that do exist for the single and married are the reverse of those that occur in the other sex/region groups. Urban males in the countries in group I are more likely to be married and less likely to be single than are rural males.

The remaining data in the table are based on measures that are specific to a particular age or that are age-standardized. They suggest that the patterns of urban/rural differences just described are not exclusively a product of age-distributional differences between rural and urban areas but also can be observed when the factor of age is controlled. For persons aged 25-29, the percentage single ranges from 6 to 10 percentage points higher in urban than in rural areas for three of the four groups. For males in group I, however, the difference is again in the opposite direction, with rural males some 2 percentage points more likely to be single than urban males. The largest urban excess in the single percentage among persons aged 25-29 is found among males in group II, where an average of 39 per cent of urban residents are still single. This excess almost certainly reflects in part migration patterns in these populations, wherein young adult males in rural areas are much more likely than other groups to migrate to urban areas. This pattern shows up clearly in chapter VIII, where highly masculine urban sex distributions are revealed in Africa and Asia. Oddly, the masculine surplus does not translate into better marriage chances for urban women in the countries in group II, who continue to remain single in greater numbers (by a factor of nearly 2) than women in rural areas.

The unusually large percentage single among urban males in group II has largely disappeared by age 45-49. The percentage married among this group at age 45-

49 is nearly the same in rural and urban areas (89-91 per cent). Evidently, either the single males at the younger ages have selectively returned to rural areas or marriageable females have moved to the city and alleviated the male surplus. Urban women at this age in the Afro-Asian populations, however, still maintain a relatively low marital proportion. Both rural and urban women have much lower proportions currently married than men at this age, doubtless reflecting relatively high proportions widowed that are produced by a combination of high male mortality, large average differences in age between bride and groom, and restrictive customs regarding widow remarriage. By age 65-69, a majority of group II women in both urban and rural areas are in the widowed state. In contrast, only about one eighth of males are widowed at these ages in rural or urban areas in either region.

Sections G-J of table 41 process information on age-specific proportions in the different marital categories into life-table type measures. They present the expected number of years to be spent in a particular marital status by a person aged 15 years who would survive to age 65 and would be subject at each age to probabilities of occupying the various marital categories that were recorded in a particular census or survey. For example, the expected years to be spent by a rural male in the married state is found by adding together the rural male proportions married at ages 15-19, 20-24 . . . 65-69 and multiplying by five (to reflect the fact that each age category is to be occupied for five years). Obviously, the interpretation requires the hypothetical person to stay in either the urban or the rural population throughout this 50-year span. The sum of time spent in each of the four marital categories is necessarily 50 years.

Once again, the indicators reveal the same pattern of rural/urban differences shown by the crude percentages. For both males and females in group II countries and for females in the countries of group I, urbanites can expect to spend about two more years in the single state than can rural residents. The males in group I are again the exception, with a slightly higher expectation of single life among the rural population. Rural/urban differences in the expectation of married life are the reverse of this pattern and are somewhat exaggerated for females because both divorce and widowhood are more common in urban areas. Whether the higher prevalence of women with disrupted marriages in urban areas reflects a higher incidence of disruption, a longer duration of the disrupted state or selective migration of those with disrupted marriages cannot be inferred from available evidence. The importance for women of post-marital states in group II countries is very clear in the table. Whether she lives in an urban area or a rural area, a female aged 15 years can expect to spend more years in the widowed state prior to age 65 than in the single state. The expected duration outside the married state is nearly the same for women in both groups of countries, with longer pre-marital periods in group I compensating for longer post-marital periods in group II. Despite the fact that urban males are expected to spend longer in the single state than urban females in both regions, they are also expected to spend longer in the married state. The reason is simply that widowhood is expected to last much longer for urban females than for urban males—by three years in the countries of group I and six years in those of group II.

Although less than 5 per cent of the years from 15 to 65 are expected to be spent in the divorced state, it is worth noting that this is the one marital category where rural/urban differences are uniform in direction for all region/sex combinations. Urban residents clearly have a higher average prevalence of divorce.

The patterns revealed in table 41 reflect an enormous array of social, economic, ecological and demographic factors. They indicate that marriage typically occurs at an earlier age and more frequently in rural than in urban areas, particularly for women. A common interpretation of this difference is that rural women have fewer opportunities for sustenance outside the family system than do urban women. In part, the structure of opportunities may reflect the fact that rural areas tend to be more traditional in habit and custom, and therefore more responsive to long-standing social norms that have developed in order to maximize reproductive performance in a situation where high mortality threatens social survival.[53] However, rural marriage occurs much later in the group I countries than in those in group II, a difference first described systematically by Hajnal and said by him to date back at least to the sixteenth century.[54] In many rural areas of Western Europe, a situation developed in which accession to land became a prerequisite of marriage. This mechanism served to delay marriage for males and females alike. In fact, migration to urban areas became for many a method of escape from the restricted marriage prospects in rural areas.[55] It is possible that continued operation of something analogous to this safety-valve accounts for the earlier male marriage in urban areas in these countries. It is at least clear that landless farm labourers in some of the countries in group I continue to marry at lower frequency than either landed farmers or urban residents.[56] In the countries in group II, on the other hand, an extended family system may facilitate early marriage in rural areas by removing many of the costs from the couple and by allowing a more gradual process of accession to land.[57]

An alternative but not inconsistent interpretation of rural/urban differences emphasizes that gains from marriage are greater in rural areas. Because women's opportunities outside the home are more limited in rural areas, there are greater joint gains from women specializing in the performance of household tasks, including child-rearing, in rural areas. Where women are more nearly equal to men in economic potential outside the home, the gains from male/female specialization in the traditional sense are reduced, and consequently so are the gains from marriage.[58] Further reducing the gains from

[53] Kingsley Davis, "Institutional patterns favoring high fertility in underdeveloped areas", *Eugenics Quarterly*, vol. II (1955), pp. 33-39.

[54] John Hajnal, "Age at marriage and proportions marrying", *Population Studies*, vol. VII (1953), pp. 111-132; and *idem*, "The marriage boom", *Population Index*, vol. 19 (1953), pp. 80-101.

[55] On England, see J. D. Chambers, *Population, Economy, and Society in Pre-Industrial England* (London, Oxford University Press, 1972), pp. 44-50.

[56] For example, see United States of America, Department of Commerce, Bureau of the Census, *United States Census: 1970 Special Report—Marital Status* (Washington, D.C., 1973).

[57] K. Davis, *loc. cit.*

[58] Gary S. Becker, "A theory of marriage. Part I", *Journal of Political Economy*, vol. 81 (1973), pp. 813-846; *idem*, "A theory of marriage. Part II", *Journal of Political Economy*, vol. 28, supplement (1974), pp. S11-S26.

TABLE 42. SUMMARY OF WOMEN-TO-MEN RATIOS OF EACH MARITAL STATUS, URBAN AND RURAL AREAS, AND URBAN/RURAL RATIOS OF THOSE RATIOS

Group[a]	*Married women per 100 married men*[b]			*Non-married women per 100 non-married men*[b]		
	Urban ratio	*Rural ratio*	*Ratio of ratios*	*Urban ratio*	*Rural ratio*	*Ratio of ratios*
Group I	101.2	98.9	1.02	142.9	98.0	1.46
Group II	93.9	101.6	0.92	87.6	101.5	0.86
	Single women per 100 single men[c]			*Widowed women per 100 widowed men*[c]		
Group[a]	*Urban ratio*	*Rural ratio*	*Ratio of ratios*	*Urban ratio*	*Rural ratio*	*Ratio of ratios*
Group I	100.6	70.3	1.43	487.8	301.0	1.62
Group II	56.2	53.1	1.06	537.6	420.8	1.28

[a] Group I comprises countries of Europe, Northern America and Latin America; group II comprises countries of Africa and Asia.

[b] Adjusted, as explained in text.

[c] Without adjustment.

marriage in urban areas is the typically reduced role played by children in household production. Such conditions should be reflected not only in lower marriage frequencies but in higher divorce frequencies in urban areas, a situation that is made quite evident in table 41. An ironic result of the urban opportunities for women in the countries of group I is that it induces selective female migration to cities, thereby improving the marriage chances for urban males and helping to eliminate for them the urban/rural gap in marriage propensities that is to be expected on theoretical grounds and is observed in other sex/region combinations.

Urban men have been compared with rural men, and urban women with rural, but no systematic comparison of men and women has been made. Table 42 shows the balance between males and females in different marital statuses for urban and rural areas in the two regions. First, a comparison is made of urban and rural ratios of married women to 100 married men and of non-married women to 100 non-married men. In these figures an adjustment was applied for inequalities between numbers of married men and married women as reported in the censuses for the combined national populations.[59]

In the first group (I) of countries, there occurs a slight surplus of urban married women over urban married men and a corresponding deficit of rural married women, signifying that at least some of the wives of rural men are found to be residing in cities or towns; but it remains possible that the slight differences, despite the adjustment made, is within the margin of error of the data. In group II, there is a considerable urban deficit of married women, as compared with married men, leading to the conclusion that many rural husbands absent themselves from their wives and families and take up at least temporary residence in cities and towns but are unable to move their wives or families to these same urban places.

As concerns the non-married persons (single, widowed, divorced), in the first group of countries there is a large surplus of women in the urban areas and a slight deficit of women in the rural places. The reverse is found in the second group of countries: a considerable urban deficit and a slight rural surplus of non-married women, as compared with numbers of non-married men. In the second group (II) of countries, there is a considerable shortage of single women, as compared with single men, and the shortage is almost equally great both in urban and in rural places. Because of generally greater age of husbands as compared with their wives, as well as the often greater mortality of men as compared with women of the same ages, widowed women are far more numerous than widowed men. A possible additional reason may be that widowed men find more opportunity to remarry than do the widowed women. Husband/wife differences in average age at marriage, however, as previously stated, do not vary greatly. If the ratios of widowed women to widowed men are considerably greater in urban than in rural places—and this is generally the case in both groups of countries—at least part of the difference is probably to be attributed to the migration of widows to cities and towns or of widowed men to rural areas. This apparent effect is considerable even in the countries in group II, though in that group there is evidence of a lesser migration of single women from country to town.

[59] If a census is accurate and international migration is not important, ordinarily equal numbers of married men and married women should be reported, but this is not everywhere the case. In some countries, there is still an incidence of polygamy; hence, married women can be slightly more numerous than married men. In some other countries, where husbands and wives (or partners to a consensual union) do not live in the same household, there is some tendency of the men in question to report themselves as single, whereas the women in question tend to insist more on their marital (or union) condition. To eliminate these two possible effects, those due to polygamy and those due to misstatement of status at the census, numbers of married men and married women were so prorated that in the national totals they would both be equal to the geometrical mean of reported numbers of married men and married women. For the non-married, the residuals were used after subtraction of adjusted numbers of married from the total population.

VIII. SEX AND AGE DISTRIBUTIONS OF URBAN AND RURAL POPULATIONS

The sex and age distribution of a population is uniquely determined by its history of fertility, mortality and migration. High fertility produces a youthful age structure; mortality reductions increase the proportions at the extremes of age and generally serve to reduce the average age of a population. Out-migration tends to hollow out an age structure, decreasing the fraction in the young adult ages, which are typically the most migratory. Sex ratios at a particular age are products of the sex ratio at birth into that age cohort (which is as close as human populations come to having a biological constant) and its history of sex differentials in mortality and migration.

The massive upsurge in urban proportions during the twentieth century has left an imprint on the age/sex structures of rural and urban areas. Since urbanization has occurred primarily as a result of net rural-urban migration, as documented in chapter III, it is natural to expect its effect on age structures to be most visible during the young adult years, in the form of higher ratios of urban-to-rural population at these ages than at others. These migration-induced patterns are superimposed upon what would typically be more youthful age structures in rural areas by virtue of their higher fertility levels. Predictions are less straightforward with regard to urban/rural differences in sex structure. These differences could show either higher or lower urban masculinity, depending upon whether rural-urban net migration has been predominantly male or female. There is also some evidence that differences in mortality might be systematically different in rural than in urban areas, although this factor probably does not have a decisive impact on relative sex distributions.

The aim of the present chapter is to describe concisely the principal age and sex distributional differences between urban and rural areas. Regardless of their source, these differences clearly have implications for planning, for social and economic performance and for an individual's typical life course. There is an enormous array of data available on age/sex distributions of rural and urban populations at the national level. Because the aim of this chapter is to describe major tendencies, a strategy was adopted to process the national information into regional summaries and to recognize explicitly only two time periods. In this manner, relatively stable and secure patterns can be described, at the expense of neglecting certain interesting or unusual information for specific countries. The regional summaries in all cases constitute simple unweighted averages of observations for countries belonging to that region.

Data for the analysis have been drawn from national population censuses and from various issues of the *Demographic Yearbook*. To be included, a country had to supply data on urban and rural age/sex distributions in one-, five- or 10-year age intervals; if 10-year intervals were used, the distributions were graduated to five-year intervals up to the open-ended category of 70+. Evidence of extreme census-coverage or age-misreporting errors was cause for eliminating an observation. All data were drawn from the period since 1950. This period was subdivided into 1950-1964 and 1965-1975. If a country could supply two observations during one of these two periods, the earliest observation was used for 1950-1964 and the most recent for 1965-1975. This choice was made in order to highlight post-war trends. However, it should be mentioned that a comparison of earlier and later observations cannot be strictly interpreted as providing trends because the composition of countries in the two subperiods changed somewhat. The identity of observations for the two periods and the various regions is given below:

Africa

(a) *Countries included in first observation, 1950-1964 (N = 17):* Benin (1961), Central African Empire (1959), Chad (African population, 1964); Congo (1960); Gabon (1961); Ghana (1960); Guinea (1955); Libyan Arab Jamahiriya (1964); Mali (1960); Morocco (1951); Namibia (1951); Seychelles (1960); South Africa (all races, 1951); Southern Rhodesia (non-African population, 1961); Togo (1959); Egypt (1960); Nigeria (1963);

(b) *Countries included in second observation, 1965-1975 (N = 22):* Algeria (1966); Benin (1975); Botswana (1971); Burundi (1965); Ethiopia (1968); Ghana (1970); Ivory Coast (1975); Kenya (1969); Lesotho (1972); Liberia (1971); Libyan Arab Jamahiriya (1973); Mauritania (1973); Morocco (1971); Rwanda (1970); Senegal (1971); Seychelles (1971); South Africa (all races, 1970); Southern Rhodesia (all races, 1969); Tunisia (1966); Uganda (1969); United Republic of Tanzania (1973); Western Sahara (1970).

Latin America

(a) *Countries included in first observation, 1950-1964 (N = 25) :* Antigua (1960); Argentina (1947); Belize (formerly British Honduras, 1960); Brazil (1950); Chile (1952); Colombia (1951); Costa Rica (1950); Cuba (1953); Dominican Republic (1950); Ecuador (1950); El Salvador (1950); Guatemala (1950); Guyana (1960); Haiti (1950); Honduras (1961); Jamaica (1957); Mexico (1960); Nicaragua (1950); Panama (1950); Paraguay (1962); Peru (1961); Puerto Rico (1960); Trinidad and Tobago (1960); Uruguay (1963); Venezuela (1950);

(b) *Countries included in second observation, 1965-1977 (N = 23):* Antigua (1970); Bahamas (1970); Brazil (1970); Chile (1970); Colombia (1973); Costa Rica (1973); Cuba (1970); Dominican Republic (1970); Ecuador (1974); El Salvador (1971); Guatemala (1973); Guyana (1970); Haiti (1971); Honduras (1974); Mexico (1973); Nicaragua (1971); Panama (1973); Paraguay (1972); Peru (1972); Puerto Rico (1970); United States Virgin Islands (1970); Uruguay (1975); Venezuela (1971).

Northern America

(a) *Countries included in first observation, 1950-1964 (N = 3):* Canada (1951); Greenland (1960); United States of America (1950);

(b) *Countries included in second observation, 1965-1977 (N = 3):* Canada (1971); Greenland (1965); United States of America (1970).

East Asia

(a) *Countries included in first observation, 1950-1964 (N = 2):* Japan (1950); Republic of Korea (1960);

(b) *Countries included in second observation, 1965-1975 (N = 2):* Japan (1975); Republic of Korea (1970);

South Asia

(a) *Countries included in first observation, 1950-1964 (N = 14):* Bangladesh (1961); Brunei (1960); Burma (1953); Democratic Kampuchea (1962); India (1951); Indonesia (1961); Iran (1956); Iraq (1957); Jordan (1961); Nepal (1961); Pakistan (1961); Sri Lanka (1953); Syrian Arab Republic (1960); Thailand (1956);

(b) *Countries included in second observation, 1965-1977 (N = 13):* Bangladesh (1974); India (1971); Indonesia (1971); Iran (1971); Iraq (1972); Lebanon (1970); Maldives (1967); Nepal (1971); Pakistan (1968); Philippines (1970); Sri Lanka (1971); Syrian Arab Republic (1970); Thailand (1970).

Europe

(a) *Countries included in first observation,*[1] *1950-1964 (N = 26):* Albania (1955); Austria (1951); Bulgaria (1956); Cyprus (1960); Czechoslovakia (1961); Denmark (1960); Finland (1950); France (1962); Germany, Federal Republic of (1961); Greece (1951); Hungary (1960); Iceland (1951); Ireland (1951); Israel (1961); Luxembourg (1960); Malta (1957); Netherlands (1960); Norway (1950); Poland (1950); Portugal (1960); Romania (1956); Spain (1950); Sweden (1950); Switzerland (1960); Turkey (1955); United Kingdom (1951);

(b) *Countries included in second observation,*[2] *1965-1977 (N = 21):* Austria (1971); Bulgaria (1971); Denmark (1969); Finland (1970); France (1968); German Democratic Republic (1971); Greece (1971); Hungary (1970); Iceland (1975); Ireland (1971); Israel (1972); Luxembourg (1970); Netherlands (1971); Norway (1970); Poland (1971); Romania (1972); Spain (1970); Sweden (1970); Switzerland (1970); Turkey (1970); Yugoslavia (1971).

Oceania

(a) *Countries included in first observation, 1950-1964 (N = 2):* Australia (1954); New Zealand (1951);

(b) *Countries included in second observation, 1965-1977 (N = 6):* Australia (1971); Gilbert Islands and Tuvalu (1968); Guam (1970); New Hebrides (1967); Solomon Islands (1970); Samoa (1966).

USSR

(a) *For first observation :* 1959 (N = 1);

(b) *For second observation :* 1970 (N = 1).

[1] Including Cyprus, Israel and Turkey, which are currently included in the region of Western South Asia.

[2] Including Israel and Turkey, which are currently included in the region of Western South Asia.

A. Levels of urbanization by age and sex

Table 43 presents data on the average percentage of an age/sex group that lived in urban areas, by major area, in the post-1965 period. It should be emphasized that the figures are regional averages of information for countries with data; thus, they do not correspond to the regional averages of proportion urban shown in chapter III, which cover all countries in a region and which weight observations by population size. For purposes of comparisons over time, the table also includes data for the world and the more developed and less developed regions in the period 1950-1964. The data for both periods in these latter three aggregates are shown graphically in figure IX. It is immediately evident from the figure that there have been "increases" over time in the level of urbanization but that these increases have been fairly uniform over ages. The general configuration of the curves has changed relatively little in the recent past. For this reason, and for the sake of economy, the remainder of the chapter considers only the more recent period.

As illustrated in figure IX, very young children are generally less urbanized than teen-agers or young adults, almost certainly because rural fertility rates are typically higher than urban rates. The level of urbanization among new-borns is determined both by the ratio of urban-to-rural fertility and by the proportion urban in the childbearing population. In the absence of rural/urban fertility differences, the urban proportion in the 0-4 age group would simply be a weighted average of the proportion urban among women of childbearing age, with the weights determined by age-specific fertility levels. The fact that urbanization among the 0-4 age group is considerably lower than that among childbearing women thus testifies to the prevalence of conditions in which rural fertility exceeds urban.

Urbanization levels actually decline somewhat between age groups 0-4 and 10-14 in the more developed regions, although not in the less developed regions. The most likely reason for the decline is that the parents of the older children are less highly urbanized than parents of the younger children, as evidenced by the downward-sloping urbanization level after ages 25-29 in the more developed countries. This slope is not as sharp in the less developed countries, which may account for the failure of urbanization levels in this region to decline with age among children.

Beginning with ages 10-14 in the less developed regions and 15-19 in the more developed, urbanization levels begin to rise. This rise almost certainly reflects a history of net rural-urban migration in the pertinent cohorts; in the absence of migration, a continued decline in urbanization levels with age would be expected by virtue of the increasingly rural distribution of the parental cohorts with whom individuals in successively older cohorts are associated. It is well known that the dominant motive for rural-urban migration is economic

TABLE 43. AVERAGE PERCENTAGE URBAN, BY AGE AND SEX, FOR TOTAL SAMPLE, MORE DEVELOPED AND LESS DEVELOPED REGIONS, AND MAJOR AREAS

1965-1975

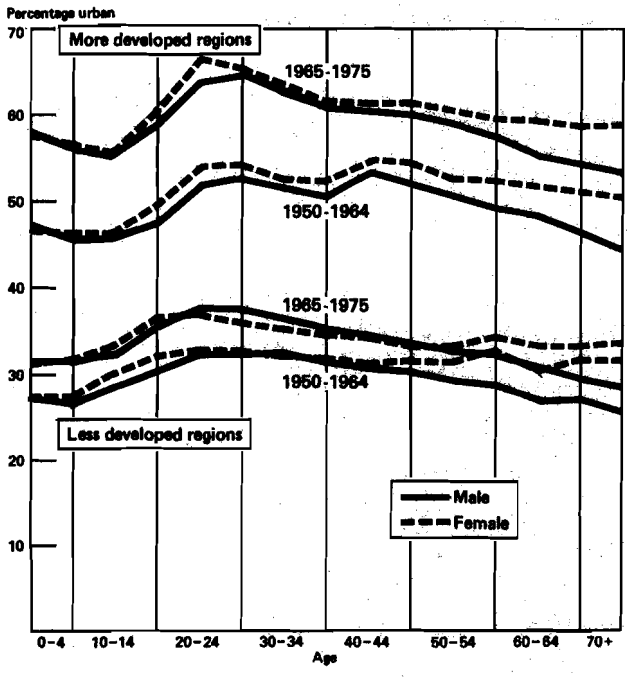
Age group	Total sample		More developed regions		Less developed regions		Africa		Latin America		Northern America	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
0-4	39.389	39.188	58.097	57.940	31.497	31.277	22.405	21.767	46.438	46.442	71.267	71.026
5-9	38.756	39.035	56.216	56.319	31.390	31.743	21.269	21.907	47.125	47.626	69.514	69.557
10-14	39.027	40.023	55.532	55.599	32.063	33.452	21.522	22.626	47.930	50.311	68.925	69.164
15-19	42.318	43.418	58.804	60.154	35.363	36.357	24.665	24.286	50.587	54.741	70.219	72.753
20-24	45.594	45.776	63.987	66.438	37.834	37.059	29.607	25.493	51.430	55.346	75.565	78.568
25-29	45.484	44.714	64.719	65.393	37.369	35.990	29.704	24.874	50.692	54.201	75.572	76.656
30-34	44.435	43.532	62.806	63.156	36.685	35.254	29.075	23.768	50.285	54.025	74.176	75.389
35-39	43.001	42.751	61.025	61.829	35.398	34.702	27.657	23.148	49.468	53.150	72.893	73.225
40-44	42.539	42.461	60.563	61.539	34.935	34.412	25.931	21.550	49.895	54.292	72.262	73.426
45-49	41.557	41.897	60.019	61.192	33.768	33.756	24.012	20.692	49.887	54.037	72.352	72.966
50-54	40.281	41.443	59.034	60.322	32.370	33.479	22.100	19.844	48.302	54.235	69.182	71.298
55-59	39.728	41.736	57.799	59.660	32.104	34.174	20.561	19.780	49.022	55.454	68.552	71.305
60-64	38.229	41.108	55.831	59.210	30.803	33.472	19.254	19.376	47.698	54.975	67.011	72.067
65-69	36.912	40.951	54.142	58.814	29.643	33.415	16.933	18.473	48.094	56.209	65.944	71.961
70+	36.115	41.153	53.306	58.942	28.862	33.648	16.196	19.004	47.770	56.691	67.305	75.819
Total	41.107	41.758	59.075	60.362	33.527	33.910	23.916	22.582	48.768	51.844	71.378	72.884
Both sexes	41.447		59.729		33.734		23.264		50.318		72.132	

Age group	East Asia		South Asia		Europe		Oceania		USSR	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
0-4	58.417	58.502	25.929	25.868	54.497	54.322	27.181	27.328	48.201	48.003
5-9	56.368	55.984	26.523	26.517	52.397	52.554	26.783	26.347	47.874	47.727
10-14	55.811	55.893	27.601	28.514	51.750	51.800	27.180	26.821	48.491	48.516
15-19	62.827	63.444	29.815	29.193	54.996	56.197	34.044	31.632	61.689	63.100
20-24	64.547	67.018	31.320	29.474	60.238	62.868	36.249	31.456	69.335	69.927
25-29	66.319	66.122	31.183	28.384	61.414	62.123	33.427	29.318	64.682	63.452
30-34	64.574	63.172	30.793	28.053	59.247	59.461	31.305	27.782	63.411	63.426
35-39	61.629	59.753	29.427	28.110	57.455	58.421	29.502	28.041	58.866	58.922
40-44	59.257	57.496	29.521	27.455	56.984	58.086	29.375	28.294	60.966	59.383
45-49	56.384	54.786	27.603	26.609	56.513	57.879	28.757	27.792	58.013	57.921
50-54	53.660	52.572	27.241	26.336	55.660	57.112	28.336	28.268	60.545	56.995
55-59	51.031	51.314	28.013	28.022	54.376	56.473	27.282	27.865	57.896	53.402
60-64	49.397	50.418	26.129	26.062	52.408	55.858	27.836	28.292	51.095	51.558
65-69	46.934	49.310	25.241	25.883	50.932	55.586	25.000	27.075	40.849	46.604
70+	42.834	46.517	23.856	25.837	49.593	55.150	24.598	26.608	44.688	48.744
Total	58.699	58.331	28.047	27.464	55.401	56.813	29.465	28.230	56.582	55.995
Both sexes	58.512		27.767		56.122		28.888		56.265	

TABLE 43. *(continued)*

Age group	1950-1964					
	Total sample		More developed regions		Less developed regions	
	Males	Females	Males	Females	Males	Females
0-4	34.649	34.523	47.181	46.814	27.394	27.407
5-9	33.694	34.419	45.705	46.379	26.741	27.495
10-14	34.745	36.046	45.821	46.266	28.333	30.129
15-19	36.562	38.619	47.382	49.794	30.298	32.149
20-24	39.420	40.635	51.923	53.894	32.182	32.959
25-29	39.749	40.433	52.723	54.130	32.237	32.503
30-34	39.288	39.746	51.266	52.613	32.354	32.296
35-39	38.467	39.336	50.761	52.115	31.350	31.937
40-44	39.014	39.820	53.273	54.640	30.759	31.240
45-49	38.319	40.027	52.049	54.155	30.371	31.847
50-54	37.072	39.213	50.436	52.548	29.335	31.492
55-59	36.409	39.713	49.345	52.135	28.921	32.521
60-64	34.906	38.495	48.446	51.666	27.067	30.870
65-69	34.226	38.960	46.572	51.049	27.078	31.961
70+	32.639	38.543	44.404	50.324	25.828	31.722
Total	36.617	37.995	49.256	51.004	29.299	30.464
Both sexes	37.312		50.144		29.883	

Figure IX. Levels of urbanization, by age and sex, more developed regions and less developed regions, 1950-1964 and 1965-1975



advancement.[3] The younger age at which urbanization levels in developing countries begin to rise probably reflects in part the younger accession to the labour force that is typical in these areas. It may also reflect the importance of migration for purposes of education, since rural/urban disparities in educational opportunities are typically larger in developing than in developed regions. The proportion of migrants for education to total migrants has been put between 9 and 15 per cent in various studies, in Indonesia, Thailand, the Philippines and western Nigeria.[4] In some cases, whole families moved in order to provide adequate education for their children.[5]

The urban proportion tends to peak in the age interval 20-29, although the peak is considerably more distinctive in the developed regions. This peak, of course, coincides with the ages where many studies have shown rural-urban migration to be most rapid.[6] The decline that occurs after this peak may reflect net migration from urban to rural areas, much of which is presumably return migration. For example, "target migrants," common in many developing countries, often leave the city after achieving some specific goal, such as education or accumulation of assets.[7] In the more developed regions, settlement of urbanites into rural areas for family-building or retirement purposes is not uncommon. However, it is important to recognize that such an interpretation is not required. Since urbanization levels have been rising throughout the world, older cohorts have typically been born into more rural circumstances than prevailed among the younger cohorts. Even if migration patterns were identical for the different cohorts and included continued net rural-urban migration into the older ages, urbanization levels could decline with age. The key factor in the slope beyond the twenties is

[3] See reviews in J. Gaude, "Causes and repercussions of rural migration in developing countries: a critical analysis", World Employment Programme Working Paper WEP/10-6/WP10, Geneva, International Labour Office, October 1976; Lorene Y. L. Yap, "The attraction of cities", *Journal of Development Economics*, vol. 4 (1977), pp. 239-264; Sally Findley, *Planning for Internal Migration: A Review of Issues and Politics in Developing Countries* (Washington, D.C., Bureau of the Census, 1977).

[4] J. Connell and others, *Migration from Rural Areas: The Evidence from Village Studies* (Delhi, Oxford University Press, 1976).

[5] W. L. Flinn and D. G. Cartano, "A comparison of the migration process to an urban barrio and to a rural community: two case studies", *Inter-American Economic Affairs*, vol. 24, No. 2 (1969), pp. 527-539.

[6] See, for example, L. Y. L. Yap, *loc cit.*, and S. Findley, *op. cit.*, chap. 3.

[7] Joan Nelson, "Sojourners vs. new urbanites: causes and consequences of temporary versus permanent cityward migration in developing countries", *Economic Development and Cultural Change*, vol. 24, No. 4 (July 1976), p. 732.

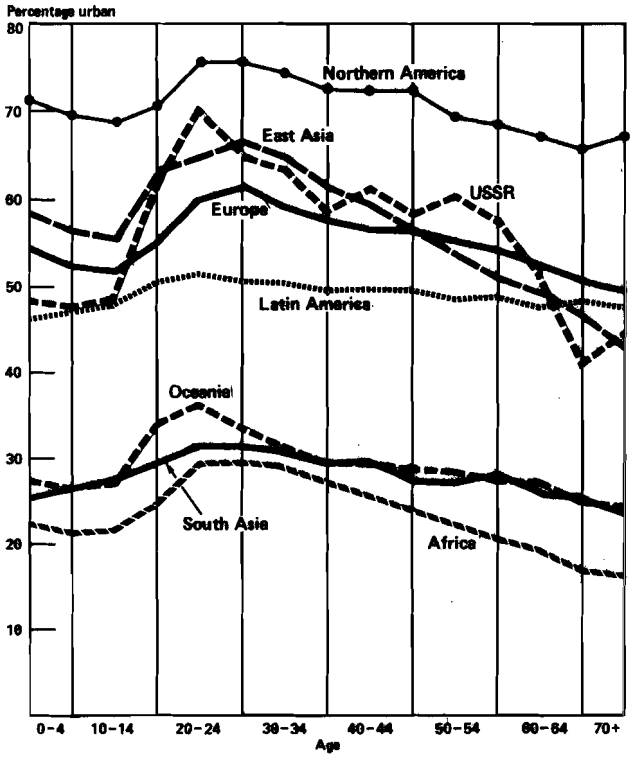
whether continued net rural-urban migration among the older cohorts is sufficient to offset their more rural birth distribution. The graph suggests that this is nearly so in the developing regions but not in the developed regions.

At the higher ages, the cumulation of differences in mortality rates between rural and urban areas undoubtedly begins to affect the rural/urban distribution of population. In the developing regions, it is quite typically the case that rural mortality exceeds urban.[8] The cumulation of these higher rural risks should, *ceteris paribus,* raise the urban percentage with age. In developed regions, rural/urban differences in mortality are much less distinct, although excessive male mortality in relation to female is apparently considerably more serious in urban than in rural areas.[9] These differences may explain why urban proportions decline less rapidly with age in the developing than in the developed regions, as well as the rapidly widening gap between female and male urbanization with age in developed regions.

Mobility patterns could also account for increasing sex differences in urbanization with age. In the more developed countries, where the nuclear family is the predominant form of residence in both urban and rural areas, an older woman whose adult children typically live apart from her is isolated by the death of her husband. Since women are often unable to manage the manual labour required to maintain a farm by themselves, they frequently move into or remain in the cities where urban services are available to make life easier and where elderly persons can receive institutional care if they become incapable of caring for themselves. Migration of older females to cities is not uncommon in certain countries of Asia, where adult children are obligated personally to care for their widowed mother. It sometimes happens that the urban offspring are more prosperous and better able to care for an elderly mother than their rural brothers and sisters who may live in fairly difficult physical circumstances in the countryside. On the contrary, in many of the less developed countries of Africa and Asia where the extended family prevails in the countryside, and rural-to-urban migration is heavily male, urban male migrants tend to return eventually to relatives in the countryside. In cases where the urban migrant men have remitted cash income over the years to the rural families, they may have earned considerable gratitude and status within the family and are welcome to return.

Figures X and XI plot the regional data on urbanization levels that was shown in table 43. The patterns for individual regions do not show particularly large deviations from the patterns just described for more developed and less developed areas. Males in Africa and East Asia (the latter containing only Japan and the Republic of Korea in the present chapter) show unusually large declines with age in the urban proportion. Africa declines from a peak of 29-30 per cent urban at ages 20-34 to less than 17 per cent urban at the ages over 65. East Asia declines from 64-67 per cent to less than 47 per

Figure X. Levels of male urbanization, by age and major area, 1965-1975



cent over these same intervals. Most likely, the explanation for these large declines differs between the regions. In Africa, it is likely to be due to a long-standing and widespread pattern of temporary male migration to urban areas, accompanied by a return move to rural areas at older ages.[10] The fact that the female fall-off between the ages is only about 5 percentage points, or less than half as great, supports this interpretation. In Japan and the Republic of Korea, on the other hand, urbanization has been extremely rapid. It is likely that the large decline with age in urban proportions primarily reflects the much more highly rural birth distribution of the older cohorts. In this region, the male and female declines are of virtually equal magnitude.

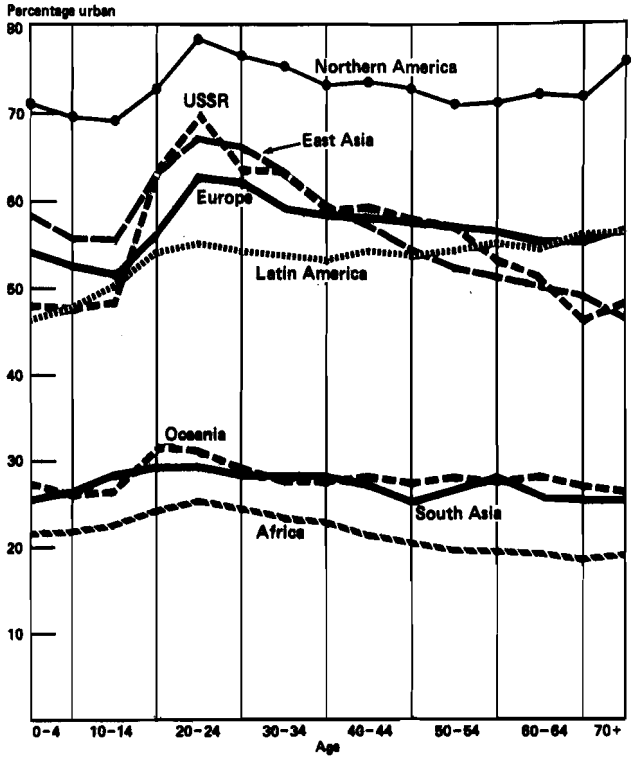
In Latin America, the age profile of urban proportions is also relatively unusual. The profile is nearly horizontal with age after ages 15-19, with a slight tendency for increase among females and for decrease among males. Such a pattern would be readily explicable if Latin America were not urbanizing rapidly, but it obviously is and has been for many decades. The only plausible explanation for its horizontal curve is that net rural-urban migration rates continue to be high enough at older ages in Latin America to offset the decline proportions expected where urbanization has been rapid. An inference that could be drawn from the curve is that migration at older ages has contributed an unusually large amount to urbanization in Latin America, particularly among women.

[8] See *Recent Levels and Trends in Mortality* (United Nations publication, forthcoming).

[9] See, for example, Samuel H. Preston and James Weed, "Causes of death responsible for international and intertemporal variation in sex mortality differentials", *World Health Statistics Report,* vol. 29, No. 3 (1976), p. 158; and Nora Federici and others, "Urban/rural differences in mortality, 1950-1970", *World Health Statistics Report,* vol. 29, No. 5-6 (1976).

[10] See, for example, Josef Gugler and William G. Flanagan, *Urbanization and Social Change in West Africa* (Cambridge, Cambridge University Press, 1978), chap. 3; Derek Byerlee, "Rural-urban migration in Africa: theory, policy, and research implications", *International Migration Review,* vol. VII, No. 4 (1974), pp. 543-566.

Figure XI. Levels of female urbanization, by age and major area, 1965-1975



B. Sex balances in urban and rural areas

Unusual sexual imbalances are generally the result of conditions that induce one sex to migrate much more frequently than the other. It is very rare that sex differences in mortality or births could cause a population's sex ratio to lie outside the range of 90:110. Urban and rural sex imbalances are frequently related to uneven locational distribution of employment opportunities for one sex or the other, combined with various residential contingencies. In some less developed areas, scarcity of adequate housing facilities for family-style residences in rapidly growing urban locations has caused many men in search of urban jobs to be separated, at least temporarily or periodically, from their rural families. Furthermore, the short-term nature of much migration in Africa and Asia often makes it inefficient to carry along the family retinue. Latin America is exceptional among the major less developed areas in that the cities are typically more feminine than masculine. Single women are often employed by urban family households as domestic servants and lodged within the household of their employer.[11]

Because rural/urban sex balances are closely related to the general social and economic setting, it is useful to review some of their patterns through time as well as through space. Simple data on urban and rural sex balances covering many past decades are available for several more developed countries with long histories of urbanization. Urban and rural sex ratios for these and other countries are shown in tables 44 and 45 (except where otherwise indicated in the foot-notes to the tables, calculations were based on national census data). The data of tables 44 and 45 are summarized in figure XII. In order to facilitate comparisons between urban and rural areas, the graph has been plotted in terms of sex-ratio differences, rather than absolute sex ratios. In this measure, the rural sex ratios of each country have simply been subtracted from the urban in order to obtain sex-ratio differences between urban and rural areas. Through this differencing procedure, unusual sex ratios in the population as a whole are effectively removed as an influence on the value of the measure. Figure XII shows that urban areas of India, Japan and the USSR have been relatively more masculine than rural areas at all dates under review (i.e., the urban/rural differences have been positive), whereas urban areas in Canada, Mexico and the United States have been relatively more feminine than rural areas. Only in France did the relative gender of the urban sector change during the period under review. Whereas the urban sector was relatively more masculine than rural areas in the initial periods, urban areas became more feminine than rural areas after the mid-1870s and remained so thereafter.

Despite the persistence of customary patterns of relative masculinity or femininity of urban areas in most countries, there have been surprisingly parallel directions of change in both categories of the more developed countries (Canada, France, Japan, USSR and United States). Two major directions of change can be seen in the graphs of the more developed countries. During the early decades under review, the cities of the more developed countries were apparently undergoing a process of relative urban feminization as the values of the sex-ratio difference were declining. The steady downward trend in sex-ratio difference was interrupted briefly in the United States during the early twentieth century. This interruption was probably a result of heavy male immigration from abroad into cities in the United States during that period. The downward trend suggests that at some point, often before the first observation becomes available, each of the countries had predominantly masculine cities. This suggestion is consistent with the fact that many cities were just being built and that men predominate in the construction industry.[12] Contemporary experience of less developed countries in which rapid urban construction is occurring suggests that urban existence during such periods can be something of a pioneering experience and as such may often attract men rather than women.[13] Women in pre-industrial and early industrial stages of urban development may often be relatively better off in the countryside than in the cities because in the countryside they have the protection and support of the extended family as well as opportunity to participate in subsistence agriculture and thereby provide some of their own food supply.

As conditions improve in the cities, there are relatively more opportunities for men to bring their wives and families with them; and when this happens, there is also opportunity for further equalization of the sex bal-

[11] Harley L. Browning, "Migrant selectivity and the growth of large cities in developing societies", in National Academy of Sciences, *Rapid Population Growth: Consequences and Policy Implications* (Baltimore, Maryland, Johns Hopkins Press, 1971), p. 287.

[12] For evidence on the importance of this factor in Paris, see David Pinkney, *Napoleon III and the Rebuilding of Paris* (Princeton, New Jersey, Princeton University Press, 1958).

[13] Donald J. Bogue, as summarized in Alan Simmons, Sergio Diaz-Briquets and Aprodicio A. Laquian, *Social Change and Internal Migration: A Review of Research Findings from Africa, Asia, and Latin America,* a report of the Migration Review Task Force of the International Development Research Centre (Ottawa, 1977), p. 86.

TABLE 44. INTERNATIONAL TIME SERIES OF URBAN SEX RATIOS (*Males per 100 females*)

Period	*Canada*	*France*[a]	*Japan*[b]	*India*[c]	*Mexico*	*USSR*	*United States of America*
1856	...	103.8	...	...	...	...	...
1861	...	105.8	...	...	...	...	...
1866	...	104.7	...	...	...	...	...
1872	...	101.7	...	114.7	...	...	...
1876	...	98.3	...	...	...	...	...
1881	...	98.0	...	110.7	...	...	...
1886	...	95.6	...	...	...	...	...
1890/91	...	93.5	...	112.8	...	...	100.0
1896/97	...	90.9	...	...	...	112.7	...
1900-1903	...	90.2	116.1	112.7	...	...	98.6
1906-1908	...	89.0	117.5	...	...	...	...
1910-1913	104.4	89.1	113.4	118.1	...	...	101.7
1918	...	...	111.4	...	...	...	...
1920/21	97.4	81.1	...	120.8	86.2	...	100.4
1926	...	82.0	...	...	...	96.4	...
1930/31	98.8	81.3	...	121.8	...	...	98.1
1935/36	...	82.3	105.6	...	...	...	...
1940/41	96.7	...	...	122.8	...	...	95.5
1945/46	...	86.3	94.2	...	...	...	...
1950/51	95.8	...	97.0	116.3	89.7	...	94.6
1955	...	...	97.1	...	...	...	...
1959-1962	98.1	92.0	97.5	118.4	94.6	82.5	94.1
1965-1968	...	93.3	97.6	...	...	...	...
1970/71	97.7	...	97.6	116.6	96.2	86.4	93.0
1975	...	...	98.0	...	...	...	...

Sources: For Canada, 1911-1961, data assembled from censuses and given in Leroy O. Stone, *Urban Development in Canada,* Census monograph (Ottawa, Dominion Bureau of Statistics, 1961); data for 1971 taken from the census. For France, data for 1856-1936 taken from Yves Tugault, *La Mesure de la mobilité,* Institut national d'études démographiques, Travaux et documents, Cahier 67 (Paris, Presses Universitaires de France, 1973), p. 42; data after 1936 taken from censuses.

[a] In data for 1856-1936, urban category represents only the Department of Seine, which is historically co-extensive with the city of Paris; other urban places are grouped into the rural remainder. After 1936, data are for total urban and total rural population as defined in censuses.

[b] Urban and rural categories refer to territories called *shi* and *gun,* respectively.

[c] Recent data for India are not comparable with the previous series because India as constituted after 1948 does not include Bangladesh and Pakistan.

ance through urban natural increase which tends to produce roughly equal proportions of men and women. This more or less natural process is evident in the declining portion of the graphs in figure XII in each of the currently developed countries. Occasionally at least, the process could be abrupt; Adna Weber[14] describes an instance of sudden feminization of previously masculine cities in Germany. According to Weber, who wrote at the end of the nineteenth century, the superiority of women in the great cities (i.e., cities with 100,000 or more inhabitants) of Germany was rather recent. Twenty-five years earlier only a few of the great cities had contained more women than men; but by 1890, there were only two great cities that had a surplus of men, Strassburg and Magdeburg, both being cities with large military garrisons. He also found that in 15 European countries, in the United States of America and in New South Wales (part of Australia), the urban population almost invariably contained a larger ratio of females to males than did the corresponding national population, excluding only Serbia (i.e., part of current Yugoslavia) and European Russia. Also, almost invariably, larger cities had greater surpluses of females than smaller cities in the same countries, except in the case of Budapest as compared with other cities in Hungary.[15]

At some point after 1930, the relative masculinity of cities in more developed countries began to increase once again. It appears that this trend is the net result of different processes in different countries. From inspection of tables 44 and 45, it can be seen that cities have become increasingly masculine in Japan since the 1950s (i.e., urban sex ratios have been rising), while rural areas have been becoming more feminine. This is probably related to the feminization of Japanese agriculture described in chapter VI. In the USSR, both cities and countryside appear to have been masculinizing, but apparently the cities have been masculinizing more rapidly

[14] Adna Ferrice Weber, *The Growth of Cities in the Nineteenth Century,* 2nd ed. (Ithaca, New York, Cornell University Press, 1973), p. 289. (Originally published in 1899.)

[15] Among the causes of the usually observed urban female surplus, Weber discusses the observation that more men than women emigrate from cities and that already from an early age onward cities show a relative female surplus. He cites certain observations that among registered births the boy-to-girl ratio was slightly lower in cities than in the country; that infant mortality, selective particularly of boys, was higher in the city than in the country; that fatal accidents were more frequent in cities with men the more likely victims; and that, among the elderly, female mortality was higher than male in the rural areas, but male mortality exceeded the female in the urban areas. He pays rather little attention to the predominance, in the given countries, of female over male rural-to-urban migration. His observations on particular age groups are not very detailed.

TABLE 45. INTERNATIONAL TIME SERIES OF RURAL SEX RATIOS (*Males per 100 females*)

Period	*Canada*	*France*[a]	*Japan*[b]	*India*[c]	*Mexico*	*USSR*	*United States of America*
1856	...	98.4	...	...	...	...	...
1861	...	99.5	...	...	...	...	...
1866	...	99.8	...	...	...	...	...
1872	...	99.2	...	105.3	...	...	...
1876	...	99.3	...	...	...	...	...
1881	...	98.9	...	104.3	...	...	...
1886	...	98.7	...	...	...	...	...
1890/91	...	98.1	...	103.6	...	...	107.9
1896/97	...	97.5	...	...	...	97.0	...
1900-1903	...	96.5	101.0	102.9	...	...	108.4
1906-1908	...	96.3	100.5	...	...	...	...
1910-1913	118.5	96.1	100.6	103.6	...	...	109.8
1918	...	...	100.0	...	...	...	...
1920/21	115.9	89.2	...	104.3	101.0	...	108.0
1926	...	90.0	...	...	...	92.9	...
1930/31	118.2	90.4	...	104.6	...	...	108.3
1935/36	...	90.7	98.4	...	...	...	...
1940/41	116.0	...	...	104.8	...	...	107.8
1945/46	...	94.4	87.0	...	...	...	...
1950/51	114.1	...	95.8	103.5	102.7	...	106.3
1955	...	...	95.9	...	...	...	...
1959-1962	112.1	98.6	94.7	103.8	104.8	81.4	104.3
1965-1968	...	99.2	93.9	...	...	...	...
1970/71	109.6	...	93.4	105.4	104.6	84.3	100.1
1975	...	...	93.8	...	...	...	...

Sources: For Canada, 1911-1961, data assembled from censuses and given in Leroy O. Stone, *Urban Development in Canada,* Census monograph (Ottawa, Dominion Bureau of Statistics, 1961); data for 1971 taken from census. For France, data for 1856-1936 taken from Yves Tugault, *La Mesure de la mobilité,* Institut national d'études démographiques, Travaux et documents, Cahier 67 (Paris, Presses Universitaires de France, 1973), p. 42; data after 1936 taken from censuses.

[a] Data for 1856-1936 urban category represents only the Department of Seine, which is historically co-extensive with the city of Paris; other urban places are grouped into the rural remainder. After 1936, data are for total urban and total rural populations as defined in censuses.

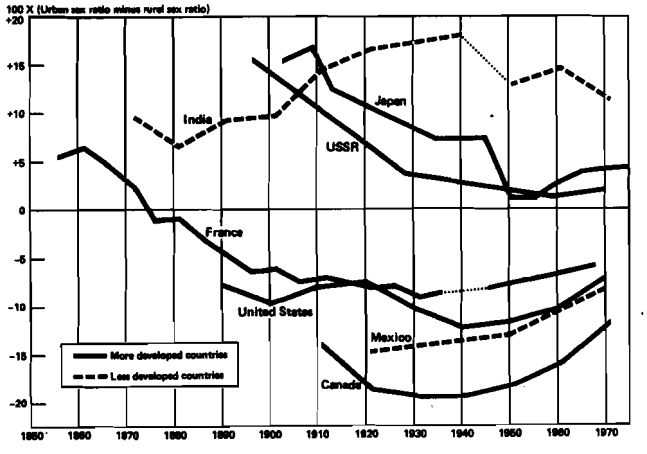
[b] Urban and rural categories refer to territories called *shi* and *gun,* respectively.

[c] Recent data for India are not comparable with the previous series because India as constituted after 1948 does not include Bangladesh and Pakistan.

than the countryside. The situation in France during the two most recent census intervals for which comparable data were available appears to be similar to that in the Soviet Union.

In Canada and the United States, on the contrary, the parallel trend of relative urban masculinization has not reflected a masculinization of cities, but rather a feminization of the countryside. Cities in the United States have continued to become more feminine but less rapidly than have the rural areas. In fact, the feminization of rural areas in this country of traditionally masculine rural areas has gone so far that the sexes are now evenly balanced in the rural areas. In Canada, the sex-ratio difference has also risen in recent decades. In this country, the urban areas have shown no particular direction of change, but the rural areas have been feminizing. Reasons for feminization of rural areas in these countries have no doubt been related to the spread into the rural areas of bureaucratized employment and commercial facilities which offer salaried employments and a variety of commercial services.

Figure XII. International time-series comparisons of urban and rural sex ratios



Urban/rural sex-ratio differences in the more developed countries appear to be converging on a value of zero. Unusual differences in sex ratios between urban and rural areas, whether they reflect highly masculine or highly feminine cities, seem to be in the process of elimination in these countries. The spread of urban communication and economic organization throughout the countryside has urbanized many aspects of rural life, so that residence in the countryside is no longer so different from residence in the city. As the choice between urban *versus* rural residence becomes increasingly a matter of

indifference, it seems quite natural that differences between urban and rural sex balances, which are primarily determined by differential urban/rural working and living conditions, should gradually diminish, unless or until some new technology or some emergent environmental constraint may again disrupt the evolving equilibrium.

Less is known about the evolution of sex balances in the less developed countries. Extensive time-series data are available here for only two of the less developed countries, India and Mexico. India has never reached a high level of urbanization, despite the fact that several of the world's greatest cities are in India. For many decades, from 1881 until 1941, India experienced increasing relative masculinization of its cities not unlike what was hypothesized above for the more developed countries at initial stages of urbanization, though perhaps more extreme. As indicated by the dashed line on figure XII, recent data for India are not comparable with the previous series since India, as constituted after 1948, no longer includes Bangladesh and Pakistan. In the latter country, the urban populations are extremely masculine; hence, the lower sex-ratio difference for India after 1948 may be largely a consequence of the redefinition. That data for urban/rural sex-ratio differences since redefinition show fluctuation but no particular direction of change. There are indications, however, that the sex composition of migration into the cities is becoming more balanced now that channels and connexions have been established. Residents of almost every village have relatives or fellow villagers in at least one and possibly several of the major cities who can be expected to help sponsor further migrants from their village of origin.[16] Thus, there exists some possibility that India may soon enter the second stage of relative feminization of cities.

The current situation in Mexico is quite different from that of India. From figure XII it can be seen that Mexico is experiencing a recent relative masculinization of cities similar to that of the more developed countries. Although Mexico is classified as less developed, it has a fairly long history of urbanization which is not unlike that of the more developed countries. At the end of the nineteenth century, the percentage urban in Mexico was about the same as that in Japan.[17] More recently, the percentage urban in Mexico has been close to that of the Soviet Union.

Elsewhere in the less developed world, there are at least fragments of information to indicate that urban sex ratios, which had been very masculine at earlier dates, are beginning to become more feminine at recent dates. Census data for Cairo in the late nineteenth and early twentieth centuries show a strong predominance of males. However, by 1960, men and women were entering Cairo in fairly equal or only moderately male proportions.[18] Ratios of men to women in most major cities of Africa have become far less unbalanced since the Second World War. For example, in 1948, Nairobi had roughly 500 adult men for every 100 women; in 1962, the ratio was 250 to 100.[19] In the city of Kinshasa, there were 135 men per 100 women in 1955, while by 1967, this ratio had dropped to 110.[20] At Lagos, the sex ratio dropped from 126 in 1931 to 108 by 1961.[21]

The ubiquitous appearance of peripheral squatter settlements around the cities of the less developed countries is further evidence that families, rather than lone male migrants, are beginning to move to the cities. Single male migrants typically rent only rooms, or even only bed space, in the older sections of the cities.[22] A common pattern in Turkey (and undoubtedly elsewhere) might be called "family migration by stages". Many rural families have at least one family member working in the cities. If the city worker does not do well, he may return home. The same or a different family member may later try elsewhere. Eventually someone will find a satisfactory urban foothold, and the rest of the family will follow, perhaps in stages.[23]

Turning now to contemporary relations, table 46 presents the average ratio of males to females in urban areas, by region, for the period from 1965 to the present. These data are displayed graphically in figure XIII. Table 47 and figure XIV present the same information for rural areas. All of the regional profiles begin with a ratio between 1.0 and 1.1, reflecting relatively constant sex ratios at birth. By the ages 10-14 some distinct regional patterns begin to emerge in urban areas, which are typically accentuated thereafter. Northern America, Europe and East Asia maintain relatively equal numbers of urban males and females until the age of 45 or so. Thereafter, urban sex ratios decline rapidly to a range of 0.6 or 0.7 (males per female) at ages 70 and above. Presumably, this decline reflects primarily sex differences in mortality. Sex-selective migration may also contribute to the decline, which is not as large in rural areas (although neither, as stated earlier are sex differences in mortality).

The USSR shows rapidly declining sex ratios in urban areas with age, but declines are equally large in rural areas. Clearly, the losses of the Second World War are imprinted on the sex structure in this country.

Urban sex structures show remarkable diversity among the less developed regions. Africa and South Asia show quite high masculinity at the working ages, reaching a peak of 1.43 males per female at ages 45-49 in the countries of Africa sampled. Oceania also shows quite high urban masculinity, although less significance should be attached to the observations of the region, which is dominated by small island populations. Latin America, on the other hand, shows predominantly feminine cities, with females outnumbering males by an average of some 10 per cent at ages 15-19 and above. Rural sex ratios in these regions are the reverse of this pattern: predominantly feminine in Africa and South Asia, at least at the prime working ages; and unusually masculine in Latin America. In general, there is less variance in rural sex ratios than in urban ratios, reflecting the fact that rural

[16] Donald J. Bogue and K. C. Zachariah, "Urbanization and migration in India" in Roy Turner, ed., *India's Urban Future* (Berkeley, University of California Press, 1962), pp. 40 and 45. See also K. C. Zachariah, *Migrants in Greater Bombay* (London, Asia Publishing House, 1968), pp. 123-125.

[17] A. F. Weber, *op. cit.*, graph facing title-page and pp. 144-145.

[18] J. M. Nelson, *loc. cit.*, p. 732.

[19] *Ibid.*, p. 733.

[20] Maurico Ducreux, "La croissance urbaine et démographique de Kinshasa", in Colloques internationaux du Centre national de la recherche scientifique, *La croissance urbaine en Afrique noire et à Madagascar* (Talence, 1972), vol. I, p. 560.

[21] Charles N. Ejiogu, *"African migrants in Lagos suburbs,"* doctoral dissertation, The Australian National University, January 1968, p. 48.

[22] J. M. Nelson, *loc. cit.*, p. 733.

[23] J. M. Nelson, *loc. cit.*, pp. 732-733.

TABLE 46. AVERAGE SEX RATIOS AT VARIOUS AGES, URBAN AREAS, BASED ON DATA RECORDED IN 1965-1975

Age group	Total sample	More developed regions	Less developed regions	Africa	Latin America	Northern America	East Asia	South Asia	Europe	Oceania	USSR
0-4	1.04734	1.04934	1.04650	1.06655	1.02510	1.04371	1.05641	1.03896	1.05105	1.06740	1.03995
5-9	1.02664	1.04737	1.01790	0.98344	1.00673	1.04697	1.07037	1.05116	1.04691	1.10993	1.04266
10-14	1.03252	1.04901	1.02556	1.02675	0.97311	1.03655	1.05578	1.06114	1.05133	1.14285	1.03796
15-19	1.02061	1.02299	1.01961	1.00999	0.88793	0.99807	1.02631	1.09890	1.02578	1.39013	1.01858
20-24	1.03305	1.00242	1.04597	1.03865	0.87166	0.96037	0.98185	1.11975	1.00675	1.59285	1.00891
25-29	1.05136	1.02503	1.06246	1.12670	0.86972	1.04680	1.00956	1.12839	1.02234	1.43106	0.99835
30-34	1.08569	1.01238	1.11662	1.23137	0.89091	1.04415	1.04293	1.14254	1.00903	1.49783	0.96921
35-39	1.08340	1.00246	1.11755	1.28958	0.86519	1.03417	1.02581	1.15710	0.99734	1.36953	0.96191
40-44	1.10836	0.97274	1.16558	1.36488	0.89912	0.99760	0.99043	1.18427	0.96793	1.43011	0.87776
45-49	1.11256	0.91170	1.19729	1.42592	0.90126	1.00030	1.01333	1.24408	0.90288	1.39168	0.63246
50-54	1.06313	0.87405	1.14290	1.31547	0.88061	0.93151	0.93000	1.17065	0.87328	1.44897	0.64511
55-59	1.04773	0.85997	1.12694	1.33161	0.88338	0.87987	0.84297	1.17152	0.86764	1.22601	0.59851
60-64	0.96455	0.81644	1.02703	1.09179	0.83127	0.83981	0.79146	1.13179	0.82347	1.33729	0.50281
65-69	0.94083	0.76433	1.01530	1.12848	0.78235	0.79329	0.71450	1.16988	0.76999	1.20126	0.40052
70 +	0.78466	0.60924	0.85867	0.92557	0.66981	0.62284	0.56710	1.05316	0.61383	0.94596	0.37608
Total	1.01791	0.94883	1.04705	1.08921	0.91779	0.98221	0.99324	1.09365	0.94477	1.28397	0.86367

TABLE 47. AVERAGE SEX RATIOS AT VARIOUS AGES, RURAL AREAS, BASED ON DATA RECORDED IN 1965-1975

Age group	Total sample	More developed regions	Less developed regions	Africa	Latin America	Northern America	East Asia	South Asia	Europe	Oceania	USSR
0-4	1.02743	1.04241	1.02111	1.00059	1.02343	1.03296	1.06266	1.03045	1.04296	1.06511	1.03171
5-9	1.04597	1.05221	1.04333	1.04745	1.03195	1.04974	1.04889	1.04931	1.05447	1.05591	1.03657
10-14	1.08353	1.05265	1.09655	1.09704	1.08324	1.04960	1.05860	1.11317	1.05375	1.10779	1.03897
15-19	1.05447	1.09345	1.03802	0.99684	1.07536	1.12924	1.04622	1.04293	1.08225	1.07429	1.08173
20-24	1.01951	1.13932	0.96897	0.85780	1.04156	1.14236	1.06984	0.96071	1.14496	1.13505	1.03757
25-29	0.98314	1.06949	0.94672	0.86564	1.02534	1.11444	1.00065	0.93300	1.06648	1.00381	0.94640
30-34	0.99136	1.03782	0.97176	0.87380	1.05920	1.11708	0.98771	0.96386	1.02596	1.04281	0.96986
35-39	1.02228	1.04203	1.01395	0.94973	1.03355	1.05401	0.94119	1.05487	1.04221	1.12555	0.96413
40-44	1.04391	1.02050	1.05378	0.97874	1.10382	1.06031	0.91987	1.04132	1.01623	1.22588	0.82163
45-49	1.05911	0.96598	1.09841	1.06666	1.10339	1.03732	0.94548	1.11372	0.96116	1.20659	0.63008
50-54	1.05033	0.93509	1.09895	1.03775	1.16104	1.03624	0.88342	1.07597	0.93311	1.17168	0.55714
55-59	1.10317	0.94937	1.16806	1.15634	1.19403	1.01642	0.85552	1.14579	0.95650	1.20758	0.49882
60-64	1.06537	0.95902	1.11023	1.03899	1.17987	1.07165	0.83143	1.08880	0.95805	1.21506	0.51222
65-69	1.09917	0.94875	1.16263	1.15425	1.16343	1.06549	0.79537	1.18451	0.94161	1.23440	0.50618
70 +	0.99736	0.79197	1.08401	1.08921	1.02927	0.95022	0.67374	1.16719	0.77935	1.15726	0.44267
Total	1.02614	1.00907	1.03334	0.99044	1.06064	1.06118	0.97363	1.03908	1.00581	1.09830	0.84332

Figure XIII. Urban sex ratios by age, major areas, based on data for 1965-1975

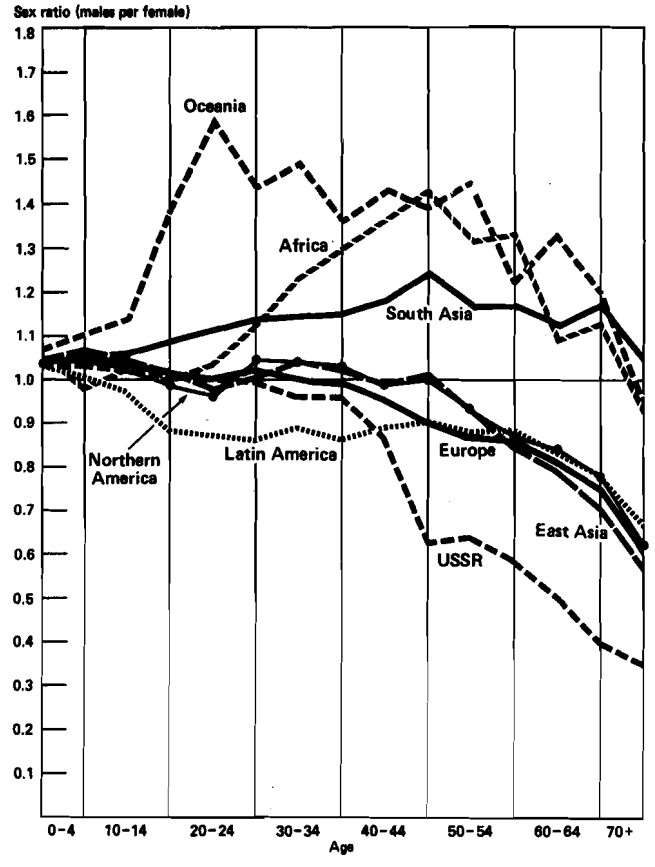
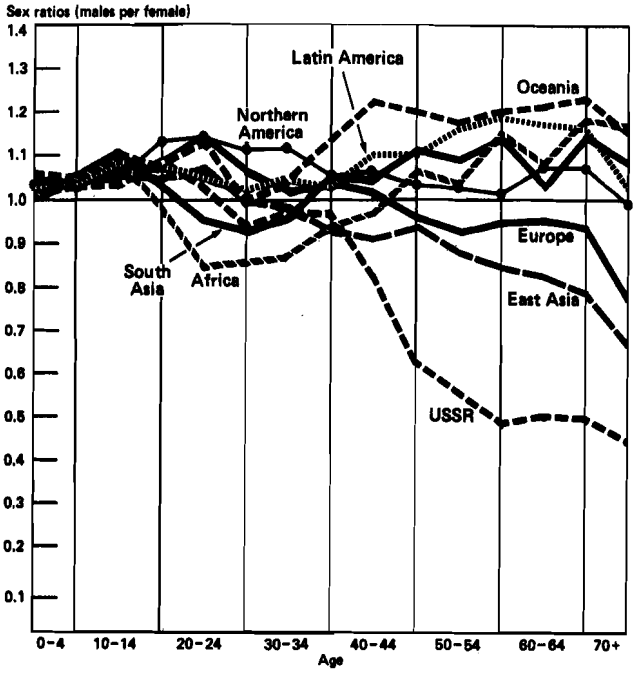


Figure XIV. Rural sex ratios by age, major areas, based on data for 1965-1975

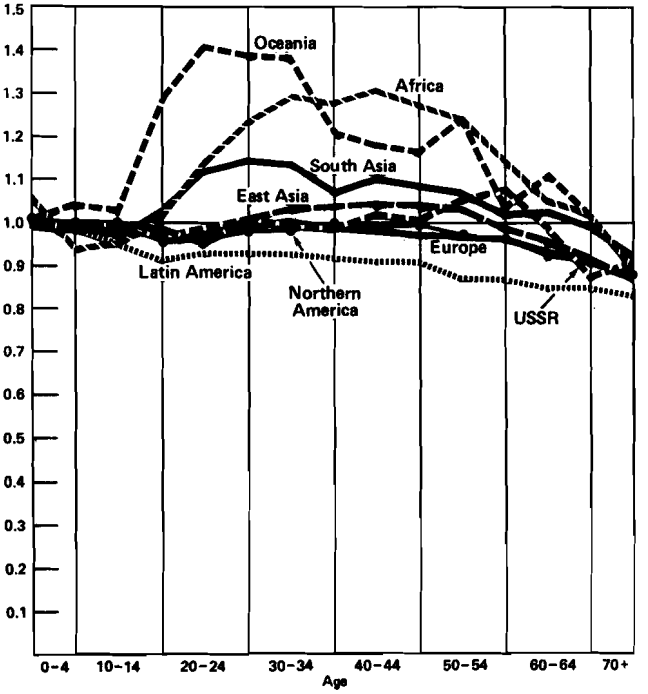


populations in the developing regions outnumber the urban (except in Latin America). Selective migration of one sex thus tends to have a smaller proportionate impact on the rural than on the urban sex ratio.

Urban and rural sex ratios are partially a product of the sex composition of the respective national population, which in turn is affected by sex differences in mortality and in international migration. In order to control for these national-level factors, it is useful to compare sex ratios of urban areas directly with those of the country. This comparison is made in figure XV, where the ratio, percentage urban of males to percentage urban of females, is plotted as a function of age.[24] This procedure clearly has the effect of removing the anomalous character of the Soviet Union, which, along with Europe, Northern America and East Asia, has a masculinity of urban areas that differs very little from that of the respective national ratios. On average, the sex ratio in urban areas is quite close to that of the country until ages beyond 60, when it begins to decline in every region. Although this decline could result from selective overstatement of age among rural females, it appears more likely to reflect higher sex differences in mortality in urban than in rural areas, combined with sex-selective migration of the widowed population. In any case, the convergence of sex ratios between urban and rural areas that was documented above from trend data for a few developed countries is obviously a widespread phenomenon both in space and over various ages.

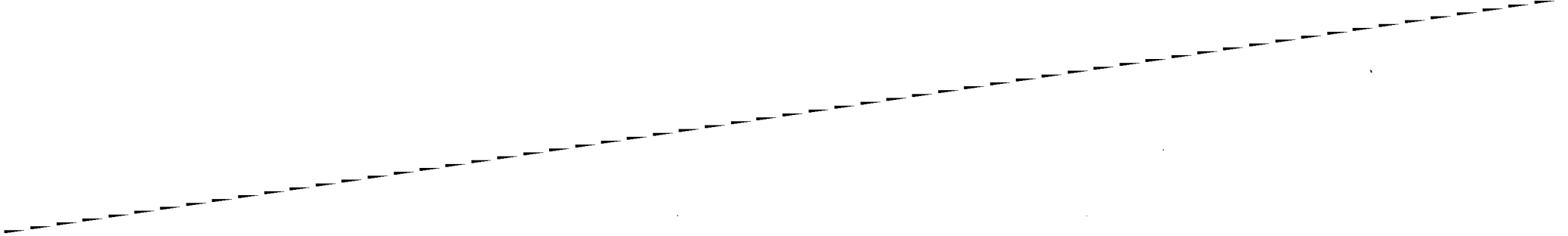
Among the less developed regions, relative urban sex ratios are much as indicated above. Africa, South Asia and Oceania show high relative as well as absolute masculinity in cities. Latin America, on the other hand, displays high relative and absolute feminization of cities. It is reasonable to expect that continued urbanization and development in these major areas will bring in its train the same sort of convergence of urban and rural sex ratios that has been witnessed elsewhere.

Figure XV. Average ratio, male percentage urban to female percentage urban, by age, major areas, 1965-1975



[24] This ratio is $\frac{M_U}{M} / \frac{F_U}{F}$, which can obviously also be written as $\frac{M_U}{F_U} / \frac{M}{F}$, which is the ratio of the sex ratio in urban areas to the sex ratio of the national population.

ANNEXES



Annex I

URBAN DEFINITIONS AND DATES OF AVAILABILITY OF BASIC DATA

This annex lists the urban definitions used for each country to produce the final urban and rural estimates and projections. Dates of availability of basic urban and rural population data are also shown. In the large majority of cases, these data are drawn from national population censuses, either directly or as reported by Governments to the United Nations Statistical Office.

In some cases, they are based on city censuses; in others, they simply represent non-census based figures supplied by the Government to the United Nations Statistical Office. Years for which it was necessary to adjust published figures in order to make them conform to a common urban definition are designated with an asterisk (*).

Africa

Algeria: 55 of the most important communes having local self-government; 1954, 1960 and 1966.

Angola: localities with 2,000 or more population; 1950*, 1960 and 1970*.

Benin: towns of Cotonou, Porto-Novo, Ouidah, Parakou and Djougou; 1961, 1966 and 1970.

Botswana: cities of Gaberone and Lobatsi, and the urban agglomeration of Francistown; 1964 and 1971.

Burundi: commune of Bujumbura; 1965 and 1970.

Central African Empire: 20 principal centres with population over 3,000; 1960 and 1966.

Chad: 10 urban centres; 1964 and 1972.

Comoros: cities of Dzoubgi and Moroni; 1950, 1960 and 1970.

Congo: three largest communes, consisting of Brazzaville, Point-Noire and Dolisie; 1960-1961 and 1974.

Djibouti: the capital city; 1956, 1963 and 1970.

Egypt: governorates of Cairo, Alexandria, Port Said, Ismailia and Suez, Frontier governorates and capitals of other governorates as well as district capitals (Markaz); 1946, 1960, 1966 and 1976.

Equatorial Guinea: the sum of two cities, Bata and Santa Isabel; 1950 and 1960.

Ethiopia: localities with 2,000 or more population; 1956, 1967 and 1975.

Gabon: towns having over 2,000 inhabitants; 1950 and 1960-1961.

Gambia: Banjul only; 1951, 1963 and 1973.

Ghana: localities with 5,000 or more population; 1948, 1960 and 1970.

Guinea: urban centres; 1950, 1955, 1960 and 1972.

Guinea-Bissau: the two main ports, Bissau and Cacheu; 1950, 1960 and 1970.

Ivory Coast: localities defined as urban by 1975 census criteria, otherwise unspecified, 1960 estimate brought into conformity with 1975 definition by assigning 1960-1975 growth rate of 10 largest towns in 1960 to the total urban population as defined in 1945. Dates: 1960* and 1975.

Kenya: towns of 2,000 or more inhabitants; 1948, 1962 and 1969.

Lesotho: capital city agglomeration; 1956 and 1966.

Liberia: localities having more than 2,000 inhabitants; 1962* and 1970.

Libyan Arab Jamahiriya: total population of Tripoli and Bengazi plus the urban parts of Beida and Derna; 1954, 1964 and 1973*.

Madagascar: centres having more than 5,000 inhabitants; 1950, 1966 and 1970.

Malawi: all townships and town-planning areas and all district centres; 1956, 1966 and 1971.

Mali: not available; 1950 and 1960-1961.

Mauritius: localities of 20,000 or more population; 1952*, 1962* and 1972*.

Mauritania: urban centres; 1964-1965 and 1975.

Morocco: urban communes; 1952, 1960 and 1971.

Mozambique: concelho of Marques and Beira; 1950, 1960 and 1970*.

Namibia: localities (towns, villages and townships) large enough to be treated as separate units, whether having local government or not; 1951 and 1960.

Niger: urban centres (27 towns); 1956, 1962 and 1966*.

Nigeria: towns with 20,000 or more inhabitants whose occupations are not mainly agrarian; 1952-1953 and 1963.

Réunion: administrative centres of communes having more than 2,000 inhabitants; 1954 and 1967.

Rwanda: Kigali, the capital, administrative centres of prefectures, important agglomerations and their surroundings; 1960* and 1970.

Sao Tome and Principe: capital city; 1950, 1960 and 1970.

Senegal: Cap-Vert region and the cities of Saint-Louis, Thies, Kaolack, Diourbel and Ziguinchor; 1960-1961 and 1976.

Seychelles: Port Victoria, the capital; 1947, 1960 and 1971.

Sierra Leone: towns with 2,000 or more inhabitants, 1963* and 1974.

Somalia: towns with 5,000 or more inhabitants; 1953* and 1963*.

South Africa: all population agglomerations of an urban nature, without regard to local boundaries and status; 1951, 1960 and 1970.

Southern Rhodesia: main towns, including suburbs; 1951, 1962 and 1972.

Sudan: 1956 definition: 68 towns. 1973 definition: localities of administrative and/or commercial importance or with population of 5,000 or more. The 1973 census of Sudan presents the corresponding figures side-by-side, suggesting that no adjustment is required.

Swaziland: localities proclaimed as urban; 1956, 1966 and 1976*.

Togo: seven urban communes; 1959 and 1970.

Tunisia: population living in communes; 1946, 1956, 1966 and 1975.

Uganda: population of all settlements as small as trading centres with as few as 100 inhabitants; 1959 and 1969.

United Republic of Cameroon: urban centres; 1959, 1965 and 1970.

United Republic of Tanzania: Tanganyika: 15 largest towns plus seven former townships; Zanzibar: administratively gazetted township of Zanzibar; 1957, 1967 and 1973.

Upper Volta: the sum of 14 towns; 1960, 1970 and 1975.

Western Sahara: unknown; 1950, 1960 and 1970.

Zaire: agglomerations of 2,000 or more inhabitants where the predominant economic activity is of the non-agricultural type and also mixed agglomerations which are considered urban because of their type of economic activity but are actually rural in size; 1950, 1960 and 1970*.

Zambia: 1950: nine "European" towns, neighbouring mines, locations and compounds. 1969: localities having 5,000 or more inhabitants, the majority of whom depend upon non-agricultural activities. The smallest of the nine places in 1950 is estimated to have been 4,400. Greater conformity could not be achieved.

Latin America

Antigua: St. John City; 1960 and 1970.

Argentina: population centres with 2,000 or more inhabitants; 1947, 1960 and 1970.

Bahamas: island of New Providence; 1963 and 1970.

Barbados: parish of Bridgetown; 1960* and 1970*.

Belize: legally established towns; 1960 and 1970*.

Bolivia: assumed to be cities of La Paz, Oruro, Potosí, Cochabamba, Sucre, Tarija, Santa Cruz, Trinidad and Cobija; 1950 and 1976.

Brazil: urban and suburban zones of administrative centres of *municipios* and districts; 1950, 1960 and 1970.

Cayman Islands: totally urban; 1960 and 1970.

Chile: populated centres having definite urban characteristics owing to presence of certain public and administrative services; 1952, 1960 and 1970.

Colombia: population living in a nucleus of 1,500 or more inhabitants; 1951, 1964 and 1973.

Costa Rica: administrative centres of cantons; 1950 and 1973.

Cuba: population living in a nucleus of 2,000 or more inhabitants; 1953 and 1970.

Dominica: towns of Roseau and Portsmouth, and suburban area of Goodwill, which is an extension of Roseau; 1960.

Dominican Republic: administrative centres of *municipios* and municipal districts, some of which include suburban zones of rural character; 1950, 1960 and 1970.

Ecuador: capitals of provinces and cantons; 1950, 1962 and 1974.

El Salvador: administrative centres of *municipios*; 1950, 1961 and 1971.

French Guiana: communes of Cayenne and Saint-Laurent du Maroni; 1954, 1961 and 1967.

Grenada: towns having a population of over 1,000; 1960.

Guadeloupe: all communes with an administrative centre of 2,000 or more inhabitants; 1954, 1961 and 1967.

Guatemala: cities, towns and villages that have been officially recognized as urban; 1964 and 1973.

Guyana: agglomeration of Georgetown; 1960 and 1970.

Haiti: administrative centres of communes; 1950 and 1971.

Honduras: localities with at least 2,000 inhabitants; 1961* and 1974.

Jamaica: Kingston metropolitan area and selected main towns; 1960* and 1970.

Martinque: total population of the commune of Fort-de-France plus the agglomerations of the other communes having more than 2,000 inhabitants; 1954 and 1961.

Mexico: localities of 2,500 or more inhabitants; 1950, 1960 and 1970.

Montserrat: town of Plymouth; 1960 and 1970.

Netherlands Antilles (Curaçao): unknown; 1960.

Nicaragua: administrative centres of departments and *municipios;* 1950 and 1971.

Panama: localities of 1,500 or more inhabitants having essentially urban characteristics; 1950, 1960 and 1970.

Canal Zone: localities of 2,500 or more inhabitants; 1960 and 1970.

Paraguay: cities, towns and administrative centres of departments and districts; 1950, 1962 and 1972.

Peru: populated centres with 100 or more occupied dwellings; 1961* and 1972.

Puerto Rico: places with 2,500 or more inhabitants and densely settled urban fringes of urbanized areas; 1950, 1960 and 1970.

St. Kitts-Nevis-Anguilla: town of Basse-Terre; 1960 and 1970.

St. Lucia: unknown; 1960.

St. Vincent: towns of 1,000 or more inhabitants; 1960.

Suriname: greater Paramaibo; 1950*, 1964* and 1971.

Trinidad and Tobago; Port of Spain, Arima borough and San Fernando town; 1946 and 1960.

Turks and Caicos Islands: capital city; 1960 and 1970.

United States Virgin Islands: localities with 2,500 or more inhabitants; 1950, 1960 and 1970.

Uruguay: areas defined as urban; 1963 and 1975.

Venezuela: centres with population of 1,000 or more; 1950, 1961 and 1971.

Northern America

Bermuda: totally urban; 1950, 1960 and 1970.

Canada: incorporated cities, towns and villages of 1,000 or more population and their urbanized fringes; unincorporated places having 1,000 or more inhabitants, having a population density of at least 1,000 per square mile or 390 per square kilometre and their urbanized fringes; 1951*, 1961, 1966 and 1971.

Greenland: 1960: localities of 200 or more inhabitants; 1970: localities proclaimed as urban.

St. Pierre and Miquelon: unknown; 1962.

United States of America: places with 2,500 or more inhabitants incorporated as cities, boroughs (excluding Alaska), villages and towns (excluding towns in New England, New York and Wisconsin), but excluding persons living in rural portions of extended cities; densely settled urban fringe whether incorporated or unincorporated of urbanized areas, unincorporated places with 2,500 or more inhabitants; 1950, 1960 and 1970.

East and South Asia

Afghanistan: towns of 2,000 or more inhabitants; 1950, 1966 and 1971.

Bahrain: towns of Manama, Muharraq (including suburbs), Hedd, Jiddhafs, Sitra, Rifa'a and Awali; 1965 and 1971.

Bangladesh: centres with a population of 5,000 or more inhabitants with such urban characteristics as streets, plazas, sewerage systems, water-supply systems and electric light; 1951, 1961 and 1974.

Bhutan: unavailable; 1950, 1960 and 1970.

Brunei: unavailable; 1960 and 1971.

Burma: sum of 301 towns; 1953 and 1973.

China: cities (including suburbs) and towns (based on estimates prepared in the Population Division of the Department of International Economic and Social Affairs of the United Nations Secretariat); 1950, 1960 and 1970.

Cyprus: six district towns and Nicosia suburbs; 1956, 1960 and 1973.

Democratic Kampuchea: municipalities of Pnhom-Penh, Bokor, Kep and 13 urban centres; 1950, 1962 and 1966.

Democratic People's Republic of Korea: unavailable; 1960 and 1967.

Democratic Yemen: entire former colony of Aden, excluding the oil refinery and villages of Bureika and Fugun; 1950, 1960 and 1973.

East Timor: Dili, the capital; 1950 and 1960.

Hong Kong: Hong Kong Island, Kowloon, New Kowloon and the Tsuen Wan area of the New Territories; 1950, 1961 and 1971.

India: towns (places with municipal corporation, municipal area committee, town committee, notified area committee or cantonment board); also, all places having 5,000 or more inhabitants, a density of not less than 1,000 persons per square mile or 390 per square kilometre, pronounced urban characteristics and at least three fourths of the adult male population employed in pursuits other than agriculture; 1951*, 1961 and 1971.

Indonesia: municipalities, regency capitals and other places with urban characteristics; 1961 and 1971.

Iran: all population centres with 5,000 or more inhabitants; 1956, 1966* and 1976.

Iraq: area within the boundaries of Municipality Councils; 1947, 1957 and 1965.

Israel: all settlements of more than 2,000 inhabitants, except those where at least one third of the heads of households participating in the civilian labour force earn their living from agriculture; 1955*, 1961 and 1972.

Japan: urban municipalities (*shi* and *ku* of Tokyo) usually having 30,000 or more inhabitants and which may include some rural as well as urban cluster; 1950*, 1955, 1960, 1965, 1970 and 1975.

Jordan: district headquarters, localities of 10,000 or more inhabitants (excluding Palestinian refugee camps in rural areas) and those localities of 5,000-9,000 inhabitants and the suburbs of Amman and Jerusalem cities in which two thirds or more of the economically active males are not engaged in agriculture; 1952, 1961 and 1967*.

Kuwait: cities with 10,000 or more inhabitants; 1957*, 1965*, 1970* and 1975*.

Lao People's Democratic Republic: sum of five largest towns; Vientiane, Luang Prabang, Savannakhet, Khammouane, Paksé; 1958*, 1966* and 1973*.

Lebanon: localities with 5,000 or more inhabitants; 1958* and 1970.

Macau: concelho of Macau (Macau City) including maritime area; 1950, 1960 and 1970.

Malaysia: gazetted areas with 10,000 or more population; 1947*, 1957* and 1970.

Maldives: Malé, the capital; 1946, 1965 and 1967.

Mongolia: capital and district centres; 1956, 1963 and 1969.

Nepal: an area with a population of 5,000 or more, and having some distinct urban characteristics, such as secondary schools, colleges, government and private offices, mills and factories, and having facilities of transport and communication; 1953*, 1961* and 1971.

Oman: two main towns, Muscat and Matrah; 1950 and 1960.

Pakistan: municipalities, civil lines, cantonments not included with municipal limits, any other continuous collection of houses inhabited by not less than 5,000 persons and having urban characteristics and also a few areas having urban characteristics but fewer than 5,000 inhabitants; 1951, 1961 and 1972.

Philippines: Baguio, Cebu and Quezon City; all cities and muncipalities with a density of at least 1,000 persons per square kilometre; administrative centres, *barrios* of at least 2,000 inhabitants, and those *barrios* of at least 1,000 inhabitants which are contiguous to the administrative centre, in all cities and municipalities with a density of at least 500 persons per square kilometre; administrative centres and those *barrios* of at least 2,500 inhabitants which are contiguous to the administrative centre, in all cities and municipalities with at least 20,000 inhabitants; all other administrative centres with at least 2,500 inhabitants; 1948, 1960 and 1970*.

Qatar: Doha, the capital city; 1956 and 1963.

Republic of Korea: Seoul City and municipalities of 5,000 or more inhabitants; 1955, 1960, 1966, 1970 and 1975.

Saudi Arabia: cities with 5,000 or more inhabitants; 1962 and 1974*.

Singapore: city of Singapore; 1957 and 1970.

Sri Lanka: municipalities, urban councils and towns; 1953, 1963 and 1971.

Syrian Arab Republic: cities, *mohafaza* centres and *mantika* centres; 1960 and 1970.

Thailand: municipalities; 1947, 1960 and 1970.

Turkey: population of the localities within the municipality limits of administrative provinces and districts; 1950*, 1955*, 1960*, 1965 and 1970.

United Arab Emirates: Dubai, the main city; 1950 and 1960.

Viet Nam: unavailable. For what was formerly the Republic of South Viet Nam, large city estimates were provided in a 1974 letter from the Statistical Office, which were used to adjust the 1960 urban estimate to correspond with the figures on urban and large city populations provided for 1970. For what was formerly the Democratic Republic of Viet Nam, figures are available for 1960 and 1970 but no urban definition is provided. 1960* and 1970.

Yemen: six main towns; 1950 and 1960.

Europe

Albania: towns and other industrial centres of more than 400 inhabitants; 1950, 1960 and 1971.

Austria: communes (*geminden*) having more than 5,000 inhabitants; 1951, 1961 and 1971.

Belgium: communes with 5,000 or more inhabitants; 1947, 1961, 1970* and 1976*.

Bulgaria: towns, i.e., localities legally established as urban; 1956, 1965 and 1970.

Channel Islands: Guernsey: civil parish of St. Peter Port; Jersey: civil parish of St. Helier; 1951 and 1961.

Czechoslovakia: Large towns, usually with 5,000 or more inhabitants having a density of more than 100 persons per hectare of built-up area, three or more living quarters in at least 15 per cent of the houses, piped water and a sewerage system for the major part of the town, at least five physicians and a pharmacy, a nine-year secondary school, a hotel with at least 20 beds, a network of trade and distributive services which serve more than one town, job opportunities for the population of the surrounding area, the terminal for a system of omnibus lines and not more than 10 per cent of the total population active in agriculture; small towns, usually of 2,000 or more inhabitants, having a density of more than 75 persons per hectare of built-up area, three or more living quarters in at least 10 per cent of the houses, piped water and a sewerage system for at least part of the town, at least two physicians and a pharmacy, other urban characteristics to a lesser degree and not more than 15 per cent of the total population active in agriculture; agglomerated communities which have the characteristics of small towns in regard to size, population density, housing, water-supply and sewerage, and the percentage of the population active in agriculture, but which lack such town characteristics as educational facilities, cultural institutions, health services and trade and distributive services, because these facilities and services are supplied by a town in the vicinity; 1950*, 1961 and 1970.

Denmark: agglomerations of 200 or more inhabitants; 1950*, 1955*, 1960*, 1965* and 1970*.

Faeroe Islands: Thorshavn, the capital; 1950*, 1955*, 1960*, 1966* and 1970.

Finland: urban communes; 1950, 1960 and 1970*.

France: communes containing an agglomeration of more than 2,000 inhabitants living in contiguous houses or with not more than 200 metres between houses; also, communes of which the major portion of the population is part of a multicommunal agglomeration of this nature; 1954, 1962, 1968 and 1975.

German Democratic Republic: communities with 2,000 or more inhabitants; 1950, 1964, 1971 and 1976.

Germany, Federal Republic of: communes with 2,000 or more inhabitants; 1950, 1961 and 1970.

Gibraltar: city of Gibraltar; 1951, 1961 and 1970.

Greece: population of municipalities and communes in which the largest population centre has 10,000 or more inhabitants. Including also the population of the 12 urban agglomerations, as these were defined at the census of 1961, namely: Greater

Athens, Salonika, Patras, Volos, Iraklion, Canea, Kalamata, Katerini, Agrinion, Chios, Aegion and Hermoupalis in their entirety, irrespective of the population size of the largest locality in them; 1951*, 1961 and 1971.

Hungary: Budapest and all legally designated towns; 1949, 1960, 1970 and 1975.

Iceland: localities with 200 or more inhabitants; 1950*, 1960*, 1970 and 1975.

Ireland: cities and towns including suburbs of 1,500 or more inhabitants; 1951, 1956, 1961, 1966 and 1971.

Isle of Man: towns of Castletown, Douglas, Peel and Ramsey; 1951, 1961, 1966 and 1971.

Italy: communes with 10,000 or more inhabitants; 1951*, 1961* and 1971*.

Liechtenstein: Vaduz, the capital city; 1950* and 1960*.

Luxembourg: communes having more than 2,000 inhabitants in the administrative centre; 1947, 1960, 1966 and 1970.

Malta: 1948: built-up areas devoid of agricultural land, including adjacent suburban areas. 1967: urban agglomeration of Valletta.

Monaco: city of Monaco; 1956, 1962 and 1968.

Netherlands: municipalities with a population of 2,000 or more inhabitants; also, municipalities with a population of less than 2,000 but with not more than 20 per cent of their economically active male population engaged in agriculture and specific residential municipalities of commuters; 1947*, 1960, 1970 and 1975.

Norway: town municipalities; 1950, 1960 and 1970.

Poland: towns and settlements of urban type, e.g. workers' settlements, fishermen's settlements and health resorts; 1950, 1960 and 1969.

Portugal: agglomerations with 10,000 or more inhabitants; 1950*, 1960 and 1970.

Romania: cities, towns and 183 other localities (comprising 13 per cent of total urban population) having urban socio-economic characteristics; 1950, 1960 and 1970.

San Marino: unavailable; 1969 and 1970.

Spain: municipios with 10,000 or more inhabitants; 1950, 1960 and 1970.

Sweden: built-up areas with at least 200 inhabitants and usually not more than 200 metres between houses; 1950*, 1960, 1965 and 1970.

Switzerland: communes of 10,000 or more inhabitants, including suburbs; 1950*, 1960 and 1970.

United Kingdom: de facto urban population: wards or parishes of 3,000 or more population (2,000 or more in certain circumstances) and having a population density of at least 0.6 person per acre; or areas contiguous to urban areas with a population of 750 and a density of 0.6 person per acre. 1951*, 1961* and 1971*. (See Department of the Environment, Regional Plans Directorate PRP4—National Framework Division B De Facto Urban Areas in England and Wales, 1966.)

Yugoslavia: localities with 15,000 or more inhabitants; localities with 5,000-14,999 inhabitants of which at least 30 per cent are not engaged in agriculture; localities with 3,000-4,999 inhabitants of which at least 70 per cent are not engaged in agriculture; and localities with 2,000-2,999 inhabitants of which at least 80 per cent are not engaged in agriculture; 1953*, 1961 and 1971.

Oceania

American Samoa: sum of Pago Pago and Leone; 1970 and 1974.

Australia: population clusters of 1,000 or more inhabitants and some areas of lower population (e.g., holiday areas), if they contain 250 or more dwellings of which at least 100 are occupied; 1961*, 1966 and 1971.

Cook Islands: Avarue; 1966 and 1971.

Fiji: Suva, Lautoka, Nadi, Labasa, Nausori and Ba plus urban localities; 1956 and 1966.

French Polynesia: urban agglomeration of Papeete; 1962 and 1971.

Gilbert Islands: sum of Tarawa and Ocean Island; 1968 and 1973.

Guam: localities with 2,500 or more inhabitants; 1960 and 1970.

New Caledonia: city of Noumea; 1963, 1969 and 1974.

New Hebrides: cities of Vila and Santo; 1967.

New Zealand: 24 urban areas plus that of all boroughs, town districts, townships and county towns with populations over 1,000; 1951, 1956, 1961, 1966, 1971 and 1976.

Niue Island: city of Alofi; 1966 and 1971.

Pacific Islands: district centre areas plus Ebeye in Kwajalein atoll of the Marshall Islands and Rota in the Marianna Islands; 1967 and 1973.

Papua New Guinea: centres with a population of 500 or more but excluding separately located schools, hospitals, missions, plantations, rural settlements and rural villages, regardless of size; 1966 and 1971.

Samoa: urban area of Apia, comprising the Faipule districts of Vaimauga West and Foleata East; 1951, 1956, 1961, 1966 and 1971.

Solomon Islands: centres with a population of 2,000 or more; up to 1970, this included only the township of Honiara; 1959 and 1970.

Tonga: places larger than 1,400 population; 1956 and 1966.

Union of Soviet Socialist Republics

Cities are urban-type localities, officially designated as such by each of the constituent Republics, usually according to the criteria of number of inhabitants and predominance of agricultural or number of non-agricultural workers and their families; 1950, 1959 and 1970.

Annex II. URBAN AND CITY POPULATION, RURAL POPULATION AND PERCENTAGE URBAN, MAJOR AREAS, REGIONS AND COUNTRIES, 1950-2000: TABLES 48-50

TABLE 48. URBAN AND CITY POPULATION, MAJOR AREAS, REGIONS AND COUNTRIES, 1950-2000

(Thousands)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
World total	724 147	1 012 084	1 354 357	1 560 860	1 806 809	2 422 293	3 208 028
More developed regions	448 929	572 730	702 876	767 302	834 401	969 226	1 092 470
Less developed regions	275 218	439 354	651 481	793 558	972 408	1 453 067	2 115 558
Africa	31 818	49 506	80 373	103 032	132 951	219 202	345 757
Eastern Africa	3 403	5 821	10 675	15 109	21 303	40 345	70 535
British Indian Ocean Territory	...	...	...	...	...	...	...
Burundi	54	64	74	83	98	159	301
Bujumbura	...	...	...	...	...	159	301
Comoros	6	11	21	29	40	72	109
Djibouti	30	40	59	73	88	123	158
Djibouti	...	...	...	...	...	123	158
Ethiopia	761	1 284	2 315	3 273	4 562	8 555	15 140
Addis Ababa	200	385	784	1 162	1 668	3 243	5 600
Asmara	...	105	226	318	439	822	1 439
Kenya	336	597	1 145	1 592	2 223	4 314	8 125
Mombasa	...	162	256	320	396	658	1 193
Nairobi	139	238	550	862	1 275	2 628	4 869
Madagascar	338	569	977	1 290	1 718	3 100	5 595
Tananarive	180	249	373	482	625	1 076	1 880
Malawi	107	152	407	965	1 874	4 273	6 489
Blantyre-Limbe	...	...	148	223	352	783	1 200
Mauritius	138	220	346	425	506	678	846
Port-Louis	...	111	136	142	153	186	231
Mozambique	136	242	468	652	901	1 720	3 199
Lourenço Marques	...	182	375	539	750	1 438	2 619
Réunion	57	111	196	248	301	408	512
Saint-Denis	...	...	...	121	148	208	265
Rwanda	39	66	117	154	209	397	769
Kigali	...	...	...	...	...	...	156
Seychelles	10	11	14	16	18	26	39
Somalia	232	385	645	839	1 101	1 871	3 022
Merca	...	...	...	...	118	190	307
Mogadiscio	...	...	190	273	377	681	1 101
Southern Rhodesia	242	446	898	1 240	1 721	3 254	5 781
Bulawayo	...	154	265	331	422	717	1 233
Salisbury	...	176	403	594	863	1 718	3 010
Uganda	204	396	783	1 112	1 577	3 092	5 685
Kampala	...	152	357	553	813	1 663	3 015
United Republic of Tanzania	285	485	920	1 414	2 131	4 501	8 505
Dar es Salaam	...	164	375	666	1 075	2 480	4 645
Zambia	428	742	1 290	1 704	2 235	3 802	6 260
Chingola	...	...	115	178	233	392	642
Kitwe	...	...	222	342	445	740	1 198
Luanshya	...	...	102	124	132	174	276
Lusaka	...	...	299	538	791	1 524	2 513
Mufulira	...	...	116	146	162	224	355
Ndola	...	...	177	271	351	581	944
Middle Africa	3 827	5 751	10 176	13 437	17 598	29 130	45 235
Angola	301	493	848	1 130	1 508	2 656	4 508
Luanda	134	216	465	695	959	1 755	2 934
Central African Empire	183	301	502	644	819	1 299	1 941
Bangui	...	120	187	236	297	469	697
Chad	103	207	414	578	796	1 418	2 312
Ndjamena	...	...	155	222	313	582	950
Congo	255	320	415	481	571	858	1 347
Brazzaville	216	247	278	294	322	428	652
Dolisie	...	...	...	...	...	...	138
Pointe-Noire	...	...	114	154	204	347	556

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Middle Africa (*continued*)							
Equatorial Guinea	35	64	111	145	182	265	352
Santa Isabel	...	...	...	115	151	229	306
Gabon	49	79	128	161	195	271	355
Libreville	...	...	...	103	132	198	263
Sao Tome and Principe	8	10	17	22	28	37	44
United Republic of Cameroon	400	675	1 185	1 743	2 450	4 319	6 537
Douala	137	173	250	365	526	983	1 490
Yaoundé	...	...	178	251	352	639	969
Zaire	2 493	3 602	6 556	8 533	11 049	18 007	27 839
Bukavu	...	152	139	130	122	134	195
Kananga	...	154	449	746	1 109	2 113	3 283
Kikwit	...	...	121	234	394	884	1 438
Kinshasa	199	510	1 367	2 164	3 089	5 556	8 411
Kisangani	...	152	235	285	330	466	699
Likasi	...	...	150	180	208	292	441
Lubumbashi	132	219	324	385	439	604	898
Matadi	...	...	113	122	130	165	247
Mbandaka	...	...	111	158	209	347	540
Mbuji-Mayi	...	154	274	358	438	661	999
Northern Africa	12 698	19 570	31 344	39 391	49 557	76 960	111 914
Algeria	1 948	3 287	6 529	9 024	12 065	19 714	28 021
Algiers	445	873	1 075	1 203	1 391	1 954	2 643
Annaba	107	164	186	201	226	311	432
Blida	...	...	138	191	262	462	668
Constantine	121	221	303	360	437	657	916
Oran	285	392	309	276	267	304	406
Setif	...	...	137	189	260	458	662
Tiemcen	...	...	121	168	230	406	589
Egypt	6 532	9 818	14 080	16 346	19 119	26 604	37 048
Alexandria	1 037	1 508	2 039	2 358	2 722	3 633	4 821
Aswan	...	...	144	167	194	265	368
Asyût	...	127	174	201	233	319	441
Cairo/Giza/Imbaba	2 466	3 725	5 480	6 415	7 464	9 991	13 058
Damanhûr	...	126	165	191	222	303	419
El Mahalla et Kûbra	128	178	255	295	341	465	639
Faiyûm	...	101	151	175	203	277	385
Ismailia	...	116	156	171	190	247	339
Mansûra	112	151	217	250	290	396	546
Minya	...	100	127	147	171	234	326
Port Said	192	245	282	279	285	333	447
Subra-El Khema	...	...	196	226	262	358	494
Suez	125	202	240	213	199	209	276
Tanta	150	184	260	301	348	474	652
Zagazig	...	124	171	198	229	313	434
Libyan Arab Jamahiriya	191	307	664	985	1 382	2 345	3 405
Bengazi	...	104	213	298	396	632	901
Tripoli	116	174	388	607	880	1 556	2 235
Morocco	2 345	3 412	5 236	6 551	8 265	13 126	19 704
Casablanca	721	1 101	1 525	1 822	2 194	3 236	4 624
Fez	205	256	369	451	553	844	1 239
Kénitra	128	193	293	365	457	715	1 058
Marrakech	250	288	383	449	533	782	1 140
Meknès	199	261	355	420	503	746	1 091
Oujda	148	262	315	350	399	557	809
Rabat-Salé	177	280	507	693	930	1 580	2 346
Safi	...	122	188	236	297	470	702
Tangier	106	142	183	211	248	360	531
Tétouán	156	202	268	313	372	546	801
Sudan	572	1 212	2 571	3 722	5 305	10 014	16 551
Khartoum	178	367	771	1 122	1 621	3 144	5 079
Port Sudan	...	...	135	185	256	476	785
Wad Medani	...	...	111	146	196	353	580
Tunisia	1 103	1 521	2 234	2 737	3 394	5 126	7 144
Sfax	...	153	243	269	305	416	567
Tunis	481	600	760	887	1 046	1 479	1 994
Western Sahara	7	13	30	26	27	31	41

TABLE 48. *(continued)*

(Thousands)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Southern Africa	5 338	7 592	10 650	12 481	14 959	21 958	32 560
Botswana	1	9	52	119	234	567	900
Gaborone	...	...	...	...	110	364	610
Lesotho	7	13	28	40	58	117	217
Maseru	...	...	...	...	...	117	217
Namibia	66	133	258	350	465	773	1 184
Windhoek	...	...	...	100	135	234	363
South Africa	5 261	7 424	10 281	11 934	14 154	20 417	30 109
Bloemfontein	107	145	181	199	223	297	429
Cape Town	621	804	1 102	1 274	1 476	2 019	2 850
Durban	488	650	847	953	1 082	1 444	2 040
East London	...	116	123	126	132	163	234
East Rand	548	682	899	1 019	1 163	1 563	2 208
Johannesburg	904	1 148	1 438	1 587	1 772	2 310	3 224
Kimberley	...	...	104	118	136	187	274
Ofs Goldfields	...	163	210	230	257	339	489
Pietermaritzburg	...	126	159	177	199	266	386
Port Elizabeth	193	289	472	596	742	1 116	1 620
Pretoria	276	419	564	645	742	1 010	1 439
Vander/Vereen/Sasolb	117	187	307	388	483	730	1 068
West Rand	209	307	423	489	568	785	1 127
Swaziland	3	13	31	38	48	84	150
Western Africa	6 552	10 772	17 528	22 614	29 534	50 809	85 513
Benin	115	201	430	707	1 089	2 122	3 223
Cotonou	...	...	204	400	685	1 512	2 306
Porto-Novo	...	...	...	100	114	154	221
Cape Verde	12	14	17	17	19	25	40
Gambia	37	49	70	84	104	164	262
Banjul	...	...	...	...	104	164	262
Ghana	727	1 575	2 511	3193	4 104	6 830	10 843
Accra	277	396	754	1 050	1 416	2 470	3 842
Kumasi	...	221	350	447	563	907	1 411
Sekondi-Takoradi	...	129	162	184	212	307	476
Guinea	148	315	543	719	956	1 676	2 806
Conakry	...	117	330	550	763	1 397	2 314
Guinea-Bissau	51	71	88	109	136	214	325
Bissau	...	...	...	...	...	...	127
Ivory Coast	367	662	1 192	1 591	2 099	3 481	5 313
Abidjan	...	180	356	503	685	1 189	1 800
Bouaké	...	...	...	127	174	309	480
Liberia	168	257	399	503	638	1 016	1 563
Monrovia	...	...	...	...	...	119	177
Mali	277	452	751	979	1 284	2 218	3 800
Bamako	...	144	249	332	440	764	1 289
Mauritania	7	32	149	296	508	1 024	1 509
Nouakchott	...	...	...	...	198	562	876
Niger	111	169	337	472	660	1 266	2 343
Niamey	...	...	...	138	206	430	803
Nigeria	3 595	5 642	9 009	11 449	14 811	25 665	45 041
Aba	...	...	149	188	223	339	579
Abeokuta	...	136	210	262	308	462	784
Ado-Ekiti	...	...	346	709	1 002	1 955	3 445
Benin City	...	...	101	117	129	181	306
Ede	...	...	183	263	347	599	1 040
Enugu	...	101	154	193	226	339	578
Ibadan	432	578	725	839	970	1 296	1 733
Ife	...	...	...	...	...	...	154
Ikere-Ekiti	...	...	146	211	278	482	840
Ila	...	...	...	...	...	131	222
Ilesha	117	128	143	153	159	205	341
Ilobu	...	...	...	...	110	158	271
Ilorin	...	...	239	388	562	1 084	1 907
Iseyin	140	214	335	424	503	758	1 278
Iwo	...	...	...	...	...	113	190
Jos	374	713	1 389	1 954	2 517	4 156	6 945

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Nigeria (*continued*)							
Kaduna	...	...	200	347	531	1 096	1 952
Kano	...	119	190	242	289	441	750
Katsina	...	...	...	...	104	150	256
Lagos	...	119	396	730	1 168	2 542	4 518
Maiduguri	...	...	172	230	285	458	787
Mushin	...	...	259	452	696	1 447	2 571
Offa	...	...	...	134	179	313	550
Ogbomosho	147	242	410	539	658	1 028	1 735
Onitsha	...	120	177	217	251	369	626
Oshogbo	141	165	197	218	232	309	514
Oyo	...	...	100	106	110	141	236
Port Harcourt	...	126	217	288	354	562	961
Sokoto	...	...	...	...	...	120	202
Zaria	...	110	229	334	445	774	1 341
Senegal	563	704	930	1 070	1 265	1 896	3 002
Dakar	260	372	559	685	821	1 223	1 879
Kaolack	...	...	...	...	103	140	219
Saint-Louis	...	...	...	...	...	126	200
Thies	...	...	...	101	115	162	254
Ziguinchor	...	...	...	...	...	124	199
St. Helena	1	1	1	1	1	1	2
Sierra Leone	164	278	478	631	833	1 422	2 298
Freetown	...	103	202	286	388	687	1 105
Kono	...	...	...	113	145	243	392
Togo	87	143	257	339	452	810	1 407
Lomé	...	...	150	203	273	491	847
Upper Volta	122	207	366	454	575	979	1 736
Babo-Dioulasso	...	...	...	110	123	173	297
Ouagadougou	...	...	101	162	235	459	828
Latin America	67 511	106 599	162 355	198 366	240 592	343 304	466 234
Caribbean	5 604	7 731	11 098	13 184	15 653	21 645	28 760
Antigua	21	22	24	23	23	26	33
Bahamas	56	73	102	111	125	154	200
Nassau	...	...	102	111	125	154	200
Barbados	71	82	89	93	99	119	146
Bridgetown	...	...	...	...	...	119	146
British Virgin Islands	...	...	...	...	...	...	...
Cayman Islands	7	8	11	11	12	12	13
Cuba	2 841	3 850	5 156	5 954	6 891	9 069	11 483
Camagüey	106	144	197	231	270	362	460
Guantánamo	...	...	129	155	186	258	332
Halguín	...	...	131	164	203	293	379
La Habana	1 198	1 448	1 751	1 929	2 139	2 650	3 213
Santa Clara	...	...	130	150	172	229	292
Santiago de Cuba	158	209	277	320	369	487	613
Dominica	...	...	...		...	...	...
Dominican Republic	549	955	1 751	2 342	3 085	5 097	7 834
Santiago de Los Caballeros	...	140	270	376	504	858	1 315
Santo Domingo	238	464	900	1 248	1 661	2 783	4 176
Grenada	...	...	...		...	...	...
Guadeloupe	87	107	133	148	166	213	273
Haiti	377	566	837	1 008	1 234	1 883	2 765
Port-au-Prince	134	239	419	549	689	1 074	1 558
Jamaica	375	550	783	927	1 082	1 419	1 751
Kingston-St. Andrew	328	425	546	620	706	909	1 103
Martinique	62	111	182	220	260	331	385
Fort-de-France	...	...	116	135	159	205	240
Montserrat	3	2	1	1	1	1	2
Netherlands Antilles	80	130	182	210	241	310	369
Puerto Rico	901	1 052	1 603	1 887	2 167	2 678	3 055
Ponce	128	146	161	165	172	192	218
San Juan	489	564	858	1 027	1 205	1 535	1 731

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Caribbean (*continued*)							
St. Kitts-Nevis-Anguilla	11	16	22	25	28	33	39
St. Lucia	...	...	...	...	...	...	...
St. Vincent	...	...	...	...	...	...	...
Trinidad and Tobago	145	187	205	213	228	287	397
Turks and Caicos Islands	2	2	2	2	2	3	3
United States Virgin Islands	16	18	15	9	9	10	12
Middle America	14 245	22 744	36 102	45 123	56 275	85 804	124 610
Belize	38	50	61	69	80	106	136
Costa Rica	290	457	689	823	992	1 445	2 067
San José	197	305	452	536	637	904	1 265
El Salvador	705	969	1 385	1 639	1 978	3 004	4 628
San Salvador	169	254	336	379	433	600	895
Santa Ana	...	...	...	108	124	175	266
Guatemala	921	1 317	1 889	2 269	2 763	4 193	6 384
Ciudad de Guatemala	406	544	733	855	1 004	1 425	2 084
Honduras	247	426	733	971	1 278	2 162	3 512
San Pedro Sula	...	...	121	180	254	471	775
Tegucigalpa	...	130	235	321	423	716	1 150
Mexico	11 348	18 458	29 706	37 318	46 660	71 069	102 293
Acapulco de Juarez	...	...	185	291	426	796	1 186
Aquascalientes	...	132	192	231	274	394	564
Chihuahua	...	165	276	357	447	690	991
Ciudad Juárez	127	273	434	548	672	1 006	1 428
Ciudad Obregón	...	...	121	157	199	312	455
Cuernavaca	...	...	145	281	487	1 120	1 727
Culicán	...	...	182	260	354	605	889
Guadalajara	415	847	1 565	2 127	2 762	4 392	6 170
Hermosillo	...	100	190	261	344	566	825
Irapuato	...	...	122	144	168	238	342
Jalapa Euriquez	...	...	128	176	230	377	553
Léon	127	225	399	532	682	1 077	1 544
Matamoros (Greater Matamoros)	...	...	147	183	222	330	476
Mazatlán	...	...	126	158	194	294	426
Mérida	147	179	224	250	279	374	527
Mexicali	128	188	288	358	433	640	914
Mexico City	2 967	5 121	8 997	11 880	15 032	22 855	31 025
Monterrey	366	729	1 264	1 664	2 109	3 260	4 575
Morelia	...	110	170	212	257	382	550
Nuevo Laredo	...	...	159	204	254	390	565
Puebla de Zaragoza	234	318	522	668	830	1 260	1 787
Querétaro	...	...	118	153	192	299	435
Reynosa	...	...	144	197	259	424	621
Saltillo	...	103	172	222	278	429	622
San Luis Potosí	136	179	300	388	486	748	1 073
Tampico	139	183	289	362	443	662	946
Tijuana	...	159	299	411	541	883	1 278
Toluca de Lerdo	...	...	119	145	173	254	367
Torreón	194	275	343	383	427	569	796
Veracruz (Greater Veracruz)	104	154	233	286	344	506	723
Victoria de Durango	...	103	163	205	252	379	548
Nicaragua	397	609	930	1 163	1 457	2 256	3 396
Managua	149	248	411	536	683	1 079	1 604
Panama	286	446	695	855	1 049	1 545	2 166
Colon	...	...	...	...	...	103	143
Panama	124	270	443	558	695	1 041	1 443
Canal Zone	13	12	14	16	18	24	28
Temperate South America	16 475	22 419	28 090	31 060	34 157	40 292	45 741
Argentina	11 205	15 172	18 616	20 436	22 300	25 818	28 875
Bahía Blanca	122	145	184	207	230	276	313
Buenos Aires (Greater Buenos Aires)	5 251	6 925	8 469	9 315	10 084	11 445	12 104
Cordoba	419	590	800	927	1 051	1 285	1 426
Corrientes	...	106	139	157	176	214	244

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Argentina (*continued*)							
La Plata (Greater La Plata) ..	301	379	485	547	608	726	810
Mar del Plata	135	211	300	356	412	520	590
Mendoza (Greater Mendoza) .	247	356	486	566	644	794	890
Parana	...	111	130	140	150	173	196
Posadas	...	...	...	112	126	156	180
Rosario (Greater Rosario) ..	546	677	818	896	971	1 122	1 234
Salta	...	121	178	214	252	325	372
San Fernando	...	113	144	162	179	216	246
San Juan (Greater San Juan) .	120	158	215	250	285	354	402
Santa Fé	190	234	279	304	328	381	426
Santiago del Estero	...	114	143	159	175	210	238
Tucumán (Greater Tucumán)	230	310	368	399	430	495	552
Chile	3 558	5 145	7 048	8 044	9 116	11 390	13 460
Antofagasta	...	...	132	158	184	240	290
Concepción	124	152	169	176	182	206	242
Santiago	1 349	1 950	2 889	3 448	3 977	5 036	5 760
Talcahuano	...	...	157	211	269	392	480
Temuco	...	...	117	145	174	236	287
Valparaiso	228	261	263	259	258	277	320
Viña del Mar	...	118	190	238	287	392	473
Falkland Islands (Malvinas) ...	...	...	...	...	...	...	...
Uruguay	1 712	2 102	2 426	2 580	2 741	3 084	3 406
Montevideo	991	1 175	1 312	1 374	1 439	1 574	1 687
Tropical South America	31 187	53 705	87 065	108 999	134 507	195 563	267 123
Bolivia	614	908	1 344	1 641	2 030	3 139	4 830
Cochabamba	...	124	187	231	283	431	657
La Paz	297	426	615	743	893	1 318	1 963
Oruro	...	...	121	142	167	244	373
Santa Cruz	...	...	193	278	385	681	1 062
Brazil	19 064	32 996	53 253	66 621	82 172	119 271	163 027
Aracaju	...	114	186	237	290	423	581
Bauru	...	...	126	151	176	243	333
Belém	239	382	616	781	949	1 357	1 825
Belo Horizonte	374	740	1 543	2 225	2 987	4 797	6 471
Brasilia	...	142	510	962	1 605	3 390	4 853
Campina Grande	...	117	169	203	236	323	440
Campinas	103	181	338	463	597	923	1 269
Campo Grande	...	...	135	195	263	432	608
Campos	...	...	158	208	260	390	539
Caruaru	...	...	105	133	162	235	326
Caxias do Sul	...	...	110	147	187	288	402
Curitiba	141	358	914	1 456	2 119	3 772	5 212
Feira de Santana	...	...	131	190	259	429	605
Florianopolis	...	...	122	156	190	277	384
Fortaleza	263	487	906	1 235	1 586	2 422	3 270
Goiânia	...	131	371	622	946	1 788	2 530
Governador Valadares	...	...	129	175	225	349	487
João Pessoa	...	138	209	257	306	429	585
Juiz de Fora	...	126	228	306	390	595	821
Jundiaí	...	...	149	202	260	404	563
Londrina	...	...	162	237	324	541	761
Maceió	104	155	254	325	398	579	791
Manaus	113	156	290	396	511	791	1 089
Natal	100	156	261	338	417	613	839
Pelotas	...	122	159	181	202	263	355
Petrópolis	...	...	122	138	153	199	270
Piracicaba	...	...	131	165	201	291	401
Porto Alegre	436	792	1 451	1 962	2 502	3 775	5 049
Recife	660	1 045	1 659	2 088	2 516	3 535	4 666
Ribeirão Prêto	...	117	200	262	326	486	669
Rio de Janeiro	2 937	4 472	7 074	8 885	10 653	14 729	18 961
Rio Grande	...	...	103	114	124	157	213
Salvador	401	661	1 087	1 392	1 702	2 443	3 258
Santa Maria	...	...	127	161	196	284	393
Santos	244	367	559	689	818	1 139	1 527
Sao José de Rio Prêto	...	...	112	144	178	264	366
São Luis	...	126	175	206	236	317	431

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Brazil (*continued*)							
São Paulo	2 483	4 451	8 027	10 740	13 541	19 892	25 796
Sorocaba	...	110	172	214	258	367	504
Taubate	...	...	103	129	156	224	311
Teresina	...	100	193	267	348	547	761
Uberaba	...	...	113	140	168	239	330
Uberlândia	...	...	114	144	175	254	351
Vitória	...	...	128	158	188	265	365
Volta Redonda	...	...	125	151	177	246	338
Colombia	4 334	7 665	13 209	16 946	21 212	31 102	41 779
Armenia	...	134	194	211	232	292	385
Barrancabermeja	...	...	115	152	195	300	410
Barranquilla	307	473	767	982	1 221	1 775	2 336
Bello	...	103	184	225	270	380	508
Bogotá	633	1 309	2 776	4 017	5 493	8 892	11 663
Bucaramanga	130	223	366	457	558	797	1 059
Buenaventura	...	...	127	154	183	257	345
Cali	288	529	954	1 260	1 606	2 402	3 165
Cartagena	129	206	319	389	465	648	859
Ciénaga	...	...	177	249	335	541	741
Cúcuta	...	156	246	305	371	529	707
Ibagué	...	145	200	229	261	344	456
Itagüí	...	...	200	229	261	344	456
Manizales	131	199	251	260	274	329	427
Medellín	469	835	1 474	1 929	2 439	3 601	4 703
Montería	...	109	197	213	233	291	383
Neiva	...	...	116	139	165	229	308
Palmira	...	123	164	180	199	252	333
Pasto	...	105	137	155	175	229	305
Pereira	141	204	255	268	286	347	452
Popayán	...	...	121	141	162	218	291
Santa Marta	...	...	121	131	144	181	240
Tunja	...	110	153	152	155	179	234
Valledupar	...	...	190	242	300	439	592
Ecuador	911	1 490	2 384	2 971	3 707	5 735	8 564
Cuenca	...	...	...	116	146	232	350
Guayaquil	258	461	730	892	1 093	1 638	2 370
Quito	210	330	526	658	821	1 264	1 845
French Guiana	13	21	34	41	50	70	93
Guyana	126	148	165	173	193	257	376
Georgetown	126	148	165	173	193	257	376
Paraguay	474	631	853	1 003	1 205	1 800	2 708
Ascunción	209	280	379	447	529	758	1 112
Peru	2 811	4 625	7 605	9 619	11 942	17 498	24 132
Arequipa	...	131	271	393	533	881	1 232
Chiclayo	...	...	172	235	305	479	669
Chimbote	...	...	138	217	314	564	807
Cuzco	131	125	125	126	128	149	200
Huancayo	...	...	116	159	207	327	460
Iquitos	...	...	102	137	176	274	386
Lima-Callao	1 091	1 757	2 934	3 790	4 682	6 762	8 930
Piura	...	...	108	177	267	505	732
Trujillo	...	...	213	318	444	760	1 073
Suriname	101	137	170	189	220	327	489
Paramaribo	...	...	...	...	...	116	167
Venezuela	2 739	5 084	8 048	9 795	11 776	16 364	21 125
Barquisimeto	106	199	320	399	480	671	862
Cabimas	...	...	117	130	143	181	232
Caracas	702	1 335	2 111	2 598	3 093	4 198	5 209
Ciudad Bolivar	...	...	101	124	149	210	275
Cumana	...	...	116	146	178	255	334
Maiqueta	...	...	118	144	172	239	311
Maracaibo	239	423	636	764	895	1 200	1 515
Maracay	...	134	244	322	407	604	787
San Cristóbal	...	...	148	178	209	285	369
San Feliz de Guayana	...	...	127	234	387	804	1 112
Valencia	...	164	344	492	662	1 059	1 387

TABLE 48. (*continued*)

(*Thousands*)

Major, area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Northern America	106 019	133 281	159 493	170 501	183 281	212 393	239 199
Bermuda	37	44	52	56	60	68	76
Canada	8 355	12 340	16 194	17 789	19 695	23 727	27 292
Calgary	133	264	391	472	523	602	677
Edmonton	164	320	480	586	656	762	856
Halifax	131	180	219	243	253	270	303
Hamilton	264	384	492	540	555	581	642
Kitchener	...	149	221	258	279	313	353
London	126	177	271	370	452	589	679
Montréal	1 349	2 043	2 701	3 005	3 115	3 251	3 496
Ottawa	284	417	585	704	779	892	996
Quebec	269	351	470	540	577	632	703
Regina	...	109	140	148	149	153	171
St. Catherines	205	260	302	317	329	367	418
Saint John	...	...	108	115	116	120	135
St. John's	...	...	109	117	119	124	140
Saskatoon	...	102	125	135	137	143	162
Sudbury	...	109	122	125	123	123	138
Thunder Bay	...	...	111	119	121	126	143
Toronto	1 073	1 755	2 551	3 065	3 379	3 804	4 143
Vancouver	621	215	1 051	1 260	1 388	1 572	1 738
Victoria	...	149	183	192	191	193	215
Windsor	162	192	251	303	337	390	442
Winnipeg	346	466	538	564	560	561	615
Greenland	18	25	34	39	43	50	58
St. Pierre and Miquelon	4	4	4	4	4	4	4
United States of America	97 605	120 868	143 209	152 613	163 479	188 544	211 769
Akron (Ohio)	369	501	618	673	707	794	881
Albany/Schenectady/Troy (New York)	416	497	552	571	576	615	679
Albuquerque (New Mexico)	136	263	339	377	403	465	523
Allentown (Pennsylvania-New Jersey)	227	281	416	497	562	692	784
Amarillo (Texas)	...	150	144	138	132	132	148
Ann Arbor (Michigan)	...	127	205	255	299	387	446
Appleton (Wisconsin)	...	...	151	246	358	605	731
Atlanta (Georgia)	513	845	1 344	1 661	1 928	2 431	2 714
Atlantic City (New Jersey)	106	136	152	157	159	173	195
Augusta (Georgia-South Carolina)	...	135	170	187	199	228	259
Aurora/Elgin (Illinois)	...	125	269	386	506	751	882
Austin (Texas)	137	206	303	360	406	500	570
Bakersfield (California)	112	156	201	223	239	277	315
Baltimore (Maryland)	1 168	1 549	1 796	1 896	1 940	2 089	2 267
Baton Rouge (Louisiana)	140	212	285	323	351	414	468
Beaumont (Texas)	...	130	132	130	127	131	147
Biloxi/Gulfport (Mississippi)	...	...	139	179	214	286	334
Binghamton (New York)	144	172	189	195	196	210	236
Birmingham (Alabama)	447	577	644	667	674	719	792
Boston (Massachusetts)	2 238	2 634	3 015	3 163	3 216	3 426	3 680
Bridgeport (Connecticut)	240	401	471	500	515	566	629
Brockton (Massachusetts)	...	122	170	197	218	263	301
Buffalo (New York)	900	1 149	1 233	1 252	1 243	1 294	1 404
Canton (Ohio)	175	233	278	297	309	343	385
Cedar Rapids (Iowa)	...	115	151	169	182	213	243
Charleston (South Carolina)	121	175	261	312	354	439	501
Charleston (West Virginia)	132	184	178	172	164	165	184
Charlotte (North Carolina)	142	230	320	370	408	489	554
Chattanooga (Tennessee-Georgia)	169	224	254	265	270	293	328
Chicago (Illinois-north-western Indiana)	4 945	6 508	7 637	8 112	8 314	8 885	9 411
Cincinnatti (Ohio-Kentucky)	817	1 084	1 263	1 337	1 371	1 485	1 622
Cleveland (Ohio)	1 393	1 948	2 227	2 335	2 374	2 535	2 737
Colorado Springs (Colorado)	...	111	236	337	440	651	765
Columbia (South Carolina)	122	179	277	338	389	492	563
Columbus (Ohio)	441	676	901	1 021	1 105	1 283	1 424
Columbus (Georgia-Alabama)	119	173	238	274	301	360	409

TABLE 48. *(continued)*

(Thousands)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
United States of America *(continued)*							
Corpus Christi (Texas)	124	194	243	266	282	321	363
Dallas (Texas)	546	1 024	1 532	1 836	2 079	2 540	2 817
Davenport/Rock Island (Iowa-Illinois)	196	248	303	328	343	386	433
Dayton (Ohio)	350	551	784	916	1 018	1 222	1 365
Denver (Colorado)	505	881	1 195	1 365	1 488	1 738	1 921
Des Moines (Iowa)	201	262	290	299	302	323	360
Detroit (Michigan)	2 769	3 863	4 516	4 787	4 903	5 256	5 616
Duluth/Superior (Minnesota-Wisconsin)	143	158	156	153	147	151	168
Durham (North Carolina)	...	...	115	125	132	151	172
El Paso (Texas)	139	303	384	425	452	517	579
Erie (Pennsylvania)	152	193	198	197	193	201	224
Eugene (Oregon)	...	106	160	193	220	277	320
Evansville (Indiana)	138	157	161	160	157	163	182
Fall River (Massachusetts-Rhode Island)	118	135	159	169	174	194	219
Fayetteville (North Carolina)	...	...	188	346	555	1 053	1 290
Flint (Michigan)	199	304	376	411	433	489	548
Fort Lauderdale (Florida)	...	354	707	981	1 249	1 772	2 034
Fort Wayne (Indiana)	141	197	256	287	308	358	405
Fort Worth (Texas)	319	551	773	898	993	1 185	1 323
Fresno (California)	132	234	299	332	354	407	459
Grand Rapids (Michigan)	228	322	401	439	464	525	587
Green Bay (Wisconsin)	...	107	147	170	187	225	258
Greensboro (North Carolina)	...	135	173	193	206	239	272
Greenville (South Carolina)	102	139	179	199	213	247	281
Harrisburg (Pennsylvania)	171	229	274	295	307	342	385
Hartford (Connecticut)	303	417	530	585	622	709	791
Honolulu (Hawaii)	250	384	505	567	611	708	792
Houston (Texas)	710	1 253	1 921	2 331	2 664	3 287	3 637
Huntington/Ashland (West Virginia-Kentucky)	157	181	191	192	190	199	223
Huntsville (Alabama)	...	...	169	237	305	443	522
Indianapolis (Indiana)	505	700	935	1 060	1 149	1 335	1 481
Jackson (Mississippi)	101	161	217	246	268	317	361
Jacksonville (Florida)	246	409	606	722	816	1 000	1 126
Joliet (Illinois)	...	127	178	206	228	276	316
Kalamazoo (Michigan)	...	126	173	199	219	262	300
Kansas City (Missouri-Kansas)	703	1 007	1 255	1 374	1 448	1 621	1 779
Knoxville (Tennessee)	149	188	217	228	233	255	287
Lancaster (Pennsylvania)	...	102	134	150	162	190	217
Lansing (Michigan)	135	186	262	305	338	408	464
Las Vegas (Nevada)	...	100	274	445	644	1 076	1 285
Lawrence/Haverhill (Massachusetts)	113	182	228	250	265	303	342
Lexington (Kentucky)	...	123	183	218	247	307	353
Lincoln (Nebraska)	100	149	175	185	191	212	239
Little Rock (Arkansas)	154	203	254	279	296	337	380
Lorain/Elyria (Ohio)	...	157	220	255	283	342	390
Los Angeles/Long Beach (California)	4 046	7 109	9 530	10 813	11 676	13 282	14 154
Louisville (Kentucky-Indiana)	476	664	843	930	988	1 120	1 240
Lowell (Massachusetts)	107	131	210	261	305	393	453
Lubbock (Texas)	...	142	171	185	193	217	246
Macon (Georgia)	...	124	145	154	159	176	199
Madison (Wisconsin)	111	173	235	268	293	347	395
Memphis (Tennessee-Mississippi)	409	596	756	836	888	1 009	1 118
Miami (Florida)	466	936	1 396	1 671	1 890	2 308	2 562
Milwaukee (Wisconsin)	836	1 254	1 423	1 486	1 508	1 611	1 752
Minneapolis-St. Paul (Minnesota)	995	1 507	1 942	2 162	2 307	2 615	2 856
Mobile (Alabama)	185	292	293	287	278	284	314
Modesto (California)	...	...	124	209	314	552	673
Montgomery (Alabama)	110	156	158	156	151	156	175
Muskegon Heights (Michigan)	...	105	120	126	130	143	162
Nashville/Davidson (Tennessee)	261	380	511	582	633	742	832
New Bedford (Massachusetts)	126	138	152	156	157	169	190

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
United States of America (*continued*)							
New Britain (Connecticut)	...	110	150	171	188	224	257
New Haven (Connecticut)	246	305	397	444	477	552	620
New Orleans (Louisiana)	664	923	1 094	1 168	1 206	1 320	1 447
New York (New York-northeastern New Jersey)	12 340	15 422	18 443	19 774	20 383	21 797	22 773
Newport News/Hampton (Virginia)	146	229	306	347	378	444	502
Norfolk/Portsmouth (Virginia)	388	556	763	876	960	1 132	1 262
Norwalk (Connecticut)	...	...	121	138	150	179	205
Ogden (Utah)	...	134	170	188	200	231	262
Oklahoma City	278	470	662	770	853	1 020	1 143
Omaha (Nebraska-Iowa)	312	427	561	631	680	788	881
Orlando (Florida)	...	221	350	433	503	641	732
Oxnard/Ventura (California)	...	...	289	688	1 350	3 279	4 146
Pensacola (Florida)	...	140	191	218	238	283	323
Peoria (Illinois)	155	199	282	330	366	443	504
Philadelphia (Pennsylvania-New Jersey)	2 938	3 968	4 571	4 811	4 899	5 214	5 564
Phoenix (Arizona)	221	607	990	1 239	1 453	1 859	2 090
Pittsburgh (Pennsylvania)	1 540	1 965	2 095	2 120	2 096	2 164	2 326
Port Arthur (Texas)	...	126	132	132	130	136	153
Portland (Oregon-Washington)	516	714	941	1 059	1 142	1 318	1 459
Portland (Maine)	113	122	120	117	113	115	129
Providence (Rhode Island)	585	722	906	995	1 052	1 186	1 310
Provo/Orem (Utah)	...	...	120	157	192	262	307
Pueblo (Colorado)	...	112	117	117	115	121	136
Racine (Wisconsin)	...	105	134	148	159	184	210
Raleigh (North Carolina)	...	103	175	222	266	352	408
Reading (Pennsylvania)	155	174	191	195	196	210	235
Richmond (Virginia)	260	365	474	530	569	656	734
Roanoke (Virginia)	107	136	179	202	218	255	291
Rochester (New York)	411	540	685	756	803	913	1 013
Rockford (Illinois)	123	187	235	258	273	312	352
Sacramento (California)	216	496	725	858	964	1 172	1 314
Saginaw (Michigan)	106	142	168	179	186	207	234
Salt Lake City (Utah)	230	382	548	643	717	867	975
San Antonio (Texas)	454	702	880	966	1 020	1 150	1 270
San Bernardino (California)	139	416	669	832	971	1 240	1 402
San Diego (California)	440	919	1 371	1 642	1 857	2 269	2 520
San Francisco/Oakland (California)	2 031	2 660	3 405	3 778	4 014	4 511	4 877
San Jose (California)	182	665	1 178	1 537	1 862	2 477	2 794
Santa Barbara (California)	...	...	150	200	248	345	404
Savannah (Georgia)	129	185	186	183	177	182	203
Scranton (Pennsylvania)	235	230	231	228	221	227	252
Seattle/Everett (Washington)	627	949	1 416	1 696	1 919	2 343	2 601
Shreveport (Louisiana)	151	228	266	283	291	321	360
South Bend (Indiana-Michigan)	169	240	330	380	417	497	563
Spokane (Washington)	177	247	261	263	260	272	303
Springfield (Illinois)	...	122	137	143	145	158	178
Springfield (Massachusetts-Connecticut)	359	491	585	626	649	716	794
Springfield (Missouri)	...	107	138	154	166	194	221
St. Louis (Missouri)	1 408	1 822	2 142	2 278	2 342	2 536	2 746
St. Petersburg (Florida)	118	357	567	700	814	1 034	1 171
Stamford (Connecticut)	119	182	210	221	226	248	280
Stockton (California)	113	155	183	195	201	224	253
Syracuse (New York)	267	364	428	454	469	515	574
Tacoma (Washington)	169	236	381	474	555	713	815
Tampa (Florida)	182	330	421	466	496	568	636
Toledo (Ohio-Michigan)	366	478	555	586	600	654	724
Topeka (Kansas)	...	131	150	157	161	176	199
Trenton (New Jersey-Pennsylvania)	190	265	312	332	343	379	424
Tucson (Arizona)	123	249	336	382	416	490	553
Tulsa (Oklahoma)	208	328	424	473	507	584	655
Utica/Rome (New York)	119	205	204	200	193	198	220

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
United States of America (*continued*)							
Waco (Texas)	...	126	135	137	136	144	163
Washington, D.C. (Maryland-Virginia)	1 298	1 985	2 836	3 323	3 690	4 383	4 792
Waterbury (Connecticut)	132	155	178	187	192	211	238
Waterloo (Iowa)	...	112	128	134	137	151	171
West Palm Beach (Florida)	...	191	330	426	513	683	786
Wichita (Kansas)	196	318	344	350	349	370	410
Wilkes-Barre (Pennsylvania)	271	255	253	247	238	243	269
Wilmington (Delaware-New Jersey)	189	311	424	485	531	627	706
Winston-Salem (North Carolina)	...	140	162	171	175	193	218
Worcester (Massachusetts)	219	246	281	295	301	328	367
York (Pennsylvania)	...	110	141	156	167	193	220
Youngstown/Warren (Ohio)	300	406	449	463	466	497	550
East Asia	112 812	194 734	265 153	308 943	359 457	476 462	622 441
China	61 393	121 716	166 710	195 355	230 652	320 393	443 213
Ahsinchu	...	146	205	237	276	377	518
Amoy (Hsia-Men)	150	280	400	471	554	763	1 037
An King	107	140	200	235	277	384	529
Anshan	425	849	1 050	1 168	1 312	1 694	2 247
Antung (Tantung)	240	350	480	542	617	815	1 099
Anyang	120	160	230	278	336	478	659
Changchun	784	1 016	1 200	1 305	1 438	1 813	2 391
Changsha	618	726	825	879	955	1 186	1 569
Chankiang	230	190	240	274	316	425	580
Chefoo	180	150	220	269	327	470	649
Chengchow	502	816	1 050	1 191	1 358	1 787	2 377
Chengchow (Kiangan)	260	320	480	591	720	1 035	1 413
Chengtu	722	1 134	1 250	1 312	1 406	1 713	2 246
Chenkiang	190	210	270	304	345	457	621
Chiao-tso	112	200	300	360	431	606	831
Chiayi	122	173	236	270	312	421	575
Chihsi	116	220	330	403	489	701	962
Chinchow	260	350	600	800	1 039	1 612	2 218
Chingkiang (Chen-Chiang)	100	200	290	350	421	598	821
Chingtehchen	125	230	350	438	540	791	1 088
Chinhuangtao (Ch'in-huang-tao)	130	230	350	438	540	791	1 088
Chuchow	...	180	250	284	325	435	594
Chungking	1 573	2 174	2 400	2 522	2 702	3 275	4 247
Foochow (Fu-Chou)	515	628	680	707	753	914	1 210
Fouhsin	140	280	400	471	554	763	1 037
Fushun	530	1 003	1 080	1 121	1 190	1 436	1 884
Haikow	114	350	480	549	630	843	1 137
Hangchow	644	816	960	1 042	1 147	1 446	1 914
Hantan	167	330	480	576	688	965	1 312
Harbin (Ha-erh-pin)	960	1 575	1 670	1 720	1 814	2 163	2 813
Hengyang	200	260	350	408	477	653	889
Hofei	131	352	630	843	1 097	1 706	2 347
Hokang	...	210	300	360	431	606	831
Hsiangtan	130	230	350	438	540	791	1 088
Hsinhailien	140	200	300	375	463	679	937
Hsinhsiang	120	180	270	331	404	582	801
Huhehot (Huhohaote; Kewi'sue)	122	349	530	653	797	1 146	1 562
Hwainan	242	408	600	727	876	1 237	1 678
I-Chun	...	170	250	298	354	495	680
Ipin	110	170	210	232	260	339	462
Kaifeng	300	340	480	562	658	901	1 220
Kalgan (Chang-chia-K'ou)	170	523	750	879	1 030	1 404	1 888
Kaoshiung	261	448	803	1 098	1 456	2 308	3 173
Keelung	151	226	319	369	428	580	790
Kiamusze (Chia-nue-ssu)	160	250	350	408	477	653	889
Kirin (Chileir)	365	596	720	792	881	1 129	1 505
Kochiu	122	160	230	278	336	478	659
Kunming	600	920	1 100	1 203	1 332	1 692	2 236
Kuang chou (Canton)	1 456	1 956	2 500	2 826	3 208	4 174	5 468
Kweilin	110	150	220	269	327	470	649

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
China (*continued*)							
Kweiyang	179	532	660	735	826	1 072	1 434
Lanchow	273	809	1 450	1 941	2 526	3 899	5 288
Liaoyang	115	150	220	269	327	470	649
Liaoyuan	150	150	220	269	327	470	649
Loyang	138	283	580	831	1 142	1 900	2 645
Luchow	180	180	270	331	404	582	801
Luta	488	1 535	1 650	1 710	1 814	2 177	2 835
Mutankiang	180	270	400	485	584	829	1 132
Nanchang	339	538	675	757	856	1 119	1 498
Nanchung	125	180	270	331	404	582	801
Nanking	917	1 480	1 750	1 904	2 098	2 637	3 456
Nanning	159	306	550	738	963	1 504	2 075
Nantung	240	260	350	408	477	653	889
Neikiang	...	...	270	304	345	457	621
Ningpo	220	300	400	457	526	704	953
Pangfu	180	300	450	547	661	940	1 282
Paochi (Paohi)	...	170	250	298	354	495	680
Paoting	160	270	400	485	584	829	1 132
Paotow	118	688	920	1 063	1 232	1 654	2 211
Peking	2 163	4 482	6 999	8 746	10 736	15 255	19 931
Penki	427	506	600	653	722	919	1 226
Sanchung	...	101	227	337	477	830	1 179
Shangchiu (Shangkier)	...	145	210	245	287	394	541
Shanghai	5 781	7 432	10 000	11 600	13 410	17 658	22 677
Shenyang (Mukden)	2 229	2 484	2 800	2 974	3 211	3 926	5 085
Shihkiachwang (Shih-Chia-Chuang)	273	634	800	899	1 018	1 332	1 777
Sian (Hsi-au)	561	1 363	1 600	1 733	1 904	2 387	3 131
Sining	...	332	500	613	745	1 065	1 452
Soochow (Su-chou)	391	651	730	772	834	1 029	1 364
Süchow (Hsuchow)	251	681	700	710	742	879	1 158
Swatou (Swatow; Shan-t'ou)	240	270	400	485	584	829	1 132
Taichow	140	210	300	360	431	606	831
Taichung	189	291	439	534	645	917	1 251
Tainan	223	329	468	548	641	877	1 189
Taipei	609	990	1 716	2 333	3 072	4 807	6 516
Taiyuan	572	1 079	1 350	1 510	1 702	2 205	2 915
Tangshan	630	828	950	1 018	1 109	1 382	1 825
Tatung	170	210	250	313	386	567	785
Tientsin	2 392	3 363	4 000	4 363	4 810	6 015	7 775
Tsinan (Chi-nan)	581	905	1 100	1 213	1 352	1 730	2 289
Tsingtao (Ch'ing-Tao)	802	1 155	1 300	1 380	1 492	1 836	2 410
Tsitsihar (Ch'i-ch'i-ha-erh)	222	685	760	800	860	1 056	1 397
Tsun-i	...	190	280	341	412	589	811
Tunghwa	...	140	200	235	277	384	529
Tzekung (Tzu-kung)	250	300	450	563	694	1 014	1 389
Tzepo (Tzu-po)	154	815	850	869	912	1 086	1 427
Urumchi (Tihua)	116	310	500	635	793	1 173	1 608
Weifang	140	200	290	350	421	598	821
Wenchow	175	220	230	265	306	414	567
Wuhan	1 088	2 223	2 560	2 747	2 992	3 699	4 806
Wuhu	220	260	350	395	450	596	808
Wusih (Wu-hsi)	561	620	650	665	700	837	1 106
Yangchow	150	190	240	274	316	425	580
Yangchüan	120	170	250	298	354	495	680
Yingkow	145	170	250	313	386	567	785
Japan	41 977	58 712	74 386	83 424	91 970	104 668	114 128
Akashi	...	...	168	252	347	531	615
Akita	103	123	155	178	199	235	261
Aomori	...	133	162	180	196	223	247
Asahikawa	...	153	212	241	267	311	343
Chiba	...	166	357	554	784	1 231	1 412
Chigasaki	...	...	101	113	124	143	160
Fuchu	...	...	151	223	305	460	532
Fujisawa	...	...	169	251	342	518	597
Fukui (Hukui)	...	103	116	125	132	146	161
Gifu	136	199	263	280	294	320	349
Hachinohe	...	103	128	145	160	186	208

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Japan (*continued*)							
Hachioji	...	...	162	224	290	411	470
Hakodate	222	236	228	221	216	215	231
Hamamatsu	...	183	214	241	264	303	335
Himeji	103	159	239	260	277	307	337
Hirakata	...	132	167	187	205	235	261
Hiratsuka	...	...	103	116	126	146	163
Hiroshima	266	403	502	540	570	622	672
Hitachi	...	...	122	140	157	185	207
Ibaraki	...	...	123	138	151	174	194
Iwaki	137	130	121	118	116	117	127
Kagoshima	177	230	304	370	431	535	593
Kamakura	...	...	107	120	131	152	169
Kanazawa	180	224	250	272	290	322	353
Kawagoe	...	...	...	109	119	138	154
Kitakyushu	935	1 311	1 593	1 759	1 891	2 096	2 228
Kochi	112	136	179	207	232	276	306
Kodaira	...	...	116	130	142	164	183
Kofu	103	117	136	148	158	177	196
Koriyama	...	...	100	112	123	142	158
Kumamoto	195	274	345	385	419	476	520
Kure	159	178	203	217	227	249	273
Kurume	...	112	119	128	135	149	165
Kushiro	...	131	162	192	219	266	297
Kyoto	1 001	1 164	1 298	1 376	1 432	1 528	1 620
Machida	...	113	143	160	175	202	224
Maebashi	...	107	121	131	139	155	171
Matsuyama	...	141	182	210	235	278	309
Mitaka	...	...	154	199	245	324	367
Miyazaki	...	...	116	129	141	162	180
Morioka	...	104	143	173	202	251	282
Muroran	...	131	151	163	173	192	212
Musashino	...	119	137	142	147	157	172
Nagano	...	...	134	168	200	257	291
Nagasaki	163	258	314	328	339	362	393
Nagoya	956	1 499	1 847	2 010	2 135	2 330	2 464
Naha	...	212	307	373	434	537	595
Nara	...	111	141	158	173	199	221
Neyagawa	104	145	184	206	225	259	286
Niigata	159	234	275	303	326	367	401
Numazu	...	...	137	186	236	328	375
Odawara	...	...	106	119	130	150	168
Oita	...	...	133	170	206	270	307
Okayama	121	154	217	251	282	334	370
Okazaki	...	...	103	116	126	146	163
Omiya	...	114	170	204	235	289	323
Omuta	...	...	...	...	...	...	107
Osaka/Kobe	3 828	5 749	7 595	8 649	9 496	10 686	11 109
Otaru	145	162	156	156	156	161	176
Sagamihara	110	154	195	219	239	274	303
Sapporo	254	489	815	1 016	1 203	1 512	1 655
Sasebo	112	153	146	156	164	180	198
Sendai	269	334	436	516	587	705	774
Shimizu	...	123	182	210	235	278	309
Shimonoseki	124	159	190	214	235	272	301
Shizuoka	165	229	290	337	378	448	494
Takamatsu	112	118	168	237	312	450	516
Takatsuki	103	144	182	204	223	256	283
Tokushima	102	122	141	150	157	171	189
Tokyo/Yokohama	6 736	10 685	14 865	17 668	20 045	23 372	24 172
Toyama	106	126	151	169	185	213	236
Toyohashi	...	110	139	159	176	206	229
Urawa	...	129	211	267	322	417	468
Utsunomiya	111	133	186	227	265	330	369
Wakayama	117	174	252	284	311	357	393
Yamagata	100	109	116	121	125	135	149
Yao	...	...	204	321	458	732	850
Yokkaichi	...	109	126	139	151	171	190
Yokosuka	191	219	290	336	375	443	488

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Other East Asia	9 442	14 306	24 057	30 164	36 835	51 401	65 100
Democratic People's Republic of Korea	3 024	4 231	6 957	8 730	10 700	15 217	20 006
Chongjin	128	177	300	387	490	734	966
Haeju	...	...	130	168	213	322	430
Hamhung	203	281	475	613	775	1 156	1 509
Kaesong	...	...	158	205	259	391	520
Kimchaek	128	177	300	387	490	734	966
Nampo	...	...	147	190	241	363	484
Pyongyang	540	635	911	1 084	1 283	1 755	2 240
Sinuiju	...	110	187	241	305	460	610
Wonsan	104	144	243	314	398	597	789
Hong Kong	1 747	2 739	3 534	3 800	4 085	4 703	5 210
Hong Kong	1 747	2 739	3 534	3 800	4 085	4 703	5 210
Macao	182	161	241	265	287	330	368
Macao	182	161	241	265	287	330	368
Mongolia	142	332	559	687	842	1 236	1 709
Ulan Bator	...	176	298	362	440	644	883
Republic of Korea	4 347	6 843	12 766	16 682	20 921	29 915	37 807
Cheongju (Chungju)	...	...	140	191	249	381	492
Chonchu (Jeonju)	...	182	255	310	370	502	630
Chuncheon	...	...	119	140	163	216	273
Gunsan	...	...	110	153	203	318	413
Inchon (Incheon)	283	394	628	794	978	1 372	1 708
Jeju	...	...	103	134	169	246	318
Jinju (Jingu)	...	...	119	153	193	280	360
Kwangchu (Gwangju)	191	307	488	603	730	1 003	1 250
Masan	118	156	185	361	629	1 365	1 851
Mokpo	110	128	173	193	215	268	335
Pusan (Busan)	1 040	1 154	1 816	2 429	3 122	4 580	5 645
Seoul	1 113	2 362	5 322	6 837	8 490	11 845	14 246
Suweon	...	...	168	222	283	419	537
Taegu (Daegu)	389	659	1 050	1 303	1 579	2 163	2 660
Taejon (Daejeon)	144	224	401	503	616	862	1 080
Ulsan	...	...	154	248	370	666	880
Weonju	...	...	110	120	132	164	206
Yeosu	...	...	111	130	151	200	254
South Asia	104 883	146 902	217 290	265 568	329 760	515 685	790 685
Eastern South Asia	25 694	38 014	56 640	69 234	85 863	134 525	207 672
Brunei	12	39	82	103	122	158	188
Bandar Seri Begawan	...	...	...	...	...	101	123
Burma	2 965	4 287	6 337	7 745	9 560	14 804	22 442
Bassein	...	...	120	137	160	229	343
Kanbe	257	254	258	262	277	350	508
Mandalay	170	251	380	472	586	899	1 336
Moulmein	...	124	163	188	220	317	473
Rangoon	678	978	1 453	1 784	2 185	3 273	4 747
Thingangyu	...	...	108	184	293	617	983
Democratic Kampuchea	425	574	826	1 025	1 309	2 213	3 749
Pnhom-Penh	372	419	357	262	200	200	200
East Timor	43	50	62	70	82	124	205
Dili	...	...	...	...	...	124	205
Indonesia	9 362	13 522	20 395	25 079	31 293	49 477	76 612
Balikpapan	...	...	134	168	211	334	516
Bandjarmasin	156	204	280	329	391	575	869
Bandung	764	936	1 204	1 370	1 583	2 227	3 265
Bogor	117	148	196	226	265	384	583
Djambi	...	107	156	190	232	354	542
Jakarta	1 725	2 708	4 450	5 718	7 263	11 367	16 591
Jogjakarta	282	306	348	373	411	551	818
Kediri	139	155	181	197	220	301	452
Madiun	110	121	138	149	165	224	338
Magelang	...	...	112	122	137	190	289
Makasar	333	374	440	479	536	729	1 079
Malong	268	329	423	482	558	794	1 185
Medan	347	457	631	744	886	1 300	1 936
Menado	...	124	169	198	234	345	526

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Indonesia (*continued*)							
Padang	101	136	194	233	281	423	644
Pakalongan	...	100	114	121	134	181	273
Pakan Baru	...	...	136	200	285	526	831
Palembang	376	458	585	663	765	1 080	1 602
Pematang Siantar	100	112	131	142	159	218	330
Pontianak	...	142	214	263	326	504	770
Samarinda	...	...	130	187	263	476	750
Semarang	378	482	645	748	880	1 269	1 886
Surabaja	613	942	1 517	1 931	2 440	3 823	5 676
Surakarta	321	358	420	456	509	691	1 024
Tegal	...	...	106	119	136	192	292
Teluk Betung	...	126	195	243	304	477	731
Tjirebon	138	154	181	197	220	301	453
Lao People's Democratic Republic	141	189	285	376	500	871	1 439
Vientiane	128	131	158	194	242	393	638
Malaysia	1 260	1 994	2 823	3 371	4 110	6 244	9 172
Georgetown	202	240	272	291	314	408	580
Ipoh	...	146	248	325	413	656	963
Jahore Bharu	...	...	136	173	215	333	491
Klang	...	...	114	134	158	228	334
Kuala Lumpur	209	370	649	862	1 106	1 764	2 552
Philippines	5 695	8 350	12 387	15 244	18 902	29 198	43 988
Angeles (City)	...	...	138	187	246	411	625
Bacolod (City)	108	122	192	244	307	482	724
Basilan (City)	120	156	147	144	147	179	260
Batangas (City)	...	...	112	130	153	222	332
Butuan (City)	...	...	135	175	224	361	547
Cadiz (City)	...	...	127	153	184	275	412
Cagayan de Oro (City)	...	...	132	183	247	425	650
Cebu (City)	185	256	356	425	507	745	1 096
Davao (City)	128	232	404	539	703	1 152	1 720
Iligan (City)	...	...	108	146	192	324	496
Iloilo (City)	120	154	215	257	307	455	675
Manila	1 598	2 288	3 591	4 549	5 664	8 630	12 313
Olongapo (City)	...	...	111	173	256	493	770
San Pablo (City)	...	...	108	134	165	255	385
Tarlac	...	100	139	165	197	291	435
Zamboanga (City)	111	134	205	257	318	492	736
Singapore	815	1 268	1 562	1 665	1 805	2 123	2 453
Singapore	815	1 268	1 562	1 665	1 805	2 123	2 453
Thailand	2 096	3 302	4 725	5 718	7 110	11 650	19 850
Bangkok-Thonburi	1 414	2 151	3 205	3 958	4 870	7 499	11 936
Viet Nam	2 880	4 439	7 156	8 838	11 070	17 663	27 574
Da-Nhang (Danang)	...	105	456	921	1 635	3 864	6 269
Haiphong	112	184	316	405	500	759	1 158
Hanoi	264	417	696	877	1 067	1 582	2 374
Ho Chi Minh Ville	1 114	1 409	1 879	2 119	2 355	3 103	4 502
Hue	...	104	220	312	418	702	1 094
Nam Dinh	...	...	126	156	188	277	427
Middle South Asia	74 096	99 794	143 883	173 993	214 900	335 677	517 642
Afghanistan	676	1 098	1 873	2 511	3 383	6 051	10 262
Baghlan	...	...	107	124	148	230	381
Herat	...	...	106	120	141	216	357
Kabul	210	359	525	541	586	801	1 270
Kandahar (Quandahar)	...	...	132	165	209	350	584
Tagab	...	...	105	114	129	188	308
Bangladesh	1 786	2 649	5 150	6 838	9 531	18 192	32 095
Chittagong	286	368	722	971	1 293	2 322	3 946
Dacca	325	520	1 289	1 947	2 841	5 680	9 725
Khulna	...	123	323	494	730	1 497	2 629
Mymensingh	...	...	134	206	305	631	1 125
Narayanganj	...	158	244	284	338	532	901
Rajshashi	...	...	109	144	190	343	600
Bhutan	15	21	32	40	52	91	167

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
India	59 247	76 575	106 994	127 177	154 524	235 837	360 688
Agartala	...	...	...	114	136	202	308
Agra	368	499	624	698	794	1 087	1 592
Ahmedabad	859	1 181	1 695	2 040	2 451	3 572	5 196
Ahmednagar	104	118	146	163	186	258	386
Ajmer	195	229	262	281	309	409	604
Akola	...	114	164	198	240	360	545
Allahabad	327	423	506	553	617	828	1 213
Alleppey	115	137	158	169	186	247	368
Allgarh	139	182	247	290	343	496	744
Alwar	...	...	...	116	139	206	314
Ambala Cantt.	112	105	103	102	106	131	195
Amravati (Amroti, Amaravati)	101	135	189	224	267	391	589
Amritsar	332	394	453	486	535	706	1 033
Asansol	...	162	235	281	337	498	749
Aurangabad	...	...	159	208	268	433	664
Bangalore	764	1 173	1 615	1 892	2 226	3 161	4 583
Bareilly	204	268	322	352	394	531	784
Bausawal	...	...	103	122	146	217	330
Belgaum	116	145	208	251	303	451	680
Bellary	...	...	122	148	179	270	411
Berhampur	...	...	114	136	162	239	364
Bhadravati	...	...	...	116	139	206	314
Bhagalpur	113	144	170	187	210	286	427
Bhavnagar	136	174	222	252	290	408	609
Bhopal	...	212	370	487	630	1 016	1 537
Bhubaneswar	...	...	...	116	139	206	314
Bihar	...	...	...	116	139	206	314
Bijapur	...	...	102	121	145	214	327
Bikaner	115	148	204	241	287	419	631
Bilaspur	...	...	127	157	194	297	454
Bokato Steel City	...	...	104	124	148	219	333
Bombay (Greater)	2 901	4 060	5 811	6 975	8 343	11 981	17 056
Burdwan	...	106	140	161	188	268	404
Burhanpur	...	...	103	122	146	217	330
Calcutta	4 446	5 500	6 911	7 772	8 822	11 866	16 678
Calicut	154	241	327	380	446	638	950
Chandigarh	...	...	219	336	493	929	1 452
Cochin	187	303	428	507	604	879	1 306
Coimbatore	265	417	707	925	1 189	1 896	2 834
Cuddalore	...	...	...	118	141	208	317
Cuttack	100	143	201	240	287	423	638
Darbhanga	...	102	130	147	170	239	360
Davanagere	...	...	117	139	166	246	373
Dehra Adun	143	156	200	229	266	377	565
Delhi	1 390	2 283	3 531	4 394	5 414	8 093	11 683
Dhanbad	...	188	410	602	850	1 525	2 341
Dhulia	...	...	134	158	188	274	415
Dindigul	...	...	125	146	173	252	381
Durg Bhilainagar	...	118	234	317	421	703	1 077
Durgapur	101	131	183	218	260	382	576
Eluru (Ellore)	...	107	126	137	153	207	311
Erode	...	...	159	241	351	656	1 029
Faizabad-Ayodhya	...	...	108	128	154	227	345
Farrukhabad-Fategarh	...	...	110	120	134	183	274
Firozabad	...	...	131	154	182	265	401
Gauhati	...	...	190	268	367	639	988
Gaya	133	150	178	195	218	296	441
Ghaziabad	...	...	122	145	173	256	389
Gorakhpur	130	177	227	258	298	419	626
Gulbarga	...	...	141	172	210	317	482
Guntur (Guntar)	122	182	263	317	382	567	852
Gwalior	238	296	397	462	542	775	1 150
Hubli-Dharwar	193	245	367	453	557	845	1 267
Hyderabad	1 122	1 243	1 749	2 098	2 514	3 650	5 303
Imphal	...	...	...	115	138	204	311
Indore	306	389	546	651	779	1 137	1 684
Jabalpur	251	358	520	629	761	1 127	1 674
Jaipur	285	395	616	775	966	1 485	2 212

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
India (*continued*)							
Jalgaon	...	...	104	124	148	219	333
Jammu	...	101	159	201	253	396	604
Jamnagar	102	145	221	275	341	524	793
Jamshedpur	212	319	445	525	623	902	1 339
Jhansi	125	166	196	213	237	318	473
Jodhpur	178	222	310	369	441	647	967
Jullundur (Jullunder)	198	260	294	312	340	445	654
Kakinada	100	121	161	187	219	316	476
Kanchipuram	...	...	117	133	154	218	330
Kanpur	691	951	1 250	1 435	1 661	2 317	3 364
Kolar Gold Fields	160	148	121	110	105	119	174
Kolhapur	134	189	261	308	365	531	794
Kotah	...	116	204	271	354	579	887
Kumba Konam	...	...	118	132	150	208	313
Kurnool	...	...	134	157	185	268	405
Lucknow	488	644	801	894	1 012	1 379	2 008
Ludhiana	149	237	387	497	631	995	1 499
Machilipatnam	...	100	112	119	129	171	256
Madras	1 397	1 706	3 030	4 101	5 406	8 789	12 882
Madurai	358	420	685	888	1 133	1 791	2 675
Malegaon	...	115	185	232	289	448	680
Mangalore	114	166	211	237	272	378	564
Mathura	105	124	139	148	162	214	319
Meerut	230	280	361	412	476	669	992
Mirzapur-Vindhyachal	101	101	105	107	114	145	216
Monghyr	...	...	101	120	144	212	324
Moradabad	160	190	266	318	382	563	844
Muzaffarnagar	...	...	113	134	161	237	361
Muzaffarpur	...	106	125	135	150	201	301
Mysore	244	253	347	412	491	717	1 070
Nadiad	...	...	106	126	151	223	339
Nager Coil	...	104	138	159	186	266	401
Nagpur	474	674	910	1 058	1 238	1 753	2 564
Nanded	...	...	122	145	173	256	389
Nasik	154	211	267	300	343	476	708
Nellore	...	105	131	146	165	229	344
Nizamabad	...	...	112	133	159	235	358
Patiala	...	123	149	164	184	251	375
Patna	279	359	480	558	654	932	1 378
Pondicherry	...	...	139	165	197	291	441
Poona	592	727	1 099	1 364	1 680	2 534	3 730
Por-Bander	...	...	104	124	148	219	333
Quilon	...	...	121	141	166	241	365
Raipur	...	136	200	243	296	444	671
Rajahmundry	104	128	184	222	268	400	604
Rajkot	129	189	291	363	450	690	1 041
Rampur	134	135	159	174	194	263	392
Ranchi	105	138	244	328	432	715	1 093
Ratlam	...	...	117	137	162	237	359
Rohtak	...	...	122	146	176	262	399
Rourkela	...	...	164	227	305	521	805
Sagar	...	103	150	182	221	332	504
Saharanpur	146	182	222	245	275	375	557
Salem	200	246	401	518	661	1 048	1 579
Sambalpur	...	...	...	116	139	206	314
Sangli	...	124	195	246	308	480	730
Shahjahanpur	104	117	142	158	179	247	371
Shillong	...	102	121	132	148	201	302
Shimoga	...	...	...	118	141	208	317
Sholapur	273	333	393	428	476	637	936
Srinagar	248	292	412	493	592	870	1 296
Surat	219	283	474	621	799	1 281	1 928
Tenali	...	...	101	120	144	212	324
Thana	...	106	198	273	367	624	961
Thanjavur (Thanjore, Thanjavrur)	100	110	138	155	178	248	373
Tiruchirapalli (Trichurapalli)	217	248	444	606	808	1 349	2 047
Tirunelveli	159	188	260	308	367	536	804

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
India (*continued*)							
Tiruppur	...	...	144	198	266	452	700
Trivandrum	192	294	400	466	548	785	1 164
Tuticorin	...	125	177	212	255	379	573
Udaipur	...	110	157	190	231	346	525
Ujjain	129	143	203	244	295	439	663
Ulhasnagar (Kalyan Camp)	...	106	360	695	1 220	2 866	4 594
Vadodara	207	289	452	569	710	1 096	1 641
Varanasi (Bunaras)	348	480	597	666	754	1 029	1 506
Vellore	105	122	174	211	256	383	581
Vijayawada (Vijayavada)	157	225	334	408	498	748	1 122
Visakhapatnam	104	176	345	487	667	1 154	1 766
Warangal	132	154	203	235	274	392	588
Iran	4 687	7 249	11 601	14 959	19 209	30 162	43 138
Abadan	218	246	281	298	323	412	566
Ahvez	...	149	244	314	397	611	867
Arak	...	...	...	109	139	217	314
Ardebil	...	...	103	139	183	298	433
Borujerd	...	...	...	...	121	190	275
Dezful	...	...	...	108	126	178	253
Hamedan	...	110	135	154	177	244	343
Isfahan	199	311	501	641	808	1 232	1 725
Karaj	...	...	103	132	168	263	378
Kerman	...	...	102	133	171	269	389
Kermanshah	105	148	220	278	348	529	750
Khorramabad	...	...	...	100	127	199	288
Khorramshahr	...	...	106	139	179	283	409
Mashhad	188	298	489	637	813	1 260	1 769
Qazvin	...	...	102	132	168	262	377
Qom	...	111	167	231	309	513	739
Rai	...	...	176	374	709	1 796	2 762
Rasht	100	123	156	179	207	287	403
Razaeyeh	...	...	128	158	194	291	414
Shiraz	138	205	316	399	498	753	1 060
Tabriz	255	332	465	576	708	1 046	1 459
Tajrish	...	...	228	384	604	1 217	1 800
Tazvin	...	...	...	110	127	177	251
Teheran	1 126	1 905	3 264	4 267	5 447	8 331	11 329
Yaza	...	...	107	131	160	239	341
Maldives	9	10	12	13	14	20	34
Nepal	183	285	440	550	708	1 245	2 275
Kathmandu	100	118	146	164	190	286	503
Pakistan	6 387	10 135	15 045	18 546	23 371	37 989	60 323
Bahawalpur	...	...	123	147	178	271	426
Gujranwala	128	206	323	410	520	836	1 302
Gujrat	...	...	...	112	138	217	344
Hyderabad	255	454	589	675	787	1 137	1 727
Jhang	...	101	128	145	169	247	385
Karachi	1 127	2 000	3 139	3 976	5 005	7 858	11 774
Kasur	...	...	...	109	125	180	281
Lahore	906	1 368	1 977	2 408	2 942	4 467	6 707
Lyallpur	185	437	730	947	1 219	1 987	3 064
Mardan	...	...	108	124	147	218	341
Multan	200	373	504	589	697	1 030	1 572
Okara	...	...	...	110	130	194	305
Peshawar	162	232	260	277	306	416	634
Quetta	...	114	146	168	197	290	452
Rahimyar-Khan	...	...	106	166	249	497	814
Rawalpindi	254	360	553	698	878	1 396	2 153
Sahiwal	...	...	...	185	435	1 506	2 704
Sargodha	...	136	186	220	264	398	620
Sialkot	184	178	197	211	234	320	491
Sukkur	...	110	147	173	207	311	486
Wah. Cantt.	...	...	...	137	203	402	660
Sri Lanka	1 106	1 772	2 736	3 359	4 108	6 090	8 660
Colombo	413	490	561	594	647	827	1 125
Dahiwala-Mount Lavinia	...	101	149	182	223	333	474
Jaffna	...	...	109	109	114	140	194

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Western South Asia	5 093	9 094	16 767	22 341	28 997	45 483	65 371
Bahrain	100	127	168	196	229	321	442
Manama Town	...	...	...	...	112	149	206
Democratic Yemen	170	310	461	570	712	1 125	1 739
Aden	102	189	255	301	358	530	800
Gaza Strip	100	258	411	517	638	935	1 279
Iraq	1 819	2 937	5 461	7 272	9 414	14 525	20 366
Arbil	...	...	148	251	368	667	964
Baghdad	579	1 024	2 510	3 830	5 138	8 203	11 125
Basra	116	205	453	680	903	1 440	2 006
Hilla	...	...	171	270	375	638	911
Kerbala	...	...	...	120	136	181	251
Kirkuk	...	160	210	243	264	329	447
Mosul	144	204	335	435	514	713	978
Najaf	...	103	175	230	276	392	544
Sulaimaniya (Sulaymaniyah)	...	...	116	164	209	320	453
Jordan	429	724	1 131	1 423	1 788	2 762	4 044
Amman	...	225	394	514	655	1 029	1 487
Irbid	...	...	...	104	138	230	343
Zarra (Zarga)	...	...	140	173	213	321	468
Kuwait	90	201	581	909	1 271	2 072	3 006
Hawalli	...	...	109	142	185	284	408
Kuwait City	...	151	224	301	404	635	907
Salmuja	...	...	...	125	211	445	675
Lebanon	407	824	1 527	2 002	2 549	3 864	5 296
Beirut	238	531	1 106	1 538	2 003	3 116	4 183
Tripoli	107	138	183	212	240	318	429
Oman	9	17	33	47	66	130	248
Muscat	...	...	...	...	...	...	189
Qatar	30	43	63	77	93	132	180
Doha	...	...	...	...	...	132	180
Saudi Arabia	776	1 777	3 767	5 261	6 967	10 897	15 217
Dammam	...	...	115	170	239	411	585
Huful	...	...	...	133	179	291	413
Jeddah (Jidda)	116	236	504	746	1 044	1 772	2 462
Mecca	216	283	393	472	559	775	1 048
Medina	...	124	199	258	325	488	675
Riyadh	127	268	592	888	1 259	2 164	3 005
Ta'if	...	...	184	272	383	658	930
Syrian Arab Republic	1 071	1 677	2 708	3 393	4 290	6 776	10 105
Aleppo	299	424	632	766	935	1 405	2 031
Damascus	389	583	912	1 132	1 406	2 156	3 109
Hama (Hamah)	...	111	137	150	170	237	346
Homs (Hims)	...	136	213	264	330	513	758
Lattakia	...	...	124	166	221	373	563
United Arab Emirates	23	48	109	145	187	286	398
Dubai	...	...	109	145	187	286	398
Yemen	69	151	347	529	793	1 658	3 051
Sana (Sana'a)	...	...	111	146	199	380	689
Europe	222 603	266 032	318 374	343 504	369 286	423 291	476 953
Eastern Europe	36 708	46 323	54 828	59 785	65 028	75 405	85 688
Bulgaria	1 856	3 033	4 440	5 148	5 809	6 900	7 742
Bourgas	...	...	136	154	173	210	239
Plovdiv	132	185	252	289	328	401	452
Rousse	...	103	154	184	217	277	317
Sofia	550	710	886	972	1 064	1 229	1 347
Stara Zagora	...	...	113	144	177	241	280
Varna	...	146	230	289	353	472	541
Czechoslovakia	4 634	6 410	7 910	8 749	9 590	11 101	12 502
Bratislava	195	260	284	297	313	352	394
Brno	291	319	336	347	363	402	448
Kosice	...	...	142	183	229	317	371
Ostrava	199	245	278	297	320	368	413
Plzen	120	138	148	154	162	183	207
Prague	1 003	1 067	1 079	1 092	1 121	1 204	1 311

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
German Democratic Republic ..	13 013	12 456	12 576	12 879	13 232	14 036	14 915
Berlin	1 189	1 094	1 085	1 117	1 148	1 202	1 248
Dessau	...	...	100	102	105	112	121
Dresden	494	495	502	517	531	560	588
Erfurt	188	187	196	206	217	236	253
Gera	...	103	111	117	124	136	147
Halle	289	276	259	243	233	227	238
Jena	...	...	100	102	105	112	121
Karl-Marx-Stadt	293	290	299	310	321	343	364
Leipzig	617	595	585	579	576	584	609
Magdeburg	244	256	272	282	292	312	332
Potsdam	118	111	111	121	130	146	159
Rostock	133	158	196	216	234	265	286
Schwerin	112	107	108	111	114	121	131
Zwickau	135	129	127	125	125	128	136
Hungary	3 440	3 990	4 718	5 277	5 833	6 779	7 558
Budapest	1 623	1 812	1 950	2 062	2 192	2 428	2 610
Debrecen	114	131	158	185	214	269	306
Gyön	...	...	...	117	149	210	246
Miskolc	114	145	175	198	223	270	305
Pecs	...	116	147	162	180	213	241
Szeged	...	100	122	169	223	329	386
Poland	9 606	14 159	16 925	18 350	19 991	23 445	26 990
Bialystok	...	126	176	207	240	306	358
Bielsko-Biala	130	185	210	223	237	273	314
Bydgoszcz	264	362	444	489	537	636	726
Czestochowa	135	195	221	234	249	286	329
Gdansk	371	543	702	792	887	1 073	1 220
Katowice	1 716	2 442	2 752	2 904	3 071	3 430	3 773
Kielce	...	...	128	150	174	223	262
Krakow	368	525	628	683	742	866	982
Lódz	736	861	923	949	986	1 086	1 212
Lublin	129	196	273	320	370	468	544
Opole	...	...	112	123	134	160	187
Poznan	361	457	536	577	623	721	818
Radom	...	132	159	173	189	224	260
Szczecin	189	284	359	401	446	537	617
Walbrzych	123	166	176	180	186	207	238
Warsaw	1 031	1 487	1 712	1 826	1 950	2 210	2 455
Wroclaw	314	436	531	582	636	750	853
Romania	4 159	6 275	8 259	9 382	10 573	13 144	15 981
Arad	...	124	175	208	241	314	385
Bacău	...	109	144	163	184	229	280
Baia Mare	...	...	121	137	155	193	237
Braila	...	117	145	161	178	218	266
Braşov	200	222	294	337	382	478	578
Bucharest	1 109	1 367	1 584	1 701	1 820	2 099	2 444
Cluj	158	203	299	362	428	563	687
Constanta	107	147	230	287	347	472	581
Craiova	...	131	202	250	301	408	503
Galati	...	106	156	188	222	294	362
Gh. Gherorghiu-Dej	...	...	127	144	162	202	248
Hunedoara	...	120	158	179	202	251	307
Iaşi	127	156	204	232	262	327	398
Oradea	...	120	148	164	181	221	269
Petrosani	106	124	141	150	160	188	228
Piatra Neamt	...	...	100	114	128	160	197
Pitesti	...	...	127	144	162	202	248
Ploieşti	131	165	288	379	478	683	845
Resita	...	101	133	151	170	212	260
Sibiu	...	113	182	230	281	387	479
Timisoara	133	165	206	229	254	309	375
Tirgoviste	...	...	120	136	153	191	235
Tîrgu Mures	...	...	121	137	155	193	237
Upper Prahova Valley	...	...	100	114	128	160	197
Northern Europe	53 866	58 191	65 273	68 305	71 276	76 889	82 119
Channel Islands	43	43	44	45	47	54	68

TABLE 48. *(continued)*

(Thousands)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Denmark	2 904	3 375	3 929	4 128	4 297	4 574	4 794
Alborg	...	...	...	...	...	103	109
Arhus	150	177	198	207	217	235	248
Copenhagen	1 212	1 346	1 381	1 363	1 355	1 360	1 379
Odense	113	129	137	139	143	151	159
Faeroe Islands	5	7	11	12	13	17	22
Finland	1 283	1 687	2 315	2 632	2 914	3 346	3 600
Helsinki	364	465	620	709	800	953	1 020
Tampere	100	127	155	170	186	215	234
Turku	101	123	145	156	169	192	209
Iceland	106	141	173	187	202	232	256
Reykjavik	...	...	...	...	104	117	130
Ireland	1 219	1 299	1 528	1 713	1 905	2 337	2 783
Cork	112	115	133	146	161	198	237
Dublin	632	662	769	835	910	1 083	1 259
Isle of Man	29	26	31	32	33	38	43
Norway	1 051	1 150	1 626	1 898	2 165	2 648	3 039
Bergen	135	149	175	189	206	246	283
Oslo	492	577	626	648	682	773	865
Trondheim	...	...	111	122	134	163	190
Sweden	4 618	5 429	6 525	7 015	7 455	8 135	8 663
Goteborg	351	398	535	631	674	721	754
Helsingborg	...	...	...	124	140	164	178
Jönköping	...	...	100	200	325	592	689
Linköping	...	...	101	145	183	243	270
Malmö	190	224	372	582	779	1 103	1 210
Norrköping	...	...	113	138	153	172	185
Orebro	...	...	112	156	192	247	272
Stockholm	741	805	1 094	1 165	1 145	1 102	1 120
Uppsala	...	...	122	178	225	299	331
Västerås	...	...	113	147	170	203	221
United Kingdom	42 608	45 034	49 091	50 643	52 245	55 508	58 851
Aberdeen	214	216	221	222	224	232	246
Aldershot/ Farnborough	140	155	208	240	271	323	350
Barnsley	192	192	199	201	204	213	226
Birmingham	2 527	2 671	2 809	2 849	2 887	2 955	3 003
Blackburn/ Accrington	240	231	232	230	231	237	250
Blackpool	231	251	267	272	277	291	309
Bournemouth/ Poole	254	275	296	303	311	328	347
Brighton/Worthing	366	397	425	435	446	468	492
Bristol	603	640	695	717	739	779	813
Burnley/Nelson	184	173	170	167	166	169	179
Cambridge	120	138	152	157	162	173	186
Cardiff/Rhondda	597	607	620	620	624	639	665
Chatham/Rochester	181	199	238	259	278	311	333
Chesterfield	184	194	197	195	196	201	214
Coventry	525	604	679	712	742	795	832
Darlington/Auckland	148	156	166	169	173	183	195
Derby	362	378	397	403	410	427	449
Doncaster	175	193	203	206	210	220	234
Dundee	197	201	204	203	204	210	223
Edinburgh	593	601	614	614	618	633	659
Exeter	133	142	159	167	175	190	204
Glasgow	1 898	1 921	1 903	1 871	1 852	1 846	1 880
Gloucester	104	115	127	131	136	147	158
Greenock	...	...	...	...	...	...	105
Grimsby	138	146	161	168	175	188	202
Ipswich	108	116	123	125	128	135	145
Kingston-upon-Hull	338	345	340	333	330	333	349
Lancaster/Morecambe	105	107	113	115	118	125	134
Leeds/Bradford	1 930	1 929	1 989	2 000	2 015	2 052	2 096
Leicester	430	464	519	544	568	610	641
Liverpool	1 619	1 626	1 606	1 578	1 561	1 557	1 590
London	10 369	10 727	10 588	10 379	10 209	9 976	9 861

TABLE 48. *(continued)*

(Thousands)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
United Kingdom *(continued)*							
Luton	146	190	227	244	261	290	310
Manchester	2 538	2 527	2 529	2 503	2 488	2 488	2 524
Mansfield/Sutton	226	236	259	269	279	299	317
Middlesbrough/ Hartlepool	485	534	580	597	614	648	678
Newcastle-upon-Tyne	1 139	1 159	1 144	1 123	1 111	1 110	1 141
Newport/Pontypool	419	427	433	431	432	442	463
Northampton	143	150	166	173	180	195	209
Norwich	216	226	257	272	287	313	334
Nottingham	607	642	684	699	714	746	777
Oxford	171	195	222	234	245	267	286
Plymouth	256	255	268	272	278	291	308
Port Talbot	135	150	163	167	173	184	197
Portsmouth	371	407	459	483	506	546	576
Preston	275	282	305	315	324	344	364
Reading	206	239	309	348	386	448	481
Sheffield	771	785	794	790	791	804	832
Southampton	358	399	457	484	510	555	586
St. Helens	130	126	127	127	127	132	141
Stoke-on-Trent	494	504	519	521	525	541	565
Sunderland	235	244	241	237	235	238	251
Swansea/ Neath	308	307	316	317	320	331	349
Swindon	105	134	160	173	185	206	222
Warrington	182	174	195	205	216	236	252
Wigan/ Leigh	297	291	326	344	360	391	415
York	127	133	137	138	139	145	155
Southern Europe[a]	53 763	68 433	88 095	99 134	111 141	137 641	165 002
Albania	253	502	727	867	1 043	1 516	2 117
Tirana	...	137	190	222	262	370	513
Andorra	...	...	...	...	...	...	...
Cyprus	147	204	258	292	331	418	505
Nicosia	...	...	114	125	139	174	212
Gibraltar	23	24	26	27	28	30	31
Greece	2 820	3 571	4 616	5 128	5 623	6 496	7 169
Athens	1 345	1 813	2 511	2 900	3 207	3 734	4 009
Patrai	...	101	112	116	119	129	144
Thessaloniki	291	372	541	647	739	904	1 002
Holy See	1	1	1	1	1	1	1
Israel	813	1 627	2 490	2 972	3 473	4 400	5 191
Haifa (Conurbation)	176	255	321	352	391	480	562
Jerusalem[b]	126	166	217	244	277	350	415
Tel-Aviv/Yafo (Conurbation)	359	740	982	1 091	1 220	1 501	1 727
Italy	25 402	29 812	34 521	36 809	39 048	43 414	47 563
Alessandria	...	109	124	131	138	154	171
Ancona	105	124	144	154	163	183	204
Bari	279	322	370	394	415	462	504
Bergamo	101	113	126	132	138	153	169
Biella	132	150	159	163	167	180	198
Bologna	346	460	543	582	616	686	745
Bolzano	...	...	102	109	116	132	148
Brescia	245	288	348	380	410	468	513
Cagliari	134	177	219	240	260	299	331
Catania	381	452	507	532	553	604	654
Ferrara	132	150	155	155	156	164	180
Florence	649	772	911	984	1 047	1 169	1 259
Forli	...	...	103	109	115	129	144
Genoa	909	1 034	1 108	1 137	1 161	1 230	1 310
La Spezia	338	364	387	397	406	434	470
Livorno	275	315	351	369	384	420	458
Messina	225	258	259	256	254	264	286
Milan	3 637	4 510	5 553	6 124	6 603	7 394	7 742
Modena	108	135	167	185	201	233	259
Monza	...	...	113	120	127	143	159

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Italy (*continued*)							
Naples	2 753	3 196	3 609	3 808	3 966	4 272	4 476
Novara	...	...	...	106	112	126	141
Padua	289	325	381	412	439	495	541
Palermo	523	623	689	718	742	801	861
Parma	121	139	171	190	207	242	269
Perugia	...	111	127	135	143	160	178
Pescara	124	156	204	231	257	307	342
Piacenza	...	...	104	114	123	142	159
Pisa	...	...	102	109	115	129	144
Reggio di Calabria	152	166	179	185	191	207	228
Reggio Nell Emilia	106	115	128	134	140	154	171
Rimini	109	144	185	208	229	271	302
Rome	1 698	2 256	2 902	3 265	3 581	4 116	4 371
Sassari	...	...	105	114	123	141	158
Siracusa	...	...	106	117	127	147	165
Taranto	166	191	224	241	257	290	320
Terni	...	...	106	112	118	131	146
Turin	881	1 251	1 628	1 835	2 018	2 336	2 506
Trieste	290	291	292	291	291	304	330
Udine	107	119	134	142	149	166	184
Venice	375	414	454	472	489	530	575
Verona	202	251	305	334	360	411	452
Vicenza	...	112	136	149	160	185	206
Malta	191	230	253	266	279	297	300
Portugal	1 619	1 989	2 262	2 471	2 742	3 478	4 406
Lisbon	842	936	1 009	1 076	1 154	1 370	1 671
Porto	346	384	384	395	411	475	585
San Marino	11	14	18	19	20	22	24
Spain	14 453	17 141	22 307	24 978	27 634	32 786	37 452
Alicante	180	218	335	415	490	636	735
Barcelona	1 666	2 208	2 687	2 936	3 129	3 516	3 851
Bilbao	375	537	887	1 135	1 375	1 821	2 082
Cádiz	139	168	207	229	247	287	329
Cartagena	122	134	162	177	190	219	252
Córdoba	163	195	230	248	263	299	341
Gijón	162	215	273	305	332	389	445
Granada	175	181	181	180	178	187	211
Jérez de la Frontera	154	192	226	243	256	290	331
La Coruña	131	174	193	201	207	227	259
Las Palmas (Canarias)	176	216	314	377	436	548	632
Madrid	1 661	2 302	3 338	3 986	4 557	5 573	6 163
Málaga	274	298	341	363	380	424	479
Murcia	247	282	307	317	325	353	398
Oviedo	236	288	301	305	307	427	368
Palma de Mallorca (Baleares)	135	157	225	268	308	387	448
Pamplona	...	101	156	194	230	301	353
San Sebastián	174	220	325	393	456	579	667
Santa Cruz de Tenerife	165	213	320	391	457	584	675
Santander	101	117	142	156	168	194	224
Seville	477	574	822	981	1 125	1 394	1 579
Valencia	654	704	1 020	1 228	1 416	1 766	1 996
Valladolid	123	150	214	255	292	366	425
Vigo	137	144	194	225	253	310	358
Zaragoza	260	321	463	554	638	796	912
Turkey	4 441	8 181	13 536	17 106	21 482	32 684	45 482
Adana	138	272	350	359	373	452	602
Adapazari	...	...	100	119	141	200	279
Ankara	281	635	1 264	1 689	2 164	3 353	4 548
Bursa	149	221	374	470	575	851	1 167
Diyarbakir	...	125	200	252	308	459	637
Elazig	...	...	164	229	304	500	706
Erzurum	...	147	206	250	298	428	590
Eskisehir	124	211	278	326	378	524	715
Gaziantep	104	180	299	393	498	769	1 066
Istanbul	969	1 453	2 769	3 883	5 162	8 326	11 221
Izmir	314	564	710	904	1 115	1 658	2 254
Izmit	...	119	198	259	328	507	707

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Turkey (*continued*)							
Kayseri	114	178	275	351	435	654	904
Konya	...	181	289	355	427	618	848
Malatya	...	138	210	260	316	463	640
Maras	...	...	164	207	255	382	532
Mersin	...	102	171	227	292	459	644
Samsun	...	154	222	262	305	427	586
Siirt	...	...	...	149	244	522	776
Sivas	...	143	217	286	365	568	792
Urfa	...	...	148	204	268	436	616
Yugoslavia	3 589	5 137	7 080	8 198	9 437	12 099	14 761
Belgrade	393	570	759	868	976	1 212	1 443
Ljubljana	105	132	206	258	313	431	532
Nis	...	...	123	154	186	256	318
Novi Sad	...	108	158	191	225	299	368
Rijeka	...	...	130	148	166	208	255
Sarajevo	...	140	258	354	459	696	855
Skoplje	106	161	298	408	529	789	980
Split	...	...	148	183	218	296	367
Zagreb	324	423	555	633	710	881	1 054
Western Europe	78 266	93 085	110 178	116 280	121 841	133 356	144 144
Austria	3 407	3 520	3 853	3 970	4 130	4 602	5 239
Graz	241	254	266	268	272	289	326
Innsbruck	108	116	132	139	147	164	189
Linz	227	253	258	256	256	269	302
Salzburg	118	128	150	160	170	192	221
Vienna	1 790	1 794	1 723	1 655	1 611	1 609	1 744
Belgium	5 475	6 042	6 810	7 033	7 281	7 868	8 505
Antwerp	607	649	671	667	666	683	722
Brussels	969	1 020	1 074	1 057	1 049	1 062	1 112
Charleroi	221	273	217	209	205	206	221
Ghent	228	230	226	219	216	218	234
La Louvière	108	111	113	113	115	121	132
Liège	429	445	442	433	429	436	463
France	23 440	28 500	36 311	39 703	42 941	48 457	53 034
Amiens	100	118	142	154	167	193	214
Angers	118	140	171	190	210	247	275
Angoulême	...	...	...	101	108	123	137
Avignon	...	111	147	164	183	217	242
Bayonne	...	...	114	122	132	150	167
Besançon	...	...	120	127	136	153	170
Béthune	103	136	145	145	148	158	173
Bordeaux	313	465	574	617	662	744	806
Boulogne	...	...	...	101	108	121	135
Brest	112	143	176	192	209	242	268
Bruay-en-Artois	129	130	123	116	113	113	123
Caen	...	112	162	183	206	248	276
Calais	...	...	...	101	106	119	132
Cannes	116	161	212	210	212	222	241
Clermont-Ferrand	142	167	220	257	294	362	404
Denain	...	119	127	129	132	141	156
Dijon	...	146	192	210	229	266	294
Douai	164	189	207	211	218	235	257
Dunkerque	...	114	157	189	223	285	322
Grenoble	100	228	351	393	437	514	565
Hagondange-Briey	...	117	137	144	152	170	188
Le Havre	176	217	253	266	281	311	340
Le Mans	103	138	175	194	214	252	280
Lens	306	321	327	330	336	357	387
Lille	739	807	925	1 024	1 125	1 298	1 401
Limoges	111	127	154	169	185	214	238
Lorient	...	...	101	106	113	126	140
Lyons	581	878	1 107	1 178	1 253	1 388	1 484
Marseilles	671	810	999	1 079	1 161	1 304	1 400
Metz	110	143	171	182	195	220	242
Montbéliard	...	...	120	134	148	174	194
Montpellier	...	119	184	214	245	302	337
Mulhouse	149	176	206	220	236	268	295

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
France (*continued*)							
Nancy	156	219	265	282	301	338	370
Nantes	294	340	413	458	504	586	641
Nice	257	332	407	441	476	541	590
Nîmes	...	...	127	132	139	153	169
Orléans	112	136	181	212	245	304	340
Paris	5 525	7 230	8 510	9 219	9 907	10 945	11 330
Pau	...	...	116	128	141	166	185
Perpignan	...	...	110	118	127	145	162
Reims	118	139	177	199	222	264	293
Rennes	119	154	204	232	260	312	346
Rouen	317	326	376	390	408	445	483
Saint-Etienne	284	310	333	336	343	364	395
Saint-Nazaire	...	...	114	120	127	143	157
Strasbourg	244	293	352	394	436	513	563
Thionville	...	119	138	142	148	162	179
Toulon	194	271	353	381	412	468	511
Toulouse	256	346	462	515	569	664	725
Tours	110	155	215	249	283	344	383
Troyes	...	...	118	128	138	158	176
Valenciennes	188	207	260	360	472	685	781
Germany, Federal Republic of	36 137	42 884	49 369	51 251	52 513	56 043	59 185
Aachen	350	433	466	467	469	484	504
Aschaffenburg	...	104	124	130	136	148	159
Augsburg	242	317	361	372	383	407	428
Bamberg	...	102	106	104	104	107	114
Bielefeld	253	307	332	334	336	349	366
Bonn/Siogburg	210	408	477	489	501	529	552
Braunschweig/Wolfenburg	246	340	351	341	335	337	351
Bremen/Delmenhorst	500	725	801	806	813	839	867
Bremerhaven/Nordenhorst	121	181	192	189	188	192	203
Darmstadt	160	227	262	271	280	300	317
Erlangen	...	...	119	130	140	160	172
Flensburg	110	113	113	109	107	109	116
Frankfurt am Main	946	1 381	1 661	1 753	1 833	1 965	2 019
Freiburg in Breisgau	112	163	195	206	216	236	252
Fulda	...	...	...	...	...	105	113
Gieben	...	128	154	162	170	186	199
Göppingen	110	130	146	151	155	166	177
Göttingen	106	122	133	135	137	144	154
Hamburg	1 796	2 092	2 200	2 180	2 167	2 179	2 207
Hamm	133	153	164	164	165	172	183
Hannover	567	764	832	835	840	864	891
Heidelberg	159	223	255	263	270	288	304
Heilbronn	...	172	214	228	240	265	282
Herford	...	113	134	141	147	161	173
Hildesheim	...	125	134	133	133	137	145
Ingolstadt	...	...	116	129	141	162	176
Kaiserslautern	...	123	130	128	127	130	138
Karlsruhe	275	379	448	469	489	527	553
Kassel	222	300	342	352	362	384	404
Kiel	292	334	344	338	334	339	354
Koblenz	123	152	161	160	159	164	174
Lübeck	266	271	282	280	280	288	302
Mannheim/Lüdwigshafen	584	750	859	888	915	968	1 003
Minden	...	...	...	...	...	101	107
Munich (München)	963	1 333	1 707	1 869	2 012	2 236	2 309
Münster	120	205	242	251	260	279	296
Neunkirchen	120	124	126	123	122	124	132
Neuwied/Andernach	110	127	141	144	148	158	168
Nürnberg/Fürth	549	746	838	855	871	909	940
Oldenburg	124	124	131	131	132	137	146
Osnabrück	137	216	250	258	265	283	299
Pforzheim	...	167	204	215	224	245	260
Regensburg	124	159	178	182	187	198	211
Reutlingen	...	115	142	153	163	182	196
Rhein/Ruhr	6 853	8 712	9 337	9 311	9 275	9 252	9 151
Rheydt/Müncheng/Vier	277	337	358	357	357	367	384
Saarbrücken/Volkling	349	375	378	368	361	362	377

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Germany, Federal Republic of (*continued*)							
Saarlouis/Dillingen	...	...	...	...	...	100	106
Schweinfurt	...	...	100	102	104	111	119
Siegen	100	142	145	140	137	138	146
Stuttgart	988	1 355	1 620	1 710	1 787	1 916	1 969
Trier	...	114	121	120	120	124	132
Ulm/Neu-Ulm	102	165	193	200	207	222	236
Wetzlar	...	...	...	...	100	106	113
Wiesbaden/Mainz	393	542	634	661	685	733	764
Wilhelmshaven	103	100	102	100	100	103	110
Wolfsburg	...	...	133	155	176	212	230
Wurzburg	...	155	174	176	179	189	200
Berlin	2 157	2 186	2 121	2 026	1 954	1 895	1 910
Liechtenstein	3	3	4	5	5	6	9
Luxembourg	175	195	230	252	270	295	308
Monaco	22	23	23	24	25	27	28
Netherlands	7 527	9 182	10 165	10 376	10 764	11 613	12 791
Amsterdam	862	913	1 038	984	948	924	978
Apeldoorn	...	104	125	133	141	156	175
Arnhem	123	153	272	278	285	303	332
Breda	...	103	149	150	153	161	178
Dordrecht	...	101	170	184	198	223	249
Eindhaven Tivoli	145	167	338	355	371	404	442
Enschede Hengelo	152	164	232	237	244	260	286
Groningen	132	141	203	201	201	208	228
Haarlem	208	224	239	231	227	229	250
Leiden	106	117	164	189	215	259	291
Maastricht	...	...	144	145	147	156	172
Nijmegen	113	133	205	212	219	237	261
Rotterdam	747	830	1 064	1 027	1 003	995	1 056
'S Gravenhage	619	692	715	677	652	638	680
Tilburg	119	131	204	211	219	236	260
Utrecht	231	253	457	461	467	487	528
Zaanstad	...	121	134	137	140	150	166
Switzerland	2 080	2 736	3 413	3 666	3 912	4 445	5 045
Basel	257	296	380	415	442	501	565
Berne	194	219	283	312	334	381	432
Geneva	194	234	319	359	392	459	521
Lausanne	136	160	225	257	285	339	388
Lucerne	...	118	148	161	170	192	220
Winthertur	...	...	105	110	114	125	143
Zurich	494	532	715	802	870	1 004	1 123
Oceania	7 736	10 443	13 675	15 630	17 829	22 590	27 145
Australia and New Zealand	7 565	10 118	12 979	14 557	16 211	19 508	22 576
Australia	6 181	8 315	10 692	12 039	13 445	16 223	18 754
Adelaide	355	565	796	881	964	1 133	1 286
Brisbane	436	605	801	906	1 009	1 211	1 380
Canberra	...	...	142	235	358	636	791
Geelong	...	...	114	124	134	159	186
Greater Wollongong	...	127	182	207	232	283	331
Hobart	105	116	128	139	149	175	204
Melbourne	1 490	1 880	2 344	2 646	2 934	3 478	3 888
Newcastle	157	204	248	264	280	320	369
Perth	277	407	613	782	958	1 296	1 510
Sydney	1 646	2 141	2 677	2 968	3 242	3 770	4 194
New Zealand	1 384	1 803	2 287	2 518	2 766	3 285	3 822
Auckland	334	457	634	728	825	1 015	1 169
Christchurch	179	225	272	293	316	368	426
Dunedin	...	104	110	113	118	132	154
Hutt	...	...	121	130	139	162	190
Wellington	126	124	135	141	148	168	196
Melanesia	28	85	304	580	1 001	2 162	3 285
New Caledonia	16	30	53	69	89	136	188
Noumea	...	...	...	...	...	136	188
New Hebrides	...	...	...	...	...	...	...
Norfolk Island	...	...	...	...	...	...	...

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Melanesia (*continued*)							
Papua New Guinea	11	51	236	482	862	1 913	2 915
Port Moresby	...	...	...	120	215	540	853
Solomon Islands	1	4	15	29	50	113	182
Micronesia and Polynesia	143	240	392	493	617	920	1 284
Micronesia	29	46	79	105	236	212	301
Gilbert Islands and Tuvalu	4	7	14	21	29	49	70
Guam	14	16	22	26	31	46	72
Nauru	...	...	...	...	...	...	...
Niue Island	1	1	1	1	1	2	2
Pacific Islands	10	22	42	57	75	115	157
Polynesia	114	194	313	388	481	708	983
American Samoa	7	8	11	14	17	27	39
Cook Islands	4	6	6	7	9	13	21
Fiji	70	117	185	224	268	369	481
Suva	...	...	...	102	117	157	206
French Polynesia	17	32	61	80	104	159	218
Papeete	...	...	...	...	100	154	212
Samoa	10	20	29	35	45	75	122
Apia	...	...	...	...	...	...	122
Tonga	6	11	21	28	38	65	102
Wallis and Futuna Islands	...	...	...	...	...	...	...
USSR	70 765	104 587	137 644	155 316	173 653	209 366	239 614
Aktyubinsk	...	106	153	181	212	273	318
Alma-Ata	286	494	744	895	1 055	1 357	1 543
Andizhan	...	140	191	218	248	307	355
Angarsk	...	152	208	244	283	360	417
Anzhero-Sudzhensk	...	...	...	...	...	...	109
Arkhangelsk	185	272	347	384	425	508	578
Armavir	...	111	148	163	180	216	250
Ashkhabad	113	182	257	299	343	431	497
Astrakhan	224	331	416	452	491	574	649
Baku	708	1 014	1 274	1 395	1 523	1 777	1 974
Balakovo	...	...	107	121	136	167	195
Baranovichi	...	...	104	117	132	162	189
Barnaul	205	324	446	514	585	725	826
Batumi	...	...	102	115	129	159	186
Belaya Tserkov	...	...	111	125	141	173	202
Belgorod	...	...	156	217	288	434	519
Belovo	...	105	108	108	110	120	138
Beltsy	...	...	104	117	132	162	189
Berdyansk	...	...	102	115	129	159	186
Berezniki	...	106	147	165	184	225	260
Biisk	109	154	189	199	212	243	278
Blagoveshchensk	...	...	130	148	168	208	242
Bobruisk	...	105	140	159	180	223	259
Bratsk	...	124	163	184	207	253	293
Brest	...	...	124	151	180	237	279
Bryansk	134	223	324	383	446	568	653
Bukhara	...	...	114	129	145	178	207
Cheboksary	...	116	223	301	390	569	672
Chelyabinsk	517	723	882	954	1 033	1 194	1 333
Cherepovets	...	103	195	264	343	501	593
Cherkassy	...	...	163	209	260	361	426
Chernigov	...	101	163	204	249	339	398
Chernovtsy	117	159	189	202	217	251	287
Chimkent	...	166	252	304	359	467	542
Chirchik	...	...	110	124	140	172	200
Chita	119	183	245	278	313	384	441
Daugavpils	...	...	103	116	131	161	187
Dneprodzerzhinsk	155	202	227	236	249	281	319
Dnepropetrovsk	485	697	872	956	1 046	1 226	1 371
Donetsk	541	742	887	951	1 022	1 171	1 306
Dushanbe	139	247	382	466	556	729	841
Dzerzhinsk	118	164	224	249	277	334	384

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
USSR (*continued*)							
Dzhambul	...	123	192	236	284	378	442
Elektrostal	...	102	124	135	147	174	201
Elets	...	...	101	114	128	158	184
Engels	...	...	132	151	172	215	250
Fergana	...	...	113	128	143	176	205
Frunze	118	245	443	585	744	1 055	1 228
Gomel	105	182	277	335	397	518	599
Gorky	718	986	1 180	1 265	1 359	1 554	1 724
Gorlovka	174	260	339	379	422	509	581
Grodno	...	...	135	172	213	294	347
Grozny	177	265	344	383	425	509	580
Guryev	...	...	115	132	151	189	220
Irkutsk	223	383	455	486	521	599	674
Ivano-Frankovsk	...	...	107	121	136	167	195
Ivanovo	254	352	423	455	491	569	643
Izhevsk	190	306	429	498	572	715	816
Kadievka	102	120	138	141	146	163	186
Kalinin	190	276	349	385	425	505	575
Kaliningrad (Kalingradskaya oblast)	141	219	302	348	397	493	566
Kaliningrad (Moskovskaya oblast)	...	...	108	122	137	169	196
Kaluga	...	145	215	257	301	389	452
Kamensk-Uralsky	110	147	170	178	189	215	246
Karaganda	221	368	531	625	724	914	1 042
Kaunas	153	233	310	350	394	481	550
Kazan	491	704	878	961	1 049	1 228	1 373
Kemerovo	209	306	390	432	477	569	646
Kerch	...	...	129	160	194	261	307
Khabarovsk	232	344	442	492	545	653	740
Kharkov	710	1 004	1 235	1 343	1 459	1 691	1 878
Kherson	...	171	266	326	390	516	599
Khmelnitsky	...	...	116	131	147	181	210
Kiev	743	1 189	1 657	1 917	2 188	2 687	2 997
Kirov	184	266	336	370	407	483	550
Kirovabad	...	145	192	217	243	298	344
Kirovakan	...	...	110	124	140	172	200
Kirovograd	...	141	192	219	249	308	356
Kiselevsk	118	123	126	121	120	126	143
Kishinev	133	236	367	449	536	705	814
Klaipeda	...	...	142	168	196	252	294
Kokand	...	104	134	144	155	181	208
Kolomna	103	116	137	142	149	169	193
Kommunarsk	...	104	124	134	145	170	196
Komsomolsk-na-Amure	...	152	222	263	308	395	458
Konstantinovka	...	...	107	113	121	140	161
Kopeisk	151	156	156	149	147	153	173
Kostroma	127	181	225	246	269	318	363
Kovrov	...	104	124	134	145	170	196
Kramatorsk	...	115	153	168	185	222	256
Krasnodar	208	336	472	548	629	785	896
Krasnoyarsk	280	445	660	787	922	1 176	1 339
Krasny Luch	...	...	102	103	106	117	134
Kremenchug	...	...	151	187	226	303	356
Krivoy Rog	275	428	581	664	752	922	1 045
Kuibyshev	595	850	1 058	1 158	1 265	1 478	1 648
Kurgan	...	159	249	305	366	484	563
Kursk	144	218	288	325	365	445	509
Kustanai	...	...	125	143	163	203	237
Kutaisi	106	127	162	174	187	218	251
Kzyl-Orda	...	...	126	142	160	196	228
Leninabad	...	...	104	117	132	162	189
Leninakan	...	116	167	196	228	290	338
Leningrad	2 623	3 462	3 978	4 180	4 410	4 887	5 294
Leninsk-Kuznetsky	122	126	128	122	120	125	142
Lipetsk	...	173	297	380	471	649	757
Lisichansk	...	102	118	122	128	145	166
Lvov	297	435	560	623	690	825	932
Lyubertsy	...	...	141	177	217	297	350
Magnitogorsk	249	324	366	381	401	452	509

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
USSR (*continued*)							
Maikop	...	...	112	124	138	166	193
Makeyevka	321	381	394	393	399	429	480
Makhachkala	...	128	189	224	263	338	393
Melitopol	...	103	139	160	182	227	264
Miass	...	105	134	150	167	202	234
Minsk	291	560	938	1 190	1 462	1 975	2 256
Mogilev	...	145	205	239	275	346	401
Moscow	4 841	6 285	7 105	7 408	7 757	8 483	9 087
Murmansk	155	236	313	353	397	484	553
Murom	...	...	100	113	127	156	182
Mytishchi	...	104	120	127	136	158	182
Nakhodka	...	...	107	121	136	167	195
Nalchik	...	...	149	183	221	295	346
Namangan	...	131	177	202	229	283	328
Nikolaev	163	251	336	382	432	530	606
Nikopol	...	...	127	149	173	221	259
Nizhny Tagil	280	350	380	389	404	446	501
Noginsk	...	...	105	108	113	127	146
Norilsk	103	116	137	142	149	169	193
Novgorod	...	100	132	149	167	206	239
Novocherkassk	...	123	164	182	201	242	279
Novokuibyshevsk	...	...	106	120	134	165	193
Novokuznetsk	280	404	504	552	604	711	803
Novomoskovsk	...	106	135	145	156	182	209
Novorossiisk	...	101	135	154	175	218	253
Novoshakhtinsk	...	...	...	...	...	102	116
Novosibirsk	645	934	1 174	1 291	1 415	1 659	1 847
Odessa	477	703	903	1 003	1 110	1 318	1 477
Omsk	402	620	832	944	1 061	1 287	1 448
Ordzhonikidze	111	175	239	273	310	383	441
Orekhovo-Zuevo	...	106	120	122	126	140	160
Orel	...	162	236	278	324	413	477
Orenburg	198	281	349	382	417	492	559
Orsha	...	...	103	116	131	161	187
Orsk	131	185	227	246	268	315	361
Osh	...	...	123	139	156	192	223
Pavlodar	...	101	193	262	341	501	594
Penza	171	273	380	440	504	628	718
Perm	454	671	860	955	1 056	1 253	1 405
Pervouralsk	...	...	118	129	141	168	194
Petropavlovsk-Kamchatsky	...	...	158	200	245	336	395
Petropavlovsk (Seveso-Kazachstanskaya oblast)	...	139	175	194	214	257	297
Petrozavodsk	...	144	187	209	233	283	327
Podolsk	...	136	171	190	210	253	292
Poltava	...	154	225	266	311	397	460
Prokopyevsk	259	286	275	264	261	272	304
Pskov	...	...	129	154	181	235	275
Riga	437	609	740	799	864	999	1 118
Rostov-na-Donu	448	634	798	879	966	1 138	1 276
Rovno	...	...	119	134	151	186	216
Rubtsovsk	...	111	148	163	180	216	250
Rustavi	...	...	...	112	126	155	180
Ryazan	132	232	358	436	519	680	784
Rybinsk	143	190	220	233	248	284	324
Salavat	...	...	117	132	148	182	212
Samarkand	139	208	270	301	335	403	462
Saransk	...	102	196	267	347	510	605
Saratov	424	611	766	840	920	1 080	1 211
Semipalatinsk	102	168	240	281	324	410	474
Serov	...	...	...	...	...	106	121
Serpukhov	...	104	125	133	144	167	192
Sevastopol	...	157	233	277	324	416	482
Severodvinsk	...	...	149	191	238	331	391
Shakhty	180	201	205	203	205	221	249
Simferopol	134	197	253	282	313	377	432
Slavyansk	...	105	125	135	146	171	197
Smolensk	100	157	214	245	278	344	397

TABLE 48. (*continued*)

(*Thousands*)

Major area, region, country and city	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
USSR (*continued*)							
Sochi	...	140	229	288	352	479	559
Stavropol	...	150	201	228	257	316	365
Sterlitamak	...	122	189	232	278	369	431
Sukhumi	...	...	104	117	132	162	189
Sumgait	...	...	128	144	162	199	232
Sumy	...	102	162	194	229	298	348
Sverdlovsk	569	823	1 037	1 141	1 251	1 469	1 640
Syktyvkar	...	...	128	164	203	282	334
Syzran	118	154	175	182	192	217	248
Taganrog	153	212	256	275	297	346	394
Tallin	210	298	367	401	438	515	584
Tambov	125	182	232	257	285	342	393
Tashkent	613	996	1 407	1 639	1 881	2 329	2 608
Tbilisi	530	739	897	969	1 047	1 210	1 350
Temirtau	...	...	172	236	311	462	550
Tiraspol	...	...	108	122	137	169	196
Tolyatti	...	...	264	452	708	1 299	1 586
Tomsk	177	264	343	383	426	513	585
Tselinograd	...	109	184	235	291	402	473
Tula	257	371	467	514	565	669	757
Tyumen	...	165	275	348	429	585	682
Ufa	378	583	784	891	1 005	1 222	1 377
Ulan-Ude	118	186	258	298	341	427	491
Ulyanovsk	123	225	359	444	536	713	825
Uralsk	...	105	136	153	171	209	242
Ussuriisk	...	103	129	139	150	175	202
Ust Kamenogorsk	...	162	234	275	319	405	468
Vilnius	150	255	379	453	532	683	786
Vinnitsa	...	133	216	269	328	442	517
Vitebsk	...	160	235	279	326	417	483
Vladimir	100	166	238	279	323	409	472
Vladivostok	190	314	450	528	611	771	882
Volgograd	415	629	829	933	1 043	1 255	1 411
Vologda	104	147	180	195	212	250	286
Volzhsky	...	...	146	199	260	384	458
Voronezh	298	480	670	776	888	1 101	1 248
Voroshilovgrad	193	292	387	436	489	594	677
Yakutsk	...	...	110	124	140	172	200
Yaroslavl	306	428	522	565	613	712	803
Yelets	...	...	102	115	129	159	186
Yerevan	315	532	781	926	1 080	1 368	1 552
Yoshkar-Ola	...	100	170	219	273	380	448
Yuzhno-Sakhalinsk	...	...	107	114	123	144	166
Zaporozhye	301	481	668	778	894	1 115	1 265
Zhdanov	191	305	423	489	558	693	791
Zhitomir	...	108	164	193	225	288	335
Zlatoust	134	167	182	185	191	211	240

Note: Designations and figures for Berlin appearing in this table were based on data supplied by the competent authorities pursuant to the relevant agreements of the four Powers.

[a] Including Cyprus, Israel and Turkey, which are currently included in the region of Western South Asia.

[b] Designations and data provided by Israel. The position of the United Nations on the question of Israel is contained in General Assembly 181 (II) and subsequent resolutions of the General Assembly and the Security Council concerning this question.

TABLE 49. RURAL POPULATION, MAJOR AREAS, REGIONS AND COUNTRIES, 1950-2000

(Thousands)

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
World total	1 776 924	1 973 733	2 255 816	2 406 771	2 567 042	2 857 409	3 045 956
More developed regions	405 502	402 396	383 894	369 606	355 013	325 258	294 700
Less developed regions	1 371 422	1 571 337	1 871 922	2 037 165	2 212 029	2 532 151	2 751 256
Africa	186 986	223 290	271 355	298 281	327 963	394 881	467 923
Eastern Africa	58 474	71 372	89 143	99 389	110 688	137 235	169 325
British Indian Ocean Territory	2	2	2	2	2	2	2
Burundi	2 381	2 844	3 276	3 682	4 190	5 459	6 979
Comoros	178	208	249	277	307	356	366
Djibouti	44	41	36	33	31	29	29
Ethiopia	15 914	18 740	22 540	24 702	26 960	32 153	38 525
Kenya	5 682	7 518	10 102	11 659	13 465	17 788	22 895
Madagascar	3 992	4 801	5 955	6 730	7 611	9 700	12 187
Malawi	2 926	3 329	3 953	3 951	3 703	3 033	3 051
Mauritius	341	442	478	474	463	435	411
Mozambique	5 606	6 362	7 766	8 587	9 474	11 681	14 450
Réunion	187	227	251	253	247	231	220
Rwanda	2 150	2 674	3 562	4 046	4 656	6 171	7 938
Seychelles	26	31	38	43	48	57	63
Somalia	1 594	1 841	2 144	2 331	2 551	3 036	3 522
Southern Rhodesia	2 034	3 092	4 410	5 036	5 774	7 503	9 366
Uganda	5 765	7 155	9 023	10 241	11 645	14 904	18 475
United Republic of Tanzania	7 607	9 588	12 353	14 024	15 921	20 304	25 540
Zambia	2 045	2 477	3 005	3 318	3 640	4 393	5 306
Middle Africa	22 431	26 025	30 270	31 873	33 602	37 605	42 497
Angola	3 668	4 230	4 822	5 223	5 673	6 729	7 954
Central African Empire	962	1 025	1 110	1 146	1 185	1 291	1 419
Chad	2 358	2 768	3 226	3 445	3 677	4 128	4 600
Congo	560	649	776	864	961	1 174	1 373
Equatorial Guinea	192	187	174	165	157	145	145
Gabon	385	373	372	365	351	322	305
Sao Tome and Principe	52	54	57	58	57	51	44
United Republic of Cameroon	3 692	4 190	4 651	4 655	4 638	4 711	5 046
Zaire	10 562	12 549	15 082	15 952	16 903	19 054	21 611
Northern Africa	39 108	46 162	54 283	58 793	63 497	72 787	79 909
Algeria	6 805	7 513	7 801	7 768	7 763	8 027	8 642
Egypt	13 929	16 111	19 249	21 197	23 025	26 036	27 540
Libyan Arab Jamahiriya	838	1 042	1 274	1 270	1 256	1 245	1 332
Morocco	6 608	8 228	9 890	10 953	12 119	14 507	16 200
Sudan	8 495	10 558	13 124	14 546	16 115	19 411	22 426
Tunisia	2 427	2 700	2 903	3 010	3 167	3 503	3 709
Western Sahara	6	10	42	49	52	58	60
Southern Africa	8 986	10 614	13 685	15 372	17 220	20 734	23 671
Botswana	420	497	565	572	561	505	529
Lesotho	759	872	1 015	1 108	1 226	1 500	1 810
Namibia	360	437	508	533	559	617	699
South Africa	7 197	8 501	11 219	12 729	14 379	17 464	19 842
Swaziland	250	307	378	430	495	648	791
Western Africa	57 987	69 117	83 974	92 854	102 956	126 520	152 521
Benin	1 617	1 912	2 256	2 367	2 445	2 559	2 698
Cape Verde	140	188	251	278	304	354	392
Gambia	310	342	393	425	459	530	590
Ghana	4 297	5 201	6 117	6 680	7 342	8 880	10 321
Guinea	2 539	2 868	3 378	3 697	4 058	4 862	5 649
Guinea-Bissau	460	449	399	416	437	481	517
Ivory Coast	2 455	2 771	3 118	3 294	3 480	3 877	4 304
Liberia	898	999	1 124	1 205	1 299	1 484	1 656
Mali	3 149	3 637	4 296	4 718	5 186	6 237	7 457
Mauritania	789	918	1 013	987	919	771	772
Niger	2 180	2 744	3 679	4 120	4 612	5 783	7 225
Nigeria	30 736	37 305	46 064	51 476	57 785	72 832	89 883
Senegal	2 037	2 406	2 995	3 348	3 724	4 512	5 169
St. Helena	4	4	4	4	4	5	4
Sierra Leone	1 615	1 858	2 166	2 352	2 559	2 997	3 418
Togo	1 114	1 322	1 703	1 909	2 144	2 684	3 233
Upper Volta	3 647	4 193	5 018	5 578	6 199	7 672	9 233
Latin America	96 411	108 982	120 670	125 728	131 042	142 283	153 695

TABLE 49. (*continued*)

(*Thousands*)

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Latin America (*continued*)							
Caribbean	11 120	12 500	13 520	13 933	14 364	15 204	15 744
Antigua	24	33	46	50	52	54	52
Bahamas	23	40	75	93	105	126	130
Barbados	140	149	150	152	153	150	139
British Virgin Islands	7	7	10	11	13	16	19
Cayman Islands	...	...	...	...	...	...	...
Cuba	2 911	3 169	3 409	3 527	3 642	3 786	3 784
Dominica	51	60	71	75	80	88	91
Dominican Republic	1 764	2 205	2 592	2 776	2 967	3 395	3 928
Grenada	76	90	94	96	98	102	106
Guadeloupe	119	166	195	206	216	227	220
Haiti	2 720	3 064	3 398	3 544	3 722	4 097	4 280
Jamaica	1 028	1 079	1 099	1 102	1 090	1 045	975
Martinique	160	167	156	143	131	112	100
Montserrat	11	10	11	12	12	13	12
Netherlands Antilles	82	62	40	32	26	21	20
Puerto Rico	1 318	1 310	1 140	1 015	908	753	668
St. Kitts-Nevis-Anguilla	38	41	43	41	39	35	31
St. Lucia	79	94	101	108	115	127	130
St. Vincent	67	80	88	93	98	106	109
Trinidad and Tobago	487	656	750	796	834	885	883
Turks and Caicos Islands	4	4	4	4	4	3	3
United States Virgin Islands	11	14	48	57	59	63	64
Middle America	21 589	25 946	30 902	33 528	36 356	42 356	48 060
Belize	29	42	59	71	82	99	98
Costa Rica	576	793	1 048	1 171	1 294	1 509	1 628
El Salvador	1 226	1 558	2 131	2 469	2 835	3 591	4 175
Guatemala	2 102	2 673	3 409	3 860	4 337	5 267	5 990
Honduras	1 143	1 447	1 820	2 066	2 317	2 835	3 369
Mexico	15 258	17 911	20 607	21 886	23 305	26 516	29 951
Nicaragua	712	863	1 040	1 155	1 276	1 522	1 758
Panama	514	636	763	823	881	988	1 064
Canal Zone	29	23	25	27	29	29	27
Temperate South America	8 962	8 402	7 984	7 687	7 407	6 860	6 338
Argentina	5 945	5 439	5 132	4 948	4 764	4 371	3 986
Chile	2 533	2 440	2 321	2 209	2 119	1 989	1 895
Falkland Islands (Malvinas)	2	2	2	2	2	2	2
Uruguay	482	521	529	528	522	498	455
Tropical South America	54 740	62 134	68 264	70 580	72 915	77 863	83 553
Bolivia	2 405	2 874	3 436	3 769	4 132	4 835	5 437
Brazil	33 837	38 543	41 951	43 109	44 217	46 486	49 480
Colombia	7 355	8 240	8 866	8 944	9 003	9 222	9 685
Ecuador	2 313	2 838	3 647	4 119	4 596	5 516	6 209
French Guiana	12	12	17	19	21	24	25
Guyana	297	412	544	618	691	823	880
Paraguay	897	1 143	1 448	1 644	1 857	2 274	2 566
Peru	5 104	5 368	5 643	5 707	5 769	5 980	6 429
Suriname	114	153	201	233	271	361	415
Venezuela	2 406	2 551	2 511	2 418	2 358	2 342	2 427
Northern America	60 054	65 381	66 896	66 340	65 552	62 743	57 000
Bermuda	...	...	...	...	...	...	...
Canada	5 382	5 569	5 212	5 012	4 881	4 630	4 321
Greenland	5	8	13	15	16	17	17
St. Pierre and Miquelon	1	1	1	1	1	1	1
United States of America	54 666	59 803	61 670	61 312	60 654	58 095	52 661
East Asia	562 008	593 246	661 713	697 437	728 292	757 036	747 621
China	496 797	532 772	605 130	643 448	676 957	710 749	704 774
Japan	41 648	35 384	29 945	27 696	25 576	21 545	18 801
Other East Asia	23 563	25 090	26 638	26 293	25 759	24 742	24 046
Democratic People's Republic of Korea	6 716	6 295	6 935	7 122	7 226	7 364	7 451
Hong Kong	227	336	408	425	437	444	415
Macao	6	8	7	6	5	4	4
Mongolia	605	599	689	759	827	940	992
Republic of Korea	16 009	17 852	18 599	17 981	17 264	15 990	15 184
South Asia	565 336	678 453	844 886	940 033	1 046 859	1 256 031	1 397 199

TABLE 49. (*continued*)

(*Thousands*)

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
South Asia (*continued*)							
Eastern South Asia	147 533	178 972	226 330	254 604	284 991	344 187	383 949
Brunei	34	51	51	44	38	31	28
Burma	15 415	17 967	21 411	23 495	25 635	29 769	32 460
Democratic Kampuchea	3 738	4 790	6 234	7 085	8 100	10 278	12 070
East Timor	390	450	542	602	673	819	940
Indonesia	66 087	79 179	99 072	110 965	123 576	147 099	160 895
Lao People's Democratic Republic	1 808	2 193	2 677	2 927	3 221	3 807	4 286
Malaysia	4 927	5 914	7 643	8 722	9 888	12 016	12 882
Philippines	15 293	19 211	25 217	29 193	33 301	40 921	45 719
Singapore	207	366	513	583	632	706	673
Thailand	17 914	23 090	31 020	36 375	42 363	55 102	65 768
Viet Nam	21 720	25 761	31 950	34 613	37 564	43 639	48 228
Middle South Asia	401 114	480 609	597 626	663 583	738 849	885 687	983 190
Afghanistan	10 984	12 638	15 105	16 769	18 655	22 688	26 392
Bangladesh	39 251	48 797	62 542	66 908	75 272	94 502	112 252
Bhutan	711	832	1 013	1 133	1 275	1 610	1 978
India	293 417	351 227	436 138	486 040	539 785	640 214	698 741
Iran	12 226	14 305	16 758	17 964	19 283	21 735	23 455
Maldives	73	82	96	106	118	145	171
Nepal	7 817	8 895	10 792	12 022	13 523	17 103	20 921
Pakistan	30 063	35 716	45 404	52 014	59 581	75 250	86 601
Sri Lanka	6 572	8 117	9 778	10 627	11 357	12 440	12 679
Western South Asia	16 689	18 872	20 930	21 846	23 019	26 157	30 060
Bahrain	27	35	47	55	65	82	94
Democratic Yemen	737	799	975	1 090	1 216	1 476	1 686
Gaza Strip	98	119	90	77	69	64	69
Iraq	3 361	3 910	3 895	3 795	3 731	3 752	4 079
Jordan	808	971	1 149	1 265	1 389	1 635	1 845
Kuwait	62	77	179	176	168	157	177
Lebanon	1 036	1 033	942	867	811	773	822
Oman	381	477	624	719	832	1 101	1 391
Qatar	17	16	16	15	15	16	17
Saudi Arabia	4 114	4 202	3 973	3 705	3 456	3 197	3 383
Syrian Arab Republic	2 424	2 884	3 539	3 866	4 246	5 047	5 719
United Arab Emirates	71	71	81	77	73	70	76
Yemen	3 553	4 278	5 420	6 139	6 948	8 787	10 702
Europe	191 926	189 318	179 534	173 563	167 229	154 551	141 548
Eastern Europe	51 792	50 386	48 114	46 481	44 619	40 201	35 749
Bulgaria	5 395	4 834	4 050	3 645	3 266	2 654	2 294
Czechoslovakia	7 755	7 244	6 429	6 044	5 660	4 895	4 294
German Democratic Republic	5 374	4 784	4 482	4 248	3 996	3 496	3 017
Hungary	5 898	5 994	5 620	5 257	4 888	4 128	3 511
Poland	15 218	15 402	15 548	15 491	15 325	14 379	12 856
Romania	12 152	12 128	11 985	11 796	11 484	10 649	9 777
Northern Europe	18 611	17 643	15 037	13 671	12 463	10 537	9 203
Channel Islands	61	67	78	83	86	89	84
Denmark	1 367	1 206	1 000	898	807	664	567
Faeroe Islands	26	28	28	28	28	27	25
Finland	2 726	2 743	2 291	2 020	1 774	1 388	1 147
Iceland	37	35	31	29	27	24	22
Ireland	1 750	1 535	1 426	1 418	1 393	1 321	1 219
Isle of Man	26	22	25	26	27	27	25
Norway	2 214	2 431	2 251	2 109	1 956	1 666	1 444
Sweden	2 396	2 051	1 518	1 276	1 091	846	727
United Kingdom	8 008	7 525	6 389	5 784	5 274	4 485	3 943
Southern Europe[a]	77 350	79 861	78 424	77 190	75 939	73 264	69 683
Albania	990	1 138	1 442	1 615	1 788	2 068	2 146
Andorra	6	8	19	23	25	31	37
Cyprus	347	369	375	381	383	383	341
Gibraltar	...	...	...	...	...	...	...
Greece	4 746	4 756	4 177	3 802	3 457	2 873	2 452
Holy See	...	...	...	...	...	...	...
Israel	445	487	468	445	425	391	375
Italy	21 367	20 411	19 044	18 214	17 271	15 263	13 313
Malta	121	99	73	63	56	44	36
Portugal	6 786	6 837	6 366	6 291	6 215	5 985	5 512

TABLE 49. (*continued*)

(*Thousands*)

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Southern Europe[a] (*continued*)							
San Marino	2	1	1	1	1	1	1
Spain	13 415	13 162	11 472	10 455	9 575	8 255	7 472
Turkey	16 368	19 328	21 696	22 776	23 881	25 972	27 106
Yugoslavia	12 757	13 265	13 291	13 124	12 862	12 008	10 892
Western Europe	44 173	41 428	37 959	36 221	34 208	30 549	26 913
Austria	3 528	3 528	3 594	3 568	3 498	3 254	2 879
Belgium	3 164	3 111	2 828	2 813	2 780	2 596	2 276
France	18 296	17 184	14 359	13 210	12 162	10 359	9 097
Germany, Federal Republic of	13 852	12 549	11 331	10 431	9 510	8 145	7 057
Liechtenstein	11	13	17	17	18	19	19
Luxembourg	121	119	109	90	75	55	45
Monaco	...	...	...	...	...	...	...
Netherlands	2 587	2 298	2 867	3 223	3 343	3 503	3 219
Switzerland	2 614	2 626	2 854	2 869	2 822	2 618	2 321
Oceania	4 893	5 321	5 638	5 667	5 643	5 508	5 557
Australia and New Zealand	2 562	2 569	2 393	2 283	2 192	2 041	1 936
Australia	2 038	2 000	1 860	1 770	1 695	1 573	1 491
New Zealand	524	569	533	513	497	468	445
Melanesia	1 799	2 105	2 467	2 546	2 554	2 468	2 562
New Caledonia	41	49	56	56	55	56	59
New Hebrides	52	65	84	96	111	148	190
Norfolk Island	1	1	2	2	2	2	2
Papua New Guinea	1 602	1 869	2 177	2 234	2 220	2 088	2 124
Solomon Islands	103	121	148	158	166	174	187
Micronesia and Polynesia	532	647	778	838	897	999	1 059
Micronesia	133	154	178	190	203	225	241
Gilbert Islands and Tuvalu	34	39	42	45	48	50	53
Guam	45	51	66	73	82	101	112
Nauru	4	5	7	8	8	9	10
Niue Island	3	3	4	4	5	5	5
Pacific Islands	47	56	59	60	60	60	61
Polynesia	399	493	600	648	694	774	818
American Samoa	12	13	16	18	21	25	28
Cook Islands	10	12	15	18	20	27	31
Fiji	219	277	335	353	367	376	366
French Polynesia	43	47	48	48	47	48	51
Samoa	68	87	112	129	149	191	223
Tonga	40	50	65	73	81	98	110
Wallis and Futuna Islands	7	7	9	9	9	9	9
USSR	109 310	109 742	105 124	99 722	94 452	84 376	75 413

[a] Including Cyprus, Israel and Turkey, which are currently included in the region of Western South Asia.

TABLE 50. PERCENTAGE URBAN, MAJOR AREAS, REGIONS AND COUNTRIES, 1950-2000

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
World total	28.95	33.89	37.51	39.34	41.31	45.88	51.29
Africa	14.54	18.15	22.85	25.67	28.85	35.70	42.49
Eastern Africa	5.50	7.54	10.69	13.20	16.14	22.72	29.41
British Indian Ocean Territory	...	...	...	...	...	...	...
Burundi	2.22	2.20	2.21	2.20	2.29	2.83	4.13
Comoros	3.26	5.02	7.78	9.48	11.53	16.82	22.95
Djibouti	40.54	49.38	62.11	68.87	73.95	80.92	84.49
Ethiopia	4.56	6.41	9.31	11.70	14.47	21.02	28.21
Kenya	5.58	7.36	10.18	12.01	14.17	19.52	26.19
Madagascar	7.81	10.60	14.09	16.08	18.42	24.22	31.46
Malawi	3.53	4.37	9.33	19.63	33.60	58.49	68.02
Mauritius	28.81	33.23	41.99	47.27	52.22	60.92	67.30
Mozambique	2.37	3.66	5.68	7.06	8.68	12.83	18.13
Réunion	23.36	32.84	43.85	49.50	54.93	63.85	69.95
Rwanda	1.78	2.41	3.18	3.67	4.30	6.04	8.83
Seychelles	27.78	26.19	26.92	27.12	27.27	31.33	38.24
Somalia	12.71	17.30	23.13	26.47	30.15	38.13	46.18
Southern Rhodesia	10.63	12.61	16.92	19.76	22.96	30.25	38.17
Uganda	3.42	5.24	7.98	9.79	11.93	17.18	23.53
United Republic of Tanzania	3.61	4.81	6.93	9.16	11.80	18.15	24.98
Zambia	17.31	23.05	30.03	33.93	38.04	46.39	54.12
Middle Africa	14.57	18.10	25.16	29.66	34.37	43.65	51.56
Angola	7.58	10.44	14.96	17.79	21.00	28.30	36.17
Central African Empire	15.98	22.70	31.14	35.98	40.87	50.15	57.77
Chad	4.19	6.96	11.37	14.37	17.80	25.57	33.45
Congo	31.29	33.02	34.84	35.76	37.27	42.22	49.52
Equatorial Guinea	15.42	25.50	38.95	46.77	53.69	64.63	70.82
Gabon	11.29	17.48	25.60	30.61	35.71	45.70	53.79
Sao Tome and Principe	13.33	15.63	22.97	27.50	32.94	42.05	50.00
United Republic of Cameroon	9.78	13.87	20.31	27.24	34.57	47.83	56.44
Zaire	19.10	22.30	30.30	34.85	39.53	48.59	56.30
Northern Africa	24.51	29.77	36.61	40.12	43.83	51.39	58.34
Algeria	22.26	30.44	45.56	53.74	60.85	71.06	76.43
Egypt	31.92	37.86	42.25	43.54	45.37	50.54	57.36
Libyan Arab Jamahiriya	18.56	22.76	34.26	43.68	52.39	65.32	71.88
Morocco	26.19	29.31	34.62	37.43	40.55	47.50	54.88
Sudan	6.31	10.30	16.38	20.37	24.77	34.03	42.46
Tunisia	31.25	36.03	43.49	47.62	51.73	59.40	65.83
Western Sahara	53.85	56.52	41.67	34.67	34.18	34.83	40.59
Southern Africa	37.27	41.70	43.76	44.81	46.49	51.43	57.90
Botswana	0.24	1.78	8.43	17.22	29.43	52.89	62.98
Lesotho	0.91	1.47	2.68	3.48	4.52	7.24	10.71
Namibia	15.49	23.33	33.68	39.64	45.41	55.61	62.88
South Africa	42.23	46.62	47.82	48.39	49.61	53.90	60.28
Swaziland	1.19	4.06	7.58	8.12	8.84	11.48	15.94
Western Africa	10.15	13.48	17.27	19.58	22.29	28.65	35.92
Benin	6.64	9.51	16.01	23.00	30.81	45.33	54.43
Cape Verde	7.89	6.93	6.34	5.76	5.88	6.60	9.26
Gambia	10.66	12.53	15.12	16.50	18.47	23.63	30.75
Ghana	14.47	23.24	29.10	32.34	35.86	43.48	51.23
Guinea	5.51	9.90	13.85	16.28	19.07	25.63	33.19
Guinea-Bissau	9.98	13.65	18.07	20.76	23.73	30.79	38.60
Ivory Coast	13.00	19.28	27.66	32.57	37.62	47.31	55.25
Liberia	15.76	20.46	26.20	29.45	32.94	40.64	48.56
Mali	8.09	11.05	14.88	17.18	19.85	26.23	33.76
Mauritania	0.88	3.37	12.82	23.07	35.60	57.05	66.16
Niger	4.85	5.80	8.39	10.28	12.52	17.96	24.49
Nigeria	10.47	13.14	16.36	18.19	20.40	26.06	33.38
Senegal	21.65	22.64	23.69	24.22	25.36	29.59	36.74
St. Helena	20.00	20.00	20.00	20.00	20.00	16.67	33.33
Sierra Leone	9.22	13.01	18.08	21.15	24.56	32.18	40.20
Togo	7.24	9.76	13.11	15.08	17.41	23.18	30.32
Upper Volta	3.24	4.70	6.80	7.53	8.49	11.32	15.83
Latin America	41.18	49.45	57.37	61.21	64.74	70.70	75.21
Caribbean	33.51	38.22	45.08	48.62	52.15	58.74	64.62
Antigua	46.67	40.00	34.29	31.51	30.67	32.50	38.82
Bahamas	70.89	64.60	57.63	54.41	54.35	55.00	60.61
Barbados	33.65	35.50	37.24	37.96	39.29	44.24	51.23
British Virgin Islands	...	...	...	...	...	...	...

TABLE 50. (*continued*)

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Caribbean *(continued)*							
Cayman Islands	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Cuba	49.39	54.85	60.20	62.80	65.42	70.55	75.21
Dominica	...	...	...	...	...	...	...
Dominican Republic	23.74	30.22	40.32	45.76	50.97	60.02	66.60
Grenada	...	...	...	...	...	...	...
Guadeloupe	42.23	39.19	40.55	41.81	43.46	48.41	55.38
Haiti	12.17	15.59	19.76	22.14	24.90	31.49	39.25
Jamaica	26.73	33.76	41.60	45.69	49.82	57.59	64.23
Martinique	27.93	39.93	53.85	60.61	66.50	74.72	79.38
Montserrat	21.43	16.67	8.33	7.69	7.69	7.14	14.29
Netherlands Antilles	49.38	67.71	81.98	86.78	90.26	93.66	94.86
Puerto Rico	40.60	44.54	58.44	65.02	70.47	78.05	82.06
St. Kitts-Nevis-Anguilla	22.45	28.07	33.85	37.88	41.79	48.53	55.71
St. Lucia	...	...	...	...	...	...	...
St. Vincent	...	...	...	...	...	...	...
Trinidad and Tobago	22.94	22.18	21.47	21.11	21.47	24.49	31.02
Turks and Caicos Islands	33.33	33.33	33.33	33.33	33.33	50.00	50.00
United States Virgin Islands	59.26	56.25	23.81	13.64	13.24	13.70	15.79
Middle America	39.75	46.71	53.88	57.37	60.75	66.95	72.17
Belize	56.72	54.35	50.83	49.29	49.38	51.71	58.12
Costa Rica	33.49	36.56	39.67	41.27	43.39	48.92	55.94
El Salvador	36.51	38.35	39.39	39.90	41.10	45.55	52.57
Guatemala	30.47	33.01	35.65	37.02	38.92	44.32	51.59
Honduras	17.77	22.74	28.71	31.97	35.55	43.27	51.04
Mexico	42.65	50.75	59.04	63.03	66.69	72.83	77.35
Nicaragua	35.80	41.37	47.21	50.17	53.31	59.71	65.89
Panama	35.75	41.22	47.67	50.95	54.35	60.99	67.06
Canal Zone	30.95	34.29	35.90	37.21	38.30	45.28	50.91
Temperate South America	64.77	72.74	77.87	80.16	82.18	85.45	87.83
Argentina	65.34	73.61	78.39	80.51	82.40	85.52	87.87
Chile	58.41	67.83	75.23	78.46	81.14	85.13	87.66
Falkland Islands (Malvinas)	...	...	...	...	...	...	...
Uruguay	78.03	80.14	82.10	83.01	84.00	86.10	88.22
Tropical South America	36.29	46.36	56.05	60.70	64.85	71.52	76.17
Bolivia	20.34	24.01	28.12	30.33	32.94	39.37	47.04
Brazil	36.04	46.12	55.94	60.71	65.02	71.96	76.72
Colombia	37.08	48.19	59.84	65.45	70.20	77.13	81.18
Ecuador	28.26	34.43	39.53	41.90	44.65	50.97	57.97
French Guiana	52.00	63.64	66.67	68.33	70.42	74.47	78.81
Guyana	29.79	26.43	23.27	21.87	21.83	23.80	29.94
Paraguay	34.57	35.57	37.07	37.89	39.35	44.18	51.35
Peru	35.51	46.28	57.40	62.76	67.43	74.53	78.96
Suriname	46.98	47.24	45.82	44.79	44.81	47.53	54.09
Venezuela	53.24	66.59	76.22	80.20	83.32	87.48	89.70
Northern America	63.84	67.09	70.45	71.99	73.66	77.20	80.76
Bermuda	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Canada	60.82	68.90	75.65	78.02	80.14	83.67	86.33
Greenland	78.26	75.76	72.34	72.22	72.88	74.63	77.33
St. Pierre and Miquelon	80.00	80.00	80.00	80.00	80.00	80.00	80.00
United States of America	64.10	66.90	69.90	71.34	72.94	76.45	80.09
East Asia	16.72	24.71	28.61	30.70	33.05	38.63	45.43
China	11.00	18.60	21.60	23.29	25.41	31.07	38.61
Japan	50.20	62.40	71.30	75.08	78.24	82.93	85.86
Other East Asia	28.61	36.31	47.46	53.43	58.85	67.51	73.03
Democratic People's Republic of Korea	31.05	40.20	50.08	55.07	59.69	67.39	72.86
Hong Kong	88.50	89.07	89.65	89.94	90.34	91.37	92.62
Macao	96.81	95.27	97.18	97.79	98.29	98.80	98.92
Mongolia	19.01	35.66	44.79	47.51	50.45	56.80	63.27
Republic of Korea	21.35	27.71	40.70	48.13	54.79	65.17	71.35
South Asia	15.65	17.80	20.45	22.02	23.95	29.10	36.13
Eastern South Asia	14.83	17.52	20.02	21.38	23.15	28.10	35.10
Brunei	26.09	43.33	61.65	70.07	76.25	83.60	87.04
Burma	16.13	19.26	22.84	24.79	27.16	33.21	40.88
Democratic Kampuchea	10.21	10.70	11.70	12.64	13.91	17.72	23.70
East Timor	9.93	10.00	10.26	10.42	10.86	13.15	17.90
Indonesia	12.41	14.59	17.07	18.43	20.21	25.17	32.26

TABLE 50. *(continued)*

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Eastern South Asia *(continued)*							
Lao People's Democratic Republic	7.23	7.93	9.62	11.38	13.44	18.62	25.14
Malaysia	20.37	25.21	26.97	27.88	29.36	34.19	41.59
Philippines	27.13	30.30	32.94	34.30	36.21	41.64	49.04
Singapore	79.75	77.60	75.28	74.07	74.07	75.04	78.47
Thailand	10.47	12.51	13.22	13.58	14.37	17.45	23.18
Viet Nam	11.71	14.70	18.30	20.34	22.76	28.81	36.38
Middle South Asia	15.59	17.19	19.40	20.77	22.53	27.48	34.48
Afghanistan	5.80	7.99	11.03	13.02	15.35	21.06	28.00
Bangladesh	4.35	5.15	7.61	9.27	11.24	16.14	22.23
Bhutan	2.07	2.46	3.06	3.41	3.92	5.35	7.79
India	16.80	17.90	19.70	20.74	22.26	26.92	34.05
Iran	27.71	33.63	40.91	45.44	49.90	58.12	64.78
Maldives	10.98	10.87	11.11	10.92	10.61	12.12	16.59
Nepal	2.29	3.10	3.92	4.37	4.98	6.79	9.81
Pakistan	17.52	22.10	24.89	26.28	28.17	33.55	41.06
Sri Lanka	14.40	17.92	21.86	24.02	26.56	32.87	40.58
Western South Asia	23.38	32.52	44.48	50.56	55.75	63.49	68.50
Bahrain	78.74	78.40	78.14	78.09	77.89	79.65	82.46
Democratic Yemen	18.74	27.95	32.10	34.34	36.93	43.25	50.77
Gaza Strip	50.51	68.44	87.04	87.04	90.24	93.59	94.88
Iraq	35.12	42.89	58.37	65.71	71.62	79.47	83.31
Jordan	34.68	42.71	49.61	52.94	56.28	62.82	68.67
Kuwait	59.21	72.30	76.45	83.78	88.33	92.96	94.44
Lebanon	28.21	44.37	61.85	69.78	75.86	83.33	86.56
Oman	2.31	3.44	5.02	6.14	7.35	10.56	15.13
Qatar	63.83	72.88	79.75	83.70	86.11	89.19	91.37
Saudi Arabia	15.87	29.72	48.67	58.68	66.84	77.32	81.81
Syrian Arab Republic	30.64	36.77	43.35	46.74	50.26	57.31	63.86
United Arab Emirates	24.47	40.34	57.37	65.32	71.92	80.34	83.97
Yemen	1.91	3.41	6.02	7.93	10.24	15.87	22.18
Europe	53.70	58.42	63.94	66.43	68.83	73.25	77.11
Eastern Europe	41.48	47.90	53.26	56.26	59.31	65.23	70.56
Bulgaria	25.60	38.55	52.30	58.55	64.01	72.22	77.14
Czechoslovakia	37.40	46.95	55.16	59.14	62.89	69.40	74.43
German Democratic Republic	70.77	72.25	73.72	75.20	76.81	80.06	83.18
Hungary	36.84	39.96	45.64	50.09	54.41	62.15	68.28
Poland	38.70	47.90	52.12	54.22	56.61	61.98	67.74
Romania	25.50	34.10	40.80	44.30	47.93	55.24	62.04
Northern Europe	74.32	76.73	81.28	83.32	85.12	87.95	89.92
Channel Islands	41.35	39.09	36.07	35.16	35.34	37.76	44.74
Denmark	67.99	73.67	79.71	82.13	84.19	87.32	89.42
Faeroe Islands	16.13	20.00	28.21	30.00	31.71	38.64	46.81
Finland	32.00	38.08	50.26	56.58	62.16	70.68	75.84
Iceland	74.13	80.11	84.80	86.57	88.21	90.63	92.09
Ireland	41.06	45.84	51.73	54.71	57.76	63.89	69.54
Isle of Man	52.73	54.17	55.36	55.17	55.00	58.46	63.24
Norway	32.19	32.11	41.94	47.37	52.54	61.38	67.79
Sweden	65.84	72.58	81.13	84.61	87.23	90.58	92.26
United Kingdom	84.18	85.68	88.48	89.75	90.83	92.52	93.72
Southern Europe[a]	41.01	46.15	52.90	56.22	59.41	65.26	70.31
Albania	20.35	30.61	33.52	34.93	36.84	42.30	49.66
Andorra	...	...	...	...	...	...	...
Cyprus	29.76	35.60	40.76	43.39	46.36	52.84	59.69
Gibraltar	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Greece	37.27	42.88	52.50	57.42	61.93	69.34	74.51
Holy See	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Israel	64.63	76.96	84.18	86.98	89.10	91.84	93.26
Italy	21.96	27.92	34.76	66.90	69.33	73.99	78.13
Malta	54.31	59.36	64.45	80.85	83.28	87.10	89.29
Portugal	61.22	69.91	77.61	28.20	30.61	36.75	44.42
San Marino	19.26	22.54	26.22	95.00	95.24	95.65	96.00
Spain	84.62	93.33	94.74	70.49	74.27	79.89	83.37
Turkey	51.86	56.57	66.04	42.89	47.36	55.72	62.66
Yugoslavia	21.34	29.74	38.42	38.45	42.32	50.19	57.54
Western Europe	63.92	69.20	74.38	76.25	78.08	81.36	84.27
Austria	49.13	49.94	51.74	52.67	54.14	58.58	64.54
Belgium	63.38	66.01	70.66	71.43	72.37	75.19	78.89
France	56.16	62.39	71.66	75.03	77.93	82.39	85.36

TABLE 50. (*continued*)

Major area, region and country	*1950*	*1960*	*1970*	*1975*	*1980*	*1990*	*2000*
Western Europe *(continued)*							
Federal Republic of Germany	72.29	77.36	81.33	83.09	84.67	87.31	89.35
Liechtenstein	21.43	18.75	19.05	22.73	21.74	24.00	32.14
Luxembourg	59.12	62.10	67.85	73.68	78.26	84.29	87.25
Monaco	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Netherlands	74.42	79.98	78.00	76.30	76.30	76.83	79.89
Switzerland	44.31	51.03	54.46	56.10	58.09	62.93	68.49
Oceania	61.24	66.22	70.77	73.35	75.93	80.37	82.97
Australia and New Zealand	74.70	79.75	84.44	86.44	88.09	90.53	92.10
Australia	75.20	80.61	85.18	87.18	88.80	91.16	92.64
New Zealand	72.54	76.01	81.10	83.07	84.77	87.53	89.57
Melanesia	1.53	3.88	10.97	18.55	28.16	46.70	56.18
New Caledonia	28.07	37.97	48.62	55.20	61.81	70.83	76.11
New Hebrides	...	...	...	...	...	...	...
Norfolk Island	...	...	...	...	...	...	...
Papua New Guinea	0.68	2.66	9.78	17.75	27.97	47.81	57.85
Solomon Islands	0.96	3.20	9.20	15.51	23.15	39.37	49.32
Micronesia and Polynesia	21.09	26.85	33.19	36.76	40.49	47.67	54.50
Micronesia	17.37	22.12	29.59	34.31	38.86	47.32	54.14
Gilbert Islands and Tuvalu	10.53	15.22	25.00	31.82	37.66	49.49	56.91
Guam	23.73	23.88	25.00	26.26	27.43	31.29	39.13
Nauru	...	...	...	...	...	...	...
Niue	25.00	25.00	20.00	20.00	16.67	28.57	28.57
Pacific Islands	17.54	28.21	41.58	48.72	55.56	65.71	72.02
Polynesia	22.31	28.28	34.25	37.45	40.97	47.77	54.61
American Samoa	36.84	38.10	40.74	43.75	44.74	51.92	58.21
Cook Islands	28.57	33.33	28.57	28.00	31.03	32.50	40.38
Fiji	24.22	29.70	35.58	38.82	42.20	49.53	56.79
French Polynesia	28.33	40.51	55.96	62.50	68.87	76.81	81.04
Samoa	12.82	18.69	20.57	21.34	23.20	28.20	35.36
Tonga	13.04	18.03	24.42	27.72	31.93	39.88	48.11
Wallis and Futuna Islands	...	...	...	...	...	...	...
USSR	39.30	48.80	56.70	60.90	64.77	71.28	76.06

[a] Including Cyprus, Israel and Turkey, which are currently included in the region of Western South Asia.

Annex III. OCCUPATIONAL COMPOSITION OF URBAN AND RURAL LABOUR FORCE, PERCENTAGE URBAN IN VARIOUS OCCUPATIONS AND PERCENTAGE FEMALE IN VARIOUS OCCUPATIONS, RURAL AND URBAN AREAS, BY COUNTRY: TABLES 51-53

TABLE 51. OCCUPATIONAL COMPOSITION OF URBAN AND RURAL LABOUR FORCE, BY COUNTRY

Major area and country	Percentage of labour force in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Africa						
Algeria, 1966[a]						
Total	45.9	21.1	4.0	7.8	8.2	13.1
Urban	23.5	28.2	7.3	14.6	13.9	12.4
Rural	59.7	16.7	1.9	3.5	4.6	13.5
Central African Empire, 1960						
Total	86.6	2.3	0.7	0.7	0.6[b]	9.2[b]
Urban	74.7	6.6	1.3	2.5	1.9[b]	13.0[b]
Rural	90.1	1.0	0.5	0.2	0.2[b]	8.0[b]
Guinea, 1955						
Total	79.8	3.4	0.4	1.1	0.7	14.6
Urban	34.3	16.7	1.7	6.2	3.9	37.1
Rural	83.9	2.2	0.3	0.7	0.4	12.5
Libyan Arab Jamahiriya, 1964[c d]						
Total	37.5	25.6	4.4	10.8	10.1	11.6
Urban	25.2	32.3	5.1	15.7	13.0	8.7
Rural	45.7	21.1	4.0	7.5	8.1	13.6
Morocco, 1951						
Total	69.9	19.5	1.7	4.5	2.5[b]	1.9[b]
Urban	5.7	61.7	2.9	14.3	9.2[b]	6.1[b]
Rural	86.2	8.7	1.4	2.0	0.8[b]	0.9[b]
Morocco, 1960						
Total	57.5	15.5	3.5	7.6	6.9	9.0
Urban	5.3	36.5	6.7	19.2	17.6	14.7
Rural	79.9	6.5	2.1	2.7	2.3	6.5
Morocco, 1971						
Total	51.4	19.2	4.6	7.9	8.2[b]	8.6[b]
Urban	4.7	34.8	8.4	17.3	17.7[b]	17.2[b]
Rural	76.9	10.7	2.6	2.8	3.1[b]	4.0[b]
Sudan, 1956[d e f]						
Total	84.7	6.9	0.5[g]	4.3[g]	3.6	—
Urban	15.1	39.4	3.7[g]	18.6[g]	23.3	—
Rural	91.0	4.0	0.2[g]	3.0[g]	1.8	—
Tunisia, 1966[a]						
Total	38.8	36.5	4.7	8.2	5.9	5.9
Urban	12.6	46.4	8.6	14.2	10.4	7.9
Rural	58.3	29.2	1.8	3.7	2.5	4.4
United Republic of Tanzania, 1967[d h]						
Total	90.6	3.8	1.6	1.7	1.8	0.6
Urban	12.5	37.6	9.6	19.9	18.1	2.3
Rural	92.1	3.1	1.4	1.3	1.5	0.6
Latin America						
Bolivia, 1963[a]						
Total	67.1	14.8	5.8	5.8	5.5	1.0
Urban	3.6	35.7	21.0	19.6	19.5	0.6
Rural	80.5	10.4	2.6	2.9	2.5	1.1
Chile, 1970[a]						
Total	21.1	29.4	9.0	17.7	15.6	7.1
Urban	6.3	34.2	11.1	22.2	18.6	7.5
Rural	69.3	13.7	2.2	3.0	5.8	5.9
Costa Rica, 1963[a]						
Total	47.2	19.0[i]	6.5	12.8	9.5[i]	5.0
Urban	6.8	31.5[i]	13.0	25.1	17.5[i]	6.0
Rural	70.9	11.6[i]	2.7	5.6	4.9[i]	4.3

TABLE 51. (*continued*)

Major area and country	*Percentage of labour force in:*					
	Agriculture	*Manufacturing and transport*	*Professional and administrative*	*Clerical and sales*	*Traditional services*	*Unknown*
Latin America (continued)						
Costa Rica, 1973[a]						
Total	35.5	24.1	9.4	13.7	11.6	5.7
Urban	5.1	31.8	17.2	23.2	17.5	5.2
Rural	58.8	18.2	3.4	6.4	7.1	6.0
Ecuador, 1962[a]						
Total	56.5	20.8	3.4	9.0	6.8	3.5
Urban	10.6	37.9	7.4	21.0	14.9	8.1
Rural	80.7	11.7	1.2	2.7	2.5	1.1
Ecuador, 1974[a]						
Total	46.0	22.5	6.2	11.6	7.0	6.8
Urban	7.5	33.9	11.9	22.4	14.1	10.1
Rural	73.6	14.2	2.1	3.8	1.9	4.4
Guatemala, 1973						
Total	56.5	20.8	4.7[j]	8.5	8.0	1.5
Urban	20.0	33.3	10.6[j]	16.1	17.9	2.1
Rural	77.5	13.6	1.3[j]	4.0	2.3	1.2
Nicaragua, 1963[a]						
Total	58.9	18.9	2.8	9.8	9.3	0.3
Urban	16.3	38.9	6.4	21.4	16.6	0.5
Rural	87.2	5.7	0.5	2.2	4.4	0.1
Nicaragua, 1971[a]						
Total	46.8	22.2	5.9	11.3	11.0	2.8
Urban	11.3	36.8	10.9	20.6	17.4	3.1
Rural	80.0	8.5	1.3	2.7	5.0	2.4
Peru, 1961						
Total	49.1	20.9[i]	4.7[k]	11.5[k]	8.9[i]	4.8
Urban	18.1	31.0[i]	8.3[k]	20.2[k]	15.2[i]	7.3
Rural	79.9	10.9[i]	1.2[k]	2.9[k]	2.7[i]	2.4
Peru, 1972						
Total	40.3	23.1	8.0	14.3	8.3	6.0
Urban	15.3	31.2	11.9	21.6	12.4	7.6
Rural	81.2	9.8	1.6	2.3	1.6	3.5
Puerto Rico, 1960[a l]						
Total	23.1	35.2	12.1	17.1	11.1	1.3
Urban	3.0	37.8	18.7	25.2	14.3	1.0
Rural	43.9	32.5	5.4	8.7	7.9	1.7
Puerto Rico, 1970[a l]						
Total	7.3	40.8	18.7	19.4	11.0	2.7
Urban	1.3	36.6	23.8	23.9	11.3	3.1
Rural	19.2	49.0	8.8	10.3	10.5	2.1
Venezuela, 1961[d m]						
Total	32.4	26.5	7.0[k]	16.7[k]	11.1	6.4
Urban	8.4	35.7	9.7[k]	22.9[k]	15.0	8.3
Rural	75.7	9.8	2.2[k]	5.6[k]	4.0	2.8
Northern America						
Canada, 1961						
Total	11.8	36.0	18.0	19.2	12.3	2.6
Urban	1.5	38.3	20.6	23.5	13.5	2.6
Rural	40.5	29.8	11.0	7.3	9.0	2.5
Canada, 1971						
Total	7.0	28.9	17.0	25.4	11.2	10.5
Urban	1.6	28.8	18.9	28.6	11.9	10.3
Rural	27.5	29.2	9.9	13.4	8.8	11.1
United States of America, 1940[l]						
Total	18.2	36.2	11.5	20.8	12.3	0.8
Urban	0.8	41.5	14.1	27.7	15.2	0.8
Rural	45.6	28.1	7.6	10.1	7.8	0.8

TABLE 51. (*continued*)

Major area and country	Percentage of labour force in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Northern America (continued)						
United States of America, 1950[1]						
Total	11.9	39.7	15.2	21.7	10.1	1.3
Urban	0.8	41.9	17.8	26.5	11.9	1.1
Rural	35.9	35.1	9.5	11.5	6.3	1.7
United States of America, 1960[1]						
Total	6.7	35.6	15.9	25.4	11.5	4.9
Urban	1.1	34.9	17.6	28.7	12.3	5.4
Rural	21.9	37.5	11.2	16.5	9.2	3.6
United States of America, 1970[1]						
Total	3.0	35.0	22.6	24.4	11.0	4.0
Urban	0.6	32.6	24.2	26.9	11.4	4.3
Rural	10.8	42.5	17.5	16.6	9.7	2.9
East Asia						
Japan, 1960[d l n]						
Total	32.6	32.7	7.2	21.0	6.0	0.5
Urban	2.4	42.9	10.9	32.8	10.2	0.7
Rural	54.2	25.4	4.6	12.6	2.9	0.4
Japan, 1965[d l n]						
Total	24.5	34.9	8.6	24.7	6.7	0.5
Urban	2.0	40.9	11.7	34.6	10.1	0.7
Rural	45.0	29.5	5.8	15.7	3.7	0.3
Japan, 1970[d l n]						
Total	19.2	36.5	10.5	26.0	7.3	0.5
Urban	1.8	39.6	14.0	34.0	10.1	0.6
Rural	38.0	33.3	6.8	17.3	4.3	0.4
South Asia						
Cyprus, 1960						
Total	38.9	33.8	4.7	10.7	8.1	3.8
Urban	3.7	39.0	10.0	24.0	15.6	7.8
Rural	54.6	31.5	2.3	4.8	4.7	2.0
India, 1961						
Total	72.9[o]	15.9	2.7[k]	5.3[k]	3.0	0.2
Urban	12.3[o]	43.9	9.8[k]	23.0[k]	10.5	0.5
Rural	82.8[o]	11.3	1.5[k]	2.5[k]	1.7	0.2
Indonesia, 1971[a]						
Total	59.6	11.8	5.6	13.3	3.8	6.0
Urban	9.5	25.4	8.2	34.7	11.7	10.6
Rural	68.5	9.4	5.2	9.4	2.4	5.1
Iran, 1956[1]						
Total	55.5	22.6	2.1	8.4	7.7	3.6
Urban	13.0	41.4	4.5	20.8	13.9	6.5
Rural	74.3	14.3	1.0	3.0	5.0	2.4
Israel, 1961[1]						
Total	19.1	30.7	26.8[p]	7.0[p]	10.9	5.5
Urban	13.5	33.2	29.2[p]	8.0[p]	10.7	5.5
Rural	45.7	19.0	15.3[p]	2.5[p]	11.8	5.6
Malaysia						
Peninsular Malaysia, 1970[a]						
Total	46.1	18.9	5.2	12.9	7.9	9.1
Urban	6.7	31.2	10.2	26.6	15.3	10.0
Rural	61.3	14.1	3.3	7.6	5.0	8.7
Sabah, 1970[a]						
Total	56.4	14.3	5.3	8.6	6.4	9.1
Urban	6.2	30.1	12.5	26.2	17.9	7.0
Rural	65.9	11.2	3.9	5.3	4.2	9.5

TABLE 51. (*continued*)

Major area and country	Percentage of labour force in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
South Asia (continued)						
Sarawak, 1970[a]						
Total	65.9	9.7	3.5	7.1	5.1	8.8
Urban	7.2	27.5	12.0	26.8	16.4	10.1
Rural	74.3	7.1	2.2	4.3	3.5	8.6
Sri Lanka, 1953[l]						
Total	51.3	16.3	4.8	10.8	14.7	2.1
Urban	5.9	24.1	9.7	26.1	30.5	3.7
Rural	59.6	14.9	3.9	8.1	11.8	1.8
Sri Lanka, 1970[l]						
Total	50.8	24.5	6.0	11.2	7.4	0.2
Urban	8.8	38.2	12.2	26.5	14.1	0.2
Rural	58.7	21.9	4.8	8.3	6.1	0.2
Thailand, 1954						
Total	88.0	4.2	1.5	4.4	1.1	0.8
Urban	12.2	31.3	9.1	30.5	10.2	6.7
Rural	92.6	2.6	1.1	2.8	0.6	0.4
Thailand, 1970						
Total	81.3	7.6	2.5	5.9	2.5	0.1
Urban	7.9	31.0	14.9	30.8	14.9	0.5
Rural	89.4	5.1	1.2	3.1	1.2	0.1
Turkey, 1950[a]						
Total	81.3	9.5	3.8	2.4	1.3	1.7
Urban	22.8	38.0	15.7	10.9	6.3	6.2
Rural	92.6	4.0	1.4	0.8	0.3	0.9
Turkey, 1960[a]						
Total	78.0	12.4	4.1[p]	2.6[p]	2.9	—
Urban	19.0	44.5	15.8[p]	9.8[p]	10.9	—
Rural	91.6	5.0	1.5[p]	0.9[p]	1.0	—
Turkey, 1970[a]						
Total	66.8	9.0	4.2	5.4	3.7	10.9
Urban	11.3	23.5	10.2	16.2	10.3	28.6
Rural	86.0	4.0	2.2	1.6	1.4	4.7
Europe						
Bulgaria, 1956						
Total	60.6	20.8	8.4	6.1	4.1	—
Urban	13.1	42.3	21.6	13.9	9.2	—
Rural	78.5	12.7	3.5	3.1	2.2	—
Greece, 1961[q]						
Total	53.7	22.1	4.2	10.1	6.1	3.7
Urban	8.7	42.6	8.3	21.6	11.9	6.8
Rural	80.2	10.1	1.8	3.3	2.6	1.9
Greece, 1971[q r]						
Total	40.5	29.4	6.4	14.6	6.9	2.1
Urban	5.6	44.9	10.5	25.0	10.6	3.4
Rural	72.5	15.2	2.5	5.2	3.6	1.0
Hungary, 1970						
Total	18.1	50.3	11.5	14.4	5.8[s]	—[s]
Urban	4.5	50.6	17.4	20.5	7.0[s]	—[s]
Rural	30.8	50.0	5.9	8.6	4.6[s]	—[s]
Portugal, 1960						
Total	43.4	31.4	4.1	10.9	9.2	1.1
Urban	4.4	41.0	9.1	25.1	19.5	0.9
Rural	56.3	28.2	2.4	6.1	5.8	1.1
Romania, 1956						
Total	68.7	16.3	7.4	4.4	3.1	—
Urban	16.5	41.4	20.8	12.4	8.8	0.1
Rural	87.0	7.5	2.7	1.6	1.1	—

TABLE 51. (*continued*)

Major area and country	Percentage of labour force in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Romania, 1966						
Total	55.4	25.9	9.4	5.2	4.1	—
Urban	14.6	46.3	20.5	10.8	7.7	0.1
Rural	77.4	14.8	3.5	2.1	2.1	—
Spain, 1960[d t u]						
Total	39.5	31.5[u]	5.1	11.6[u]	7.2	5.0
Urban	22.5	38.5[u]	6.8	16.2[u]	9.9	6.1
Rural	69.6	19.1[u]	2.3	3.5[u]	2.4	3.1
Sweden, 1960						
Total	13.5	41.1	15.2	19.9	9.6	0.6
Urban	1.9	40.6	19.6	26.1	11.2	0.6
Rural	27.3	41.6	10.1	12.5	7.8	0.7
Sweden, 1970						
Total	8.0	40.7	21.2	19.8	9.6	0.7
Urban	1.9	41.0	23.7	22.3	10.3	0.7
Rural	38.0	38.9	9.1	7.5	6.1	0.4
United Kingdom						
Scotland, 1961[d v]						
Total	6.0	47.5	9.8	24.7	10.4	1.6
Urban	1.5	49.3	10.0	27.2	10.7	1.3
Rural	21.3	41.6	9.0	16.2	9.3	2.6

Note: In this table, Cyprus, Israel and Turkey are included in South Asia.

[a] No information available on disposition of members of the armed forces.

[b] Members of armed forces included in "services" rather than in "unknown".

[c] Urban defined as towns of Tripoli and Benghazi only.

[d] Rural obtained by subtracting urban from total.

[e] Excluding unemployed persons and those of unknown occupations.

[f] Urban defined as 35 selected towns.

[g] Primary- and intermediate-school teachers, and junior religious occupations included in "clerical" rather than in "professional and administrative".

[h] Urban defined as 15 gazetted townships in Tanganyika only.

[i] Laundry workers and cleaners included in "manufacturing" rather than in "services".

[j] Refers to professionals, industrialists and businessmen.

[k] Sales managers included in "administrative workers" rather than in "sales workers".

[l] Employed persons only.

[m] Urban defined as localities of 2 500 or more inhabitants.

[n] Urban defined as densely inhabited districts (DID).

[o] Including cultivators.

[p] "Clerical workers" included in "administrative and managerial workers".

[q] Semi-urban included in rural.

[r] Excluding members of the armed forces from the labour force.

[s] Members of the armed forces and persons with unknown occupations included in "manufacturing".

[t] Urban defined as localities of 2 000 or more inhabitants.

[u] Some communication workers included in "manufacturing" rather than in "clerical workers".

[v] Urban defined as areas outside "landward areas".

TABLE 52. PERCENTAGE URBAN IN VARIOUS OCCUPATIONS, BY COUNTRY

Major area and country	Percentage of labour force in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Africa						
Algeria						
1966[a]	19.6	51.2	70.7	72.0	65.0	36.3
Central African Empire						
1960	19.8	66.1	43.0	77.7	74.9[b]	32.7[b]
Guinea						
1955	3.6	40.9	38.6	45.9	45.5	21.2
Libyan Arab Jamahiriya						
1964[c d]	26.9	50.6	45.6	58.5	51.6	30.1
Morocco						
1951	1.7	64.2	34.7	63.9	75.5[b]	64.0[b]
1960	2.8	70.6	57.8	75.5	76.9	49.1
1971	3.2	64.0	63.6	77.0	75.9[b]	70.3[b]
Sudan						
1956[d e f]	1.5	47.1	64.7[g]	35.6[g]	53.7	—
Tunisia						
1966[a]	13.8	54.0	77.9	73.9	75.2	57.1
United Republic of Tanzania						
1967[d h]	0.2	18.1	11.2	21.6	18.5	6.9
Latin America						
Bolivia						
1963[a]	0.9	42.1	62.9	58.9	62.3	10.2
Chile						
1970[a]	22.9	89.1	94.3	96.0	91.3	80.5
Costa Rica						
1963[a]	5.4	61.3[i]	73.8	72.5	67.9[n]	44.8
1973[a]	6.2	57.3	79.4	73.6	65.5	39.8
Ecuador						
1962[a]	6.5	63.1	76.0	80.8	75.6	79.8
1974[a]	6.8	63.1	80.7	80.9	84.0	62.2
Guatemala						
1973	12.9	58.3	81.9[j]	69.7	81.4	50.7
Nicaragua						
1963[a]	11.0	82.0	89.0	86.8	71.7	72.7
1971[a]	11.7	80.2	88.6	87.9	76.4	54.5
Peru						
1961	18.3	73.8[i]	87.1[k]	87.2[k]	84.7[i]	75.4
1972	23.7	84.0	92.4	93.8	92.5	78.2
Puerto Rico						
1960[a l]	6.5	54.6	78.2	75.1	65.3	37.8
1970[a l]	11.8	59.6	84.2	82.0	68.1	74.7
Venezuela						
1961[d m]	16.8	86.8	89.0[k]	88.2[k]	87.3	84.5
Northern America						
Canada						
1961	9.6	78.2	83.9	90.1	80.8	74.8
1971	17.9	78.7	87.7	88.9	83.5	77.7
United States of America						
1940[l]	2.6	69.9	74.4	81.2	75.3	61.5
1950[l]	4.6	72.0	80.1	83.2	80.2	59.6
1960[l]	12.3	71.8	81.1	82.7	78.6	80.6
1970[l]	13.9	70.7	81.3	83.6	78.7	82.3

TABLE 52. (*continued*)

Major area and country	*Percentage of labour force in:*					
	Agriculture	*Manufacturing and transport*	*Professional and administrative*	*Clerical and sales*	*Traditional services*	*Unknown*
East Asia						
Japan						
1960[d l n]	3.1	54.7	63.1	65.1	71.2	56.7
1965[d l n]	3.9	55.8	64.7	66.6	71.3	65.1
1970[d l n]	4.9	56.2	68.9	67.9	71.8	63.3
South Asia						
Cyprus						
1960	2.9	35.6	65.9	68.8	59.5	63.5
India						
1961	2.4[o]	38.7	51.4[k]	60.4[k]	49.6	28.4
Indonesia						
1971[a]	2.4	32.6	22.1	39.7	47.1	26.9
Iran						
1956[l]	7.2	56.1	66.2	75.4	55.3	54.5
Israel						
1961[l]	58.0	89.1	89.9[p]	93.8[p]	80.9	82.3
Malaysia						
Peninsular Malaysia						
1970[a]	4.1	46.2	54.6	57.6	54.6	30.9
Sabah						
1970[a]	1.8	33.7	37.8	48.6	45.1	12.4
Sarawak						
1970[a]	1.4	35.7	43.5	47.1	40.4	14.4
Sri Lanka						
1953[l]	1.8	22.7	31.2	37.0	31.9	27.5
Sri Lanka						
1970[l]	2.8	24.8	32.3	37.7	30.3	16.7
Thailand						
1954	0.8	42.3	34.1	39.9	51.7	50.4
1970	1.0	40.0	58.3	51.8	58.1	37.5
Turkey						
1950[a]	4.6	64.7	67.8	72.7	80.9	58.4
1960[a]	4.6	67.2	71.2[p]	71.8[p]	70.8	—
1970[a]	4.3	66.8	61.7	77.8	71.7	67.7
Europe						
Bulgaria						
1956	5.9	55.6	70.1	62.6	61.7	79.6
Greece						
1961[q]	6.0	71.3	72.7	79.4	72.9	67.7
1971[q r]	6.6	73.0	79.1	81.4	73.1	76.1
Hungary						
1970	12.1	48.8	73.6	69.1	58.9[s]	—[s]
Portugal						
1960	2.5	32.6	56.0	57.6	52.7	21.3
Romania						
1956	6.3	66.0	73.2	72.5	73.2	80.2
1966	9.2	62.7	75.8	73.0	66.2	59.4
Spain						
1960[d t u]	36.4	78.1[u]	84.2	89.1[u]	88.0	77.6
Sweden						
1960	7.8	53.7	69.8	71.3	63.2	49.3
1970	19.6	83.9	92.8	93.6	89.2	89.9

TABLE 52. (*continued*)

Major area and country	Percentage of labour force in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
United Kingdom						
Scotland						
1961[d v]	19.5	80.2	79.2	85.2	79.7	63.2

Note: In this table, Cyprus, Israel and Turkey are included in South Asia.

[a] No information available on disposition of members of the armed forces.

[b] Members of armed forces included in "services" rather than in "unknown".

[c] Urban defined as towns of Tripoli and Benghazi only.

[d] Rural obtained by subtracting urban from total.

[e] Excluding unemployed persons and those of unknown occupations.

[f] Urban defined as 35 selected towns.

[g] Primary- and intermediate-school teachers, and junior religious occupations included in "clerical" rather than in "professional and administrative".

[h] Urban defined as 15 gazetted townships in Tanganyika only.

[i] Laundry workers and cleaners included in "manufacturing" rather than in "services".

[j] Refers to professionals, industrialists and businessmen.

[k] Sales managers included in "administrative workers" rather than in "sales workers".

[l] Employed persons only.

[m] Urban defined as localities of 2 500 or more inhabitants.

[n] Urban defined as densely inhabited districts (DID).

[o] Including cultivators.

[p] "Clerical workers" included in "administrative and managerial workers".

[q] Semi-urban included in rural.

[r] Excluding members of the armed forces from the labour force.

[s] Members of the armed forces and persons with unknown occupations included in "manufacturing".

[t] Urban defined as localities of 2 000 or more inhabitants.

[u] Some communication workers included in "manufacturing" rather than in "clerical workers".

[v] Urban defined as areas outside "landward areas".

TABLE 53. PERCENTAGE FEMALE IN VARIOUS OCCUPATIONS, RURAL AND URBAN AREAS, BY COUNTRY

Major area and country	Percentage female in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Africa						
Algeria, 1966[a]						
Total	1.8	2.7	18.2	5.7	12.7	2.9
Urban	0.9	3.2	22.4	7.4	16.4	3.1
Rural	2.0	2.2	8.1	1.3	5.9	2.8
Central African Empire, 1960						
Total	57.2	1.0	1.4	2.9	3.0[b]	53.4[b]
Urban	60.3	1.1	1.6	2.8	4.0[b]	58.0[b]
Rural	56.5	0.8	1.2	3.0	0.0[b]	51.2[b]
Guinea, 1955						
Total	55.6	17.9	3.5	24.0	42.7	65.2
Urban	54.2	2.8	9.1	26.1	36.0	80.8
Rural	55.6	28.3	0.0	22.2	48.3	61.0
Libyan Arab Jamahiriya, 1964[c d]						
Total	2.5	8.6	8.1	1.0	5.8	8.2
Urban	2.4	1.9	12.5	1.4	7.5	5.1
Rural	2.5	15.5	4.4	0.4	4.1	9.5
Morocco, 1951						
Total	37.4	17.7	1.8	3.0	64.0[b]	12.2[b]
Urban	13.5	17.2	4.1	3.3	66.0[b]	12.0[b]
Rural	37.8	18.4	0.5	2.3	58.1[b]	12.6[b]
Morocco, 1960						
Total	7.6	16.4	13.4	9 4	32.1	3.3
Urban	4.1	15.4	21.5	11.6	32.0	3.5
Rural	7.7	19.1	2.3	2.6	32.3	3.1
Morocco, 1971						
Total	11.2	15.5	13.9	11.4	38.1[b]	21.0[b]
Urban	10.8	15.9	20.2	14.1	39.7[b]	23.2[b]
Rural	11.2	14.9	2.9	2.2	33.2[b]	15.5[b]
Sudan, 1956[d e f]						
Total	9.2	10.9	16.4[g]	2.4[g]	17.2	—
Urban	7.5	5.5	14.2[g]	4.2[g]	17.0	—
Rural	9.2	15.8	20.5[g]	1.4[g]	17.4	—
Tunisia, 1966[a]						
Total	1.9	7.2	15.4	7.1	18.6	5.3
Urban	3.1	9.6	18.6	9.2	22.6	6.6
Rural	1.7	4.4	4.0	1.2	6.7	3.5
United Republic of Tanzania, 1967[d h]						
Total	51.3	5.6	19.2	11.0	17.9	47.1
Urban	41.2	4.2	18.4	12.3	15.1	22.5
Rural	51.3	6.0	19.3	10.6	18.5	48.9
Latin America						
Bolivia, 1963[a]						
Total	32.2	27.9	30.3	51.2	75.9	76.8
Urban	6.8	17.4	31.4	51.1	75.8	65.3
Rural	32.5	35.6	28.5	51.3	76.0	78.1
Chile, 1970[a]						
Total	2.9	13.5	42.6	30.5	51.6	16.5
Urban	3.5	14.1	42.9	30.9	51.8	17.3
Rural	2.7	9.0	38.8	22.1	49.9	13.4
Costa Rica, 1963[a]						
Total	1.6	13.6[i]	47.0	22.2	69.6[i]	8.0
Urban	2.8	14.0[i]	48.1	25.7	72.8[i]	11.7
Rural	1.6	12.8[i]	44.0	13.1	62.9[i]	5.0

TABLE 53. (*continued*)

Major area and country	Percentage female in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Costa Rica, 1973[a]						
Total	1.6	11.7	41.2	27.3	64.7	14.0
Urban	2.2	12.6	41.8	30.6	68.4	16.2
Rural	1.5	10.5	38.8	18.0	57.5	12.5
Ecuador, 1962[a]						
Total	7.6	22.9	43.9	24.3	68.4	12.2
Urban	4.8	15.8	44.2	25.6	68.3	13.5
Rural	7.8	35.0	43.1	18.4	68.8	6.9
Ecuador, 1974[a]						
Total	4.5	15.4	38.0	30.0	66.2	14.4
Urban	3.4	11.9	38.7	32.6	68.1	16.3
Rural	4.6	21.5	35.2	19.2	56.2	11.2
Guatemala, 1973						
Total	1.5	13.7	31.7[j]	34.3	67.6	16.3
Urban	1.1	12.6	32.7[j]	40.2	68.4	22.5
Rural	1.5	15.2	27.0[j]	20.6	64.1	10.0
Nicaragua, 1963[a]						
Total	4.2	20.1	49.4	46.0	84.7	31.7
Urban	3.5	19.3	48.6	44.4	82.8	22.9
Rural	4.3	23.9	55.3	55.9	89.5	55.3
Nicaragua, 1971[a]						
Total	3.2	15.8	37.6	45.8	77.8	31.8
Urban	3.4	16.3	37.2	47.3	80.1	31.8
Rural	3.2	13.8	40.9	34.5	70.3	31.9
Peru, 1961						
Total	13.9	17.9[i]	35.3[k]	29.8[k]	60.0[i]	14.6
Urban	11.2	13.5[i]	35.1[k]	30.4[k]	59.9[i]	14.3
Rural	14.5	30.3[i]	36.3[k]	25.9[k]	60.4[i]	15.6
Peru, 1972						
Total	8.6	13.6	31.8	32.5	56.6	27.0
Urban	7.3	10.6	32.5	32.8	57.0	27.6
Rural	9.0	29.3	23.3	27.9	51.7	24.9
Puerto Rico, 1960[a l]						
Total	1.7	21.2	34.9	32.6	55.2	49.0
Urban	2.2	21.1	35.5	36.5	56.1	45.6
Rural	1.7	21.3	32.5	20.8	53.5	51.0
Puerto Rico, 1970[a l]						
Total	2.3	22.7	35.7	45.0	37.9	56.4
Urban	3.4	22.5	35.5	47.2	38.0	55.0
Rural	2.1	22.9	37.1	34.8	37.7	60.5
Venezuela, 1961[d m]						
Total	3.3	11.6	40.7[k]	19.2[k]	64.4	9.7
Urban	2.7	10.7	39.3[k]	20.3[k]	63.3	10.2
Rural	3.4	17.4	52.6[k]	11.2[k]	71.8	6.7
Northern America						
Canada, 1961						
Total	9.9	11.3	28.3	52.8	49.7	26.0
Urban	4.9	12.6	26.7	53.0	49.7	26.5
Rural	10.5	6.8	36.3	51.0	50.0	24.4
Canada, 1971						
Total	17.9	11.7	39.9	54.3	46.2	37.7
Urban	10.2	12.6	38.6	54.5	44.8	38.2
Rural	19.6	8.3	49.1	52.3	53.1	35.8
United States of America, 1940[l]						
Total	5.7	13.8	33.1	35.4	58.0	35.4
Urban	6.6	15.7	31.8	37.0	56.4	36.2
Rural	5.7	9.3	36.9	28.3	62.9	34.1

TABLE 53. (*continued*)

Major area and country	*Percentage female in:*					
	Agriculture	*Manufacturing and transport*	*Professional and administrative*	*Clerical and sales*	*Traditional services*	*Unknown*
United States of America, 1950[l]						
Total	8.4	15.1	27.6	48.2	57.0	38.1
Urban	11.1	16.6	26.8	49.1	55.1	37.5
Rural	8.3	11.3	30.9	43.7	64.8	39.0
United States of America, 1960[l]						
Total	8.5	14.5	32.4	50.8	62.0	37.6
Urban	7.8	14.8	31.6	51.1	59.7	38.2
Rural	8.6	13.8	35.9	49.2	70.5	35.1
United States of America, 1970[l]						
Total	9.5	18.0	31.6	63.8	55.5	36.7
Urban	17.5	17.7	31.4	63.7	53.7	33.3
Rural	8.2	18.8	32.7	64.5	62.2	52.9
East Asia						
Japan, 1960[d l n]						
Total	51.7	25.4	25.3	39.3	64.3	3.3
Urban	33.2	23.9	24.2	38.5	65.1	3.7
Rural	52.3	27.1	27.2	40.8	62.4	2.8
Japan, 1965[d l n]						
Total	51.5	26.1	25.5	43.8	62.5	4.4
Urban	37.3	25.1	24.3	43.6	62.5	5.0
Rural	52.1	27.5	27.6	44.1	62.6	3.3
Japan, 1970[d l n]						
Total	53.0	27.1	24.8	46.3	60.3	3.9
Urban	39.9	25.4	23.4	45.8	59.7	5.0
Rural	53.7	29.2	27.7	47.4	61.7	1.9
South Asia						
Cyprus, 1960						
Total	53.9	18.5	28.8	17.0	31.0	6.5
Urban	35.1	15.0	31.0	18.9	37.4	6.3
Rural	54.5	20.5	24.6	12.7	21.7	6.9
India, 1961						
Total	35.6[o]	25.6	11.3[k]	8.6[k]	25.0	12.5
Urban	31.7[o]	15.2	12.5[k]	5.2[k]	20.9	6.1
Rural	35.7[o]	32.1	10.0[k]	13.9[k]	29.1	15.0
Indonesia, 1971[a]						
Total	32.3	31.4	23.9	36.1	42.8	40.1
Urban	21.4	15.3	28.9	28.8	49.1	29.8
Rural	32.6	39.2	22.5	40.9	37.1	43.9
Iran, 1956[l]						
Total	4.8	20.4	15.3	2.4	23.9	1.8
Urban	3.0	11.2	19.6	2.6	27.2	1.1
Rural	4.9	32.2	6.8	1.7	19.9	2.8
Israel, 1961[l]						
Total	18.2	11.3	35.9[p]	24.4[p]	56.3	32.0
Urban	17.1	10.9	35.3[p]	24.9[p]	52.2	29.7
Rural	19.7	14.4	40.7[p]	16.1[p]	73.7	42.4
Malaysia						
Peninsular Malaysia, 1970[a]						
Total	37.7	17.4	30.2	20.6	32.9	47.8
Urban	37.1	17.8	33.2	20.9	40.1	44.0
Rural	37.7	17.1	26.7	20.1	24.3	49.5
Sabah, 1970[a]						
Total	36.3	7.2	26.7	25.7	22.8	60.2
Urban	6.2	8.4	28.6	29.2	30.5	43.2
Rural	36.8	6.6	25.5	22.5	16.5	62.6

TABLE 53. (*continued*)

Major area and country	Percentage female in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Sarawak, 1970[a]						
Total	44.5	11.3	26.1	21.7	24.1	61.9
Urban	19.4	9.9	31.2	22.7	33.3	50.4
Rural	44.8	12.1	22.2	20.8	17.8	63.8
Sri Lanka, 1953[l]						
Total	27.7	21.5	24.1	9.5	22.7	47.3
Urban	14.1	7.1	22.0	6.7	24.2	39.2
Rural	28.0	25.7	25.1	11.1	22.0	50.3
Sri Lanka, 1970[l]						
Total	26.8	17.7	28.3	9.5	29.9	—
Urban	9.7	13.5	27.5	12.6	34.7	—
Rural	27.3	19.1	28.7	7.7	27.8	—
Thailand, 1954						
Total	51.2	25.6	21.9	43.6	44.7	0.8
Urban	44.9	21.6	30.2	36.8	45.2	1.5
Rural	51.3	28.4	17.6	48.1	44.1	0.1
Thailand, 1970						
Total	49.7	29.4	28.2	51.8	48.5	38.3
Urban	41.8	27.4	29.7	47.3	56.0	35.3
Rural	49.8	30.7	26.1	56.7	38.2	40.1
Turkey, 1950[a]						
Total	50.0	12.8	9.2	8.1	11.7	45.2
Urban	29.6	8.6	11.1	9.0	12.6	45.4
Rural	50.9	20.7	5.2	5.9	8.2	44.8
Turkey, 1960[a]						
Total	49.8	9.8	13.6[p]	1.3[p]	8.2	—
Urban	7.6	6.9	16.3[p]	1.3[p]	10.1	—
Rural	51.8	15.7	6.8[p]	1.5[p]	3.5	—
Turkey, 1970[a]						
Total	51.0	19.1	22.6	11.1	8.5	7.1
Urban	17.6	12.9	22.2	12.9	9.4	4.6
Rural	52.5	31.7	23.3	4.8	6.0	12.3
Europe						
Bulgaria, 1956						
Total	53.0	18.5	33.8	30.5	33.4	25.1
Urban	45.8	26.2	34.5	35.9	43.2	25.7
Rural	53.5	8.9	32.0	21.5	17.6	22.6
Greece, 1961[q]						
Total	40.0	19.4	28.8	18.9	39.9	39.6
Urban	25.2	19.0	28.8	20.7	45.3	38.2
Rural	40.9	20.5	28.7	12.0	25.4	42.4
Greece, 1971[q r]						
Total	36.4	14.7	31.6	26.5	37.4	13.7
Urban	23.1	15.2	32.0	28.5	41.3	11.4
Rural	37.3	13.2	30.3	17.7	26.6	20.8
Hungary, 1970						
Total	45.8	28.2	45.6	65.6	70.6[s]	—[s]
Urban	39.4	32.8	45.5	67.1	74.5[s]	—[s]
Rural	46.7	23.9	45.9	62.2	64.9[s]	—[s]
Portugal, 1960						
Total	7.3	17.4	35.8	16.4	67.9	3.4
Urban	4.1	22.4	33.3	19.3	69.1	6.6
Rural	7.4	14.9	38.9	12.5	66.6	2.5
Romania, 1956						
Total	54.2	16.2	32.0	34.3	49.8	51.0
Urban	51.8	19.6	32.8	39.9	55.5	54.7
Rural	54.3	9.7	29.8	19.6	34.1	35.7

TABLE 53. (*continued*)

Major area and country	Percentage female in: Agriculture	Manufacturing and transport	Professional and administrative	Clerical and sales	Traditional services	Unknown
Romania, 1966						
Total	58.6	16.7	41.8	45.7	51.2	42.6
Urban	59.7	22.5	41.9	53.3	61.2	43.2
Rural	58.5	6.9	41.5	25.0	31.5	41.6
Spain, 1960[d t u]						
Total	12.3	14.7[u]	34.2	18.4[u]	62.0	45.1
Urban	4.9	15.4[u]	34.0	18.8[u]	62.2	39.9
Rural	16.6	12.5[u]	35.2	15.5[u]	60.4	63.0
Sweden, 1960						
Total	8.3	12.3	33.3	56.5	75.1	4.6
Urban	9.4	14.5	33.3	57.4	72.3	4.5
Rural	8.3	9.8	33.2	54.2	79.7	4.7
Sweden, 1970						
Total	19.8	15.0	39.6	62.0	71.9	9.5
Urban	12.6	16.0	38.9	62.3	71.3	10.0
Rural	21.5	9.9	47.9	57.2	76.8	6.0
United Kingdom						
Scotland, 1961[d v]						
Total	7.4	14.4	37.1	55.3	66.8	12.9
Urban	7.0	15.2	36.7	55.0	65.2	14.0
Rural	7.5	11.6	38.9	56.6	73.1	10.9

Note: In this table, Cyprus, Israel and Turkey are included in South Asia.

[a] No information available on disposition of members of the armed forces.

[b] Members of armed forces included in "services" rather than in "unknown".

[c] Urban defined as towns of Tripoli and Benghazi only.

[d] Rural obtained by subtracting urban from total.

[e] Excluding unemployed persons and those of unknown occupations.

[f] Urban defined as 35 selected towns.

[g] Primary-and intermediate-school teachers, and junior religious occupations included in "clerical" rather than "professional and administrative".

[h] Urban defined as 15 gazetted townships in Tanganyika only.

[i] Laundry workers and cleaners included in "manufacturing" rather than in "services".

[j] Refers to professionals, industrialists and businessmen.

[k] Sales managers included in "administrative workers" rather than in "sales workers".

[l] Employed persons only.

[m] Urban defined as localities of 2 500 or more inhabitants.

[n] Urban defined as densely inhabited districts (DID).

[o] Including cultivators.

[p] "Clerical workers" included in "administrative and managerial workers".

[q] Semi-urban included in rural.

[r] Excluding members of the armed forces from the labour force.

[s] Members of the armed forces and persons with unknown occupations included in "manufacturing".

[t] Urban defined as localities of 2 000 or more inhabitants.

[u] Some communication workers included in "manufacturing" rather than in "clerical workers".

[v] Urban defined as areas outside "landward areas".

كيفية الحصول على منشورات الامم المتحدة

يمكن الحصول على منشورات الامم المتحدة من المكتبات ودور التوزيع في جميع انحاء العالم . استعلم عنها من المكتبة التي تتعامل معها أو اكتب الى : الامم المتحدة ،قسم البيع في نيويورك او في جنيف .

如何购取联合国出版物

联合国出版物在全世界各地的书店和经售处均有发售。请向书店询问或写信到纽约或日内瓦的联合国销售组。

HOW TO OBTAIN UNITED NATIONS PUBLICATIONS

United Nations publications may be obtained from bookstores and distributors throughout the world. Consult your bookstore or write to: United Nations, Sales Section, New York or Geneva.

COMMENT SE PROCURER LES PUBLICATIONS DES NATIONS UNIES

Les publications des Nations Unies sont en vente dans les librairies et les agences dépositaires du monde entier. Informez-vous auprès de votre libraire ou adressez-vous à : Nations Unies, Section des ventes, New York ou Genève.

КАК ПОЛУЧИТЬ ИЗДАНИЯ ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ

Издания Организации Объединенных Наций можно купить в книжных магазинах и агентствах во всех районах мира. Наводите справки об изданиях в вашем книжном магазине или пишите по адресу: Организация Объединенных Наций, Секция по продаже изданий, Нью-Йорк или Женева.

COMO CONSEGUIR PUBLICACIONES DE LAS NACIONES UNIDAS

Las publicaciones de las Naciones Unidas están en venta en librerías y casas distribuidoras en todas partes del mundo. Consulte a su librero o diríjase a: Naciones Unidas, Sección de Ventas, Nueva York o Ginebra.

Printed in U.S.A.
79-36061-June 1980–5,500

Price: $U.S. 13.00

United Nations publication
Sales No. E.79.XIII.9
ST/ESA/SER.A/68