Population Division
Department of Economic and Social Affairs
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The Components of Urban Growth in Developing Countries

NOTE

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The designations "developed" and "developing" countries and "more developed" and "less developed" regions are intended for statistical convenience and do not necessarily express a judgement about the state 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.

PREFACE

The last few decades witnessed high growth rates of urban populations in many developing countries. The present report analyzes the components of urban growth in a large number of developing countries from a comparative perspective. More specifically, it aims to present country-specific estimates of the components of urban growth of developing countries and compare and contrast the country findings in order to help understand the processes related to changing patterns of urban growth in developing countries

Data that allow direct estimates of the components of urban growth remain still limited in many developing countries. In this report, using the census survival ratio method, estimates of the components of urban growth are made for the three decades of the 1960s, 1970s, and 1980s. Estimates are also made of age and sex specific net migration rates for urban-rural populations.

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Symbols of United Nations documents are composed of capital letters combined with figures.

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

A minus sign (−) before a number indicates a deficit or decrease, except as indicated.
A point (.) is used to indicate decimals.

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

The following abbreviations are used in the present report:

CBR   Crude Birth Rate
CDR   Crude Death Rate
GNP   Gross National Product
OLS   Ordinary Least Squares
TFR   Total Fertility Rate

I. INTRODUCTION

A shift in the distribution of the population from rural to urban places is a dominant feature of the demographic transition of most countries. From slightly over 10 per cent of the world's population living in urban places at the beginning of the twentieth century there was an increase to almost 30 per cent urban in 1950, and it was estimated that in 2000 approximately 47 per cent of the population of the world was located in areas designated as urban (United Nations, 1980 and 2000).

However, it now appears that urban populations are growing less rapidly than previously projected. A comparison of projections of urban population growth made in the late 1970s with those made more recently indicate a downward revision of almost 10 per cent in the projected annual rate of growth of urban populations between 1975 and 2000 (Chen, Valente and Zlotnik, 1998). The slower level of urban growth is projected to delay the attainment of 50 per cent of the population of the world living in urban areas to 2007 or 2008, from what was originally projected to be the year 2000.

Even though the urban population is not growing as fast as originally expected, urban growth is concentrated in certain areas of the world and has large impacts in those areas. Rapid urban growth typically contributes to high rates of urbanization. Davis (1968) argued that the urbanization process is characterized by an attenuated S-shaped curve, with increases in levels of urbanization most rapid during the middle stages of economic development. The experience of now developed countries tends to support this hypothesis, with a slowing in levels of urbanization occurring for these countries in the last quarter of this century. In contrast, growth in urbanization has increased in developing countries over the same period (United Nations, 2000). Most urban growth is now occurring in developing countries. The levels of urbanization in developing countries remain much lower than those of developed countries, but the gap is closing rapidly. In 1975 there was a 43 percentage point difference in levels of urbanization between developed and developing regions, by 1995 this had been reduced to a 37 point difference, a difference that is projected to decline even further to 32 percentage points by 2015 (United Nations, 2000).

Urbanization has occurred within the context of rapidly increasing size of populations. Not only are urban areas growing faster than rural areas (urbanization) but the overall numbers of persons living in urban areas (urban growth) are increasing dramatically and, for many urban planners, alarmingly. In 1950 there were 304 million persons in developing countries living in urban places, by the year 2000 this number is projected to be nearly two billion. This compares with an increase in the urban population of developed countries from 446 million to 903 million (United Nations, 2000).

Rural to urban migration is often viewed as the main cause of urban growth. However, the urban and rural populations of a country can change as a result of births, deaths, migration and reclassification of areas resulting from changes of the boundaries defining urban and rural areas. Identifying the contribution of each of these components to urban and rural population change is fundamental for the study of the urbanization process, particularly in developing countries where the pace of urban growth may pose serious challenges for those in planning and formulating economic and social policy.

In this report analysis of estimates of the components of urban growth for a large number of developing countries is undertaken. Where data are available, estimates are made for the decade of the 1960s, 1970s and 1980s. Estimates are also made of age and sex specific net migration rates for urban and rural populations. There are two main aims of the report: (1) present country-specific estimates of the components of urban growth of developing countries, and (2) compare and contrast the country findings in order to help understand the processes related to changing patterns of urban growth in the developing world over the last three decades.

II. METHOD OF ESTIMATION

Direct estimates of the components of urban growth can be made where data on births and deaths occurring to the population of urban areas are available for a specified time period and where information on the number of migrants into and out of urban areas is available for the same period of time. The data must also be available for those areas that are added to, or subtracted from, urban areas during the period being analyzed. Where all these data are available, simple demographic accounting methods will provide accurate estimates of the components of urban growth.

However, in most developing countries vital registration statistics are either non-existent or are not sufficiently reliable so as to permit the estimation of the births and deaths occurring to the inhabitants of the country. In addition, data on migration between rural and urban areas are usually not available. Consequently, indirect estimation has to be used to estimate the components of urban growth from census data.

There are various indirect methods available to make estimates of the components of growth. Most of these methods are based on comparing the enumerated urban populations at two consecutive censuses. Estimates are made of the level of natural increase of the urban population during the intercensal period and the difference between the projected and enumerated population is taken as the amount of change in the urban population that is due to net migration and areal reclassification. The main difference between the various indirect methods is the way in which the initial urban population is projected.

A. CENSUS SURVIVAL RATIO METHOD

The method used for the estimates presented in this report is known as the census survival ratio method (see United Nations, 1980, for a detailed discussion of the use of the method). The method requires the availability of information on the distribution by age and sex of the total population of a country at two points in time and that of the population living in urban areas for the same dates (usually two consecutive censuses).

The technique is based on the assumption that the probabilities of surviving from one census to the next are similar for the total population of a country as for that part of the population living in urban areas. The first step of the estimation procedure is to ensure that the interval between two censuses is ten years. If not, the population of the first census is adjusted so that it refers to a time ten years before the second census. The second step is to calculate the intercensal cohort survival ratios for the whole population of the country. These ratios are then adjusted to reflect a pre-established mortality differential, constant at all ages, between urban and rural areas. The adjusted survival ratios are then applied to the urban population for the first date to project it to the date of the second census and this projected urban population is compared to the actual population enumerated in urban areas.

The difference between the projected and the enumerated populations is assumed to represent the effect of net migration and reclassification of areas at the end of the intercensal period or, as it is often interpreted, as the net number of migrants surviving to the second census. By using reverse survival techniques to project the number of surviving migrants to the mid-point of the intercensal period, an estimate of the net number of rural-urban migrants for the intercensal period is obtained. For the age group, 0 to 4, the estimate of the net number of migrants is obtained by applying the child-woman ratio of the urban population to the estimated net number of migrating women in the relevant age group.

This estimation technique is based on the assumption that both migration and the deaths of migrants are uniformly distributed over the intercensal period. Once the net number of migrants is obtained the net urban migration rate is obtained by dividing the net number of migrants by the mid-period urban population, and the rate of natural increase of urban areas is obtained by subtracting the net migration rate from the observed growth rate of the urban population over the intercensal period. Net rural migration rate can be obtained by dividing the number of net rural-urban migrants by the mid-period rural population. The rates can also be calculated for each age group.

The method, as applied here, assumes that rural mortality exceeds that of urban areas by 25 per cent at all ages and that mortality at the level of the country as a whole has the same age distribution as that in urban areas. The method assumes that level of coverage of enumeration is the same for consecutive censuses. It does not matter if coverage is incomplete, as long as the pattern of coverage by age and sex is similar for adjacent censuses. It is also important to note that the method does not differentiate international migration from internal migration.

Under the assumptions outlined above, the procedure permits the identification of two components of urban growth, namely, that part due to natural increase (the difference between births and deaths) and the part due to both migration and reclassification of areas. Without further information it is not possible to distinguish the effects of migration from those of reclassification of rural areas into urban areas, or as has sometimes occurred, reclassification from urban to rural areas.

The results of the census survival ratio method, although dependent on a number of assumptions, provide valuable information about the components of urban growth and estimates of the age patterns of net migration. The advantage of using this method is that data requirements are relatively easy to fulfill. This is important where, as is the case with the present report, a major aim is to draw general conclusions about the urbanization process based on comparing data from as many developing countries as possible.

B. SENSITIVITY OF ASSUMPTIONS

Before describing the results of the estimation, it is important to note some of the biases that may result from the assumptions of the method and some of the limitations related to the interpretation of results. In this section the following three issues related to the application and interpretation of the estimation method are examined: the mortality assumption, the role of international migration and issue of reclassification.

Mortality differentials

The central assumption of the census survival ratio method is that the survival rates of the total population can be used to project the urban population. Direct application of the survival ratios calculated from the total population to the urban population would mean that mortality levels were assumed to be the same in both urban and rural areas. However, in most developing countries mortality in urban areas is significantly lower than in rural areas because of the better access to medical services and community amenities of the urban population compared to the rural population. In addition, the composition of the urban population, which on average has higher income, higher education and lower fertility than the rural population, contributes to variation in mortality levels between urban and rural places (United Nations, 1982a). A compilation of rural/urban differences in infant and child mortality in developing countries (44 countries), found that in all except one case urban mortality levels were below those of rural areas. Furthermore, in the majority of countries the differences exceeded 30 per cent (Gilbert and Gulger, 1982).

Where reliable information was available on levels of urban and rural mortality, it would be possible to undertake country-specific adjustments of the survival ratios in order to reflect the mortality circumstances of the urban population. Unfortunately, however, the information on mortality by place of residence is only available for a limited number of countries and for irregular periods, making it difficult to establish even regional patterns and trends. Table 1 summarizes the information available on expectation of life in rural and urban areas of developing countries. The estimates marked with an asterisk (*) have been indirectly derived from the United Nations model life-table, matching the infant mortality rate reported for that country. In these cases the life expectancy is overestimated but the rural/urban mortality differential can be considered sufficiently reliable. The percentages of population living in urban areas, reported in the third column of table 1, refer to the same period as the life expectancies and have been calculated from the estimates of the per cent urban produced by the United Nations (1995).

TABLE 1. PER CENT URBAN AND LIFE EXPECTANCY AT BIRTH IN URBAN AND RURAL AREAS BY COUNTRY

Region and country	Period	Per cent urban	Life expectancy at birth (years)			Original data	Source
			Urban	Rural	Difference		
Africa							
Algeria	1969-1971	30	59	51	8	e(0)	United Nations (1982a)
Chad	1963-1964	8	45	39	6	$_1q_0$*	United Nations (1978)
Ghana	1968-1969	28	51	41	10	e(0)	United Nations (1982a)
Ghana	1971	29	53	45	8	e(0)	United Nations (1982a)
Kenya	1962	8	54	45	9	e(0)	United Nations (1982a)
Kenya	1969	10	57	50	7	e(0)	United Nations (1982a)
Liberia	1970	26	57	39	18	$_1q_0$*	United Nations (1978)
Morocco	1972	35	50	47	3	e(0)	United Nations (1982a)
Sudan	1968-1973	16	47	42	5	e(0)	United Nations (1982a)
Togo	1961	10	48	33	15	e(0)	United Nations (1982a)
Tunisia	1968-1969	43	50	46	4	$_1q_0$*	United Nations (1982a)
United Republic of Tanzania	1973	9	61	52	9	e(0)	United Nations (1982a)
Asia							
Afghanistan	1972-1974	12	48	37	11	e(0)	Trussell and Brown (1979)
Bangladesh	1974	9	53	50	4	l(5)*	United Nations (1982a)
China	1981	20	71	67	4	e(0)	Calot and Caselli (1989)
China	1987	23	72	71	1	e(0)	Shen (1993)
India	1970	20	63	54	9	$_1q_0$*	United Nations (1982a)
Iran (Islamic Republic of)	1974	45	59	50	9	$_1q_0$*	United Nations (1982a)
Iraq	1973-1974	59	59	50	9	$_1q_0$*	United Nations (1982a)
Israel	1965	81	75	70	5	$_1q_0$*	United Nations (1975)
Israel	1980	89	77	76	1	$_1q_0$*	United Nations (1986)
Malaysia [a]	1968	27	75	71	4	$_1q_0$*	United Nations (1975)
Philippines	1973	35	70	67	3	$_1q_0$*	United Nations (1982a)
Turkey	1967	35	59	51	8	e(0)	Karadayi and others (1974)
Latin America							
Costa Rica	1968-1969	39	68	61	7	$_2q_0$	Behm (1979)
Cuba	1978	67	78	75	3	$_2q_0$	United Nations (1986)
Dominican Republic	1970-1971	40	57	54	3	$_2q_0$	Behm (1979)
El Salvador	1966-1967	39	52	51	2	$_2q_0$	Behm (1979)
Guatemala	1968-1969	35	56	49	7	$_2q_0$	Behm (1979)
Honduras	1971-1972	29	62	50	11	e(0)	Behm (1979)
Nicaragua	1966-1967	44	52	50	2	$_2q_0$	Behm (1979)
Puerto Rico	1970	58	76	74	2	$_2q_0$	United Nations (1975)
Puerto Rico	1983	69	78	78	0	$_2q_0$	United Nations (1986)
Bolivia	1971-1972	41	48	39	9	$_2q_0$	Behm (1979)
Chile	1965-1966	72	63	57	6	$_2q_0$	Behm (1979)
Colombia	1968-1969	56	65	58	7	$_2q_0$	Behm (1979)
Ecuador	1969-1970	39	60	51	9	$_2q_0$	Behm (1979)
Paraguay	1967-1968	37	66	64	2	$_2q_0$	Behm (1979)
Venezuela	1980-1982	84	69	65	4	e(0)	Bidegain (1979)

* Estimates have been derived from infant or child mortality rates.
[a] Then West Malaysia.

For all thirty-nine cases available, except United Republic of United Republic of Tanzania, the life expectancy at birth in urban areas is higher than in rural areas, and for thirty cases the difference is at least three years. The data suggest that the rural/urban difference is negatively correlated with both life expectancy and the proportion urban. In the five countries with the lowest life expectancy (Afghanistan, Bolivia, Chad, Sudan and Togo,) the average difference is 9.1 years, while in the five countries with the highest life expectancy (China, Cuba, Israel, Malaysia and Puerto Rico) the average difference is only 1.9 years. In the five least urbanized countries (Bangladesh, Chad, Kenya, Togo and United Republic of United Republic of Tanzania) the average difference is 8.3 years, while in the five most urbanized countries (Chile, Cuba, Israel, Puerto Rico and Venezuela) the average difference is 2.7 years.

In order to account for rural/urban mortality differentials, the census survival ratio estimation method used here includes a correction factor. This correction factor is a constant for all time periods, countries and age-sex groups within countries. The correction factor, which is set at 0.25, indicates the proportional reduction in urban survival rates compared to the rates calculated from the total population. Using United Nations model life tables (general pattern, male) it is possible to evaluate the suitability of setting the correction factor at 0.25. In figure I, the rural/urban difference in life expectancy against life expectancy at birth is plotted. Four series of data are plotted: the national data displayed in table 1, and data from model life tables using correction factors of 0.1, 0.25 and 0.5, respectively. For the life table data the proportion urban is set at 50 per cent.

Figure I. Rural/urban mortality differential and life expectancy at birth, national data and estimates with different correction factors

♦National data ■Estimates with m=0.1 ▲Estimates with m=0.25 ●Estimates with m=0.5
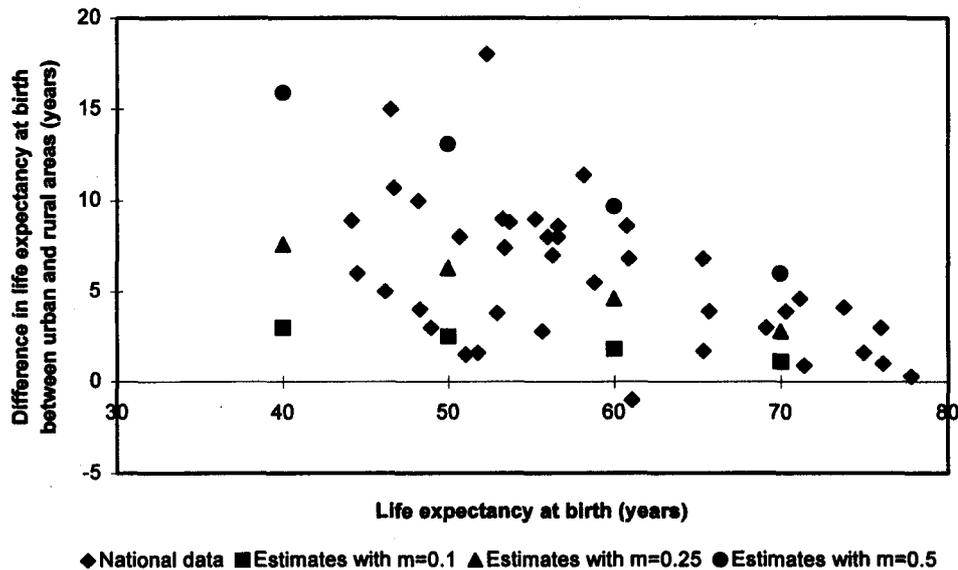
Sources: Data in table 1, and estimates based on the data from *Model Life Tables for Developing Countries* (United Nations publication, Sales No. E.81.XIII.7).

The figure I shows that the estimates corresponding to a correction factor of 0.25, the adjustment factor adopted for the estimation of the components of urban growth in the present study, are definitely better than the estimates corresponding to correction factors of 0.1 and 0.5 and represent a reasonable approximation of the rural/urban mortality differential at all levels of mortality. Furthermore, the choice of 0.25 allows for comparability with the previous set of estimates of the components of urban growth (United Nations, 1980) which was also produced adopting a rural/urban mortality factor equal to 0.25.

However, while 0.25 appears to be the best general choice of a correction factor, there is considerable variation among countries at lower levels of life expectancy with, in a very few cases, 0.5 providing a better fit with the observed data, while in a considerably greater number of cases, 0.1 providing a better fit. As life expectancy increases, the amount of variation in rural/urban life expectancy declines and the impact of choosing among the correction factors is considerably reduced.

The effect on estimation of the components of urban growth of using different adjustment factors can be considerable. To illustrate the effects, the estimation is made using three mortality adjustment factors (0, 0.25 and 0.5) for three countries with different levels of urbanization and mortality: Ghana in 1960-70, Mexico in 1980-1990 and China in 1982-1990. The results are summarized in table 2.

The higher the correction factor adopted, the lower the level of urban mortality and hence the greater the proportion of urban growth that is attributed to natural increase. As survival levels increase, the effects of different correction factors on estimated levels of natural increase become smaller, because the proportion of the population dying decreases. Similarly, as levels of urbanization increase, the effects on the rate of natural increase resulting from changes in the correction factor become smaller. This is because the amount that the census survival ratio is reduced becomes smaller the higher the level of urbanization, holding constant the level of mortality and the correction factor.

For fixed overall mortality and proportion urban, the larger the difference between rural and urban mortality, the lower the estimate of the number of net migrants, the lower the migrant sex ratio (due to a higher proportion of females migrants surviving), and the lower the contribution of internal migration to urban growth. In the case of Ghana, the contribution of internal migration to urban growth is 47.8 per cent when rural and urban mortality levels are fixed at the same level. The contribution is 41.5 per cent when urban mortality is 25 per cent lower than urban mortality, and 37.1 per cent when urban mortality levels are 50 per cent lower than rural mortality levels. This means that adoption of a correction factor of 0.25 would lead to an error of 4.4 percentage points if the true factor was 0, and an error of 6.3 percentage points if the true factor was 0.5. For Mexico, the error would be 2.9 percentage points if the true factor was 0, or 2.5 percentage points if the true factor was 0.5. For China, the respective levels of error would be 2.5 and 1.7 percentage points.

The results of the simulations suggest that in the absence of reliable data a correction factor of 0.25 is most appropriate. However, this will lead to an overestimate of the contribution of migration and reclassification to urban growth if the actual differential in mortality is higher than 0.25 and to an underestimate if the proportion is lower. In the estimation of the contribution of internal migration and reclassification to urban growth, the error that may derive from deviations from the assumption on rural/urban differential mortality is proportional to the levels of mortality and urbanization: in countries with low levels of mortality and high levels of urbanization the maximum error is unlikely to exceed 2 percentage points, while in countries with high levels of mortality and low levels of urbanization the maximum error could be 5 to 6 percentage points.

International migration

The census survival ratio method of estimation of the components of urban growth assumes a population closed to international migration. However, in some countries international migration is a major factor in population growth. The effects of net international migration on the estimates of the components of urban growth operate through changing the census survival ratios. International out-migration during an intercensal period will act to increase age-specific mortality rates while international in-migration will lower age-specific mortality rates. In the former instance the effect occurs because migrants would conceptually be treated as deaths while migrants into a country would mask deaths of the native population. These effects will vary by age and sex, with most of the effects being concentrated at young adult ages and for males − the groups most likely to be international migrants.

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TABLE 2. COMPONENTS OF URBAN GROWTH WITH THREE DIFFERENT MORTALITY ADJUSTMENT FACTORS,
CHINA, GHANA AND MEXICO

	Mortality adjustment factor		
	0	0.25	0.5
A. China			
Number of net migrants	82,239,921	79,441,274	77,595,034
Male	41,968,210	40,491,310	39,518,531
Female	40,217,710	38,949,964	38,076,503
Sex ratio of migrants	104.2	104.0	103.8
Per cent urban	21	21	21
Urban growth rate (percentage)	0.0455	0.0455	0.0455
Urban rate of natural increase (percentage)	0.0116	0.0162	0.0128
Urban migration rate (percentage)	0.0339	0.0327	0.0320
Contribution to urban growth (percentage)			
Natural increase/urban growth rate	25.6	28.1	29.8
Migration rate/urban growth rate	74.4	71.9	70.2
B. Ghana			
Number of net migrants	450,488	390,383	349,362
Male	227,510	195,002	172,587
Female	222,978	195,381	176,775
Sex ratio of migrants	102.0	99.8	97.6
Per cent urban	23	23	23
Urban growth rate (percentage)	0.4690	0.4690	0.4690
Urban rate of natural increase (percentage)	0.0244	0.0274	0.0295
Urban migration rate (percentage)	0.0224	0.0194	0.0174
Contribution to urban growth (percentage)			
Natural increase/urban growth rate	52.2	58.5	62.9
Migration rate/urban growth rate	47.8	41.5	37.1
C. Mexico			
Number of net migrants	4,787,354	4,375,810	4,029,034
Male	2,367,430	2,127,734	1,927,343
Female	2,419,924	2,248,076	2,101,690
Sex ratio of migrants	97.8	94.6	91.7
Per cent urban	66	66	66
Urban growth rate (percentage)	0.0275	0.0275	0.0275
Urban rate of natural increase (percentage)	0.0181	0.0189	0.0196
Urban migration rate (percentage)	0.0094	0.0086	0.0079
Contribution to urban growth (percentage)			
Natural increase/urban growth rate	65.9	68.8	71.3
Migration rate/urban growth rate	34.1	31.2	28.7

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

The magnitude of the effects depends on the distribution of international migration between rural and urban areas. When international migration is distributed between rural and urban areas in direct proportion to the rural/urban distribution of the population, the estimates of internal migration will not be biased, while those of the total urban growth and natural increase will be affected in that they will include the effect of international migration. If international migration is disproportionately distributed between urban and rural areas, even the estimates of the internal migration component will be biased. In net out-migration countries, if migrants originated more than proportionally from urban areas then the observed urban population would be smaller than would have been the case in the situation of proportionality of origin of the international migrants, and therefore the number of net internal migrants to urban areas would be underestimated. In contrast, if migrants originated less than proportionally from urban areas the observed urban population would be larger than in the case of proportionality and the number of net internal migrants to urban areas would be over-estimated. In in-migration countries the effects of net international migration gains that are disproportionately distributed between urban and rural areas would be the reverse: international migration flows directed more or less than proportional to the rural/urban distribution would respectively lead to over estimates or under estimates of the number of net internal migrants to urban areas.

Given that estimates of the distribution of international migrants by rural and urban areas are generally not available, there is no basis on which adjustments could be made to prevent such biases occurring. However, it is possible to evaluate by simulation how much the estimates can be affected as a consequence of different patterns of international migration. Thus, estimates of the components of growth for one country, Mexico, for the period 1980-1990, have been calculated using two different assumptions regarding international migration. First, as shown in the middle panel of table 3, the case of sustained international migration is considered, assuming a net out-flow equal to two per cent of the total population over the ten year period (approximately 1,337,000 migrants). The case of sustained international in-migration, assuming a net inflow of the same size, is considered in the second simulation with results displayed in the right panel of the table 3.

For each of the two simulations three different patterns of international migration are considered, each corresponding to different percentages of the migrants directed to or from urban areas: 40 per cent, 69 per cent (the average proportion urban of the Mexican population for the period 1980-1990) and 100 per cent. The flows of international migrants have been divided by age following a standard age distribution aimed at reproducing the concentration of migrants at young adult ages. In this distribution 76 per cent of migrants are aged between 20 and 44.

In the case of sustained out-migration, when a comparison of no international migration is made with international migration originating from rural and urban areas at the level proportional to the rural/urban distribution of the population, it can be seen that there is no difference in the urban in-migration or rural out-migration rates. However, total urban and rural growth and rate of natural increase are lower for the case of out-migration. The result is an increase in the contribution of internal migration to urban growth from 31.2 to 33.2 per cent. If only 40 per cent of the international migrants originated from urban areas, then the migration rate would increase from 0.86 per cent to 0.96 per cent and the contribution of internal migration to urban growth would increase from 31.2 to 36.0 per cent. If all international migrants originated from urban areas, the internal migration rate would decline to 0.75 per cent and therefore the contribution of net migration to urban growth would decline to 30 per cent. The distributions of the rural out-migration by age show how the assumptions on the origin of international migrants affect not only the level but also the age distribution of the estimated number of internal migrants, with the proportion at young adult ages being much more affected than those at other ages.

The effects of net in-migration of international migrants on the components of urban growth are basically the reverse of what was seen for international out-migration. In-migration of international migrants directed to urban and rural areas in proportion to the rural/urban distribution of the population does not affect the estimate of the rate of internal migration, but does lead to an increase in the estimated rate of natural increase. If only 40 per cent of the international migrants were directed to urban areas, the internal migration rate would decrease to 0.76 per cent and its contribution to urban growth would drop to 26.9 per cent. If all of the international migrants were directed to urban areas, then the internal migration rate would increase to 0.96 per cent and its contribution to urban growth would rise to 32 per cent.

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	No international migration	Sustained out-migration scenario [a] Percentage of migrants from urban areas			Sustained in-migration scenario [b] Percentage of migrants to urban areas		
		40	69	100	40	69	100
Number of international migrants	0	1,336,937	1,336,937	1,336,937	1,336,937	1,336,937	1,336,937
International migrants from/to urban areas	0	534,775[c]	919,545[c]	1,336,937[c]	534,775[d]	919,545[d]	1,336,937[d]
Number of net migrants	4,375,810	4,885,641	4,346,420	3,791,207	3,915,810	4,404,660	4,932,552
Male	2,127,734	2,362,407	2,105,969	1,826,368	1,902,976	2,148,984	2,414,637
Female	2,248,076	2,493,234	2,240,451	1,964,839	2,012,835	2,255,676	2,517,915
Sex ratio of migrants	94.6	94.8	94.0	93.0	94.5	95.3	95.9
Growth rate (percentage)							
Urban	2.75	2.66	2.59	2.51	2.84	2.91	2.98
Rural	0.34	-0.02	0.15	0.34	0.68	0.52	0.34
Migration rate (percentage)							
Urban	0.86	0.96	0.86	0.75	0.76	0.86	0.96
Rural	-1.91	-2.16	-1.91	-1.66	-1.68	-1.91	-2.15
Rate of natural increase (percentage)							
Urban	1.89	1.7	1.73	1.76	2.08	2.06	2.03
Rural	2.55	2.14	2.07	1.99	2.36	2.42	2.49
Contribution to urban growth (percentage)							
Internal migration	31.2	36.0	33.2	30.0	26.9	29.4	32.0
Natural increase	68.8	64.0	66.8	70.0	73.1	70.6	68.0
Rural out-migration rates by age group (percentage)							
Male 0-14	1.7	1.8	1.7	1.5	1.6	1.7	1.8
15-29	3.0	3.3	2.9	2.6	2.6	3.0	3.3
30-44	1.6	2.2	1.6	1.0	1.1	1.6	2.2
45-64	0.9	1.0	0.9	0.7	0.8	0.9	1.1
65 or older	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Female 0-14	1.9	2.0	1.9	1.8	1.8	1.9	2.0
15-29	3.0	3.3	3.0	2.6	2.6	3.0	3.3
30-44	1.5	2.1	1.5	0.9	0.9	1.5	2.1
45-64	1.2	1.4	1.2	1.0	1.0	1.2	1.4
65 or older	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

Notes:
[a] It assumes international out-migration rate of 2 per cent.
[b] It assumes international in-migration rate of 2 per cent.
[c] International migration from urban areas.
[d] International migration to urban areas.

The results of the simulation suggest the type of errors affecting the estimation of urban growth when a population is not closed. In the simulations for Mexico, the largest error in terms of the contribution of internal migration to urban growth occurs when 40 per cent of international migrants originate from, or are directed to, urban areas. In the case of international out-migration, the combined effect of higher estimated levels of internal migration and lower estimated levels of natural increase produces a difference in the contribution of internal migration of almost five percentage points (36.0 versus 31.2 per cent). For international net in-migration, the situation is reversed, with the amount of error being approximately the same. If the direction of the international migration flow is proportional to the rural/urban distribution of the population the error is smaller (about 2 percentage points), as the internal migration estimate is not affected and the change in the level of natural increase is not large. When all the international flows are from or to urban areas the error is slight (around 1 percentage point) because both the internal migration and natural increase estimates are affected in the same direction: they decrease in the case of international out-migration and increase in the case of international in-migration.

Reclassification

A major limitation of the results of the indirect estimation is that it is not possible to differentiate between the effects of net migration and reclassification. In many countries reclassification can be a major source of change in urban growth. Typically the reclassification, occurring either through an expansion (contraction) of existing urban boundaries or through the addition (subtraction) of new urban areas, contributes positively to the rate of urban growth. In some instances, however, urban places may be reclassified as rural, thus negatively affecting urban growth. This has been observed, for example, in Viet Nam (Banister, 1993).

Pernia (1976) proposed a relatively simple method of decomposing the amounts of urban population growth due to net migration, natural increase and reclassification. However, his method requires information on the populations of areas that are reclassified as urban from rural (or rural from urban) during the analysis period. Additional information is required if change due to the expansion or subtraction of existing urban boundaries is to be included into the decomposition. His analysis of urban growth in the Philippines found that net reclassification had been a much more important component of urban growth than had net migration. For example, for the period 1960-1970, he estimates that natural increase accounted for 54 per cent of urban growth, net reclassification accounted for 28 per cent of growth and net migration was responsible for the remaining 18 per cent of growth.

Pejaranonda, Santipaporn and Guest (1995) used indirect methods to decompose the components of urban growth in Thailand during the period 1980-1990. Using data from the National Statistics Office they were able to obtain information about new urban places created between 1980 and 1990, and also about the expansion in area of urban places existing in 1980. They produced estimates of the amount of growth due to natural increase, net migration, reclassification and expansion. Their findings can be compared with the estimates by the census survival ratio method and are shown in figure II.

Pejaranonda, Santipaporn and Guest (1995) estimated that 46.4 per cent of the urban growth in Thailand resulted from natural increase and the remaining 53.6 per cent could be decomposed into those parts occurring through reclassification (14.2 per cent), expansion of existing urban boundaries (14.3 per cent) and net migration (25.1 per cent). In contrast the estimates by the census survival ratio method show that 55.5 per cent or urban growth in Thailand during the period 1980 to 1990 was a result of natural increase and that the remaining 44.5 per cent resulted from a combination of net migration and reclassification.

The comparison is instructive for two reasons. First, there are relatively large differences between the two sets of estimates in the amount of urban growth attributed to natural increase. The methods of estimation used were very different, with Pejaranonda, Santipaporn and Guest (1995) using intercensal survey results of levels of natural increase in urban areas to project the initial urban population. This raises some question about the most suitable method to use. It is also possible, however, that the differences between the two methods may not be as great as suggested by the comparison. Because some of the growth attributed to expansion of existing urban boundaries by Pejaranonda, Santipaporn and Guest (1995) may have in fact been due to natural increase within existing boundaries.

Figure II. Components of urban growth, Thailand, 1980-1990
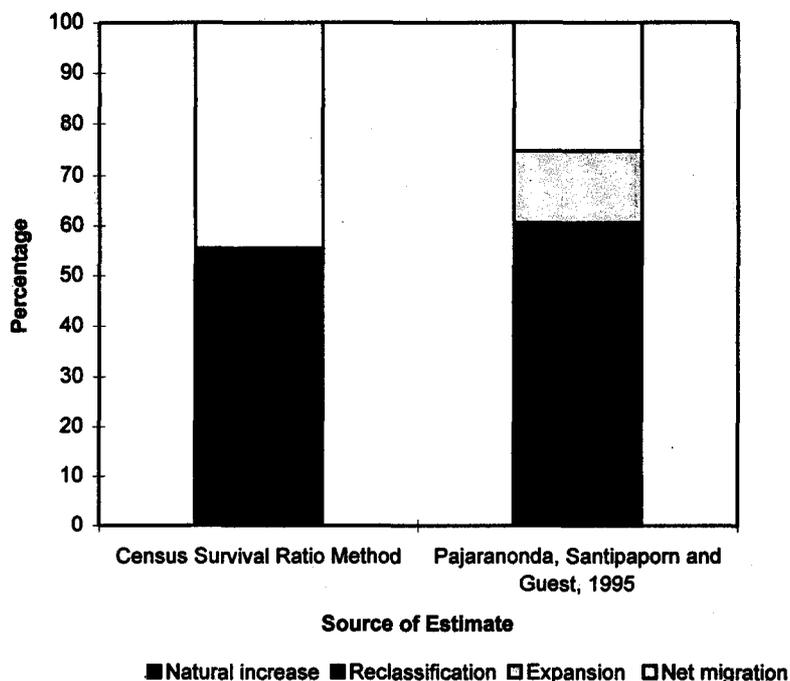
Of more concern than the difference in the estimated contribution of natural increase to urban growth is the importance of reclassification and expansion in urban growth. Although some of the contribution of reclassification and expansion is also due to migration as a portion of the population growth of areas that are reclassified results from net migration, it is clear that in some countries care must be taken in interpreting all the residual urban growth that is unaccounted for by natural increase as being a result of migration. Unfortunately the data required to decompose the residual into the components due to net migration and reclassification are not available, or not easily obtained, for most developing countries.

The example of Thailand is also useful when the issue of the definition of urban is addressed. The definition of an urban places used in this report is that employed by the respective countries. There is no standard international definition of what constitutes an urban place and this can cause problems of comparison among countries. It can also cause a problem of interpretation of trends across time for a country. For example, in Thailand the use of the standard definition of urban places suggests that the annual percentage growth in the urban population declined from 5.5 per cent in the decade of the 1970s to only 2.5 per cent in the 1980s. However, use of another commonly used definition of urban place results in annual increases exceeding 3 per cent in the 1980s. Much of the migration in the 1980s was to areas surrounding the capital city of Bangkok and many of these areas were classified as rural in the 1990 census (Pejaranonda, Santipaporn and Guest, 1995).

Recent patterns of urbanization in China also highlight definitional complexities that illustrate the need to take care in interpreting results. Very rapid rates of increase in level of urbanization in the 1980s and 1990s have led many researchers to question the definitions employed. Goldstein (1990) argues that because of the frequent changes in urban definitions, comparing the level of urbanization over time is meaningless, with changes reflecting political decisions rather than underlying socio-economic transformations.

The discussion of assumptions and definitional issues presented above indicates that the results in this report are best seen as providing evidence for broad processes in urbanization. For any individual country

violations of assumptions, the definitions employed and other factors will all affect the accuracy of the estimates. However, taken together, the country results are useful in helping us understand the process that are occurring in urban growth.

C. DATA AVAILABILITY

Although the data requirements for the application of the census survival ratio method are modest, the necessary information is not available or is inadequate for a large number of developing countries. Long intercensal intervals, delays in processing the information obtained, changes in the definitions of urban and rural areas between one census and the next, or the impact of international migration are among the factors that make it difficult to obtain reliable estimates of the components of urban growth.

To the extent possible, all censuses belonging to the 1960, 1970, 1980 and 1990 rounds of census were included in the analysis. However, information allowing the estimation of the components of urban growth for three consecutive decades was obtained for only one country in Africa, nine countries in Latin America and three countries in Asia (see table 4). For a larger number of countries, information was available from at least two censuses. In total the component of urban growth could be estimated for 36 developing countries during the 1960s, 43 during the 1970s, and 27 during the 1980s. However, in a number of cases (indicated in italics in table 4), the method was applied to censuses that were separated by more than ten years. Thus the results obtained must be interpreted with caution.

The greater availability of data for the decade of the 1970s, relative to that of the 1960s, indicates the increasing number of countries that undertook censuses in the 1970 and 1980 round of censuses. The reduction, relative to the 1970s, of data for the decade of the 1980s can be mainly attributed to the slow progress that has been made in processing and making available the results of the 1990 round of censuses.

Among countries in the African region, the components of urban growth can be estimated in 17 countries, but for 10 of them the estimates refer only to one decade, making it impossible to obtain clear trends for the region. For Latin America, greater availability of census data permits application of the method in 22 countries, producing estimates for at least two decades for almost all of them. In Asia, estimates can be made for 15 countries, including the most populous ones such as Bangladesh, China, India, Indonesia and Pakistan, though for China and Pakistan estimates are only possible for one decade.

III. URBAN AND RURAL POPULATION GROWTH

A. URBANIZATION

The set of countries included in this analysis experienced high levels of population growth during the three decades (see table 5). The mean annual percentage rate of population growth of the countries was 2.5 for the 1960s, increasing slightly to 2.6 in the 1970s while declining to 2.4 per cent in the 1980s. For the African countries mean levels are higher and the changes over each decade are also greater compared to countries in other regions. For example, the mean population growth was 2.6 in the 1960s, increasing to 3.3 in the 1970s and then declining to 2.9 in the 1980s.

The high rates of population growth that have been experienced in the last three decades are unprecedented in human history. The rapid declines in mortality in the developing world experienced after World War II stimulated high rates of natural increase that began to be offset by falling fertility only in the 1970s and 1980s. The historically high population growth rates, however, have not resulted in rates of growth in urbanization that are high in historical terms. Rates of urbanization experienced in the 1950s and 1960s in developing countries were similar to those experienced in European countries in the latter parts of the nineteenth century (Preston, 1979).

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TABLE 4. AVAILABILITY OF CENSUS DATA ALLOWING THE ESTIMATION OF THE COMPONENTS
OF URBAN GROWTH FOR EACH DECADE

		Period that urban growth can be estimated					
		1960s		1970s		1980s	
		A. Year of census					
Africa							
Eastern Africa	Kenya			1969	1979		
	United Republic of Tanzania			1967	1978		
	Zimbabwe			1969	1982	1982	1992
Northern Africa	Egypt	*1960*			1976	1976	1986
	Libya Arab Jamahiriya	1964	1973	1973	1984		
	Morocco	1960	1971	1971	1982		
	Sudan			1973	1983		
	Tunisia	1966	1975	1975	1984		
Southern Africa	Botswana	1964	1971	1971	1981	1981	1991
	South Africa	1960	1970				
Western Africa	Burkina Faso					1975	1985
	Cote d'Ivoire					1975	1988
	Ghana	1960	1970	*1970*	*1984*		
	Liberia			1974	1984		
	Mali					1976	1987
	Senegal					1976	1988
	Togo	1959	1970				
Asia							
Eastern Asia	China					1982	1990
	Republic of Korea	1960	1970	1970	1980	1980	1990
South-eastern Asia	Indonesia	1961	1971	1971	1980	1980	1990
	Malaysia			1970	1980		
	Philippines			1970	1980	1980	1990
	Thailand			1970	1980	1980	1990
Southern Asia	Bangladesh	1961	1974	1974	1981		
	India	1961	1971	1971	1981		
	Iran (Islamic Republic of)			1966	1976	1976	1986
	Nepal	1961	1971	1971	1981		
	Pakistan			1972	1981		
	Sri Lanka	1963	1971	1971	1981		
Western Asia	Iraq	1957	1965	1965	1977	1977	1987
	Israel			1972	1983		
	Syrian Arab Republic	1960	1970	1970	1981		
	Turkey	1960	1970	1970	1980		
Latin America							
Central America and	Costa Rica	1963	1973	1973	1984		
the Caribbean	Cuba	*1953*	*1970*	1970	1981		
	Dominican Republic	1960	1970	1970	1981		
	El Salvador	1961	1971	*1971*			*1992*
	Guatemala	1964	1973	1973	1981		
	Haiti	*1950*	*1971*	1971	1982		
	Honduras	1961	1974	*1974*			*1988*
	Mexico	1960	1970	1970	1980	1980	1990
	Nicaragua	1963	1971				
	Panama	1960	1970	1970	1980	1980	1990
	Puerto Rico	1960	1970	1970	1980	1980	1990
South America	Argentina	*1960*			*1980*	1980	1991
	Bolivia					*1976*	*1992*
	Brazil	1960	1970	1970	1980	1980	1991
	Chile	1960	1970	1970	1982	1982	1992
	Colombia	1964	1973	1973	1985		
	Ecuador	1962	1974	1974	1982	1982	1990
	Guyana	1960	1970				
	Paraguay	1962	1972	1972	1982	1982	1992
	Peru	1961	1972	1972	1981	1981	1993
	Uruguay	1963	1975	1975	1985		
	Venezuela	1961	1971	1971	1981	1981	1990

B. Number of countries where data are available			
Africa	7	11	7
Asia	9	15	7
Latin America	20	17	13
Total	36	43	27

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Note: Figures in Italics refer to censuses that span more than a decade.

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Region, subregion and country		1960s Per cent urban	1960s Annual population growth rate (percentage)	1960s Annual rate of urbanization (percentage)	1970s Per cent urban	1970s Annual population growth rate (percentage)	1970s Annual rate of urbanization (percentage)	1980s Per cent urban	1980s Annual population growth rate (percentage)	1980s Annual rate of urbanization (percentage)
A. By country										
Africa										
Eastern Africa	Kenya				9.87	3.37	4.54			
	United Republic of Tanzania				4.91	3.21	9.39			
	Zimbabwe				16.80	2.90	2.54	23.54	3.28	2.63
Northern Africa	Egypt	*37.96*	*2.12*	*0.88*	*37.96*	*2.12*	*0.88*	43.97	2.76	0.04
	Libya Arab Jamahiriya	24.63	4.03	9.85	59.77	4.38	2.11			
	Morocco	29.34	2.39	1.68	35.35	2.70	1.70			
	Sudan				18.46	3.84	1.06			-
	Tunisia	40.14	2.30	2.40	49.83	2.52	0.66			
Southern Africa	Botswana	3.27	1.07	14.68	10.02	4.96	4.66	15.94	3.44	10.53
	South Africa	46.73	3.20	0.23						
Western Africa	Burkina Faso							6.43	3.45	5.95
	Cote d'Ivoire							31.99	3.72	1.55
	Ghana	23.06	2.42	2.26	28.89	2.58	0.73			
	Liberia				29.15	3.35	2.87			
	Mali							16.83	1.80	2.58
	Senegal							34.28	1.80	2.58
	Togo	9.63	2.92	2.92						
Asia										
Eastern Asia	China							20.55	1.50	3.05
	Republic of Korea	28.00	2.33	3.91	41.13	1.72	3.28	57.23	1.51	2.63
South-eastern Asia	Indonesia	14.90	2.09	1.50	17.29	2.36	2.83	22.38	2.00	3.24
	Malaysia				28.76	2.25	2.63			
	Philippines				31.83	2.71	1.59	37.37	2.30	2.61
	Thailand				13.24	2.65	2.52	17.03	1.96	0.95
Southern Asia	Bangladesh	5.19	2.60	4.01	8.77	2.82	7.81			
	India	17.99	2.20	1.01	19.91	1.96	1.76			
	Iran (Islamic Republic of)				39.05	2.96	1.86	47.03	3.87	1.45
	Nepal	3.57	2.35	1.11	4.00	2.32	4.68			
	Pakistan				26.54	3.54	0.76			
	Sri Lanka	19.05	2.20	1.98	22.44	1.66	-0.45			
Western Asia	Iraq	39.22	2.98	3.46	51.72	3.33	1.74	63.71	3.08	0.97
	Israel				85.23	2.25	0.44			
	Syrian Arab Republic	36.91	3.23	1.64	43.48	3.29	0.72			
	Turkey	26.33	2.49	3.05	35.74	2.29	2.41			
Latin America										
Central America and the Caribbean	Costa Rica	34.60	3.33	1.58	40.61	2.31	0.82			
	Cuba	57.00	2.19	0.32	60.33	1.15	1.22			
	Dominican Republic	30.26	2.91	2.89	39.74	2.68	2.64			
	El Salvador	38.51	3.42	0.26	*39.54*	*1.72*	*1.15*	*39.54*	*1.72*	*1.15*
	Guatemala	33.62	2.07	0.89	36.40	2.00	-1.34			
	Haiti	12.18	1.59	2.43	20.34	1.40	0.13			
	Honduras	23.23	2.66	2.33	*31.36*	*3.32*	*1.66*	*31.36*	*3.32*	*1.66*
	Mexico	50.69	3.35	1.52	58.70	3.15	1.17	66.27	2.00	0.75
	Nicaragua	40.85	2.52	1.95						
	Panama	41.49	3.01	1.45	47.57	2.29	0.60	50.52	2.60	0.61
	Puerto Rico	44.15	1.43	2.74	58.09	1.64	1.39	66.77	0.97	0.64
South America	Argentina	*73.57*	*1.67*	*0.60*	*82.99*	*1.67*	*0.60*	87.19	1.46	0.47
	Bolivia							41.74	2.11	2.05
	Brazil	44.67	2.85	2.25	55.92	2.45	1.90	67.59	1.91	1.02
	Chile	68.19	1.98	1.03	75.13	2.03	0.75	82.23	1.64	0.15
	Colombia	52.01	2.88	0.51	54.51	1.65	1.75			
	Ecuador	36.02	3.26	1.20	41.38	2.50	2.05	49.23	2.25	1.48
	Guyana	15.53	2.22	6.62						
	Paraguay	35.83	2.66	0.44	37.42	2.51	1.33	42.75	3.11	1.61
	Peru	47.42	2.86	2.08	59.52	2.50	1.00	65.22	2.16	0.60
	Uruguay	82.23	0.63	0.08	83.00	0.56	0.49			
	Venezuela	67.44	3.31	0.75	73.07	3.04	0.90	79.96	2.45	0.56
B. Mean by region										
Africa		26.85	2.56	4.36	27.36	3.27	2.83	24.71	2.89	3.69
Asia		21.24	2.50	2.41	31.91	2.60	2.50	37.90	2.32	2.13
Latin America		44.26	2.51	1.62	53.29	2.14	1.20	59.26	2.13	0.98
Total		35.14	2.52	2.38	39.70	2.58	2.04	44.76	2.38	1.98
C. Median by region										
Africa		26.99	2.41	2.33	28.89	3.21	2.11	23.54	3.28	2.58
Asia		19.05	2.35	1.98	30.30	2.51	2.14	37.37	2.00	2.61
Latin America		41.49	2.66	1.45	55.22	2.30	1.16	65.22	2.11	0.75
Total		35.93	2.51	1.66	39.05	2.51	1.66	42.75	2.16	1.48

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Notes: Figures in Italics refer to estimates made from consecutive census that span two decades.
Levels of urbanization are calculated from the census at the start of the estimation period.
Median and mean values for the 1970s exclude Guatemala and Sri Lanka because of extreme values.

For countries in the present analysis the mean annual percentage growth in urbanization was 2.4 in the 1960s, 2.0 during the 1970s and the 1980s. In Latin America both the mean and median values show rapid decreases, with the mean annual rate of urbanization decreasing from 1.6 during the 1960s to slightly less than 1 per cent in the 1980s. The median level of urbanization for the Latin American countries was 65.2 per cent at the start of the 1980s intercensal period, compared to only 23.5 per cent for the African countries and 37.4 per cent for the Asian countries included in the analysis.

For the set of Asian countries the trend in urbanization is not as clear as it is for Latin America. The mean annual rate of urbanization for Asian countries increased slightly from 2.4 to 2.5 per cent from the 1960s to the 1970s before declining to 2.1 per cent in the 1980s. However, the median values indicate a steady rise in rates of urbanization, from 2.0 per cent in the 1960s to 2.1 per cent in the 1970s and 2.6 per cent in the 1980s. The mean values in the 1980s are influenced by the low values recorded for Iraq and for Thailand (both less than 1 per cent). While the conflict between Iran and Iraq that affected those countries during the 1980s may have adversely affected opportunities for urbanization in Iraq, for the latter country the low rates of urbanization recorded during the 1980s can be attributed to failure to incorporate areas with urban features as urban (Pejaranonda, Santipaporn and Guest, 1995). With the exception of Thailand, urbanization is most rapid in Eastern Asian and South Eastern Asian countries compared to other Asian countries.

In Southern Asia, only Bangladesh in the 1960s and 1970s, and Nepal in the 1970s, had annual rates of urbanization that exceed two per cent. In both of these countries initial levels of urbanization were low. In Nepal, there were also changes in the definition of the minimum size of urban places (the number was reduced) between 1971 and 1981 and the number of urban places increased from 16 to 23, and this contributed to the high levels of urbanization reported during the 1970s (K. C. Bal Kumar, 1995).

African countries also experienced rapid annual rates of urbanization over the three decades. In the 1960s, the mean annual rate of urbanization was 4.4 per cent while in the 1970s and 1980s it was 2.8 and 3.7 per cent respectively. These rates are extremely high, with a rate of 3 per cent implying a doubling of the proportion urban in approximately 23 years. However, the median values for the rate of urbanization are much lower than the mean values, indicating that the mean values are influenced by some countries with very high rates of urbanization. Botswana in the 1960s reports a rate of urbanization of 14.7 per cent and a rate of 10.5 per cent in the 1980s. Two other countries have annual rates that are close to 10 per cent: Libya in the 1960s and United Republic of Tanzania in the 1970s. Initial levels of urbanization were very low in most of the countries that experienced very high rates of urbanization. For example, only 3.3 per cent of the population of Botswana lived in urban places in 1964. Although this percentage increased to 10 per cent in 1971, the actual increase in the urban population was only forty thousand persons. Similarly, in 1967 less than 5 per cent of the population of United Republic of Tanzania was urban and the rapid increases in urbanization that took place during the late 1960s and early 1970s appears to have been mainly a result of rapid growth of urban-based import-substituting industries that occurred after independence in 1961 (Sabot, 1979).

It does appear that of the three main geographical areas being considered in this analysis, only in Asia has there been consistent increases in levels of urbanization over the three decade period. Gilbert (1993) also states that in developing countries in Latin America and in some countries in Africa, rates of growth in urbanization have slackened during the 1980s and only appear to be on the increase in Asia. He argues that part of the reason for the slowing in urbanization has been a slowdown in employment opportunities in cities. He also points out that many Latin American countries have already achieved high levels of urbanization and this is related to reduced increases in urbanization.

Figure III shows the relationship between levels of urbanization at the beginning of the intercensal interval and the annual rate of urbanization. Omitted from the figure are eight cases where the annual rate of urbanization was greater than 6 per cent (six cases) or negative (two cases). In all of the cases where rates of urbanization exceeded 6 per cent level, the level of urbanization was less than 20 per cent at the start of the intercensal period. In the two cases of negative growth, Guatemala and Sri Lanka during the 1970s, initial levels of urbanization were at intermediate levels.

**Figure III. Annual rate of urbanization and per cent urban,
1960s, 1970s and 1980s**
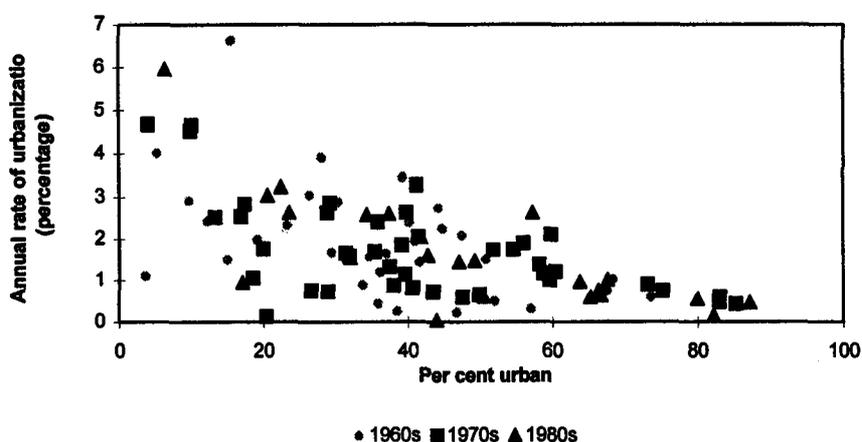
Source: table 5.

The patterns shown in Figure III illustrate the close relationship between the rate of urbanization and the initial level of urbanization. The highest rates of increase in urbanization occur at the lowest levels of urbanization, while the lowest rates of increase occur where initial levels of urbanization are already high. For the sample of countries used in this analysis many of the instances of low levels of urbanization are for the period of the 1960s, while most of the observations for the 1980s are for countries where levels of urbanization were already high, with eight of the twenty-seven countries with data from the 1980s having levels of urbanization exceeding 60 per cent at the start of the intercensal period (with seven of these countries being in Latin America). Some of the slowing over time in rates of urbanization is related to the increasingly high levels of urbanization already achieved in many of the countries, particularly the Latin American countries.

B. URBAN AND RURAL POPULATION GROWTH

In addition to a slowing of urbanization over the three decades from the 1960s to 1980s, there was also a reduction in annual rates of growth of urban areas (see table 6). For all countries in the sample the mean annual urban growth rates declined from 4.9 per cent in the 1960s to 4.1 per cent in the 1980s. The reduction in median values were not as great, with a decline of 4.5 to 4.1 from the 1960s to the 1980s. Growth rates of the rural population were much lower than growth of the urban populations, and the reductions in rural population growth rates were greater than the reduction in urban growth rates. For example, median annual rates of rural growth for all countries dropped from 1.6 per cent in the 1960s to 0.9 per cent in the 1980s. In the developing countries considered in this analysis, population is growing much more rapidly in urban areas than in rural areas.

There are marked differences among regions in levels and trends in growth of rural and urban areas (see figure IV). In the 1960s, the median values for annual rates of urban growth for countries in Africa, Asia and Latin America, were all between 4 and 5 per cent, while rates of growth for rural areas were between 1.5 and 2 per cent. Rates of growth were slightly lower for Latin American countries and slightly higher for Asian countries. The 1970s saw very rapid change in growth rates for Latin American countries. The median urban growth rates declined by almost a quarter while rural growth rates declined from 1.5 to 0.5 per cent. In contrast, growth rates for the Asian countries remained stable while those for the African countries increased. In the 1980s the median growth rates among African countries increased even more, with the increases greater for rural population than for urban populations. For Asia, there was a slight decrease in the median growth rate for urban areas and a much more rapid decrease in rural growth rates. In Latin America, the median growth rate for urban areas declined while that of rural areas, already low, increased slightly.

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TABLE 6. ANNUAL PERCENTAGE GROWTH OF URBAN AND RURAL POPULATIONS, 1960s, 1970s AND 1980s

Region, subregion and country		1960s		1970s		1980s	
		Urban	Rural	Urban	Rural	Urban	Rural
A. Annual growth of population (percentage)							
Africa							
Eastern Africa	Kenya			7.91	2.72		
	United Republic of Tanzania			12.60	2.28		
	Zimbabwe			5.44	2.33	5.91	2.31
Northern Africa	Egypt	3.00	1.49	3.00	1.49	2.80	2.73
	Libya Arab Jamahiriya	13.89	-2.55	6.50	-0.22		
	Morocco	4.07	1.58	4.40	1.59		
	Sudan			4.90	3.59		
	Tunisia	4.70	0.38	3.17	1.83		
Southern Africa	Botswana	15.75	0.24	5.13	-0.81	8.89	-4.45
	South Africa	3.42	3.00				
Western Africa	Burkina Faso					9.40	2.88
	Cote d'Ivoire					5.27	2.84
	Ghana	4.69	1.63	3.31	2.26		
	Liberia			6.22	1.88		
	Mali					4.38	1.18
	Senegal					3.61	2.11
	Togo	5.84	2.55				
Asia							
Eastern Asia	China					4.55	0.61
	Republic of Korea	6.24	0.30	5.00	-1.45	4.14	-3.63
South-eastern Asia	Indonesia	3.60	1.81	5.20	1.68	5.23	0.83
	Malaysia			4.88	0.96		
	Philippines			4.30	1.87	4.95	0.32
	Thailand			5.17	2.20	2.91	1.75
Southern Asia	Bangladesh	6.62	2.29	10.64	1.89		
	India	3.21	1.97	3.71	1.47		
	Iran (Islamic Republic of)			4.82	1.55	5.32	2.39
	Nepal	3.46	2.31	7.00	2.07		
	Pakistan			4.29	3.25		
	Sri Lanka	4.18	1.69	1.21	1.79		
Western Asia	Iraq	6.44	0.25	5.06	0.86	4.05	1.11
	Israel			2.70	-0.90		
	Syrian Arab Republic	4.86	2.13	4.02	2.69		
	Turkey	5.54	1.12	4.70	0.65		
Latin America							
Central America and	Costa Rica	4.91	2.38	3.13	1.69		
the Caribbean	Cuba	2.51	1.72	2.37	-1.14		
	Dominican Republic	5.80	1.38	8.32	0.29		
	El Salvador	3.68	3.62	2.86	0.67	2.86	0.67
	Guatemala	2.96	1.60	0.66	2.72		
	Haiti	4.02	1.05	1.53	1.37		
	Honduras	4.99	1.76	4.93	2.39	4.93	2.39
	Mexico	4.87	1.52	4.33	1.19	2.75	0.34
	Nicaragua	4.47	1.02				
	Panama	4.47	1.85	2.89	1.71	3.22	1.93
	Puerto Rico	4.18	-1.44	3.04	-0.68	1.61	-0.47
South America	Argentina	2.27	-0.84	2.27	-0.84	1.93	-1.24
	Bolivia					4.16	-0.13
	Brazil	5.09	0.57	4.35	-0.63	2.93	-0.71
	Chile	3.02	-0.61	2.78	-0.87	1.79	0.92
	Colombia	3.39	2.31	3.40	-1.20		
	Ecuador	4.46	2.49	4.55	0.85	3.73	0.67
	Guyana	8.85	0.33				
	Paraguay	3.11	2.41	3.84	1.62	2.77	1.71
	Peru	4.94	0.42	3.51	0.85	4.72	0.88
	Uruguay	0.71	0.25	1.05	-2.29		
	Venezuela	4.07	1.52	3.94	0.08	3.02	-0.09
B. Mean by region							
Africa		6.92	1.04	5.69	1.72	5.75	1.37
Asia		4.91	1.54	5.11	1.34	4.45	0.48
Latin America		4.13	1.21	3.51	0.28	3.11	0.53
Total		4.90	1.25	4.59	1.00	4.14	0.74
C. Median by region							
Africa		4.70	1.54	5.13	1.88	5.27	2.31
Asia		4.86	1.81	4.85	1.62	4.55	0.83
Latin America		4.18	1.52	3.27	0.48	2.93	0.67
Total		4.47	1.55	4.33	1.47	4.05	0.88

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Notes: Figures in Italics refer to estimates made from consecutive census that span two decades.
Median and mean values for the 1970s exclude Guatemala and Sri Lanka because of extreme values.

Figure IV. Median annual rate of growth of urban and rural areas by region, 1960s, 1970s and 1980s

Rural

Urban

Source: table 6.

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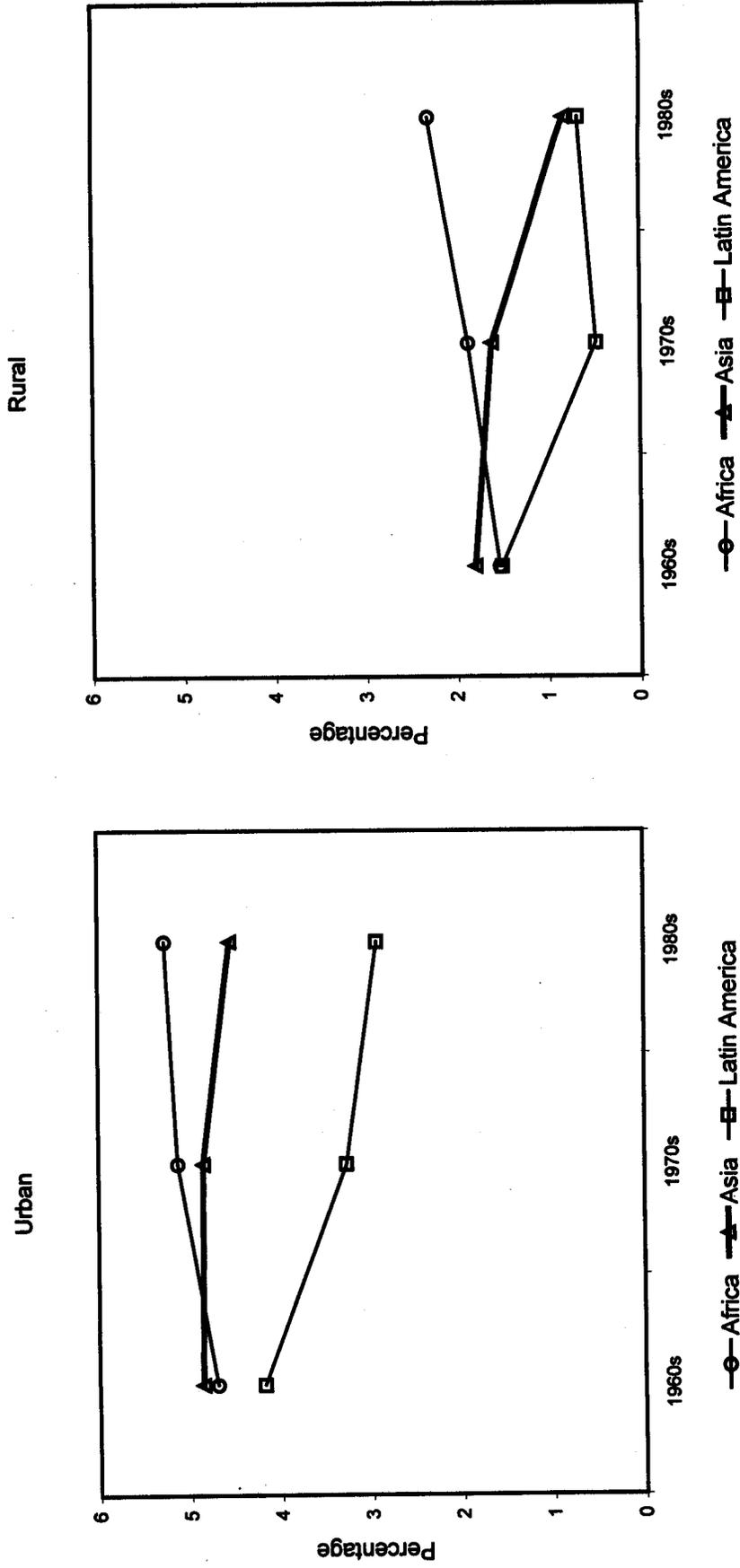
The small number of observations for Africa and Asia results in conclusions about trends in urban and rural growth that must be considered tentative. For Latin America, however, the sample size is much greater providing us with more confidence in the observed trends. This is particularly so for the seven of the eleven Latin American countries where data are available for all three decades. Negative rural growth rates can be observed for five of the nine countries in South America where we have data for the 1970s and for four of the eight countries where data is available for the 1980s. In some countries, such as Colombia during the 1970s, civil unrest in the countryside could have contributed to rural out-migration. Gilbert (1993) argues that the import-substitution polices that dominated Latin American development favored an urban oriented form of development that encouraged rural out-migration. As the development polices have changed to export oriented growth policies, the advantages of urban location have diminished, easing pressure on rural out-migration. This may help to explain the slight increase in rural growth rates than occurred between the 1970s and the 1980s.

As noted earlier, high levels of population growth have not resulted in rates of urbanization that are unusually high in historical terms. However, the high levels of urban growth experienced in the last three decades are without historical precedent and are directly related to high rates of population growth at the national level. In his well known analysis of urbanization in the 1950s and 1960s, Preston (1979) found that the rate of growth of the population at the national level accounted for most of the urban growth. His analysis, which statistically controlled for levels of economic growth, regional location and political structure, also found that the higher the level of population growth the stronger the relationship with urban growth.

In figure V the intercensal rate of population growth is plotted against the annual rate of growth of urban areas. In order to more clearly see the relationship, Bangladesh (1970s), Botswana (1960s and 1970s), Libya (1960s and 1970s) and United Republic of Tanzania (1970s) are omitted from the figure either because they had annual rates of population growth that exceeded four per cent (Botswana and Libya in the 1970s), annual growth in urban populations that exceeded 10 per cent (Botswana in 1960s, and Bangladesh and United Republic of Tanzania in 1970s) or both (Libya in the 1960s).

Figure V. Annual population growth rates and annual urban growth rates, 1960s, 1970s and 1980s

● 1960s ■ 1970s ▲ 1980s
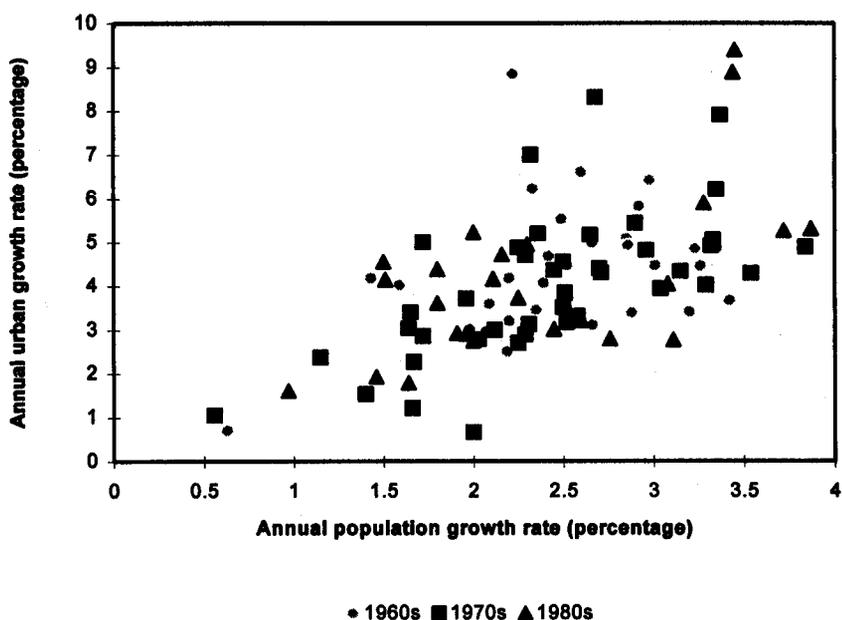
Sources: table 5 and table 6.

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The data displayed in figure V clearly show the positive relationship between national population growth rates and urban growth rates. Urban growth rates have been high in the developing world largely because of high rates of growth occurring through natural increase. During the last decade fertility declines in Latin America and Asia have contributed to lower population growth rates. These declines, incorporated in lower rates of natural increase, typically occur earlier for urban populations than they do for rural populations. Hence lower population growth rates are indicative of processes that lead to reduced urban growth through reducing natural increase.

However, the relationship is clearly not completely deterministic. Declines in population growth are also related to process of economic development which, in turn, can impact upon levels of rural-urban migration and therefore positively affect urban growth rates. The data displayed in figure V show several cases where levels of urban growth are much higher than expected given the levels of population growth. For example, annual rates of population growth in the Republic of Korea were only 1.7 per cent in the 1970s and 1.5 per cent in the 1980s. However, during the two decades of the 1970s and 1980s annual rates of urban growth were 5.0 and 4.1 per cent, respectively. The rapid levels of urban growth experienced in the Republic of Korea during this period of relatively low levels of population growth can be partly attributed to dynamic urban-centered economic development. During the 1970s and 1980s rural areas lost population in the Republic of Korea, with a doubling of migration rates, most of it rural to urban, between 1961-1966 and 1975-1980. In the latter period, 23.2 per cent of the population aged 5 and over changed their usual place of residence (United Nations, 1988).

C. RATES OF NATURAL INCREASE

Another reason why national population growth rates are imperfectly associated with urban growth rates is that even in situations of lower urban than rural fertility, rates of natural increase can be higher in urban areas than in rural areas. In the demographic transition declines in fertility typically fall in urban areas before they do in rural areas. However, this does not mean that urban rates of natural increase are always lower than those of rural areas. In table 7 annual rates of natural increase are shown for urban and rural areas. Rates of natural increase are calculated as the difference between the population growth rates and the migration/reclassification rates.

For the decade of the 1960s, urban rates of natural increase were generally higher than those of rural areas for African and Asian countries and lower in Latin American countries. During the decade of the 1970s rates of natural increase in the Asian and African countries increased for both urban and rural areas, but the increase were generally greater for rural areas resulting in rural rates of natural increase exceeding those of urban areas in many countries. In Latin America, during the 1970s rates of natural increase declined in both rural and urban areas of most countries and during the 1980s declines in the rates continued with urban rates much below those of rural areas. In the 1980s, in Latin American and African countries, urban rates of natural increase are mostly below rural rates, while in the Asian group of countries the reverse situation is observed.

These general regional patterns can also be observed in figure VI where the median country rates of natural increase are plotted for each of the major regions during the three decades. Although it must be stressed that the African and Asian group of countries contain only a few countries that have data for all three time periods and hence inferring trends from the data must be undertaken with caution, the trends do appear different in each of the three regions. In Africa, urban rates of natural increase rose from the 1960s into the 1970s before declining in the 1980s. Rural rates of natural increase rose consistently over the three decades. In Asia, urban rates also rose in the 1970s before declining in the 1980s, but the same patterns can be observed for rural areas. Finally in Latin America, both rural and urban rates declined over the three decades.

TABLE 7. ANNUAL RATES OF NATURAL INCREASE IN URBAN AND RURAL AREAS, AND PERCENTAGE DIFFERENCE BETWEEN RURAL AND URBAN RATES, 1960s, 1970s AND 1980s

Region, subregion and country		1960s			1970s			1980s		
		Urban	Rural	Difference	Urban	Rural	Difference	Urban	Rural	Difference
A. Annual rate of natural increase by country (percentage)										
Africa										
Eastern Africa	Kenya				3.37	3.41	-1.17			
	United Republic of Tanzania				4.80	3.17	51.42			
	Zimbabwe				2.17	3.11	-30.23	2.91	3.45	-15.65
Northern Africa	Egypt	2.06	2.17	-5.07	2.06	2.17	-5.07	2.57	2.91	-11.68
	Libya Arab Jamahiriya	5.94	3.90	52.31	4.53	4.32	4.86			
	Morocco	2.55	2.32	9.91	2.43	2.89	-15.92			
	Sudan				3.78	3.86	-2.07			
	Tunisia	2.25	2.39	-5.86	2.29	2.76	-17.03			
Southern Africa	Botswana	3.55	1.07	231.78	4.49	5.09	-11.79	5.07	3.52	44.03
	South Africa	2.53	3.80	-33.42						
Western Africa	Burkina Faso							4.00	3.44	16.28
	Cote d'Ivoire							3.98	3.59	10.86
	Ghana	2.74	2.32	18.10	2.53	2.61	-3.07			
	Liberia				4.07	3.30	23.33			
	Mali							2.21	1.71	29.24
	Senegal							2.65	2.67	-0.75
	Togo	3.46	2.86	20.98						
Asia										
Eastern Asia	China							1.28	1.59	-19.50
	Republic of Korea	2.48	2.35	5.53	2.19	1.36	61.03	1.86	0.88	111.36
South-eastern Asia	Indonesia	2.46	2.03	21.18	2.57	2.33	10.30	2.15	1.98	8.59
	Malaysia				2.21	2.30	-3.91			
	Philippines				2.57	2.80	-8.21	2.36	2.32	1.72
	Thailand				2.18	2.74	-20.44	1.61	2.04	-21.08
Southern Asia	Bangladesh	2.74	2.61	4.98	3.65	2.81	29.89			
	India	2.21	2.21	0.00	2.04	1.94	5.15			
	Iran (Islamic Republic of)				2.74	3.16	-13.29	3.75	4.05	-7.41
	Nepal	2.32	2.35	-1.28	2.73	2.31	18.18			
	Pakistan				3.56	3.53	0.85			
	Sri Lanka	2.10	2.23	-5.83	1.43	1.73	-17.34			
Western Asia	Iraq	3.42	2.75	24.36	3.40	3.30	3.03	3.04	3.21	-5.30
	Israel				2.21	2.60	-15.00			
	Syrian Arab Republic	3.35	3.17	5.68	3.18	3.40	-6.47			
	Turkey	2.12	2.71	-21.77	2.24	2.37	-5.49			
Latin America										
Central America	Costa Rica	2.80	3.68	-23.91	2.16	2.43	-11.11			
and the Caribbean	Cuba	1.99	2.48	-19.76	1.04	1.36	-23.53			
	Dominican Republic	3.03	2.91	4.12	2.93	2.53	15.81			
	El Salvador	2.88	3.77	-23.61	1.51	1.92	-21.35	1.51	1.92	-21.35
	Guatemala	1.85	2.20	-15.91	1.66	2.19	-24.20			
	Haiti	1.87	1.54	21.43	1.33	1.42	-6.34			
	Honduras	2.52	2.75	-8.36	3.02	3.51	-13.96	3.02	3.51	-13.96
	Mexico	3.31	3.45	-4.06	3.07	3.35	-8.36	1.89	2.25	-16.00
	Nicaragua	2.54	2.54	0.00						
	Panama	2.66	3.32	-19.88	1.99	2.57	-22.57	2.26	2.98	-24.16
	Puerto Rico	1.52	1.40	8.57	1.67	1.62	3.09	1.00	0.91	9.89
South America	Argentina	1.58	2.03	-22.17	1.58	2.03	-22.17	1.41	1.76	-19.89
	Bolivia							2.19	2.07	5.80
	Brazil	2.63	3.14	-16.24	2.29	2.79	-17.92	1.83	2.15	-14.88
	Chile	1.98	2.02	-1.98	2.04	2.01	1.49	1.67	1.49	12.08
	Colombia	2.58	3.24	-20.37	1.69	1.62	4.32			
	Ecuador	3.01	3.44	-12.50	2.40	2.63	-8.75	2.16	2.37	-8.86
	Guyana	2.51	2.29	9.61						
	Paraguay	2.06	3.02	-31.79	2.02	2.85	-29.12	2.78	3.45	-19.42
	Peru	2.87	2.92	-1.71	2.38	2.74	-13.14	1.96	2.62	-25.19
	Uruguay	0.65	0.51	27.45	0.62	0.19	226.32			
	Venezuela	3.21	3.61	-11.08	2.98	3.32	-10.24	2.41	2.70	-10.74
B. Mean by region (percentage)										
Africa		3.14	2.60	36.09	3.32	3.34	-0.61	3.34	3.04	10.33
Asia		2.58	2.49	3.65	2.59	2.58	2.55	2.29	2.30	9.77
Latin America		2.38	2.68	-7.72	2.02	2.27	0.96	2.01	2.32	-11.28
Total		2.59	2.62	4.20	2.53	2.63	1.11	2.43	2.50	-0.22
C. Median by region (percentage)										
Africa		2.65	2.36	14.01	3.37	3.17	-3.07	2.91	3.44	10.86
Asia		2.46	2.35	4.98	2.57	2.60	-3.91	2.15	2.04	-5.30
Latin America		2.54	2.91	-11.08	2.02	2.43	-11.11	1.96	2.25	-14.88
Total		2.54	2.58	-1.85	2.29	2.63	-6.47	2.21	2.37	-8.86

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

Notes: Figures in Italics refer to estimates made from consecutive census that span two decades.

Percentage differences for mean and median values refer to the mean and median differences of each the difference calculated for each country.

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Figure VI. Median annual rates of natural increase for urban and rural areas by region, 1960s, 1970s and 1980s

A. 1960s

B. 1970s

C. 1980s

Urban Rural
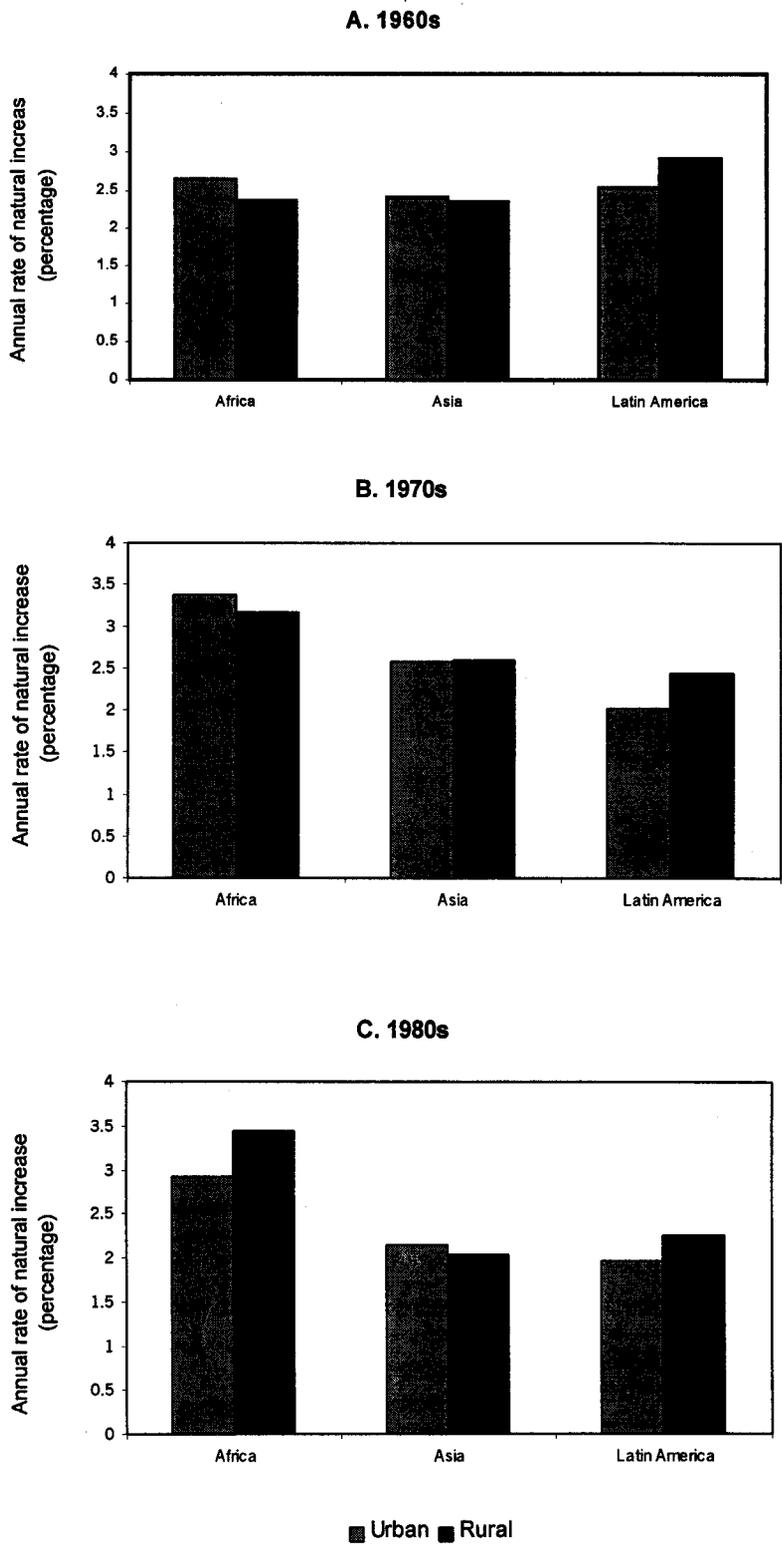
Source: table 7.

The results for some of the individual countries help illustrate some of these patterns. In Asia there are three countries where data is available for all three decades (see table 7). In Indonesia, urban rates of natural increase in the 1960s were 21 per cent higher than rural rates. Rates increased for both areas in the 1970s, but increased more for rural areas than urban areas resulting in the difference between the rates declining to 10 per cent. The difference narrowed even further in the 1980s, when the declines in rates of natural increase were greater for urban than for rural areas. A positive difference also existed for the Republic of Korea over the three decades. However, in the case of the Republic of Korea the difference increased, with urban rates of natural increase being 6 per cent higher than rural rates in the 1960s, 61 per cent higher in the 1970s and 111 per cent higher in the 1980s. For all three decades rates fell in both rural and urban areas, but fell much more rapidly in rural areas than in urban areas. Finally, in Iraq positive differences in the 1960s and 1970s gave way to a slight negative difference in the 1980s as a result of urban rates of natural increase falling more rapidly than rural rates.

In Botswana, the only African country where data are available for all three decades, the differences between rural and urban rates of natural increase fluctuate wildly from decade to decade, with urban rates being 232 per cent higher than rural rates in the 1960s, 12 per cent lower in the 1970s and 44 per cent higher in the 1980s. It is very likely that patterns of international migration in and out of Botswana (primarily involving contract labour movement to and from South Africa) are related to these fluctuations.

In Latin American countries the patterns for those countries for which data are available for all three decades appear to be one of relative stability, with urban rates remaining below those of rural rates in a situation of declining rates of natural increases for both urban and rural areas. For example, in Brazil during the 1960s urban rates of natural increase were 16 per cent below those of rural areas. The difference was 18 per cent in the 1970s and 15 per cent in the 1980s. Over the three decade period, urban rates of natural increase declined from 2.6 to 1.8 per cent, while rural rates declined from 3.1 to 2.2 per cent.

The data on rates of natural increase obtained from the estimation procedure undertaken for this analysis clearly show the importance of natural increase in both urbanization and urban growth. The generally lower fertility of urban women compared to rural women has led many observes to assume that urbanization must result from migration from rural to urban areas. It is also often assumed that high rates of urban growth must also stem from migration. However, rates of natural increase are often higher in urban areas than they are in rural areas. Although, rates are more likely to be higher in early stages of economic development when the fertility of urban and rural women has not yet diverged, or possibly in later stages of development when the fertility of rural women has declined to levels similar to that of urban women, higher urban natural increase can occur across a range of development contexts.

The confusion about the role of natural increase in urbanization and urban growth stems, in part, from drawing conclusions based on fertility rates rather than birth rates. Although obviously related, fertility rates index the experience of cohorts of women and the usual measures, such as the Total Fertility Rate (TFR), are not affected by the age structure of populations. Birth rates are directly related to age structure. The most common measure, the Crude Birth Rate (CBR), relates the number of births to the size of the population. In a situation where the TFR in two populations of the same size were the same, the population with the greatest number of women in the child bearing ages would have the higher CBR and, assuming the same Crude Death Rate (CDR), the higher rate of natural increase.

Urban population typically have a higher proportion of young adults. Table 8 presents summary data on the mean and median proportions of the rural and urban populations who are female aged 15-49. These proportions are calculated from the census data that make up the basic input for the estimation of the components of urban growth. In all major regions a greater proportion of urban populations than rural populations are females in the childbearing ages. For all countries combined, at the start of the 1960s the median percentage of women 15-49 in the urban population was 13.2 per cent higher than the median percentage in the rural areas. In the round of censuses at the start of the 1970s the median difference had grown to 14.8 per cent and increased to 20.2 per cent at the start of the 1980s.

Region	1960s			1970s			1980s		
	Urban	Rural	Difference	Urban	Rural	Difference	Urban	Rural	Difference
A. Mean percentage of women aged 15-49									
Africa	22.69	22.56	0.68	22.97	22.15	3.93	24.41	22.61	8.35
Asia	22.29	22.26	0.13	23.01	21.55	6.86	26.06	22.54	15.32
Latin America	25.73	20.99	22.72	25.73	20.56	25.33	26.22	21.11	24.54
Total	24.27	21.62	12.73	24.15	21.28	13.94	25.71	21.87	17.95
B. Median percentage of women aged 15-49									
Africa	22.81	22.95	0.96	23.13	22.10	3.01	23.64	22.81	1.84
Asia	22.12	22.11	1.28	23.25	21.68	3.75	27.02	22.81	13.79
Latin America	25.29	20.99	22.41	25.73	20.46	25.28	26.28	20.81	24.72
Total	24.46	21.29	13.18	24.43	21.28	14.77	25.96	21.50	20.19

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Notes: Percentage differences for mean and median values refer to the mean and median differences of each the difference calculated for each country.
Percentages refer to the census at the commencement of intercenal period.

However, there are major regional differences. For the African countries there is relatively little difference between rural and urban areas in the percentages of their respective populations that are women in childbearing ages. There has also been relatively little change in the extent of the difference over the three decades. In Latin America, the differences are large over the three decades, with the percentage of women of childbearing ages in the urban population being constantly over 20 per cent higher than in rural areas at the start of each of the three intercensal periods. For Asia, differences between urban and rural areas are small at the start of the 1960s and 1970s, but increased to almost 14 per cent at the start of the 1980s.

Higher proportions of women in childbearing ages in a population will put upward pressure on crude birth rates and can help contribute to rates of natural increase in urban areas that are higher than might be expected given urban levels of fertility. The case of the Republic of Korea provides an example of how population structure can contribute to higher levels of natural increase in urban areas compared to rural areas. As noted previously, urban rates of natural increase are higher in urban than in rural areas and the differences have become progressively greater over the last three decades. Fertility declines in the Republic of Korea started to occur in the 1960s, and by the early 1980s it had reached a replacement level (Kim, 1993). The fertility declines, although initially declining in urban areas, have contributed to increases in the percentage of the population at young adult ages in both rural and urban areas. However, the increases in the population of young adult ages have been much greater for urban than for rural areas. In 1960, 25.1 per cent of the urban population were females aged 15-49, in 1990 this had increased to 30.2 per cent. The respective percentages for rural areas are 22.1 and 22.8 per cent. Fertility rates are now low for both urban and rural areas of the Republic of Korea. However, the younger age structure of urban areas has helped contribute to higher natural increase in those areas.

The younger age structure of urban areas, compared to rural areas, can also lead to higher rates of natural increase in urban areas through contributing to lower CDR of the urban population. The reason why urban populations in currently developing countries often have higher proportions of their populations at young adult ages is related to two factors. The first, as noted above, is that the fertility transitions that commenced in many developing countries over the last three decades started in urban areas. This means that the narrowing of the base of the age pyramid occurred in urban areas before rural areas.

The second factor is perhaps more important in contributing to an urban age structure with high proportions of young adults. As shown in a later section, net migration to urban areas is concentrated among young adults. This means a net gain of young adults to urban areas and a net loss to rural areas. Migrants contribute to the natural increase of urban areas both through the children they bear during the period they are classified as migrants and through their ongoing fertility after they become 'urban natives'. For example, in this analysis those persons in the urban population who migrated into urban areas in an intercensal period are treated as urban natives for subsequent intercensal periods.

D. RATES OF NET MIGRATION

With the exception of two cases, Guatemala and Sri Lanka in the 1970s, urban areas experienced net in-migration during the three decades (see table 9). In Asia the net urban in-migration rates are slightly above two per cent for all three decades, with a small increase observed from the 1960s to the 1970s. For the African countries, median rates of urban in-migration were also approximately two per cent for the three decades. Only for the Latin American countries does there appear to be a change over time, with reductions in the median in-migration rates from 1.6 per cent in the 1960, to 1.3 per cent in the 1970s and 1.0 per cent in the 1980s. The declines can be observed for most of the Latin American countries for which data spanning the three decades are available.

Brazil provides one example of the trend of declining rates of urban net in-migration. Brazil is the most populated Latin American country and Sao Paulo and Rio de Janeiro are the third and fifteenth largest cities in the world, with 16 and 10 million inhabitants, respectively (United Nations, 1995). In order to modify the population distribution and alleviate population pressure on the coastline and the poor Northeastern region, the Government of Brazil has over the past several decades taken several actions, such as the movement of the capital to Brasilia and the building of the Trans-Amazon highway, and adopted migration polices aimed at reducing migration flows to metropolitan areas (United Nations, 1988). Many medium-sized cities are now growing faster than the metropolitan regions, whose share of the total population is declining very rapidly (United Nations, 1993a). It appears that the migration policies have helped somewhat in redirecting urban growth.

However, the major factor that appears to be associated with reduced rates of in-migration to urban areas is the high rates of urbanization already achieved in Brazil. The data in table 9 clearly show that net rural out-migration rates for Brazil did not decline over the three decades. The rates were 2.6 per cent in the 1960s, 3.0 per cent in the 1970s and 2.9 per cent in the 1980s. Brazilians continued to leave rural areas for the cities, but their number in relation to the increasing number of urban residents became progressively smaller.

A similar situation can be seen for several other Latin American countries with high rates of urbanization. For example, Venezuela is one of the most highly urbanized countries of Latin America with almost 80 per cent of the population living in urban areas in 1980. Over the three decades from the 1960s to the 1980s there was a slight decrease in the already low rates of net in-migration into urban areas. Over the same period, however, there continued to be very high rates of net rural out-migration, with the annual rates of out-migration exceeding 2.8 per cent in each of the three decades.

However, for some Latin American countries lower rates of urban in-migration over time also appear to be related to reduced rates of rural out-migration. In Chile the net urban annual in-migration rate declined from 0.7 per cent in the 1970s to only 0.1 per cent in the 1980s. Over the same period, the net rural out-migration rate declined from 2.9 to 0.6 per cent. A similar trend can be observed for Puerto Rico and, to a slightly lesser extent, Mexico from the 1970s and 1980s. Therefore, the experience of Latin American countries during the period is somewhat mixed. Urban in-migration generally declined as the rural populations became progressively smaller relative to the urban populations. In some countries, rural out-migration rates remained high while in others they have declined.

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Region, subregion and country		1960s		1970s		1980s	
		Urban	Rural	Urban	Rural	Urban	Rural

A. Annual net migration rate by country (percentage)

Region, subregion and country		1960s Urban	1960s Rural	1970s Urban	1970s Rural	1980s Urban	1980s Rural
Africa							
Eastern Africa	Kenya			4.54	-0.69		
	United Rep. of Tanzania			7.79	-0.89		
	Zimbabwe			3.26	-0.88	3.00	-1.15
Northern Africa	Egypt	*0.95*	*-0.69*	*0.95*	*-0.69*	0.24	-0.18
	Libya Arab Jamahiriya	7.95	-6.44	1.96	-4.54		
	Morocco	1.52	-0.75	1.96	-1.30		
	Sudan			1.12	-0.27		
	Tunisia	2.44	-2.01	0.88	-0.93		
Southern Africa	Botswana	12.19	-0.89	5.66	-0.99	8.27	-4.20
	South Africa	0.90	-0.80				
Western Africa	Burkina Faso					5.40	-0.57
	Cote d'Ivoire					1.29	-0.75
	Ghana	1.96	-0.69	0.90	-0.41		
	Liberia			2.15	-1.15		
	Mali					2.17	-0.53
	Senegal					0.96	-0.56
	Togo	2.38	-0.31				
Asia							
Eastern Asia	China					3.27	-0.98
	Republic of Korea	3.77	-2.05	2.82	-2.81	2.28	-4.52
South-eastern Asia	Indonesia	1.13	-0.22	2.63	-0.66	3.08	-1.14
	Malaysia			2.67	-1.34		
	Philippines			1.73	-0.93	2.59	-2.00
	Thailand			2.98	-0.54	1.29	-0.28
Southern Asia	Bangladesh	3.87	-0.31	6.98	-0.92		
	India	1.00	-0.24	1.67	-0.47		
	Iran (Islamic Republic of)			2.08	-1.61	1.57	-1.66
	Nepal	1.14	-0.05	4.26	-0.24		
	Pakistan			0.73	-0.28		
	Sri Lanka	2.08	-0.54	-0.22	0.06		
Western Asia	Iraq	3.02	-2.50	1.67	-2.44	1.01	-2.10
	Israel			0.49	-3.50		
	Syrian Arab Republic	1.51	-1.04	0.84	-0.70		
	Turkey	3.42	-1.58	2.46	-1.72		
Latin America							
Central America	Costa Rica	2.11	-1.30	0.98	-0.73		
and the Caribbean	Cuba	0.52	-0.76	1.33	-2.50		
	Dominican Republic	2.78	-1.53	2.39	-2.24		
	El Salvador	0.80	-0.52	*1.35*	*-1.25*	1.35	-1.25
	Guatemala	1.11	-0.60	-1.00	0.53		
	Haiti	2.16	-0.48	0.20	-0.05		
	Honduras	2.49	-0.99	*1.92*	*-1.32*	1.92	-1.32
	Mexico	1.56	-1.92	1.26	-2.16	0.86	-1.91
	Nicaragua	1.93	-1.52				
	Panama	1.81	-1.47	0.89	-0.87	0.95	-1.05
	Puerto Rico	2.66	-2.84	1.36	-2.30	0.62	-1.38
South America	Argentina	*0.68*	*-2.86*	*0.68*	*-2.86*	0.52	-3.00
	Bolivia					1.97	-2.20
	Brazil	2.46	-2.57	2.05	-3.02	1.10	-2.86
	Chile	1.03	-2.63	0.74	-2.87	0.12	-0.57
	Colombia	0.81	-0.93	1.71	-2.82		
	Ecuador	1.45	-0.94	2.15	-1.78	1.57	-1.70
	Guyana	6.34	-1.96				
	Paraguay	1.05	-0.61	1.81	-1.23	1.95	-1.74
	Peru	2.07	-2.50	1.13	-1.88	0.81	-1.74
	Uruguay	0.06	-0.30	0.43	-2.48		
	Venezuela	0.86	-2.80	0.97	-3.24	0.61	-2.78

B. Mean annual net migration rate by region (percentage)

Region	1960s Urban	1960s Rural	1970s Urban	1970s Rural	1980s Urban	1980s Rural
Africa	3.79	-1.57	2.83	-1.16	3.05	-1.13
Asia	2.33	-0.95	2.43	-1.30	2.16	-1.81
Latin America	1.75	-1.53	1.30	-1.98	1.10	-1.81
Total	2.32	-1.40	2.06	-1.55	1.88	-1.63

C. Median annual net migration rate by region (percentage)

Region	1960s Urban	1960s Rural	1970s Urban	1970s Rural	1980s Urban	1980s Rural
Africa	2.17	-0.78	1.96	-0.89	2.17	-0.57
Asia	2.08	-0.54	2.27	-0.93	2.28	-1.66
Latin America	1.56	-1.47	1.30	-2.20	0.95	-1.74
Total	1.87	-0.97	1.71	-1.25	1.35	-1.38

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Notes: Figures in Italics refer to estimates made from consecutive census that span two decades.
Median and mean values for the 1970s exclude Guatemala and Sri Lanka because of extreme values.

The same pattern of declining urban in-migration rates and stable, or increasing, rural out-migration rates can also be observed in the relatively highly urbanized country of the Republic of Korea (almost 60 per cent urban at the start of the 1980s). Annual net urban in-migration rates declined from 3.8 per cent in the 1960s to 2.8 per cent in the 1980s. Over the same period, however, net rural out-migration more than doubled from 2.0 per cent to 4.5 per cent. The population of rural areas in the Republic of Korea over this period was declining in absolute terms (United Nations, 1988), and the number of net in-migrants to urban areas increased from 3.7 million in the 1960s to 6.1 million during the 1980s. But because of the rapidly increasing base of the urban population, net rural-urban migration was decreasing in relative terms.

A different situation can be observed for Indonesia, an Asian country with a relatively low level of urbanization. Urban net in-migration rate almost tripled from the 1960s to the 1980s while the rural out-migration rates increased over five times during the same period, from a low 0.2 per cent in the 1960s to 1.1 per cent in the 1980s. The large rural population of Indonesia is increasingly supplying migrants to the relatively small urban population, resulting in rising migration rates for both areas. Pasay (1994) argues that greater urban employment opportunities and higher wages in urban areas are generating large rural-urban migration flows in Indonesia.

E. RELATIVE SIZE OF NATURAL INCREASE AND NET MIGRATION/RECLASSIFICATION

The relative size of natural increase and net migration rates in rural and urban areas provide an indication of the importance of each of these factors in population change. In table 10 the net migration/reclassification rate, expressed as a percentage of the rate of natural increase, is shown for urban and rural areas. A figure of 50 per cent indicates that the annual net migration/reclassification rate is one-half of the annual rate of natural increase, while a figure of 200 indicates that the migration/reclassification rate is twice that of natural increase.

An examination of the median country values shows that for the Latin American countries the relative size of the migration and natural increase rates in urban areas underwent little change from the 1960s to the 1980s. In the 1960s, the median for all Latin American countries of the rate of migration/reclassification in relation to natural increase in urban areas was 60 per cent, i.e. the annual rate of net in-migration was 60 per cent of the annual rate of natural increase. This increased slightly to 66 per cent in the 1970s before falling back to 60 per cent in the 1980s. However, migration from rural areas gained in importance relative to natural increase, increasing from almost 53 per cent in the 1960s to over 70 per cent in the 1970s and 1980s. This means relative to natural increase, migration played a larger role in rural population change in the 1970s and 1980s than in the 1960s for the sample of Latin American countries represented in this analysis.

The trends in individual countries in Latin America vary considerably with, in urban areas, migration rates falling relative to rates of natural increase in Brazil, Peru and Puerto Rico, increasing in Ecuador and Paraguay, and remaining relatively stable in Mexico and Venezuela. For rural areas the situation is much clearer with consistent increases in the level of migration rates relative to natural increases in almost all countries where data are available.

For the African and Asian countries in the analysis, the relative size of the migration/reclassification rates are higher than those for Latin America for urban areas and lower for rural areas. In Asia there appears to be a trend of an increase in the relative size of the migration/reclassification component for both rural and urban areas. For example, the median percentage increased from 88 to 110 per cent for urban areas and from 24 to 62 per cent for rural areas over the three decades. In contrast, the results from the limited number of African countries suggest decreases in the levels of migration relative to natural increase in rural areas and perhaps slight increases in urban areas.

TABLE 10. NET MIGRATION/RECLASSIFICATION RATE FOR URBAN AND RURAL AREAS, 1960S, 1970S AND 1980S

Region, subregion and country		1960s		1970s		1980s	
		Urban	Rural	Urban	Rural	Urban	Rural
A. Net migration/reclassification rate by country (percentage)							
Africa							
Eastern Africa	Kenya			134.72	20.23		
	United Rep.of Tanzania			162.29	28.08		
	Zimbabwe			150.23	28.30	103.09	33.33
Northern Africa	Egypt	*46.12*	*31.80*	*46.12*	*31.80*	9.34	6.19
	Libya Arab Jamahiriya	133.84	165.13	43.27	105.09		
	Morocco	59.61	32.33	80.66	44.98		
	Sudan			29.63	6.99		
	Tunisia	108.44	84.10	38.43	33.70		
Southern Africa	Botswana	343.38	83.18	126.06	19.45	163.12	119.32
	South Africa	35.57	21.05				
Western Africa	Burkina Faso					135.00	16.57
	Cote d'Ivoire					32.41	20.89
	Ghana	71.53	29.74	35.57	15.71		
	Liberia			52.83	34.85		
	Mali					98.19	30.99
	Senegal					36.23	20.97
	Togo	68.79	10.84				
Asia							
Eastern Asia	China					255.47	61.64
	Republic of Korea	152.02	87.23	128.77	206.62	122.58	513.64
South-eastern Asia	Indonesia	45.93	10.84	102.33	28.33	143.26	57.58
	Malaysia			120.81	58.26		
	Philippines			67.32	33.21	109.75	86.21
	Thailand			136.70	19.71	80.12	13.73
Southern Asia	Bangladesh	141.24	11.88	191.23	32.74		
	India	45.25	10.86	81.86	24.23		
	Iran (Islamic Republic of)			75.91	50.95	41.87	40.99
	Nepal	49.14	2.13	156.04	10.39		
	Pakistan			20.51	7.93		
	Sri Lanka	99.05	24.22	-15.38	-3.47		
Western Asia	Iraq	88.30	90.91	49.12	73.94	33.22	65.42
	Israel			22.17	134.62		
	Syrian Arab Republic	45.07	32.81	26.42	20.59		
	Turkey	161.32	58.30	109.82	72.57		
Latin America							
Central America	Costa Rica	75.36	35.33	45.37	30.04		
and the Caribbean	Cuba	26.13	30.65	127.88	183.82		
	Dominican Republic	91.75	52.58	81.57	88.54		
	El Salvador	27.78	13.79	*89.40*	*65.10*	*89.40*	*65.10*
	Guatemala	60.00	27.27	-60.24	-24.20		
	Haiti	115.51	31.17	15.04	3.52		
	Honduras	98.81	36.00	*63.58*	*37.61*	*63.58*	*37.61*
	Mexico	47.13	55.65	41.04	64.48	45.50	84.89
	Nicaragua	75.98	59.84				
	Panama	68.05	44.28	44.72	33.85	42.04	35.23
	Puerto Rico	175.00	202.86	81.44	141.98	62.00	151.65
South America	Argentina	*43.04*	*140.89*	*43.04*	*140.89*	36.88	170.45
	Bolivia					89.95	106.28
	Brazil	93.54	81.85	89.52	108.24	60.11	133.02
	Chile	52.02	130.20	36.27	142.79	7.19	38.26
	Colombia	31.40	28.70	101.18	174.07		
	Ecuador	48.17	27.33	89.58	67.68	72.69	71.73
	Guyana	252.59	85.59				
	Paraguay	50.97	20.20	89.60	43.16	70.14	50.43
	Peru	72.13	85.62	47.48	68.61	41.33	66.41
	Uruguay	9.23	58.82	69.35	1305.26		
	Venezuela	26.79	77.56	32.55	97.59	25.31	102.96
B. Mean (percentage)							
Africa		108.41	57.27	81.80	33.56	82.48	35.47
Asia		91.93	36.57	92.07	55.29	112.32	119.88
Latin America		73.40	63.15	66.04	155.40	54.32	85.70
Total		85.16	55.62	78.55	91.64	76.66	81.54
C. Median (percentage)							
Africa		70.16	32.06	52.83	28.30	98.19	20.97
Asia		88.30	24.22	92.10	32.98	109.75	61.64
Latin America		60.00	52.58	66.47	78.58	60.11	71.73
Total		68.42	35.66	75.91	43.16	63.58	61.64

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Notes: Figures in Italics refer to estimates made from consecutive census that span two decades.
Median and mean values for the 1970s exclude Guatemala and Sri Lanka because of extreme values.

For both the Latin American and Asian countries it is clear that as rural populations decrease in size relative to urban areas, and as rates of natural increase fall in rural areas, the net out-migration to urban areas begins to play a much greater role in rural population growth. This is most apparent for the set of Asian countries, where it appears that the attraction of urban employment opportunities has contributed to increased flows of rural to urban migration in a situation of rapidly decreasing rates of natural increase. In Latin America, overall the levels of out-migration from rural areas seem to have stabilized in the decade of the 1980s, increasing in some countries and declining in others, but natural increase has continued to decline in rural areas resulting in an increased role of migration in rural population growth. For Africa, trends are harder to establish because of the limited number of countries available for analysis, but it appears that the relative contribution of migration to rural population growth has declined primarily because of the increased rural rates of natural increase. In the following chapter, a more detailed analysis of the relative contribution of migration/reclassification and natural increase to urban growth.

IV. COMPONENTS OF URBAN GROWTH

A. COUNTRY ESTIMATES

The relative contribution of natural increase and migration/reclassification to urban growth can be expressed in percentage terms by dividing the respective rates by the urban growth rate. These estimates are shown in table 11. Focusing first on the percentage of growth attributable to internal migration and reclassification, it is clear that there is great variability among the countries covered by the estimates available: for the 1960s estimates vary from 9 to 77 per cent, and for the 1970s the range is from below zero to 66 per cent. In the cases of Guatemala and Sri Lanka, there appears to have been negative net out migration from urban to rural areas in the 1970s, perhaps partly because of internal civil disturbances in those countries during the period. This interpretation is supported by the high rates of net loss through migration at older ages in these two countries. For the 1980s estimates of the contribution of migration reclassification range from 6 per cent to 75 per cent.

Africa

In Africa during the 1960s, the contribution of migration/reclassification to urban growth was lowest in South Africa and Egypt, accounting for 26 per cent of growth in the former and 31 per cent in the latter. In Botswana, migration/reclassification resulted in 77 per cent of urban growth. As described previously, however, the urban population in Botswana during this period was very small and rural out-migration rates of less than 1 per cent were sufficient for very rapid urban growth. The cases of South Africa and Egypt are more interesting. South Africa, the most industrialized country on the African continent, had in place strict pass controls during the period of apartheid that effectively limited the movement of the majority of the population from rural to urban areas (Gulger, 1993).

The estimate for Egypt spans two decades, being based on the 1960 and 1976 census. During this period the growth rate of the urban population was 3 per cent, the lowest among the African countries considered. The contribution of internal migration to internal growth was 31 per cent, a large decline from the 65 per cent of urban growth between 1935 and 1965 that had been attributed to internal migration (Egypt, Ministry of Development, State Ministry for Housing and Land Reclamation, 1982). The most likely causes of this decline were economic stagnation and large-scale international out-migration. In the decade from 1976 to 1986, the urban growth rate decreased slightly to 2.8 per cent and natural increase accounted for 92 per cent of urban growth, while the urban in-migration rate was an extremely low 0.2 per cent.

In the 1970s, four of the five countries in Africa where data are available for the 1960s and 1970s experienced declines in the contribution of net migration/reclassification to urban growth. Makannah (1988), using a simple methodology, also reports declines over the same period in the contribution of migration to urban growth in four of the five West African cities that he analyzed. In his more detailed analysis for Ghana, he points to the high level of natural increase contributing to the limited role of migration in urban growth in that country. As seen in the previous section, rates of natural increase in urban areas did appear to increase in several countries in this region in the 1970s.

TABLE 11. PER CENT OF URBAN GROWTH ATTRIBUTED TO NATURAL INCREASE AND NET MIGRATION, 1960s, 1970s AND 1980s

Region, subregion and country		1960s Natural increase	1960s Net Migration	1970s Natural increase	1970s Net Migration	1980s Natural increase	1980s Net Migration
A. Components of urban growth by country (percentage)							
Africa							
Eastern Africa	Kenya			42.6	57.4		
	United Rep. of Tanzania			38.1	61.9		
	Zimbabwe			40.0	60.0	49.3	50.7
Northern Africa	Egypt	*68.5*	*31.5*	*68.5*	*31.5*	91.6	8.4
	Libya Arab Jamahiriya	42.8	57.2	69.8	30.2		
	Morocco	62.7	37.3	55.4	44.6		
	Sudan			77.1	22.9		
	Tunisia	48.0	52.0	72.2	27.8		
Southern Africa	Botswana	22.6	77.4	46.7	53.3	36.3	63.7
	South Africa	73.9	26.1				
Western Africa	Burkina Faso					42.6	57.4
	Cote d'Ivoire					75.5	24.5
	Ghana	58.5	41.5	76.4	23.6		
	Liberia			65.5	34.5		
	Mali					50.5	49.5
	Senegal					73.4	26.6
	Togo	59.3	40.7				
Asia							
Eastern Asia	China					28.1	71.9
	Republic of Korea	39.7	60.3	43.7	56.3	45.0	55.0
South-eastern Asia	Indonesia	68.5	31.5	49.4	50.6	41.2	58.8
	Malaysia			45.2	54.8		
	Philippines			59.8	40.2	47.6	52.4
	Thailand			42.2	57.8	55.5	44.5
Southern Asia	Bangladesh	41.4	58.6	34.4	65.6		
	India	68.7	31.3	54.9	45.1		
	Iran (Islamic Rep. of)			56.8	43.2	70.4	29.6
	Nepal	67.1	32.9	39.1	60.9		
	Pakistan			82.9	17.1		
	Sri Lanka	50.2	49.8	118.0	-18.0		
Western Asia	Iraq	53.1	46.9	67.1	32.9	25.0	75.0
	Israel			82.0	18.0		
	Syrian Arab Republic	68.9	31.1	79.9	20.9		
	Turkey	38.3	61.7	47.7	52.3		
Latin America							
Central America	Costa Rica	57.1	42.9	68.8	31.2		
and the Caribbean	Cuba	79.3	20.7	44.0	56.0		
	Dominican Republic	52.2	47.8	55.1	44.9		
	El Salvador	78.2	21.8	*52.7*	*47.3*	52.7	47.3
	Guatemala	62.4	37.6	250.5	-150.5		
	Haiti	46.4	53.6	86.8	13.2		
	Honduras	50.5	49.5	*61.1*	*38.9*	61.1	38.9
	Mexico	68.0	32.0	70.9	29.1	68.8	31.2
	Nicaragua	56.8	43.2				
	Panama	59.5	40.5	69.0	31.0	70.4	29.6
	Puerto Rico	36.4	63.6	55.1	44.9	61.9	38.1
South America	Argentina	*69.9*	*30.1*	*69.9*	*30.1*	73.3	26.7
	Bolivia					52.7	47.3
	Brazil	51.7	48.3	52.8	47.2	62.5	37.5
	Chile	65.7	34.3	73.4	26.2	93.4	6.6
	Colombia	76.0	24.4	49.8	50.2		
	Ecuador	67.5	32.5	52.7	47.3	58.0	42.0
	Guyana	28.4	71.6				
	Paraguay	66.2	33.8	52.7	47.3	58.8	41.2
	Peru	58.2	41.8	67.8	32.2	70.7	29.3
	Uruguay	91.2	8.8	59.2	40.8		
	Venezuela	78.9	21.1	75.5	24.5	79.9	20.1
B. Mean (percentage)							
Africa		54.5	45.5	59.3	40.7	59.9	40.1
Asia		55.1	44.9	56.1	44.0	44.7	55.3
Latin America		61.9	38.1	62.1	37.9	66.5	33.5
Total		58.8	41.3	59.4	40.6	59.1	40.9
C. Median (percentage)							
Africa		58.9	41.1	65.5	34.5	50.5	49.5
Asia		53.1	46.9	52.2	47.9	45.0	55.0
Latin America		62.4	37.6	60.2	39.9	62.5	37.5
Total		59.4	40.6	56.8	43.2	58.8	41.2

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Notes: Figures in italics refer to estimates made from consecutive census that span two decades.
Median and mean values for the 1970s exclude Guatemala and Sri Lanka because of extreme values.

For the decade of the 1960s, all of the nine countries in Asia where data are available had more than 30 per cent of their urban growth resulting from migration/reclassification, and two of these (Republic of Korea and Turkey) had more than 60 per cent of their urban growth attributed to migration/reclassification. For the 1970s data are available for fifteen countries, and in almost half of these countries (seven), migration/reclassification was the cause of more than half of urban growth. Four of these seven countries were either in Eastern or South-eastern Asia, where for the one country the contribution of migration/reclassification to urban growth was below one-half the amount, but was still a relatively high 40 per cent. The large contribution of migration to urban growth in Eastern and South-eastern Asia continued through the 1980s with migration/reclassification contributing over 50 per cent of urban growth in four of the five countries for which data are available.

The large contribution of migration to urban growth in Eastern and South-eastern Asia during the 1970s and 1980s can be attributed to the economic dynamism of the region, most of it centered on the regional cities, that has increased the attractiveness of city life to rural dwellers (Rondinelli, 1991). Why then did Thailand, which during the 1980s had very rapid rates of economic development, experience a decline in the share of migration in urban growth. The answer, according to Chamratrithirong and Guest (1992), is largely a result of the failure of the government to incorporate new areas on the outskirts of the capital city of Bangkok as urban. Based on one commonly used definition of urban, the fourth and ninth largest urban places at the end of the 1980s were not officially defined as urban. Both of these places are in provinces adjacent to Bangkok, and because they are major centres for the location of new industries they have been attracting many rural migrants. It is projected that provinces in the immediate vicinity of Bangkok will grow most rapidly over the next 15 years, mainly as a result of net in-migration, while the population of Bangkok will grow very little (Thailand, National Economic and Social Development Board, 1991).

The spillover of Bangkok into surrounding provinces, and the associated apparent slowdown in its urban growth, is only one example from the Asian region of mega-cities appearing to have lost their attraction. McGee and Greenberg (1992) make the case for the emergence of the extended metropolitan region (EMR) in the South-eastern Asian region, arguing that the mega-cities of the region can no longer absorb large numbers of migrants and that most growth will occur in the hinterlands of these cities. Guest (1994) also agues that the slowdown in the growth of many of the mega-cities is a shift in growth from the core areas of the cities to areas adjacent to these cities.

In China the situation is reversed. Urban growth, and the contribution of migration to that growth, appears to be overstated because of the incorporation of largely rural areas as urban between 1980 and 1990 (Goldstein, 1990). The estimates presented in table 11 show that 71.9 per cent of the urban growth of China during the decade of the 1980s was due to migration/reclassification. According to official Chinese statistics, the proportion of the population living in urban areas more than doubled from 21 per cent in 1982 to 47 per cent in 1987. Part of this change can be attributed to two administrative changes: in 1984 the criteria for establishing a township, a title accompanied by significant financial advantages, was relaxed and in 1986 cities were encouraged to incorporate adjacent counties (Yi and Vaupel, 1989). Although the definitions used in the 1990 census were the same as those in 1982, and hence are not directly affected by the two changes noted above, it appears that independent of these definitions there was significant reclassification of areas from rural to urban during the decade of the 1980s.

In Indonesia, the share of migration/reclassification to urban growth rose over the three decades, from 31.5 per cent in the 1960s to 58.8 per cent in the 1980s. Indonesia has also experienced the extension of urban activities into the periphery of large cities that has characterized other countries in South-eastern Asia. Much of this expansion has radiated out from Jakarta, the capital city, along the main roads leading to Tangerang, Bogor and Bekasi (Castles, 1991). This new urban agglomeration, much of it located in the province of West Java, is drawing increasing number of migrants. In the period 1980-85, Jakarta and West Java, experienced net gains of inter-provincial migrants of over 200,000 each, while no other province gained more than 60,000 (Pasay, 1992). With more than two-thirds of the population still living in rural areas, and with a rapidly expanding economy, Indonesia is in the middle of a phase of rapid urbanization.

The contribution of migration/reclassification to urban growth is generally lower in Southern and Western Asian countries compared to South-eastern and Eastern Asian countries, although trends for individual countries vary considerably. Two countries where there were increases in the contribution of migration/reclassification during the 1960s and 1970s were India and Nepal. In the 1960s, the estimate of the contribution of migration/reclassification to urban growth in India was 31.3 per cent and this increased to 45.1 per cent for the decade of the 1970s. The contribution of migration/reclassification to urban growth increased for Nepal from 32.9 per cent in the 1960s to 60.9 per cent in the 1970s. Fortunately, for comparison there are a number of independent sources for estimates of the contribution of migration to urban growth in these two countries (K. C. Bal Kumar, 1995; Pathak and Metha, 1995; Premi, 1991; Sharma, 1989; Visaria, 1993).

Visaria (1993) estimated that the contributions of migration/reclassification to urban growth in India in the 1960s, 1970s and 1980s was 36.5, 38.6 and 38.7 per cent respectively, with reclassification being a slightly more important source than migration in the 1970s and 1980s. Premi (1991) estimates the effects of migration/reclassification for the three decades as 38.6, 54.4 and 40.0 per cent respectively for the 1960s, 1970s, and 1980s, with migration contributing less to urban growth than did reclassification and expansion of urban boundaries. Finally, Pathak and Metha (1995) provide estimates of 54.8 per cent of urban growth due to reclassification/migration in the 1970s and 41.2 per cent in the 1980s. The differences between these sets of estimates relate to the methods used (direct method for Premi and Visaria for the 1960s and 1970s, indirect methods for all other estimates) and the treatment of the population of new and reclassified towns (see Pathak and Metha, 1995). Disregarding the differences in estimates, it is noteworthy that most of the change in urban growth in India that can be attributed to net migration/reclassification, results from the expansion of urban boundaries and the upgrading of rural areas into urban areas. The contribution of net rural-urban migration remained relatively constant at 18 to 20 per cent of total urban growth (Premi, 1991; Visaria, 1993), or may have even declined slightly over the two decades of the 1970s and 1980s (Pathak and Metha, 1995). As the definition of an urban centre has not changed since the census of 1961 (Pathak and Metha, 1995), it is population growth acting to increase population density, and economic development acting through changes in the structure of the labour force, that have fueled urban growth by assisting rural areas meet the definitional requirements for being classified as urban and therefore either joining the rapidly expanding list of new towns (an increase of over 30 per cent in the number of towns between 1971 and 1981), or being incorporated into the expanding boundaries of existing towns.

Sharma (1989) uses a combination of indirect (assumptions about growth rates) and direct (information on the population of new urban areas) methods to estimate the contributions of different sources of urban growth in Nepal from 1952/54 to 1981. Unfortunately, the contributions of migration/reclassification are only calculated for those urban areas that existed at the start and end of each intercensal period. They estimate that in the 1960s, 12.3 per cent of the growth of existing urban places was a result of migration/reclassification while the corresponding percentage in the 1970s was 48.2. However, the addition of new urban places was also a significant source of total urban growth (old and new urban places), contributing 45.2 per cent in the 1960s and 27.0 per cent in the 1970s. K. C. Bal Kumar (1995) does not provide a quantitative estimate of the amount of urban growth that is due to each source. But based on an analysis of the change in the population size of urban places in each of the last five censuses, he concludes that most population growth in the 1970s and 1980s was a result of adding new towns. Furthermore, he argues that a reduction in 1976 in the number of persons required to be living in a location before it could be designated as urban, means that many new urban centres are rural in character. Based on the analyses of K. C. Bal Kumar (1995) and Sharma (1989) it can be concluded that in Nepal rapid urban growth in the 1960s and 1970s was fueled more by reclassification than by rural to urban migration.

Latin America

The variation in the contribution of migration/reclassification to urban growth among countries in Latin America is generally smaller than for other regions. For the 1960s, seven of the twenty-one countries where data are available have estimates of the contribution of migration to urban growth of between 40 and 50 per cent, while another six countries have rates ranging between 30 and 40 per cent. In only three countries (Guyana, Haiti and Puerto Rico) are rates greater than 50 per cent, and only for one, Uruguay, rate is less than 20 per cent. Uruguay is the most urbanized country of Latin America, while Haiti and Guyana are among the least urbanized.

In the decade of the 1970s, there were declines in the contribution of migration to urban growth in most of the Central American and Caribbean nations, and increases in most of the South American countries. In the decade of the 1980s, decreases in the contribution of migration are observed in all countries, but especially in the South American countries that make up the bulk of our sample of Latin American countries. However, except for Brazil (47.2 to 37.5) and Chile (26.2 to 6.6) the declines were relatively small, with reductions generally being five percentage points or less.

A salient characteristic of the distribution of the urban population in Latin America is that it tends to be concentrated more in large cities than urban populations of other major developing regions. In 1995, 19.8 per cent of Latin America's urban population resided in agglomerations of at least five million persons. In comparison, only 15.8 per cent of the urban population of Asia was concentrated in cities of that size and in Africa the equivalent proportion was even lower (8 per cent). The tendency of the urban population to be highly concentrated in a single city was particularly marked in countries such as Argentina, Chile, Cuba, Mexico, Peru and Puerto Rico, where over one quarter of the urban population lived in the capital city in 1995.

The tendency towards population concentration in a single city has been seen as a manifestation of economies of scale that contribute to increased economic efficiency and growth. Such concentration has generally been a result of macro-economic policies that have favoured large cities as the preferred sites for industrial development and as centres of finance and communications. In Latin America, the rate of growth of the population in major cities generally peaked during the 1950s and 1960s, when fertility levels were still high and industrialization was being fostered within a development model favoring import substitution. The available evidence suggests that fertility reduction first took place in the largest city of each country and that, in general, fertility in the large urban agglomerations remains below the national average (Economic Commission for Latin America and the Caribbean, 1993). Indeed, some major cities have seen their share of urban population decline in recent years (Lattes, 1996). This is the case of Buenos Aires, Havana and Montevideo since 1980, and a similar trend is expected for a number of other major Latin American cities during the 1990s (United Nations, 1993b). According to recent census information, steep reductions in net migration gains have been experienced by Mexico City, Rio de Janeiro and Santiago (Chile) (Economic Commission for Latin America and the Caribbean, 1993).

B. REGIONAL COMPARISONS

In table 11 regional comparisons can be made through the use of the mean and median scores, with the score of each country given equal weighting. The results of this comparison indicate that although there has been relative stability over time in the proportion of urban growth due to migration/reclassification, with between 41 and 43 per cent of overall growth attributed to this component over the three decades, there are substantial regional differences in levels and trends. Among Latin American countries, the median level of urban growth attributed to migration/reclassification is the lowest among the three major regions for each decade. There has also been little change in the median per cent of urban growth resulting from migration/reclassification, although there has been a decline in the mean scores: from 38.1 per cent in the 1960s to 33.5 per cent in the 1980s.

The proportion of urban growth resulting from migration/reclassification is higher in Asian and African countries compared to Latin American countries, but trends are difficult to establish because of the limited number of countries with data, especially for the 1980s. During the 1980s, Asian countries appeared to undergo a rapid increase in the amount of urban growth resulting from migration/reclassification, but as noted above much of this increase is due to two countries -- Iraq and China -- that have contributions of migration exceeding 70 per cent. Given the different coverage of countries from one decade to the next and the fact that countries of very different relative weights are being considered within each decade, the median or mean of country scores may not be the best indicators of the relevance of migration/reclassification to urban growth.

Another way of assessing the relative impact of natural increase versus migration/reclassification on the growth of the urban populations of the major regions is to use weights to aggregate country estimates. The estimated rural out-migration rates may be weighted by the size of the rural population at the mid-point of the

intercensal period to obtain a weighted estimate of the net number of rural-urban migrants during the period. Similarly, the estimates of urban natural increase may be weighted by the size of the urban population at the middle of the intercensal period to obtain the contribution of natural increase to urban growth at the regional level. Using weights derived from the urban and rural estimates and projections prepared by the United Nations (1995), weighted rural out-migration rates and weighted rates of natural increase by major regions and decade can be obtained along with the relative contribution of each to urban growth. These estimates are shown in table 12.

Trends in natural increase and net rural out-migration differ by region. The most reliable estimates are those for Latin America where most countries have data for all three decades. For that region, the natural increase of urban areas has declined over the three decades, a result that is consistent with trends in overall fertility in the region and that can be attributed to rapid fertility decline in urban areas. As a consequence of the urban fertility declines, the rural/urban fertility differentials in Latin America are in general higher than in Africa and Asia (Lattes, 1996).

In Asia, the natural increase of urban areas remained fairly constant during the 1960s and 1970s, but declined rapidly during the 1980s. However, the 1980s estimates, which contains China, has a very large effect on the regional estimates because of its size. For this reason, estimates excluding China are also shown. Excluding China results in a slight increase in the rate of natural increase for Asian countries. A similar result is obtained for African countries, although confidence in the regional estimates are weakest for this region because of the small number of countries and the varying groups of countries available for each decade. The estimates of natural increase in the urban areas of Africa can be conservatively interpreted as indicating that levels of natural increase are high and have varied little over the three decades. The observations for Africa and Asia are consistent with what is known about trends in natural increase. For example, in Asia, although fertility has declined rapidly during the 1980s in Eastern and South-eastern Asian countries, declines have not been large in most Southern Asian countries. Also the young age structure has contributed to large reductions in crude death rates and this has helped contribute to stable rates of natural increase (Concepcion, 1993).

At the level of the developing world as a whole, the natural increase of urban areas shows a moderately declining trend if China is excluded and a marked decline between the 1970s and 1980s when China is included. In all cases, the rates of natural increase estimated for urban areas are similar to those available from other sources for the regions as a whole for the different time periods considered. Since not all countries in the regions are included in the estimates presented here, differences can be expected. However, the overall consistency of the estimates produced here with those of whole regions lends them credence.

Of particular interest are the rural out-migration rates, which have not been available from previous decomposition. At the level of the developing world they rise from 0.6 per cent in the 1960s to 1.1 per cent in the 1980s if China is included, and to 1.5 per cent in the 1980s if China is excluded. The trends differ among the regions, with rates declining steadily from the 1960s to 1980s in Africa whereas they increase steadily in Asia, irrespective of whether China is included or excluded from the analysis. In Latin America, in contrast, there is an increase of rural out-migration rates between the 1960s and 1970s followed by a decline.

These migration trends are consistent with what is known about the economic situation of these regions. For Africa, most economic indicators point to a deterioration of economic opportunities since the 1960s, and declining rural out-migration rates are consistent with these economic trends. However, it must be stressed that because the rural population in Africa has been growing steadily over the last three decades this does not mean that lower rural out-migration has led to lower number of net rural-urban migrants. Furthermore, the few African countries for which data are available are not necessarily representative of the continent as a whole. In fact countries with very high rates of urban growth are underrepresented in the data used.

In Asia, the increasing rates of rural out-migration are consistent with the economic dynamism in the region, especially in Eastern and South-eastern Asia (Ogawa, 1985). Most of this growth is concentrated in urban areas (Rondinelli, 1991) and this has attracted large numbers of rural migrants to urban areas. Urban areas have also been given priority in the development strategies of many Asian countries and this has helped stimulate out-migration from rural areas.

TABLE 12. ESTIMATES OF THE COMPONENTS OF URBAN GROWTH BY REGION, 1960s, 1970s AND 1980s

Region	1960s	1970s	1980s	1980s excluding China
Africa				
Urban population	18,135,000	38,831,000	32,858,000	
Rural population	31,277,000	89,368,000	58,461,000	
Urban natural increase	476,320	1,014,002	917,817	
Net rural-urban migrants	333,122	692,302	303,629	
Total net gain	809,443	1,706,304	1,221,447	
Urban growth due to migration (percentage)	41.2	40.6	24.9	
Rate of natural increase in urban areas (percentage)	2.63	2.61	2.79	
Rate of rural out-migration (percentage)	1.07	0.77	0.52	
Asia				
Urban population	142,222,000	274,162,000	380,690,000	139,473,000
Rural population	612,806,000	873,718,000	1,067,651,000	238,694,000
Urban natural increase	3,285,794	6,552,978	6,518,400	3,433,705
Net rural-urban migrants	2,226,120	5,747,542	11,407,985	3,282,021
Total net gain	5,511,913	12,300,520	17,926,385	6,715,726
Urban growth due to migration (percentage)	40.4	46.7	63.6	48.9
Rate of natural increase in urban areas (percentage)	2.31	2.39	1.71	2.46
Rate of rural out-migration (percentage)	0.36	0.66	1.07	1.37
Latin America				
Urban population	112,573,000	184,994,000	227,992,000	
Rural population	105,664,000	108,341,000	94,777,000	
Urban natural increase	3,036,246	4,223,178	4,223,886	
Net rural-urban migrants	2,032,718	2,871,882	2,161,934	
Total net gain	5,068,963	7,095,060	6,385,819	
Urban growth due to migration (percentage)	40.1	40.5	33.9	
Rate of natural increase in urban areas (percentage)	2.7	2.28	1.85	
Rate of rural out-migration (percentage)	1.92	2.65	2.28	
Developing regions				
Urban population	272,930,000	497,987,000	641,540,000	400,323,000
Rural population	749,747,000	1,071,427,000	1,220,889,000	391,932,000
Urban natural increase	6,798,360	11,790,158	11,660,103	8,575,408
Net rural-urban migrants	4,591,960	9,311,726	13,873,548	5,747,584
Total net gain	11,390,319	21,101,884	25,533,651	14,322,992
Urban growth due to migration (percentage)	40.3	44.1	54.3	40.1
Rate of natural increase in urban areas (percentage)	2.49	2.37	1.82	2.14
Rate of rural out-migration (percentage)	0.61	0.87	1.14	1.47

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

The decrease in rural out-migration rates observed for Latin American countries in the 1980s has been attributed to economic changes in both urban and rural areas. For example, Gilbert (1993) argues that decreasing levels of migration are associated with declining real incomes in the cities of Latin America and a lessening of the harsh economic effects of structural adjustment programmes on rural areas. In contrast, the effects of structural adjustment programmes on urban areas was felt strongly in urban labour markets. In many sub-Saharan and Latin American countries the effects of structural adjustment programmes were to increase urban unemployment, increase the proportion of urban workers in low income activities and increase the proportion of workers in the urban informal sector (International Labour Office, 1995a). The International Labour Office (1995a) reports that between the early and late 1980s the annual rate of growth of poverty in urban populations in Latin America grew from 2.3 to 4.4 per cent, while in rural populations the respective growth rates were -0.4 to -2.2 per cent, implying a reduction in rural poverty. Overall, these changes have reduced the attractiveness of urban areas as destinations for rural migrants.

However, as noted in a previous section, the situation for Latin American countries is mixed with regard to changes in rural out-migration rates, with rates increasing in some countries, remaining stable in other countries and, in a few countries, dropping rapidly. The variety of trajectories of rural out-migration rates for Latin American countries when taken together with the consistent patterns of declining urban in-migration rates, is a useful reminder that decreasing rates of in-migration to urban areas do not imply a reduction in rural out-migration.

The proportion of urban growth in the developing world that is attributable to migration is heavily influenced by whether China is included or excluded from the analysis. If China is included there is a trend towards an increased contribution of migration, from 40.3 per cent in the 1960s to 54.3 per cent in the 1980s. If China is excluded, the trend is one of stability in the contribution of migration, being 40.1 per cent in the 1980s. The differences indicate the large influence that migration/reclassification had on urban growth in China during the 1980s.

Because of the larger number of countries available for analysis, the estimates for the 1970s are the most reliable. During that decade the percentage of urban growth attributable to migration/reclassification was approximately the same, at slightly over 40 per cent, for African and Latin American countries, but was almost 47 per cent for Asian countries. For both the Latin American and the African countries the contribution to urban growth resulting from migration/reclassification fell in the 1980s, while increasing rapidly for Asia when China is included and slightly when China is excluded from the analysis.

The estimates presented here are roughly similar to those from other sources. Preston (1979) calculated that natural increase was responsible for about 61 per cent of urban growth (mainly in the decade of the 1960s) for a sample of 29 developing countries. The percentages are also similar to an earlier United Nations study that natural increase accounted for about 60 per cent of urban growth in the 1960s while internal migration and reclassification accounted for the other 40 per cent (United Nations, 1980). The results for the 1970s are also similar to those of Singelmann (1993). Other decomposition attributed a slightly higher percentage of growth to migration for the same period (Lowry, 1991). There is general agreement, however, that in the process of economic development the contribution of natural increase to urban growth increases (Lowry, 1991), although this increase may not occur until the later stages of development (Kelly and Williamson, 1984).

In part, the increased share of natural increase to urban growth in the latter stages of development is an outcome of the diminishing size, in relative terms, of the rural sector. Where rural areas are still large enough to contribute large numbers of migrants, rural-to-urban migration can play a dominant role in urban growth. This role is likely to be more important than might appear through a simple decomposition of sources of urban growth. Rural-to-urban migration is age selective, and the concentration of migrants at young adult ages contributes to high rates of natural increase of urban populations through the subsequent fertility of migrants (Rogers, 1982; Williamson, 1988).

C. POPULATION GROWTH AND THE CONTRIBUTION OF MIGRATION/ RECLASSIFICATION TO URBAN GROWTH

In an earlier section of the report it was observed that national levels of population growth were strongly and positively associated with levels of urban growth (see figure V). It was concluded that urban growth rates are high in the developing world partly because of high rates of growth of the overall population. In this section the relationship between population growth and the contribution of migration/reclassification to urban growth is examined. The expectation is that the relationship would be negative: high rates of national population growth result primarily from high levels of natural increase and lead to a large impact of natural increase on urban growth. A graphical display of the relationship between national population growth rates and the percentage of urban growth that is contributed by migration/reclassification is shown in figure VII.

The results displayed in figure VII only partly support the view that high population growth rates are related to low levels of urban growth through migration and reclassification. For all countries, and with data for all for three decades combined, the correlation coefficient is only marginally negative (-0.06), and only for the 1960s does the correlation coefficient exceed 0.10 (−.126). However, for each of the three decades the overall relationships is heavily influenced by a number of outliers (note that the two countries with negative contributions of migration/reclassification to urban growth in the 1970s − Guatemala and Sri Lanka − are excluded from the analysis for the 1970s). In the 1960s, Uruguay had both low population growth rates and a very low contribution of migration/reclassification to urban growth. Libya experienced both high rates of population growth and a relatively high contribution of migration/reclassification to urban growth during the 1960s.

The outliers in the 1970s include Uruguay and Libya, but also Haiti, which had low levels of population growth and a small contribution of migration to urban growth, and Botswana with a high levels of both population growth and contribution of migration to urban growth. In the 1980s, the situation is more clouded, with three groups of countries. Three Latin American countries, Argentina, Chile and Puerto Rico, have low levels of contributions of migration/reclassification to urban growth and low rates of population growth, while another group of countries have high rates of population growth and relatively high levels of contribution of migration/reclassification to urban growth.

The expected relationship is affected by the negative relationship between levels of urbanization and the contribution of migration/reclassification to urban growth. As noted previously, as the proportion urban increases the extent to which migration can contribute to urban growth declines. This is most obvious at the extremes of the urbanization distribution. In a country that is only 5 per cent urban even low rates of migration from rural areas will have a significant impact on the growth of the urban population. At the other extreme, the urban growth of a population that is 90 per cent urban may be little affected by migration from rural areas. As levels of urbanization have a strong negative relationship with rates of population growth, both in turn being related to economic development, the initial levels of urbanization of a country could be confounding the relationship between rates of population growth and the contribution of migration to urban growth.

In figure VIII the expected negative relationship between levels of urbanization and the contribution of migration/reclassification to urban growth is clearly seen. The correlation coefficients for the decades of the 1960s, 1970s and 1980s are -0.60, -0.14 and -0.50, respectively. The relationship appears clear for the African and Latin American countries, but is distorted for the Asian countries. This is because several Asian countries with moderate levels of urbanization, have much higher contributions to migration/urbanization than expected (for example, Iraq and the Republic of Korea in the 1980s) while other Asian countries with low levels of urbanization have much lower levels of contributions of migration/reclassification to urban growth than might be expected (for example, Indonesia, Nepal and Syrian Arab Republic in the 1960s and Pakistan in the 1970s). For Pakistan, independent estimates concur about the limited role that migration played in urban growth in the 1970s, partly because of higher rates of fertility in urban areas compared to rural areas (Kiani and Siyal, 1991).

Figure VII. Annual growth of population and contribution of migration and reclassification to urban growth by region, 1960s, 1970s and 1980s

A. 1960s

B. 1970s

C. 1980s

◆ Africa ■ Asia ▲ Latin America
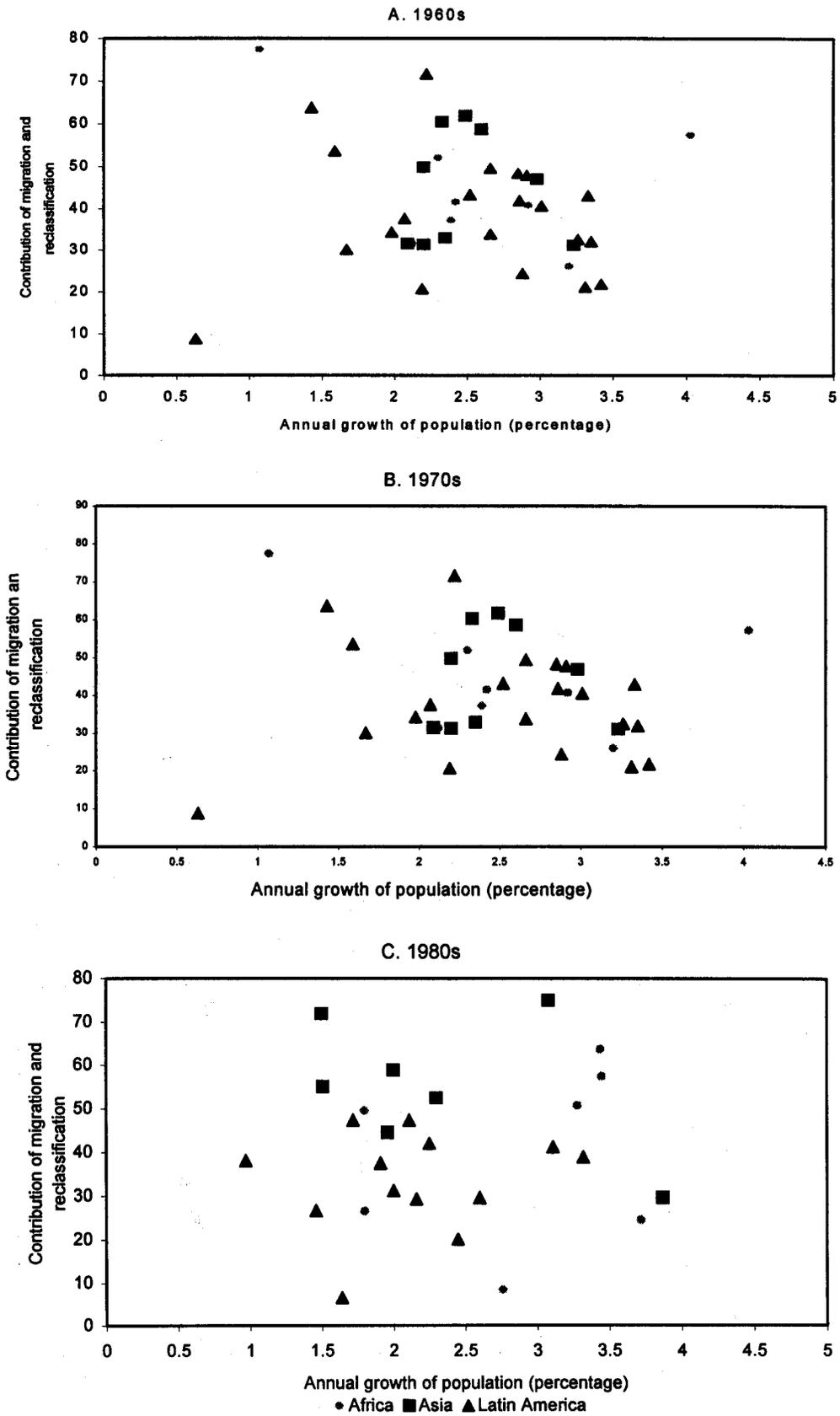
Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

Figure VIII. Per cent urban and contribution of migration and reclassification to urban growth by region, 1960s, 1970s and 1980s

A. 1960s

B. 1970s

C. 1980

● Africa ■ Asia ▲ Latin America
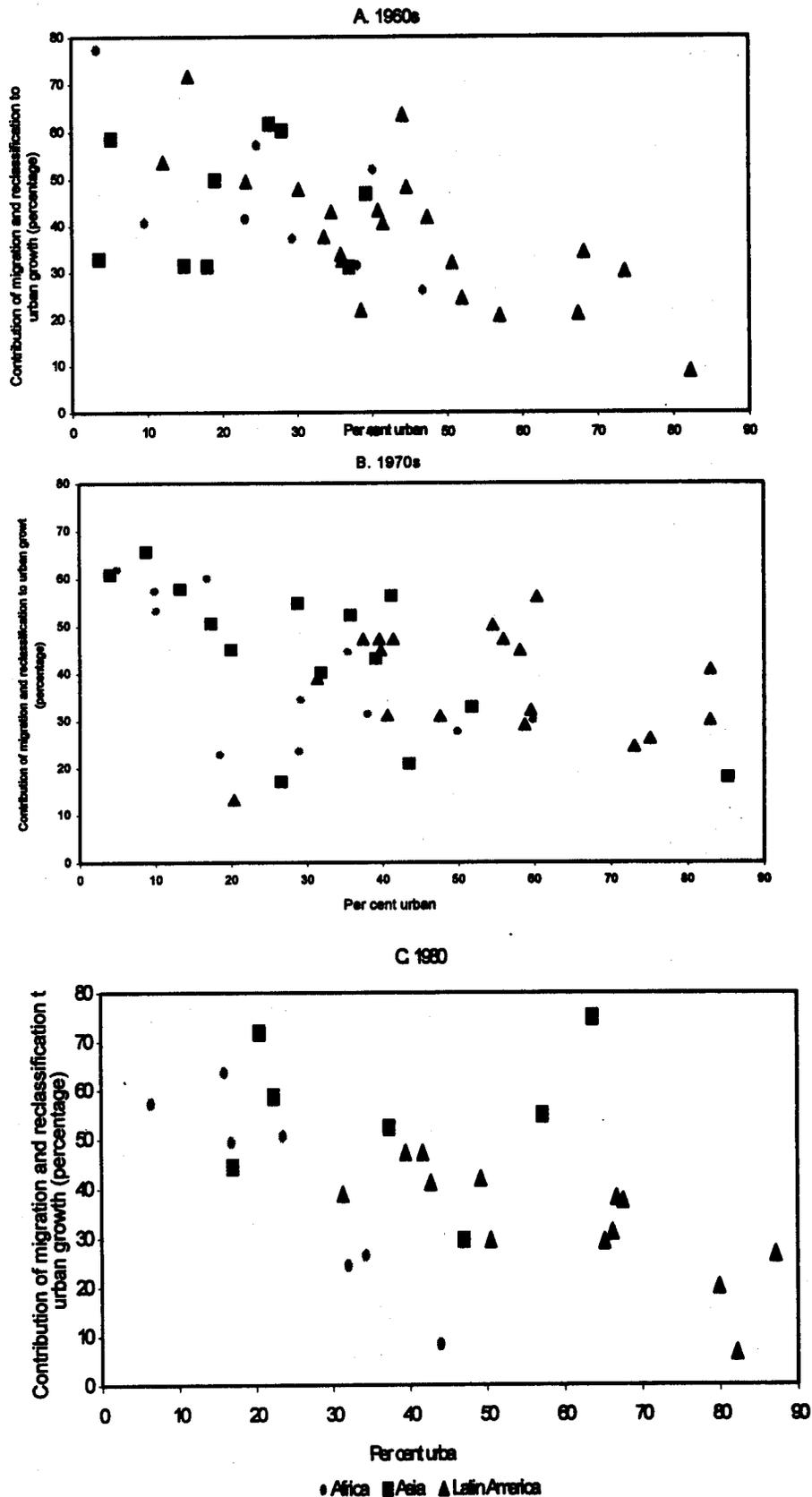
Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

Overall, as seen in figure VIII, the three major regions exhibit similar patterns but different levels in the relationship between urbanization levels and the contribution of migration/reclassification to urban growth. For all three regions the relationship is negative, but at any given level of urbanization African countries, compared to Latin American countries, tend to have lower contributions of migration/reclassification to urban growth, while Asian countries tend to have higher contributions. These differences are most evident in the 1980s and are most likely related to the complex set of inter-relationships between economic development and natural increase on the one hand, and economic development and migration on the other hand. In Asia, especially Eastern and South-eastern Asia (the countries over represented in the 1980s sample of Asian countries), rapid economic development has been associated with declining fertility and increases in urban-based employment opportunities (Ogawa, 1985). Together, these process have contributed to a more prominent role of migration/reclassification in urban growth than might have been expected on the basis of urbanization levels alone. In Africa, high levels of natural increase and limited economic development have led to a reduced role for migration/reclassification to urban growth.

In order to help disentangle the effects of population growth rates and of levels of urbanization on the amount of urban growth that can be attributed to migration/reclassification, an Ordinary Least Squares (OLS) Regression equation was estimated on the pooled sample of countries for the three decades (Guatemala and Sri Lanka were excluded because of extreme values). Initially dummy variables for decade were included in the equation but these were not significant and hence were excluded in the final model. The results (without the constant) are as follows:

$$\text{Per cent of urban growth due to migration/reclassification} = \underset{(t = -2.626)}{-4.4339 \text{ national population growth rates}} + \underset{(t = -6.6845)}{(-0.412) \text{ per cent urban}}$$

The effects of both coefficients are statistically significant and the two variables account for approximately 31 per cent of the variation in the per cent of urban growth that is attributed to migration/reclassification. An increase of 1 per cent in national population growth rates is associated with a decrease in 4.4 per cent in the contribution of migration/reclassification to urban growth, while an increase of 10 per cent in urbanization is associated with a decrease of 4.1 per cent of the contribution of migration/reclassification to urban growth. A simple OLS regression of population growth on the contribution of migration/reclassification to urban growth results in a non-significant coefficient of -1.108. The results of this estimation exercise demonstrate the substantial and independent effects of population growth and urbanization on the components of urban growth.

The two outliers from the regression analysis are Haiti in the 1970s and Iraq in the 1980s. The contribution of migration/reclassification predicted from the regression equation for Haiti in the 1970s is 53.5 per cent while the actual contribution was only 13.2 per cent. In contrast, the predicted contribution for Iraq is 28.4 per cent while our estimate is 75 per cent. It should be noted that both these societies were undergoing considerable conflict during these periods, and that these conflicts may have contributed to a lessening role of rural-urban migration (but an increase in international out-migration) in Haiti in the late 1970s and early 1980s (the period covered by the estimate). In Iraq, the conflicts may have operated to increase movement into cities.

V. MIGRATION PATTERNS

One advantage of the census survival ratio method used in the present analysis is that age and sex specific net migration information can be obtained. This information is valuable for analyzing the demographic structure of net migration, and also for making inferences about the processes leading to urban and rural growth. In this section two aspects of net migration are focused on: the sex composition of migrants, and the age pattern of net migration.

A. SEX COMPOSITION OF MIGRANTS

There are marked differences in the sex composition of migration streams among developing regions. Latin America and parts of Asia, particularly South-eastern Asia, typically have rural to urban migration streams that numerically are dominated by females, while in most African countries and in Southern and Western Asia, men predominate in rural to urban migration (Hugo, 1993). The historical and cultural context of societies play an important role in determining the extent that women have the opportunity to migrate independently, however, patterns of economic development also play an important role in influencing the sex composition of migration streams. For example, in countries of South-eastern Asia increases in female migration have been associated with expanded employment opportunities for women in industrial and service sector occupations in cities (Lim, 1993).

Overall, for the set of countries in our analysis there were more female than male net urban migrants. The mean per cent of net urban migrants who were female is 53.6 for the 1960s, 50.3 for the 1970s and 52.2 for the 1980s. The results of our estimations support the broad regional patterns described in the literature on the sex composition of rural-urban migration streams. Figure IX displays the median sex ratio of net urban migrants for countries in each of the three major regions and for the three decades. The median sex ratio for Latin America is much lower than for the other two regions. Furthermore, it is below 90 (i.e. 90 male net migrants for every 100 female net migrants), for each of the three decades, varying from 81.4 in the 1960s to 89.9 in the 1970s and 82.6 in the 1980s. In contrast, the median sex ratio for the set of African countries in the analysis is well above 100 for each of the three decades, although declining slightly over the three decade period. It is the median of the Asian countries that undergoes the most change over the period being analyzed. From a high of 116.8 male migrants for every 100 female migrants in the 1960s, the sex ratio declines to 111 in the 1970s, and in the 1980s females predominate among net urban migrants, with the sex ratio declining to 96.6.

Figure IX. Median sex ratio of urban net migrants by region, 1960s, 1970s and 1980s

□ Africa ■ Asia ■ Latin America
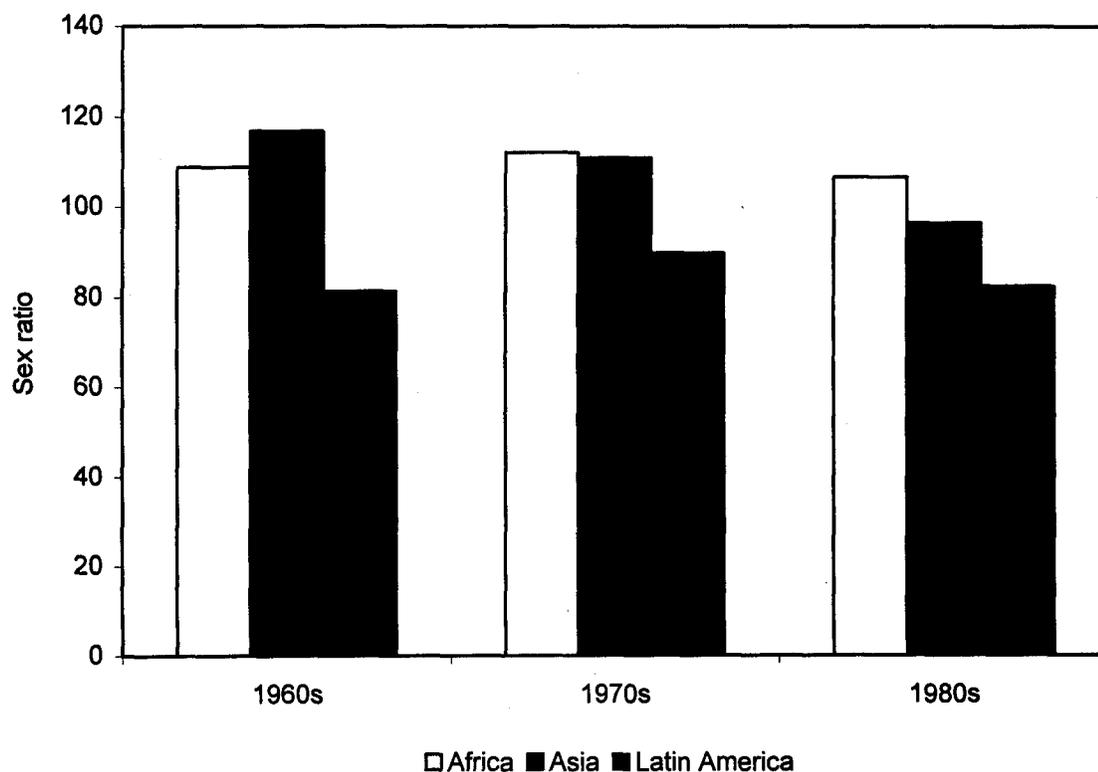
Source: table 13.

However, it is dangerous to infer a trend of increasing female numerical dominance in net rural-urban migration in Asian countries because of the different composition of Asian countries available for analysis in each of the three decades. The data for the 1960s are dominated by Southern and Western Asian countries, with only Indonesia and the Republic of China from the Eastern and South-eastern Asian sub-regions. In the 1980s, five of the seven countries for which data are available from the Eastern and South-eastern Asian sub-regions. As it can be seen from the individual country results displayed in table 13, there is considerable sub-regional variation in sex ratios of urban net migrants in Asia.

Of the eight observations for South-eastern Asian countries, the sex ratio is below 100 in seven cases (and for the other case, Malaysia in the 1970s, it is 100.9). For the four observations for Eastern Asian countries, the sex ratio is below 100 for two of the observations. In contrast, a sex ratio less than 100 is found for only one of the eleven observations for Southern Asian countries and for two of the eight observations for Western Asian countries. In the context of Asia, a predominance of females among net urban migrants is mainly a feature of rural to urban migration in South-eastern Asia.

The situation for Thailand is similar to that of other South-eastern Asian countries where the majority of rural to urban migrants are female. In the decade of the 1970s, 53.1 per cent of net urban migrants were females and this increased to 56.7 per cent in the decade of the 1980s. Overall in Thailand males predominate in migration flows. The sex ratio for all inter-provincial migrants for the period 1985-1990 was 117 males for every 100 females, whereas the sex ratio for rural to urban flows for the same period was 89.8 (Thailand, National Statistical Office, 1993). The increases in female migration, and increasing concentration of females in rural-urban streams, that have been observed in Thailand have been linked to macro-economic transformations in the Thai economy that have focused on developing the export and service sectors of the economy (Manusphaibool, 1991; Phongpaichit, 1992). Women are preferred in these sectors because they are typically paid lower wages, are considered more easily controlled and better able to undertake the repetitive tasks that are often required in factory jobs (Lim, 1993).

Pejaranonda, Santipaporn and Guest (1995), using migration data from the 1990 census, show how female migration from rural-urban areas is contributing to the feminization of urban areas. In 1990, the sex ratio of urban areas was 94, which compares with a sex ratio of 99 for rural areas. Of the net gains of 268,771 migrants to urban areas in the period 1985-1990, 161,300 (60 per cent) were female. Not only do females make up a majority of rural-urban migrants, they make up a minority of urban-rural migrants (sex ratio of 151.5 in the period 1985-1990), resulting in a very pronounced net gain to urban areas of female migrants.

In Southern Asian countries the situation with respect to female migration is very different from that of Thailand. In the 1960s and 1970s there was no country represented in the analysis where the sex ratio was below 110. For Iran, the sex ratio of 92.6 recorded for the 1980s, stands at as an anomaly especially when compared with the sex ratio of 129 recorded for the same country in the 1970s. It is difficult to explain this change, although large scale rural to urban migration resulting from lack of access to land (Alizodeh, 1992) probably has helped bring about a more balanced sex ratio of migration by stimulating migration of whole families.

India represents a country in Southern Asian with a more typical Southern Asian pattern for the sex composition of net urban migrants. In the 1960s the sex ratio was 118.7 and this declined to 113.4 in the 1970s. Pathak and Metha (1995) note that although levels of female migration are higher than those of male, most of the female movement is rural-rural and is associated with marriage. They explain that there are societal norms that restrict the migration of single females to urban areas and that the high cost of living in urban areas also deters family migration so that the choice often is for men to migrate and to leave their wives living with their (the wife's) parents-in-law. Using 1991 census data for one state, Punjab, they show that the share of females in rural-urban migration increased in the 1980s relative to the 1970s, and there was a slight increase in the proportion who responded that their main reason for moving was economic – although in both decades marriage and family reasons predominated as the main reason for rural-urban migration of females.

TABLE 13. SEX RATIO OF NET URBAN MIGRANTS AND PER CENT OF NET MIGRANTS WHO ARE FEMALE, 1960s, 1970s AND 1980s

Region, subregion and country		1960s		1970s		1980s	
		Sex ratio	Per cent female	Sex ratio	Per cent female	Sex ratio	Per cent female

A. By country

Region, subregion and country		Sex ratio	Per cent female	Sex ratio	Per cent female	Sex ratio	Per cent female
Africa							
Eastern Africa	Kenya			128.7	43.7		
	United Republic of Tanzania			108.8	47.9		
	Zimbabwe			108.8	47.9	102.2	49.5
Northern Africa	Egypt	115.5	45.4	115.5	46.4	130.3	43.4
	Libya Arab Jamahiriya	115.7	46.4	105.0	48.8		
	Morocco	78.0	56.2	120.2	45.4		
	Sudan			120.8	45.3		
	Tunisia	87.6	53.3	108.3	48.0		
Southern Africa	Botswana	103.0	49.3	127.5	44.0	80.5	55.4
	South Africa	199.7	33.4				
Western Africa	Burkina Faso					124.7	44.5
	Cote d'Ivoire					90.7	52.4
	Ghana	99.8	50.0	71.4	58.4		
	Liberia			112.2	47.1		
	Mali					106.7	48.4
	Senegal					121.5	45.1
	Togo	114.6	46.6				
Asia							
Eastern Asia	China					104.0	49.0
	Republic of Korea	100.4	49.9	94.6	51.4	99.1	50.2
South-eastern Asia	Indonesia	95.9	51.0	96.3	50.9	96.5	50.9
	Malaysia			100.9	49.8		
	Philippines			82.4	54.8	96.6	50.9
	Thailand			88.2	53.1	76.2	56.7
Southern Asia	Bangladesh	132.4	43.0	134.2	42.7		
	India	118.7	45.7	113.4	46.9		
	Iran (Islamic Republic of)			129.0	43.7	92.6	51.9
	Nepal	167.3	37.4	111.0	47.4		
	Pakistan			130.5	43.4		
	Sri Lanka	110.6	47.5	150.7	39.9		
Western Asia	Iraq	98.5	50.4	114.6	46.6	112.5	47.1
	Israel			95.4	51.2		
	Syrian Arab Republic	117.6	46.0	117.8	45.9		
	Turkey	116.8	46.1	100.0	50.0		
Latin America							
Central America	Costa Rica	85.3	54.0	83.3	54.6		
and the Caribbean	Cuba	91.6	52.2	93.7	51.6		
	Dominican Republic	86.0	53.8	81.7	55.0		
	El Salvador	67.4	59.7	91.4	52.2	91.4	52.2
	Guatemala	73.8	57.5	118.8	45.7		
	Haiti	52.9	65.4	40.2	71.3		
	Honduras	81.2	55.2	74.2	57.4	74.2	57.4
	Mexico	93.3	51.7	88.6	53.0	94.6	51.4
	Nicaragua	76.5	56.7				
	Panama	81.4	55.1	72.7	57.9	76.7	56.6
	Puerto Rico	93.7	51.6	86.8	53.5	82.6	54.8
South America	Argentina	89.9	52.7	89.9	52.7	87.5	53.3
	Bolivia					88.2	53.1
	Brazil	91.2	52.3	94.7	51.3	86.9	53.5
	Chile	90.8	52.4	84.9	54.1	55.9	64.1
	Colombia	48.6	67.3	93.5	51.7		
	Ecuador	80.1	55.5	97.5	50.6	88.4	53.1
	Guyana	94.8	51.3				
	Paraguay	68.0	59.5	90.9	52.4	80.8	55.3
	Peru	97.7	50.6	95.4	51.2	82.3	54.9
	Uruguay	-20.8	126.2	75.9	56.9		
	Venezuela	73.7	57.6	96.3	50.9	80.3	55.5

B. Mean

		Sex ratio	Per cent female	Sex ratio	Per cent female	Sex ratio	Per cent female
Africa		114.2	47.6	111.6	47.5	108.1	48.4
Asia		117.6	46.3	110.6	47.8	96.8	51.0
Latin America		76.1	59.0	86.9	53.9	82.3	55.0
Total		93.9	53.6	100.8	50.3	92.7	52.2

C. Median

		Sex ratio	Per cent female	Sex ratio	Per cent female	Sex ratio	Per cent female
Africa		108.8	48.0	112.2	47.1	106.7	48.4
Asia		116.8	46.1	111.0	47.4	96.6	50.9
Latin America		81.4	55.1	89.9	52.7	82.6	54.8
Total		92.5	52.0	96.3	50.9	90.7	52.4

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.
Notes: Figures in italics refer to estimates made from consecutive census that span two decades.

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The pattern of males migrating to the cities while leaving their spouses behind in rural areas has been linked to the dominance of men in rural-urban migration streams in many African countries (Gulger, 1993). In Southern Africa, where much of the migration in the 1960s and 1970s was of men going to work in mining or manufacturing enterprises, families were often not allowed to accompany the male wage earner to the cities (Hindson, 1987). The sex ratio of urban in-migrants for South Africa for the 1960s, 199.7, is the highest for any of the observations in the analysis. In other areas of Africa, gains of migrants to the cities were mainly comprised of men. For example, in the 1980s in Egypt only 43.4 per cent of net urban migrants were female. The corresponding percentages for Senegal and Burkina Faso were 45.1 and 44.5 for the same period. In much of Africa the main factor in limiting female migration to cities appears be urban employment structures that mainly employ males. In many African countries urban unemployment rates for women are more than twice as high as for men (International Labour Office, 1995b).

In Latin America high proportions of female in rural to urban migration are a feature of all countries and for all three decades. Only for Guatemala in the 1970s, a period of internal unrest, the proportion of females in net urban migrants fall below 50 per cent. What is most striking about the estimates for Latin America is the consistency of estimates over time and among countries, with sex ratios generally between 80 and 90. The opportunities for female employment, especially in the service sector, in urban areas of Latin America are related to the large number of females, often single, migrating into cities. Through the period being analyzed the greater attraction of urban areas for females than for males appears to have continued unabated.

B. AGE COMPOSITION OF MIGRANTS
Rural out-migration

In this section the age pattern of migration is discussed. Age-specific migration rates for five-year age groups have been estimated separately for males and females. The rates are calculated for net rural out-migration and net urban in-migration. In order to simplify the analysis, results are presented for the broad age groups 0-14, 15-29, 30-44, 45-64 and 65 or over. These age groups roughly correspond to stages of the life cycle. Also, in the figures presented in this and the next section, median country scores for each age group are used in order to show general patterns.

Table 14 shows the net rural out-migration rates for the countries in the analysis. The rates index the number of net out-migrants from rural areas in a specified age group per 1,000 of the rural population in that age group at the mid-point of the intercensal period. As seen earlier from table 12, for the region as a whole net rural out-migration rose over the period from the 1960s to 1980s in Asia, rose then fell in Latin America, but fell in our sample of African countries. By the 1980s the level of rural out-migration in the Asian countries was intermediate to the higher rates of Latin American, and lower rates of African countries.

The median age-specific rates of migration, taken over all three decades, show the same pattern as the overall rates, with the highest rates for Latin American countries, intermediate rates for Asian countries and the lowest rates for the sample of African countries (see figure X). For the median values of the set of African countries, the out-migration rates for the main working age groups, 15-29 and 30-44, are higher for men than for women. In Latin America, the age specific rates are higher for women than for men at all ages, while in Asian countries the median out-migration rates are higher for women at all ages except 15-29.

The age-specific out-migration rates for men exhibit an age-pattern of migration that is observed in most contexts. Migration rates rise rapidly from intermediate rates at the youngest ages (0-14) to reach their peaks at the young adult ages (15-29), before rapidly falling away with, in the case of Africa, negative out-migration rates at ages 65 or over. The main difference among the male age-specific rates of the three regions is that there is a more rapid increase from age groups 0-14 to 15-29 for the African countries, and a less rapid increase for the Latin American countries. This is suggestive of a situation of a greater extent of family out-migration from rural areas in Latin America, while in African countries out-migration of unaccompanied males is more likely than migration with families. Indeed, Gulger (1993) identifies the rural-urban migration of males who either are single or who move without their families as one of the defining characteristics of African migration, although he also argues that this patterns of migration is declining in importance in the African context.

TABLE 14. AGE-SPECIFIC NET OUT-MIGRATION RATES FROM RURAL AREAS BY SEX AND BROAD AGE GROUPS

Region, subregion and country		Intercensal interval		Males Age groups (years)					Females Age groups (years)				
				0-14	15-29	30-44	45-64	65 or over	0-14	15-29	30-44	45-64	65 or over

A. Net out-migration rate by country

Africa

Region, subregion and country				0-14	15-29	30-44	45-64	65 or over	0-14	15-29	30-44	45-64	65 or over
Eastern Africa	Kenya	1969	1979	0.005	0.022	0.003	-0.001	0.001	0.005	0.010	0.002	0.003	0.003
	United Rep.of Tanzania	1967	1978	0.008	0.018	0.008	0.004	0.003	0.009	0.011	0.006	0.005	0.004
	Zimbabwe	1969	1982	0.006	0.030	0.000	-0.002	-0.004	0.007	0.017	0.003	-0.002	-0.005
		1982	1992	0.006	0.036	0.008	-0.004	-0.008	0.009	0.025	0.003	-0.003	-0.003
Northern Africa	Egypt	1960	1976	0.006	0.014	0.007	0.004	-0.003	0.007	0.010	0.004	0.004	-0.001
		1976	1986	0.002	0.004	0.001	0.000	-0.009	0.001	0.000	0.000	0.000	-0.001
	Libyan Arab Jamahiriya	1964	1973	0.063	0.082	0.079	0.048	0.034	0.065	0.070	0.060	0.047	0.039
		1973	1984	0.044	0.058	0.031	0.033	0.029	0.045	0.055	0.045	0.048	0.037
	Morocco	1960	1971	0.009	0.007	0.008	-0.002	0.001	0.013	0.003	0.008	0.004	0.002
		1971	1982	0.012	0.027	0.014	0.005	-0.002	0.014	0.014	0.011	0.006	0.001
	Sudan	1973	1983	0.004	0.007	-0.002	0.001	0.000	0.003	0.001	0.002	0.003	0.002
	Tunisia	1966	1975	0.022	0.015	0.021	0.014	0.003	0.023	0.022	0.022	0.017	0.005
		1975	1984	0.010	0.015	0.009	0.004	-0.002	0.011	0.009	0.006	0.007	0.006
Southern Africa	Botswana	1964	1971	0.005	0.017	0.015	0.006	0.001	0.008	0.012	0.007	0.003	0.001
		1971	1981	0.005	0.034	0.008	0.000	-0.001	0.006	0.015	0.002	0.000	-0.001
		1981	1991	0.032	0.080	0.043	0.025	0.022	0.041	0.070	0.043	0.034	0.030
	South Africa	1960	1970	0.008	0.043	-0.002	-0.004	-0.021	0.005	0.011	0.022	0.000	-0.008
Western Africa	Burkina Faso	1975	1985	0.005	0.012	0.007	0.002	0.001	0.005	0.006	0.003	0.003	0.003
	Cote d'Ivoire	1975	1988	0.011	0.009	-0.001	-0.003	-0.002	0.014	0.006	0.000	0.001	0.000
	Ghana	1960	1970	0.007	0.016	0.000	0.000	-0.001	0.010	0.007	0.003	0.003	0.002
		1970	1984	0.005	0.005	-0.004	0.002	-0.001	0.006	0.002	0.002	0.003	0.003
	Liberia	1974	1984	0.014	0.028	0.002	-0.003	-0.003	0.016	0.016	-0.001	0.002	0.000
	Mali	1976	1987	0.006	0.008	0.006	0.002	0.002	0.007	0.005	0.004	0.003	0.002
	Senegal	1976	1988	0.006	0.012	0.007	-0.002	-0.004	0.007	0.003	0.006	0.003	-0.002
	Togo	1959	1970	0.004	0.005	0.001	0.001	0.000	0.005	0.001	0.001	0.001	0.000

Asia

Region, subregion and country				0-14	15-29	30-44	45-64	65 or over	0-14	15-29	30-44	45-64	65 or over
Eastern Asia	China	1982	1990	0.009	0.015	0.009	0.006	0.002	0.009	0.013	0.010	0.007	0.004
	Republic of Korea	1960	1970	0.020	0.034	0.019	0.004	-0.001	0.022	0.035	0.013	0.009	0.003
		1970	1980	0.029	0.045	0.021	0.005	0.002	0.029	0.055	0.018	0.012	0.008
		1980	1990	0.044	0.070	0.040	0.020	0.011	0.044	0.084	0.037	0.024	0.018
South-eastern Asia	Indonesia	1961	1971	0.004	0.002	0.000	0.001	-0.001	0.004	0.001	0.001	0.001	-0.001
		1971	1980	0.007	0.009	0.004	0.004	0.001	0.008	0.006	0.005	0.004	0.003
		1980	1990	0.012	0.016	0.009	0.008	0.004	0.013	0.014	0.009	0.009	0.005
	Malaysia	1970	1980	0.013	0.020	0.011	0.007	0.004	0.013	0.014	0.009	0.009	0.005
	Philippines	1970	1980	0.007	0.013	0.007	0.007	0.004	0.011	0.014	0.007	0.006	0.004
		1980	1990	0.018	0.026	0.019	0.015	0.006	0.021	0.026	0.017	0.017	0.010
	Thailand	1970	1980	0.005	0.008	0.003	0.003	0.001	0.006	0.008	0.004	0.004	0.002
		1980	1990	0.003	0.004	0.000	0.000	-0.002	0.005	0.006	0.000	0.000	-0.001
Southern Asia	Bangladesh	1961	1974	0.004	0.000	0.002	0.001	0.001	0.003	0.003	0.002	0.002	0.001
		1974	1981	0.009	0.016	0.009	0.007	0.007	0.008	0.009	0.007	0.007	0.008
	India	1961	1971	0.004	0.005	0.001	-0.002	-0.002	0.003	0.003	0.001	0.001	-0.001
		1971	1981	0.006	0.008	0.003	0.000	-0.001	0.006	0.006	0.003	0.002	0.001
	Iran (Islamic Republic of)	1966	1976	0.021	0.023	0.014	0.008	0.003	0.016	0.014	0.013	0.010	0.008
		1976	1986	0.018	0.017	0.013	0.010	0.002	0.017	0.023	0.014	0.013	0.010
	Nepal	1961	1971	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
		1971	1981	0.003	0.003	0.002	0.001	0.001	0.003	0.003	0.002	0.002	0.000
	Pakistan	1972	1981	0.004	0.006	0.002	-0.001	-0.002	0.005	0.000	0.002	0.001	0.000
	Sri Lanka	1963	1971	0.007	0.002	0.003	0.002	0.000	0.006	0.006	0.005	0.005	0.001
		1971	1981	0.001	0.001	-0.004	0.003	-0.005	0.000	0.000	-0.002	-0.001	-0.004
Western Asia	Iraq	1957	1965	0.029	0.030	0.018	0.020	0.008	0.028	0.025	0.022	0.023	0.014
		1965	1977	0.027	0.035	0.025	0.013	0.009	0.025	0.020	0.025	0.020	0.013
		1977	1987	0.021	0.032	0.016	0.019	0.003	0.020	0.021	0.019	0.024	0.006
	Israel	1972	1983	0.036	0.039	0.030	0.027	0.004	0.040	0.045	0.033	0.033	0.003
	Syrian Arab Republic	1960	1970	0.012	0.016	0.010	0.004	0.000	0.011	0.010	0.009	0.005	0.003
		1970	1981	0.008	0.014	0.003	0.004	-0.060	0.007	0.008	0.006	0.005	-0.006
	Turkey	1960	1970	0.020	0.024	0.013	0.006	0.002	0.015	0.018	0.015	0.009	0.004
		1970	1980	0.020	0.028	0.011	0.003	-0.002	0.018	0.026	0.013	0.008	0.001

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TABLE 14 *(Continued)*

| Region, subregion and country		Intercensal Interval		Males Age groups (years)					Females Age groups (years)				
				0-14	15-29	30-44	45-64	65 or over	0-14	15-29	30-44	45-64	65 or over
Latin America Central America and the Caribbean	Costa Rica	1963	1973	0.010	0.015	0.011	0.012	0.002	0.006	0.008	0.007	0.006	0.001
		1973	1984	0.014	0.016	0.012	0.015	0.014	0.009	0.009	0.007	0.009	0.002
	Cuba	1953	1970	0.007	0.016	0.003	-0.004	-0.008	0.010	0.017	-0.001	0.001	-0.004
		1970	1981	0.024	0.029	0.025	0.015	0.004	0.026	0.036	0.027	0.022	0.009
	Dominican Republic	1960	1970	0.013	0.020	0.011	0.009	0.006	0.018	0.021	0.011	0.012	0.007
		1970	1981	0.021	0.030	0.012	0.012	0.005	0.026	0.032	0.016	0.017	0.009
	El Salvador	1961	1971	0.005	0.006	0.001	0.003	0.000	0.008	0.006	0.003	0.006	0.002
		1971	1992	0.011	0.015	0.015	0.008	0.001	0.014	0.016	0.014	0.008	-0.001
	Guatemala	1964	1973	0.006	0.007	0.003	0.002	-0.002	0.009	0.007	0.005	0.005	0.000
		1973	1981	-0.004	-0.007	-0.009	-0.007	-0.010	-0.002	-0.007	-0.009	-0.007	-0.014
	Haiti	1950	1971	0.006	0.005	0.000	-0.001	-0.001	0.001	-0.005	-0.004	-0.003	-0.004
		1971	1982	0.011	0.006	0.001	0.000	-0.002	0.006	-0.001	-0.005	-0.003	-0.005
	Honduras	1961	1974	0.009	0.013	0.005	0.003	0.003	0.012	0.013	0.007	0.007	0.003
		1974	1988	0.009	0.012	0.007	0.006	0.008	0.013	0.017	0.009	0.009	0.009
	Mexico	1960	1970	0.018	0.023	0.019	0.011	0.011	0.021	0.023	0.020	0.015	0.005
		1970	1980	0.019	0.030	0.018	0.010	0.002	0.023	0.031	0.020	0.017	0.008
		1980	1990	0.017	0.030	0.016	0.009	0.002	0.019	0.030	0.015	0.012	0.001
	Nicaragua	1963	1971	0.014	0.013	0.013	0.009	0.005	0.020	0.016	0.016	0.017	0.009
	Panama	1960	1970	0.013	0.020	0.010	0.004	-0.005	0.020	0.021	0.011	0.009	0.004
		1970	1980	0.008	0.014	0.001	-0.001	-0.004	0.014	0.013	0.004	0.004	-0.003
		1980	1990	0.010	0.014	0.005	0.002	-0.002	0.014	0.016	0.009	0.005	0.003
	Puerto Rico	1960	1970	0.024	0.038	0.031	0.022	0.014	0.026	0.037	0.033	0.029	0.022
		1970	1980	0.023	0.026	0.017	0.017	0.012	0.024	0.031	0.022	0.023	0.015
		1980	1990	0.014	0.016	0.011	0.008	0.003	0.015	0.020	0.014	0.012	0.006
South America	Argentina	1960	1980	0.027	0.053	0.009	0.006	-0.004	0.035	0.057	0.012	0.015	0.005
		1980	1991	0.029	0.038	0.025	0.017	0.000	0.036	0.046	0.032	0.030	0.006
	Bolivia	1976	1992	0.024	0.022	0.021	0.009	0.005	0.029	0.028	0.021	0.010	0.005
	Brazil	1960	1970	0.023	0.030	0.024	0.018	0.008	0.027	0.033	0.026	0.025	0.013
		1970	1980	0.030	0.045	0.030	0.022	0.009	0.034	0.047	0.032	0.031	0.017
		1980	1991	0.025	0.036	0.023	0.015	0.006	0.031	0.043	0.027	0.023	0.012
	Chile	1960	1970	0.023	0.037	0.021	0.009	0.009	0.031	0.044	0.019	0.017	0.009
		1970	1982	0.026	0.034	0.020	0.015	0.006	0.035	0.046	0.023	0.024	0.014
		1982	1992	0.007	0.012	0.000	-0.006	-0.011	0.014	0.015	0.000	-0.002	-0.006
	Colombia	1964	1973	0.009	0.005	0.002	0.003	0.000	0.017	0.011	0.008	0.006	0.008
		1973	1985	0.023	0.033	0.028	0.021	0.010	0.032	0.037	0.025	0.026	0.009
	Ecuador	1962	1974	0.009	0.011	0.006	0.003	0.000	0.014	0.012	0.007	0.005	0.000
		1974	1982	0.016	0.027	0.013	0.010	0.003	0.020	0.025	0.012	0.011	0.004
		1982	1990	0.015	0.024	0.010	0.010	0.006	0.019	0.027	0.010	0.012	0.009
	Guyana	1960	1970	0.019	0.020	0.020	0.018	0.009	0.019	0.022	0.023	0.022	0.013
	Paraguay	1962	1972	0.008	0.000	0.005	0.003	0.000	0.010	0.005	0.005	0.006	0.000
		1972	1982	0.013	0.012	0.012	0.008	0.003	0.015	0.015	0.010	0.010	0.003
		1982	1992	0.016	0.019	0.013	0.007	0.002	0.021	0.027	0.014	0.013	0.008
	Peru	1961	1972	0.027	0.032	0.018	0.013	0.007	0.030	0.029	0.019	0.016	0.009
		1972	1981	0.020	0.026	0.012	0.010	0.004	0.022	0.025	0.013	0.011	0.005
		1981	1993	0.018	0.020	0.009	0.008	0.006	0.022	0.024	0.013	0.012	0.008
	Uruguay	1963	1975	0.004	0.001	-0.007	-0.004	-0.006	0.013	0.010	0.003	0.010	-0.003
		1975	1985	0.022	0.021	0.020	0.014	0.009	0.036	0.036	0.031	0.032	0.020
	Venezuela	1961	1971	0.020	0.032	0.001	-0.002	-0.001	0.028	0.035	0.013	0.012	-0.001
		1971	1981	0.028	0.048	0.025	0.015	0.013	0.034	0.049	0.027	0.024	0.016
		1981	1990	0.025	0.035	0.014	0.008	0.008	0.033	0.046	0.023	0.022	0.017
B. Mean													
Africa				0.012	0.024	0.011	0.005	0.001	0.014	0.016	0.011	0.008	0.005
Asia				0.014	0.018	0.010	0.007	0.000	0.013	0.017	0.010	0.009	0.004
Latin America				0.016	0.022	0.012	0.008	0.003	0.020	0.024	0.014	0.013	0.006
Total				0.014	0.021	0.011	0.007	0.002	0.017	0.020	0.012	0.011	0.005
C. Median													
Africa				0.006	0.016	0.007	0.001	-0.001	0.008	0.010	0.004	0.003	0.002
Asia				0.009	0.016	0.009	0.004	0.001	0.011	0.013	0.009	0.007	0.003
Latin America				0.016	0.020	0.012	0.009	0.003	0.020	0.024	0.013	0.012	0.006
Total				0.012	0.017	0.009	0.006	0.002	0.014	0.016	0.009	0.008	0.003

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

Figure X. Median age-specific rural out-migration rates by region and sex
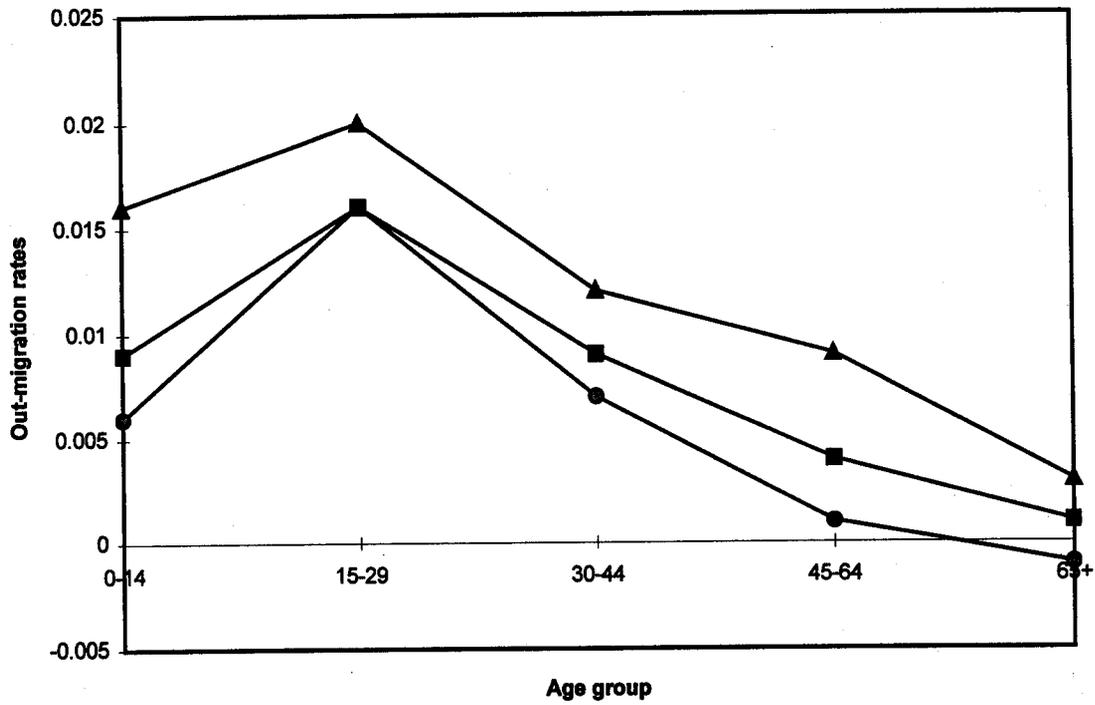
A. Males

B. Females
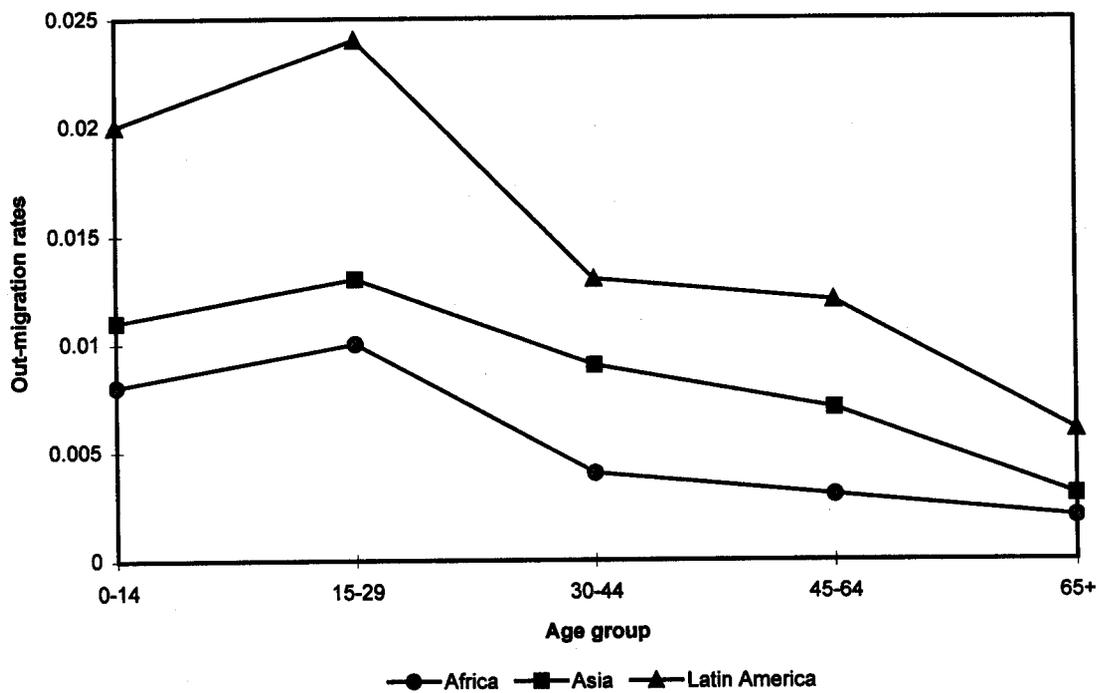
Source: table 14.

The differences in African male migration rates between age groups 0-14 and 15-29 are generally greatest for the Eastern African and Southern African countries, and in some countries clearly indicates a system of contract labour drawing men out of rural areas. For example, the greatest contrast is found for South Africa in the 1960s where there was a net loss of 0.1 per cent to the rural population aged 0-14 and a net loss of 4.3 per cent of the population aged 15-29. From ages 30 and above there were small net gains of migrants to rural areas indicating return migration of male contract labour workers. For rural females in South Africa in this period the pattern is very different, with net out-migration of females aged 0-14 approximately half that of women aged 15-29, and with the highest out-migration rates recorded for women aged 30-44.

In contrast, for most Latin American countries, rates of net rural out-migration of males at ages 0-14 is more than one-half the rates observed at ages 15-29. In only one of the 50 observations for Latin America, the age-specific rate at ages 15-29 is more than twice that of ages 0-14 (Cuba from 1953-1970). For the 25 observations for Africa, there are 15 instances where rates of out-migration of males at ages 15-29 are twice or more those observed at ages 0-14. The situation for Asia is more similar to Latin America than for Africa, with age-specific rural out-migration rates in Southern Asia in particular being very similar at ages 0-14 and 15-29.

The age-specific patterns of rural out-migration are different for females than for males. For all three regions the shape of the age-specific distribution for rural out-migration rates is much flatter for females than it is for males. This is most evident for Asian and African countries, where rates peak for ages 15-29 and then decline more slowly relative to the decline observed for males. For example, the ratio of the median migration rates at ages 15-29 to those at ages 45-64 for males are 16 for Africa, 2.1 for Latin America and 4 for Asia, respectively. The corresponding ratios for females are 3.3, 2 and 1.8.

Clearly the pattern of rural out-migration for African countries operates very differently for men and women, and somewhat differently for men and women in Asian and Latin American countries. In Africa, compared to other regions, a much high proportion of the rural outflow of migrants is concentrated at young adult ages, and most of this is of men. In Latin America, there is a greater concentration of female out-migration at ages 15-29 than is observed in the other two regions, while in Asia there is a greater concentration of female rural-out-migration rates at ages 30-44. This suggests the importance of migration of young females out of rural areas in Latin America and, in Asia, perhaps the relatively high proportion of women moving in established family units.

It must again be stressed, however, that there is considerable variation among Asian countries in the age-specific rural out-migration patterns. Furthermore, from the country-level data displayed in table 14 it appears that there is more between country variation for females than for males. For Eastern and South-eastern Asian countries, compared to Western and Southern Asia countries, there is a much more rapid reduction in out-migration rates from age 15-29 to 30-44 for females. As noted earlier, in Eastern and South-eastern Asian countries both cultural norms and patterns of economic development have been associated with relatively high levels of female mobility, especially at younger ages. In fact in Eastern and South-eastern Asian countries the age patterns of migration for women are similar to those for men in the same countries.

To take an example of the Republic of Korea, for males aged 15-29, net rural out-migration rates for the 1960s, 1970s and 1980s were .034, .045 and .070, respectively. For males aged 30-44 the corresponding rates were .019, .021 and .040. Over time rural out-migration rates have increased for males, and the out-migration rates have increased more rapidly for those men aged 15-29 than they have for men aged 30-44. For females, out-migration rates at ages 15-29 were .035, .055 and .084 for the decades of the 1960s, 1970s and 1980s, and for women aged 30-44 the corresponding rates were .013, .018 and .037. For women in both age groups out-migration rates have increased, but are increasing slightly more rapidly for older women than for younger women. The end result is that the age specific migration rates for men and women were very similar in the 1980s.

The age patterns of migration of Southern and Western Asian countries, particularly those countries whose populations are predominantly Islamic, are very different from Eastern and South-eastern Asian. The situation of the Republic of Korea described above can be compared with another high migration country, Iraq, located in Western Asia. For all each of the three decades slightly over three per cent of the male rural

population aged 15-29 migrated out of rural areas, for age group 30-44 out-migration levels were approximately one-half of the rates for younger men. Women at ages 30-44 had rates that were similar to, or even above, those of men at the same ages. However, at younger ages (15-29), for each decade the rural out-migration rates of women were considerably below those of men. These patterns describe a society where much of the out-migration of females from rural areas occurs within the context of family moves, while for males there is a considerable amount of migration of young, presumably single, males.

In summary, rates of rural out-migration in many countries appeared to have increased over the last three decades. This is particularly so in Asian countries, but can also be observed in some Latin American countries. In Africa, out-migration from rural areas have fallen. For all regions, rural out-migration is concentrated at the young adult ages, but this concentration is observed more for men than for women, and more in African countries than for Asian or Latin American countries.

Urban in-migration

Table 15 shows the net urban in-migration rates. As with the rural out-migration rates, the age-specific in-migration rates are expressed per 1,000 persons in the applicable age group. In the case of the urban in-migration the base population is those persons living in urban areas. The rural out-migration rates and urban in-migration rates are obviously related. However, the relative size of the rural and urban populations have a marked effect on the levels of the estimated rates. Where the rural population is large relative to the size of the urban population, low rates of rural out-migration can still result in very high rates of urban in-migration. The situations is reversed where the size of the rural population is small relative to that of the urban population. This is the reason why the ordering of regions in terms of levels of rural out-migration are very different from what is observed for urban in-migration (see figure XI).

At most ages the median age-specific rates of urban in-migration are lowest for countries in Latin America and highest for countries in Asia. There is much more variation across age groups for the median rates for African countries compared to Asian and Latin American countries. For example, the highest age-specific rate for males is for Africa at ages 15-29, where the median urban in-migration rate is almost 3 per cent. The lowest rate for males is also found for Africa, where there is a negative in-migration rate at ages 65 or over, indicating an outflow of older males from urban areas. For females, the variation across age groups is not as great among regions as that observed for males. Median urban in-migration rates are lowest for females at all age groups for Latin America and are highest at all ages, except 0-14, for Asia.

For males, the age patterns of net in-migration are similar for Latin America and Asia, with in-migration rates high for ages 0-14 and 15-29 and then gradually declining with increasing age, although never becoming negative. For Africa, the male in-migration rate shows an increase from ages 0-14 to 15-29 and then a rapid decline from ages 15-29 to 30-44 (from 2.9 per to 0.9 per cent) followed by more gradual declines for older age groups. As noted above in the discussion of rural out-migration, the African pattern is consistent with a situation of high levels of labour migration of young men. For females, the age patterns for the Asian and Latin American countries are also similar, with gradually declining migration rates over the entire age range. For Africa, the declines are more rapid at the younger ages than they are in the other two regions.

The high rates of urban net in-migration at the youngest ages 0-14 are striking for both males and females. In contrast, net rural out-migration rates, although relatively high, are typically below those of ages 15-29. There are several possible explanations for the high rates of urban in-migration at ages 0-14. First, the estimation method used might over-estimate the number of migrants in the youngest age group (0-4) by assuming that the fertility distribution of the urban population implied in the child-woman ratio is the same as for the migrant population (which in many societies has a much high proportion single) and by assuming that all births to migrant women occur before migration. A second possible explanation is that the age structure of urban populations often displays a narrow base because of declining urban fertility and heavy in-migration at young ages. Therefore, relatively small numbers of urban in-migrants at young ages can have large impacts on the migration rate at these ages.

TABLE 15. AGE-SPECIFIC NET IN-MIGRATION RATES TO URBAN AREAS BY SEX AND AGE GROUPS

Region, subregion and country		Intercensal interval		Males					Females				
				Age groups (years)					Age groups (years)				
				0-14	15-29	30-44	45-64	65 or over	0-14	15-29	30-44	45-64	65 or over
A. Net out-migration rate by country												

A. Net out-migration rate by country

Region, subregion and country		Interval		0-14 (M)	15-29 (M)	30-44 (M)	45-64 (M)	65+ (M)	0-14 (F)	15-29 (F)	30-44 (F)	45-64 (F)	65+ (F)
Africa													
Eastern Africa	Kenya	1969	1979	0.040	0.086	0.009	-0.005	0.020	0.046	0.057	0.015	0.031	0.048
	United Rep. of Tanzania	1967	1978	0.085	0.096	0.050	0.041	0.062	0.086	0.080	0.057	0.069	0.073
	Zimbabwe	1969	1982	0.031	0.069	0.001	-0.005	-0.002	0.039	0.055	0.010	-0.007	-0.029
		1982	1992	0.022	0.065	0.009	-0.008	-0.045	0.033	0.049	0.008	-0.011	-0.022
Northern Africa	Egypt	1960	1976	0.008	0.017	0.008	0.005	-0.005	0.011	0.011	0.006	0.006	-0.001
		1976	1986	0.003	0.005	0.001	0.000	-0.013	0.006	0.001	0.000	0.000	-0.010
	Libyan Arab Jamahiriya	1964	1973	0.077	0.093	0.080	0.065	0.075	0.078	0.082	0.083	0.074	0.071
		1973	1984	0.020	0.023	0.011	0.015	0.021	0.020	0.021	0.019	0.025	0.023
	Morocco	1960	1971	0.019	0.012	0.014	-0.004	0.002	0.028	0.006	0.015	0.007	0.005
		1971	1982	0.021	0.033	0.018	0.007	-0.005	0.023	0.017	0.016	0.008	0.001
	Sudan	1973	1983	0.017	0.019	-0.007	0.002	-0.001	0.015	0.004	0.010	0.014	0.007
	Tunisia	1966	1975	0.029	0.016	0.024	0.017	0.004	0.031	0.024	0.027	0.021	0.005
		1975	1984	0.011	0.012	0.007	0.003	-0.002	0.012	0.007	0.005	0.006	0.005
Southern Africa	Botswana	1964	1971	0.099	0.176	0.135	0.083	0.036	0.129	0.132	0.107	0.071	0.045
		1971	1981	0.044	0.107	0.024	-0.022	-0.018	0.054	0.062	0.013	-0.005	-0.017
		1981	1991	0.095	0.099	0.043	0.054	0.101	0.106	0.093	0.067	0.100	0.122
	South Africa	1960	1970	0.012	0.029	-0.001	-0.003	-0.028	0.008	0.013	0.002	0.000	-0.010
Western Africa	Burkina Faso	1975	1985	0.055	0.079	0.050	0.027	0.035	0.053	0.051	0.037	0.042	0.062
	Cote d'Ivoire	1975	1988	0.022	0.010	-0.001	-0.007	-0.012	0.025	0.008	-0.001	0.002	0.000
	Ghana	1960	1970	0.023	0.032	0.000	0.000	-0.004	0.027	0.016	0.010	0.011	0.007
		1970	1984	0.012	0.008	-0.007	0.004	-0.002	0.015	0.003	0.004	0.009	0.008
	Liberia	1974	1984	0.027	0.034	0.003	-0.008	-0.017	0.029	0.024	-0.003	0.010	0.002
	Mali	1976	1987	0.023	0.028	0.022	0.012	0.010	0.026	0.017	0.016	0.014	0.012
	Senegal	1976	1988	0.011	0.017	0.011	-0.004	-0.010	0.012	0.005	0.010	0.005	-0.005
	Togo	1959	1970	0.038	0.025	0.005	0.007	0.003	0.037	0.009	0.006	0.013	0.003
Asia													
Eastern Asia	China	1982	1990	0.039	0.044	0.023	0.017	0.008	0.040	0.042	0.027	0.022	0.014
	Republic of Korea	1960	1970	0.043	0.049	0.028	0.008	-0.005	0.045	0.046	0.022	0.022	0.010
		1970	1980	0.034	0.034	0.017	0.007	0.005	0.035	0.035	0.016	0.018	0.015
		1980	1990	0.024	0.031	0.015	0.014	0.015	0.024	0.030	0.014	0.018	0.018
South-eastern Asia	Indonesia	1961	1971	0.019	0.009	0.002	0.003	-0.009	0.023	0.003	0.006	0.006	-0.003
		1971	1980	0.032	0.026	0.018	0.017	0.006	0.036	0.020	0.023	0.020	0.013
		1980	1990	0.035	0.033	0.023	0.024	0.015	0.039	0.030	0.024	0.027	0.015
	Malaysia	1970	1980	0.030	0.033	0.020	0.014	0.008	0.031	0.032	0.017	0.019	0.009
	Philippines	1970	1980	0.016	0.023	0.012	0.008	0.002	0.023	0.020	0.011	0.011	0.006
		1980	1990	0.026	0.031	0.022	0.020	0.009	0.031	0.027	0.019	0.021	0.013
	Thailand	1970	1980	0.034	0.035	0.017	0.016	0.007	0.040	0.035	0.019	0.019	0.011
		1980	1990	0.021	0.018	0.000	-0.001	-0.010	0.028	0.022	-0.001	-0.002	-0.006
Southern Asia	Bangladesh	1961	1974	0.050	0.044	0.022	0.018	0.018	0.047	0.034	0.029	0.026	0.026
		1974	1981	0.077	0.082	0.053	0.056	0.068	0.073	0.061	0.060	0.072	0.074
	India	1961	1971	0.017	0.016	0.003	-0.007	-0.012	0.015	0.010	0.004	0.003	-0.007
		1971	1981	0.023	0.022	0.010	0.001	-0.004	0.022	0.017	0.011	0.010	0.002
	Iran (Islamic Republic of)	1966	1976	0.030	0.020	0.017	0.011	0.004	0.024	0.016	0.017	0.013	0.011
		1976	1986	0.020	0.012	0.010	0.010	0.002	0.018	0.019	0.012	0.013	0.010
	Nepal	1961	1971	0.022	0.020	0.003	-0.007	0.000	0.017	0.005	0.006	-0.001	0.008
		1971	1981	0.053	0.042	0.034	0.026	0.013	0.052	0.044	0.041	0.032	0.002
	Pakistan	1972	1981	0.011	0.012	0.005	-0.004	-0.007	0.013	0.001	0.005	0.002	-0.004
	Sri Lanka	1963	1971	0.028	0.026	0.010	0.008	-0.002	0.025	0.021	0.020	0.017	0.004
		1971	1981	0.005	0.002	-0.013	-0.011	-0.019	0.002	-0.001	-0.007	-0.003	-0.013
Western Asia	Iraq	1957	1965	0.035	0.026	0.022	0.025	0.014	0.035	0.027	0.031	0.030	0.020
		1965	1977	0.020	0.017	0.015	0.010	0.008	0.018	0.012	0.018	0.015	0.011
		1977	1987	0.012	0.012	0.006	0.009	0.002	0.011	0.009	0.009	0.012	0.003
	Israel	1972	1983	0.006	0.006	0.004	0.003	0.000	0.007	0.006	0.004	0.003	0.000
	Syrian Arab Republic	1960	1970	0.019	0.019	0.013	0.006	0.000	0.017	0.014	0.013	0.008	0.005
		1970	1981	0.010	0.014	0.003	0.004	-0.010	0.010	0.008	0.006	0.007	-0.008
	Turkey	1960	1970	0.053	0.032	0.021	0.013	0.004	0.043	0.038	0.030	0.020	0.009
		1970	1980	0.034	0.027	0.012	0.005	-0.005	0.031	0.035	0.018	0.012	0.002

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TABLE 15 *(Continued)*

Region, subregion and country		Intercensal Interval		Males Age groups (years)					Females Age groups (years)				
				0-14	15-29	30-44	45-64	65 or over	0-14	15-29	30-44	45-64	65 or over
Latin America													
Central America and the Caribbean	Costa Rica	1963	1973	0.021	0.025	0.017	0.019	0.002	0.028	0.020	0.015	0.016	0.013
		1973	1984	0.010	0.010	0.008	0.008	0.002	0.014	0.010	0.007	0.008	0.002
	Cuba	1953	1970	0.007	0.012	0.002	-0.003	-0.005	0.009	0.011	0.000	0.000	-0.001
		1970	1981	0.016	0.017	0.012	0.007	0.002	0.017	0.019	0.011	0.008	0.002
	Dominican Republic	1960	1970	0.027	0.036	0.020	0.020	0.015	0.036	0.028	0.016	0.018	0.010
		1970	1981	0.023	0.030	0.013	0.016	0.008	0.032	0.026	0.015	0.017	0.009
	El Salvador	1961	1971	0.009	0.009	0.002	0.004	0.000	0.014	0.008	0.003	0.007	0.002
		1971	1992	0.015	0.015	0.015	0.008	0.001	0.018	0.014	0.012	0.006	-0.001
	Guatemala	1964	1973	0.012	0.012	0.005	0.003	-0.003	0.018	0.011	0.008	0.008	0.000
		1973	1981	-0.008	-0.012	-0.016	-0.013	-0.016	-0.004	-0.010	-0.014	-0.010	-0.015
	Haiti	1950	1971	0.029	0.024	-0.001	-0.007	-0.006	0.051	0.019	0.006	0.002	-0.009
		1971	1982	0.005	0.016	-0.018	-0.018	-0.029	0.024	-0.003	-0.018	-0.011	-0.026
	Honduras	1961	1974	0.027	0.029	0.014	0.009	0.007	0.035	0.025	0.016	0.015	0.006
		1974	1988	0.019	0.019	0.012	0.012	0.015	0.027	0.021	0.013	0.014	0.012
	Mexico	1960	1970	0.016	0.019	0.016	0.010	0.001	0.018	0.017	0.014	0.011	0.003
		1970	1980	0.013	0.016	0.010	0.006	0.001	0.015	0.015	0.010	0.009	0.004
		1980	1990	0.009	0.012	0.006	0.004	0.001	0.010	0.011	0.005	0.005	0.001
	Nicaragua	1963	1971	0.020	0.019	0.018	0.013	0.007	0.026	0.016	0.017	0.016	0.006
	Panama	1960	1970	0.022	0.024	0.012	0.005	-0.006	0.029	0.019	0.010	0.008	0.003
		1970	1980	0.010	0.014	0.001	-0.001	-0.005	0.018	0.009	0.003	0.003	-0.002
		1980	1990	0.012	0.012	0.004	0.002	-0.002	0.016	0.011	0.006	0.004	0.002
	Puerto Rico	1960	1970	0.028	0.035	0.023	0.019	0.014	0.029	0.031	0.023	0.021	0.015
		1970	1980	0.016	0.016	0.009	0.010	0.008	0.017	0.018	0.011	0.011	0.007
		1980	1990	0.007	0.008	0.005	0.003	0.002	0.008	0.009	0.006	0.004	0.002
South America	Argentina	1960	1980	0.009	0.014	0.002	0.001	-0.001	0.011	0.012	0.002	0.002	0.001
		1980	1991	0.006	0.007	0.004	0.003	0.000	0.007	0.007	0.004	0.004	0.001
	Bolivia	1976	1992	0.024	0.016	0.018	0.010	0.008	0.028	0.018	0.017	0.011	0.007
	Brazil	1960	1970	0.026	0.030	0.020	0.016	0.007	0.030	0.027	0.019	0.018	0.008
		1970	1980	0.022	0.026	0.016	0.013	0.006	0.025	0.023	0.015	0.014	0.007
		1980	1991	0.012	0.013	0.008	0.006	0.003	0.015	0.014	0.008	0.007	0.004
	Chile	1960	1970	0.011	0.015	0.008	0.004	0.005	0.014	0.013	0.006	0.005	0.003
		1970	1982	0.008	0.009	0.005	0.005	0.002	0.010	0.009	0.004	0.005	0.003
		1982	1992	0.002	0.003	0.000	-0.002	-0.003	0.003	0.003	0.000	0.000	-0.001
	Colombia	1964	1973	0.009	0.005	0.002	0.003	0.000	0.017	0.007	0.006	0.004	0.005
		1973	1985	0.018	0.020	0.016	0.014	0.007	0.023	0.016	0.012	0.013	0.004
	Ecuador	1962	1974	0.016	0.017	0.010	0.005	0.000	0.022	0.014	0.010	0.007	0.000
		1974	1982	0.024	0.028	0.016	0.014	0.005	0.028	0.022	0.013	0.013	0.005
		1982	1990	0.016	0.020	0.008	0.011	0.007	0.021	0.019	0.008	0.011	0.009
	Guyana	1960	1970	0.073	0.062	0.066	0.053	0.025	0.074	0.062	0.060	0.047	0.023
	Paraguay	1962	1972	0.017	0.000	0.008	0.005	-0.001	0.021	0.006	0.007	0.007	0.000
		1972	1982	0.025	0.015	0.016	0.011	0.004	0.028	0.017	0.011	0.012	0.003
		1982	1992	0.023	0.020	0.013	0.008	0.003	0.029	0.023	0.012	0.012	0.006
	Peru	1961	1972	0.025	0.022	0.014	0.011	0.008	0.027	0.020	0.015	0.014	0.009
		1972	1981	0.014	0.012	0.007	0.006	0.003	0.015	0.012	0.007	0.007	0.004
		1981	1993	0.011	0.008	0.004	0.004	0.003	0.013	0.009	0.005	0.005	0.004
	Uruguay	1963	1975	0.001	0.000	-0.002	-0.001	-0.001	0.003	0.002	0.001	0.001	0.000
		1975	1985	0.004	0.005	0.004	0.003	0.002	0.006	0.005	0.004	0.004	0.002
	Venezuela	1961	1971	0.010	0.012	0.000	-0.001	-0.001	0.013	0.011	0.005	0.005	0.000
		1971	1981	0.010	0.013	0.007	0.005	0.006	0.012	0.010	0.006	0.007	0.004
		1981	1990	0.007	0.007	0.003	0.002	0.003	0.008	0.008	0.003	0.004	0.003
B.Mean													
Africa				0.034	0.048	0.020	0.011	0.008	0.038	0.034	0.022	0.021	0.016
Asia				0.028	0.026	0.014	0.010	0.004	0.028	0.023	0.017	0.016	0.009
Latin America				0.016	0.016	0.009	0.007	0.002	0.020	0.015	0.009	0.009	0.003
Total				0.024	0.027	0.013	0.009	0.004	0.027	0.022	0.014	0.014	0.008
C. Median													
Africa				0.023	0.029	0.009	0.003	-0.002	0.028	0.017	0.010	0.010	0.005
Asia				0.026	0.026	0.015	0.009	0.002	0.025	0.021	0.017	0.015	0.009
Latin America				0.015	0.015	0.008	0.006	0.002	0.018	0.014	0.008	0.007	0.003
Total				0.020	0.019	0.010	0.006	0.002	0.023	0.017	0.011	0.010	0.004

Source: Population Division, Department of Economic and Social Affairs of the United Nations Secretariat.

Figure XI. Median age-specific urban in-migration rates by region and sex

A. Males

B. Females

—●— Africa —■— Asia —▲— Latin America
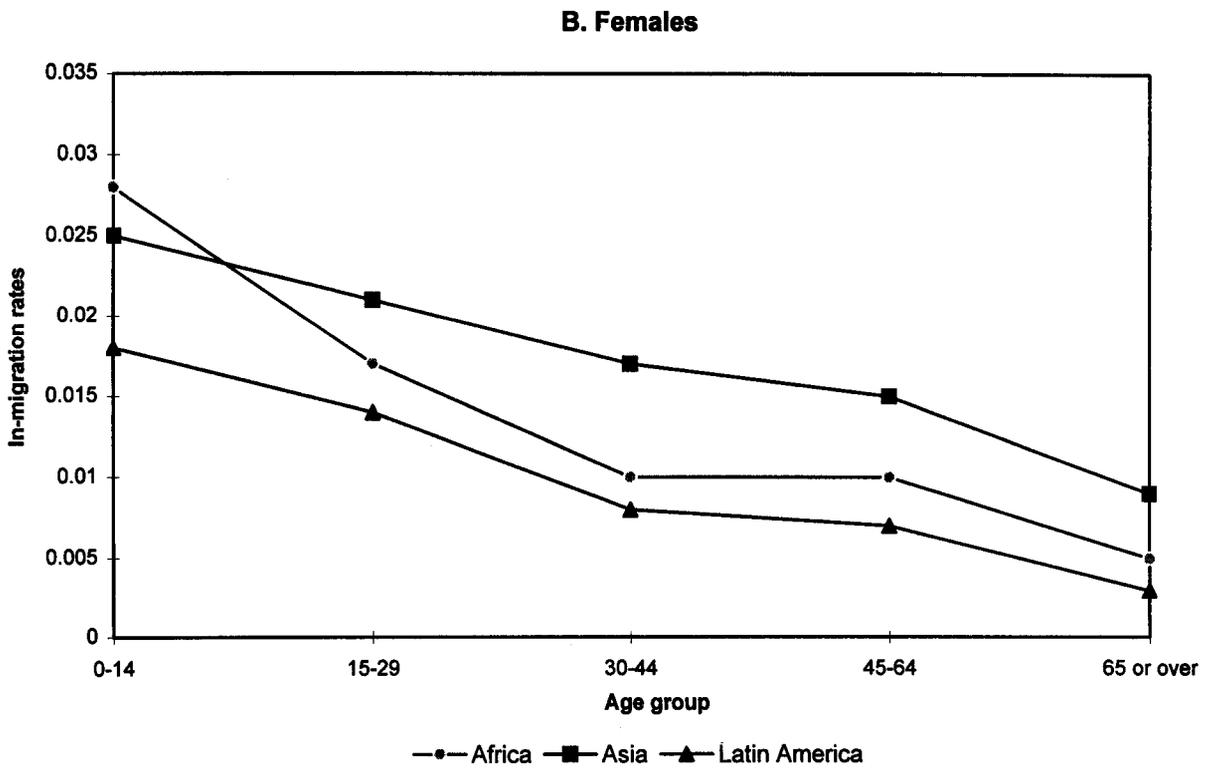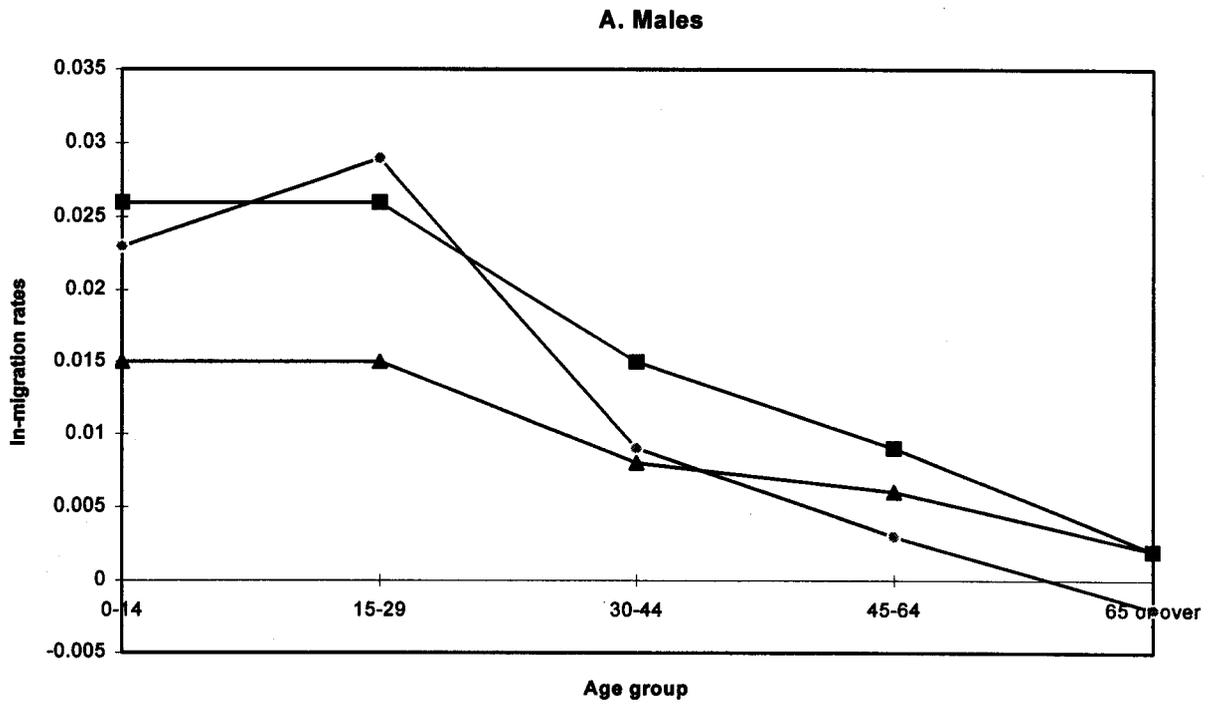
Source: table 15.

The difference in the ordering of regions when rural out-migration and urban in-migration rates are compared is directly related to the relative size of urban and rural areas in the different regions. In general, of the three regions Latin America has the highest net rural out-migration rates but the lowest urban in-migration rates. There is a greater propensity of the rural population of Latin American countries to move to urban areas, but because of the highly urbanized nature of Latin America the rural migrants have a relatively small demographic impact on urban populations, compared to other regions. Asia has intermediate rates of rural out-migration, but has the highest rates of age-specific net urban in-migration. This results from the low levels of urbanization in many Asian countries. The shift of a small proportion of the large rural population can have a large demographic effect on the urban population.

The age patterns of both in and out-migration clearly show that migration is a major factor in contributing to changes in the age structure of rural and urban areas. Rural to urban shifts in populations resulting from migration act to increase the numbers of young adults in the urban population while depleting the rural populations of persons at these ages. Demographically, the effects of the age-selectivity of rural to urban migration are significant. Not only does migration result in a short-term increase in the numbers in the urban population at young adult ages, but it also contributes to more rapid growth of urban population through the addition to the population of the children born to past migrants (Rogers, 1982).

VI. CONCLUSION

In recent decades many developing countries have experienced urban growth rates considered unmanageable and have therefore tried to slow the growth of their urban areas, mainly through adopting policies aimed at reducing rural-urban migration. These policies have generally been ineffective, even in countries like China where considerable efforts have been made in their implementation (United Nations, 1996). The failure to significantly slow urban growth rates can not only, however, be ascribed solely to a failure of migration polices. The most important component of urban growth in most countries is not migration, it is natural increase of the urban population. Furthermore, rates of natural increase remain high in many developing countries.

The importance of natural increase to urban growth has been highlighted in a number of publications. The United Nations (1980) in one of the earliest analyses in this area showed that natural increase accounted for approximately 60 per cent of urban growth in all developing regions. The updated estimates of the components of urban growth presented in this report show that during the period 1960-1990 the variability among regions of the developing world grew. In Latin America, the only developing region that is highly urbanized, urban growth has slowed considerably. The contribution to urban growth of migration and reclassification declined from 40 per cent in the 1960s to 34 per cent in the 1980s. In Africa the estimates presented, although based on a limited number of countries, show that natural increase, with an average annual rate of growth of 2.8 per cent, was responsible for 75 per cent of urban growth in the 1980s. Asia is the only developing region where the share of urban growth attributed to migration/reclassification has increased over the last three decades. Although it is likely that reclassification is responsible for a large proportion of urban growth resulting from migration/reclassification, the economic dynamism of many countries in the Asian region has stimulated high rates of rural to urban movement.

The continued high growth rates of urban populations in many developing countries, particularly those in Africa and Asia, is linked to the ways in which the components of urban growth, natural increase and migration, affect the structure of urban populations. Net urban in-migration is concentrated at young adult ages. In large part because of urban in-migration, urban areas have much younger populations than do rural areas. This contributes to relatively high rates of natural increase for urban areas as the young age structure of urban populations places downward pressure on the CDR and upward pressure on the CBR. Furthermore, migrants through their fertility contribute to urban growth long after they have moved.

Rural out-migration is not on the decline in many countries of the developing world. Although there has been a slowdown in urban growth in some of the developing regions, particularly Latin America, for many countries this does not appear to have been a result of reduced migration. Rather the situation is more a result of rapidly declining rates of urban natural increase and high rates of urbanization. For all countries combined,

there have been increases in rural out-migration. Only in Africa there appears to be a trend of a reduction in rural out-migration, probably a result of economic stagnation. In Latin America, rates of rural out-migration rose from the 1960s to 1970s, before declining somewhat in the 1980s. Rates of urban in-migration, however, fell in all three decades for Latin America. Also, although urban in-migration rates fell for almost all countries in Latin America, there was much more variation among countries in the trends in rural out-migration. A major factor in the declining importance of migration to urban growth in Latin American countries appears to be the high rates of urbanization that most countries have attained. Rural areas were still providing similar proportions of their populations as migrants to urban areas, but these were becoming a smaller and smaller proportion of urban populations. In Asia, large rural populations were supplying increasing proportions of their population to relatively small urban populations. This contributed to increased rural out-migration rates and to increased urban in-migration rates. The relatively small decreases in rates of urban growth in Asian countries were a result of reductions in urban rates of natural increase.

If the growth of urban areas is to be significantly reduced, more emphasis has to be given to reducing fertility. Declining population growth will reduce the growth of urban and rural populations. This conclusion runs counter to the general assumption that the control of urban growth hinges on the control of internal migration. Given that migration is a rational response of individuals and families to the economic and social force that shape their environment, and the opportunities open to them, it is counterproductive to fight such forces. Indeed, an increased contribution of rural-urban migration to urban growth can be argued to be related to high rates of economic growth. Although many factors are involved in the relationship between migration and economic development, in recent decades the level of net rural-urban migration in developing countries has been found to be positively correlated to GNP growth and to indicators of social and health well-being (Chen and Zlotnik, 1994). The increased contribution of migration to urban growth that is observed in Asian countries over the three decades is a reflection of the close relationship between economic growth and increased migration on the one hand, and development and reduced levels of national increase on the other hand.

But even in Asia, rates of urban growth appears to be on the decline. Also in Asia, especially in Eastern and South-eastern Asia, there has been a slowdown in the rates of growth of the largest cities. However, these trends may be more apparent, with the expansion of the influence of large cities into their peripheries accompanied by a change in migration patterns where areas adjacent to large cities increasingly become the main destination of migrants. In some countries, such as Thailand, these peripheral areas have not been reclassified as urban, thus resulting in a decrease in the contribution of migration/reclassification to urban growth from the 1970s to 1980s. In other countries such as China, reclassification of the peripheral areas did take place, but reclassification seems to have incorporated large areas that truly are rural, albeit having high population densities, leading to very high estimates of the contribution of migration/reclassification to urban growth in the 1980s. The extent to which city boundaries are or are not extended obviously affects the estimates of the contribution of the components of urban growth and hence must be analyzed more closely. Furthermore, the whole issue of the emergence of extended metropolitan regions and the role they play in the urban hierarchy needs to be further explored (see Gilbert, 1993 and Drakakis-Smith, 1995).

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