MIGRATION AND SETTLEMENT:
7. HUNGARY

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DEDICATION

Kálmán Tekse (1932–1978)

Demographers in Hungary and throughout the world were shocked by the tragic death of Kálmán Tekse in August of 1978 at the age of 46 years.

Dr. Tekse began his association with the Hungarian Central Statistical Office as an expert in sampling for the 1960 census, after completing his post-graduate studies in mathematics. From its establishment in 1962 he was a member of the Demographic Research Institute of the Central Statistical Office, where he was employed as senior research worker and acted as scientific chief of section.

Kálmán spent nearly 10 years in the service of the United Nations and the World Health Organization (WHO) in Jamaica, in Sierra Leone, and in Geneva. During 1972–1975 he worked on the WHO demographic program as a project coordinator, focusing mainly on infant and early-childhood mortality surveys. In 1977 he returned to the Demographic Research Institute to assume its directorship.

Dr. Tekse's scientific interests spanned several spheres of demography. He contributed to the development of methods for reducing nonsampling errors, to methodological research on spatial population distribution, and to the analysis of urbanization processes and internal migration. His last major contribution was a book entitled *Introduction to the Theory of Stable Population.*

Kálmán was a valued colleague and a dear friend, a warm personality with a great sense of humor, who will always hold an affectionate place in the memories of those who knew him.

Andrei Rogers

FOREWORD

Interest in human settlement systems and policies has been a central part of urban-related work at the International Institute for Applied Systems Analysis (IIASA) from the outset. From 1975 through 1978 this interest was manifested in the work of the *Migration and Settlement Task,* which was formally concluded in November 1978. Since then, attention has turned to the dissemination of the Task's results and to the conclusion of its comparative study, which, under the leadership of Dr. Frans Willekens, is focusing on a comparative quantitative assessment of recent migration patterns and spatial population dynamics in all of IIASA's 17 National Member Organization countries.

The comparative analysis of national patterns of interregional migration and spatial population growth is being carried out by an international network of scholars who are using methodology and computer programs developed at IIASA.

This is the report on migration and settlement in Hungary. Dr. Klára Bies and the late Dr. Kálmán Tekse, of the Hungarian Demographic Research Institute in Budapest, have analyzed recent changes in settlement patterns and have studied in detail the population dynamics of the system of six economic planning regions.

Reports summarizing previous work on migration and settlement at IIASA are listed at the end of this report.

Andrei Rogers
Chairman
Human Settlements
and Services Area

ACKNOWLEDGMENTS

The valuable work of the IIASA team, and particularly that of Professor A. Rogers and Dr. F. Willekens, which has proved so useful in analyzing and understanding the patterns of regional population dynamics in Hungary, is greatly appreciated; so is the research assistance of Dr. M. Dévényi, of the Hungarian Institute for Town and Regional Planning.

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1 INTRODUCTION

1.1 Historical Background

Present patterns of internal migration, urbanization, and human settlement in Hungary have been shaped by historical events dating back almost four centuries. The 150 years of Turkish occupation and the nearly-permanent state of war during that period forced people to cluster in larger and safer population centers in the inhabited parts of the country. Subsequent wars of independence and the considerable territorial changes of the country following World War I also had substantial impacts on these patterns. Industrialization and the feudalistic features of society that survived until World War II influenced urbanization in two directions: while accelerating the overall process of urbanization, they also generated large disparities in the settlement system and regional population distribution.

After World War II, resolute socioeconomic policies for the country, including policies related to the settlement system and the implementation of socialist development plans, helped to remedy the situation and to develop a balanced system of settlements with an appropriate geographical distribution of the population. Rapid industrialization, the development of large-scale farming, and accelerated urbanization were accompanied by high geographical and social mobility among the population (Koloszár 1975). Nevertheless, established patterns of urbanization and the structure of the human settlement system are difficult to influence and take more than two or three decades to alter. This point is strongly supported by evidence that, although between 1950 and 1974 the proportion of national income generated by agriculture dropped from 42 to 16 percent and the proportion of active wage-earners employed in the agricultural and related industries declined from 52 to 23 percent, the proportion of rural population changed much more slowly, only declining from 60 to 50 percent over the same period.

TABLE 1 The speed of urbanization during intercensal periods: Hungary[a], 1870–1977.

Intercensal period	Change in urban share of the population[b]	Intercensal period	Change in urban share of the population[b]
De facto population (permanent residents and temporary migrants)		*Resident population (permanent residents only)*	
1870–1880	0.67	1960–1969	1.11
1881–1890	0.55	1970–1974	0.92
1891–1900	1.20	1970–1977	0.94
1901–1910	0.69		
1911–1920	0.30		
1921–1930	0.27		
1931–1940	0.51		
1941–1948	−0.54		
1949–1959	0.73		
1960–1969	0.83		

[a]Data for periods prior to 1920 refer to the present area of the country.
[b]Measured as the annual average rate of exponential change in the percentage of the population that is urban.
SOURCES: Tekse (1977), and various Census volumes published by the Central Statistical Office.

During the 100-year period before World War II the speed of urbanization was relatively slow, except for the last decade of the 19th century which witnessed a brief, though dramatic upsurge of industrialization (Table 1). This slow urbanization suffered setbacks during both World War II and the subsequent short period of intensive external migration (including transfers of large population groups across national boundaries). The biggest population losses were from the urban centers. Internal migration processes and urbanization accelerated considerably during the 1950s and 1960s, when deep-rooted changes – though quantitatively not so sizeable – in human settlement conditions occurred.

The balance of migration by type of settlement clearly mirrors these trends. The migration gain of Budapest during the 1950s and 1960s was below the levels observed in the last decades of the 19th century and the period between the two world wars. In contrast, the migration gains of provincial towns, as well as the decline of the villages, reached a peak during these last two decades. The actual population growth of the provincial towns, surpassing even that of Budapest itself, as well as their migration gains are the most notable of these recent trends.

It should also be noted that the balance of migration for the whole country in the 1950s showed a gross deficit of 160,000 people due to emigration, whereas in the 1960s the regional distribution of the population was essentially unaffected by external migration.

The volume of migratory movements can be characterized by the annual number of people that cross municipal boundaries. Since 1960 the number of permanent migrants has varied between 250,000 and 340,000 annually, while that of temporary migrants has fluctuated between 360,000 and 450,000 annually.* These figures already indicate a definite decline in the intensity of migration compared to earlier periods, reflecting recent development concepts for the settlement system and for the regional development of industry. Accordingly, while in 1960 there were 34 permanent and 63 temporary migrants per thousand population, these rates decreased, respectively, to 26 and 51 by 1970, and to 24 and 43 by 1974.

1.2 Settlement Patterns

Recent trends and current patterns of migration are greatly influenced by the present structure of urbanization and settlement. In spite of recent impressive progress, this structure has a number of inherent problems and exhibits regional as well as urban and rural disparities. The main features of the settlement system of Hungary and some of the associated problems are briefly summarized below (Tekse 1977).

The level of urbanization in Hungary is relatively low: in 1974 about one half of the country's population still lived in rural areas.

Budapest, the capital of the country, outstrips the rest of the towns in terms of its size and concentration of economic activity. At the end of 1974, more than two million people were concentrated in the capital; this represented about 40 percent of the total urban population. The primacy of Budapest has always been marked (Table 2), with a high concentration of economic activity, including industry.

The outstanding primacy of Budapest stems partly from the lack of a network of big cities. Apart from the capital, the five most important cities in Hungary (called county towns) had an average population of just over 160,000 in 1974 (Table 3).

Although the urban system has spread considerably during the last two decades, producing a more regular distribution of urban centers, the development of such centers has not been uniform. The growth of population in these middle-sized towns has differed from region to region. For example, their growth was particularly slow on the Hungarian Plain. Up to 1970, there were almost no medium- and small-sized towns in large areas of South Trans-Danubia or on the Hungarian Plain. Since then the situation has improved only moderately with the reclassification of a few larger, more industrialized villages as towns. Finally, in many of the towns the general level of development of the technical infrastructure is still very low (Kőszegfalvi 1976). For example, in a third of all towns only 10–20 percent of the flats have piped water.

*In Hungary, a distinction is made between permanent and temporary migrants, as explained later (see footnote p. 20).

TABLE 2 Concentration of the population in Budapest as measured by the primacy index[a]: Hungary[b], 1910–1977.

Year	Index	
	4-City*	11-City**
De facto population		
1910	2.88	2.28
1920	3.14	2.80
1930	3.03	2.70
1941	3.33	2.84
1949	2.97	2.77
1960	4.65	2.10
1970	4.10	1.86
Resident population		
1960	4.53	2.02
1970	4.05	1.80
1974	3.77	1.66
1977	3.66	1.61

[a]The indexes relate the *de facto* population of Budapest to the total *de facto* population of the *3 next-largest cities, and **10 next-largest cities of the country, respectively.
[b]All data refer to the present area of the country, except the data for 1910, which refer to the territory at the time of the 1910 census.
SOURCES: Tekse (1977), and various Census volumes published by the Central Statistical Office.

The gradual decrease of rural population (Table 3) has not improved the pattern of the rural settlement system and large disparities still exist. In the south-western part of the country, small villages have developed with an average population of only 700 individuals. In contrast, on the Hungarian Plain there are large villages with over 5000 inhabitants, but these villages are very widely separated.

Another characteristic feature of the national settlement system is the existence of a considerable number of detached farmhouses scattered around large villages and agricultural towns on the Hungarian Plain. In 1970 over 8 percent of the total population of the country lived on detached farms, but in some particular counties this proportion was greater than 25 percent (Szabady 1974). In the economically more-viable areas, where maintenance of this type of settlement system can be economically justified, considerable efforts have been made to establish small commercial centers close to the centers of groups of farms. Compared to the situation in the towns, problems of infrastructure are even more serious in the villages. As a result, sizeable differences remain between the living conditions of the urban and rural populations and even between the populations of different towns.

TABLE 3 Urban and rural populations, by type of settlement[a]: 1960, 1970, 1974, and 1977.

Type of settlement	No. of units	Resident population (× 1000) 1960	1970	1970 (as percentage of 1960 total)	1974	1974 (as percentage of 1960 total)	1977	1977 (as percentage of 1960 total)
Budapest	1	1,783	2,001	112.2	2,047	114.8	2,082	116.8
Other towns	82	2,462	2,914	118.3	3,121	126.8	3,320	134.8
(County towns)	(5)	(598)	(746)	(124.7)	(808)	(135.1)	(856)	(143.1)
(Rest of towns)	(77)	(1,864)	(2,168)	(116.3)	(2,313)	(124.1)	(2,464)	(132.2)
Villages	3,100	5,716	5,407	94.6	5,280	92.4	5,223	91.4
Total	3,183	9,961	10,322	103.6	10,448	104.9	10,625	106.7

[a] According to the administrative division of the country at 1 January 1974.
SOURCES: Demographic Yearbooks of Hungary (1974:24, 25; 1977).

During the past two decades, efforts have been made to remedy the problems arising from the traditional settlement system in Hungary. The centers of regional economic activity have gradually been moved, mainly because of a change in the regional distribution of industry. Budapest's share of national industrial production has been decreased, while the existing centers of industry in the provinces have been strengthened and new centers have been developed. Along with rapid industrialization, the tertiary sector in the provinces has also experienced rapid development.

By the early 1960s the changing regional patterns of industrialization created new demands for labor in some urban areas, while the rapid mechanization of agriculture generated a favorable reservoir of surplus labor in the agricultural sector. As a result, rural-to-urban migration accelerated somewhat during the first half of the 1960s. However, the surplus labor from agriculture was soon exhausted and the rural-to-urban movement of people gradually slowed down (see Tables 4 and 5). The destination of the main streams of migration has also been modified, shifting from Budapest to the medium and smaller provincial towns and toward the newly emerging industrial centers (Bene 1975).

1.3 Urbanization

Partly as a result of changing patterns of industrialization, numerous signs of recently emerging urbanization tendencies have appeared. These tendencies, although long familiar in the wider European context, represent new phenomena in the evolution of the human settlement system in Hungary. Their most important features are as follows:

1. New agglomerations are developing, not only around Budapest, but also around middle-sized county towns in the provinces (Faluvégi 1972). It is expected that their development and consolidation will lead to the continuous urbanization of the country.
2. The process of new suburbanization around the capital is being promoted by the availability of improved means of public transportation and the fast-spreading use of private transportation facilities.
3. The microstructure of the human settlement system in the provinces is being gradually strengthened and consolidated with the establishment of areas of attraction around the central towns.
4. Commuting in general, and particularly around Budapest and the county towns, is assuming increasing proportions. In the early 1970s the new phenomenon of commuting between villages has also emerged, due to the development of even larger farming units which, in some places, cover the area of several villages. Some of the demographic, psychological, social, and economic consequences are becoming apparent among the individuals, families, and communities affected.

TABLE 4 Components of intercensal population change[a], by type of settlement (per 1000 population): 1960–1969.

Type of settlement	Numerical change (per 1000 population)			Proportional change (percentage of 1960 population)		
	Net population change	Natural increase[b]	Net migration	Net population change	Natural increase[b]	Net migration
Budapest	+218	−18	+236	+12.2	−1.0	+13.2
Other towns	+447	+109	+338	+19.2	+4.7	+14.5
(County towns)	(+127)	(+22)	(+105)	(+26.0)	(+4.5)	(+21.5)
(Rest of towns)	(+320)	(+87)	(+233)	(+17.4)	(+4.8)	(+12.6)
Villages	−304	+270	−574	−5.4	+4.5	−9.8

[a]Resident population.
[b]Births minus deaths.
SOURCE: Population Census, 1970.

TABLE 5 Permanent and temporary in-, out-, and net migration for urban and rural areas; average annual number of migrants (X 1000): 1960–1964, 1965–1969, 1970–1974, and 1975–1977.

		Permanent migration			Temporary migration[a]		
Area	Period	In	Out	Net	In	Out	Net
Budapest	1960–1964	42.9	22.7	+20.2	135.6	126.8	+8.8
	1965–1969	31.0	20.3	+10.7	125.5	118.1	+7.4
	1970–1974	23.1	16.0	+7.1	107.6	102.9	+4.7
	1975–1977	21.6	13.0	+8.6	83.2	83.8	−0.5
Other towns	1960–1964	85.0	58.7	+26.3	165.8	157.2	+8.6
	1965–1969	83.6	57.5	+26.1	158.4	154.8	+3.6
	1970–1974	82.5	53.7	+28.8	150.1	143.0	+7.1
	1975–1977	85.4	48.1	+37.3	133.1	131.4	+1.7
Rural areas	1960–1964	203.0	249.5	−46.5	296.3	313.7	−17.4
	1965–1969	188.3	225.1	−36.8	278.4	289.4	−11.0
	1970–1974	152.9	188.8	−35.9	220.7	232.5	−11.8
	1975–1977	119.1	165.0	−45.9	179.6	180.8	−1.2

[a]Including return migration.
SOURCES: Demographic Yearbooks of Hungary (1974:310, 1977:304).

Against the general demographic background outlined above, this report investigates in some detail the recent and prospective patterns of population change in Hungary in a spatial (regional) context. In the next section, recent trends and current patterns of population growth are analyzed with special emphasis on regional fertility trends, mortality patterns, and internal migration. Our main interest is the pattern of change of these demographic components since 1960. In Section 3, these components are integrated into a multiregional framework and the implications of their interactions for the multiregional population system are investigated. Section 4 outlines current regional development policies, with particular attention being given to issues of population policies. The main conclusions of the study are summarized in Section 5.

2 CURRENT PATTERNS OF SPATIAL POPULATION GROWTH

2.1 National Population Growth

The growth of Hungary's population has been uneven since historical times, and the growth rate has been steadily declining since the turn of the century.

The trend of the growth rate shifted markedly on several occasions, with repeated waves of emigration and sometimes sudden and sustained declines in fertility in the interwar and postwar periods (Szabady 1974). As a result, Hungary's population barely exceeded 10.6 million at the beginning of 1977, showing a mere 1.4 million increase since 1949. Even by European standards, the Hungarian population growth rate was among the lowest during the 1960s, with an annual average increase of only 3.5 per thousand. During the early 1970s the situation remained essentially unchanged, with an average annual increase of 3.6 per thousand between 1970 and 1974 (Figure 1). It was only after 1973 that the population growth of the country accelerated somewhat as a result of pronatalist population policy measures that produced a modest increase in fertility. Even so, the average annual population growth has reached only 5.5 per thousand in recent years.

In this section, these patterns of population growth are analyzed, both in terms of the components of demographic change and in terms of regional demographic variations. Since various levels of regional aggregation may be used for the analysis, the hierarchical system of regions in Hungary is presented first.

2.2 Regional Divisions of Hungary

A variety of administrative subdivisions of the country can be utilized for the analysis of spatial patterns of population growth. Most of the analysis in the present section is based on the division of Hungary into counties and county towns. Under this system the country is divided into 19 counties, 5 county towns, and Budapest, the capital (Figure 2). The current system has been used since January 1950, when the counties were defined and their boundaries were fixed. (It should be noted, however, that the current administrative subdivision of the country is essentially based on an historical administrative system that dates back to the establishment of the Hungarian State at the beginning of the present millenium.) Since 1950 the county boundaries have only undergone minor and insignificant changes. The most important new development was the designation of a new county town, Győr, in 1970. Of course, each county is further subdivided into a number of rural and urban districts, but these are not considered in the present study.

The regional subdivision of the country provides the basis for further aggregation of data. At present there are six economic-planning regions, each comprising several counties and one county town, with the exception of the Central region which incorporates only the capital and the surrounding county of Pest. Although the regions were intended to group together counties of similar economic conditions, including similarities in natural resources and levels of industrialization, they do not form distinct economic units. For this reason the counties are used as the spatial units in the development of national socioeconomic plans. The regional subdivision of the country is shown in Figure 2, and Table 6 lists the counties and county towns in each region.

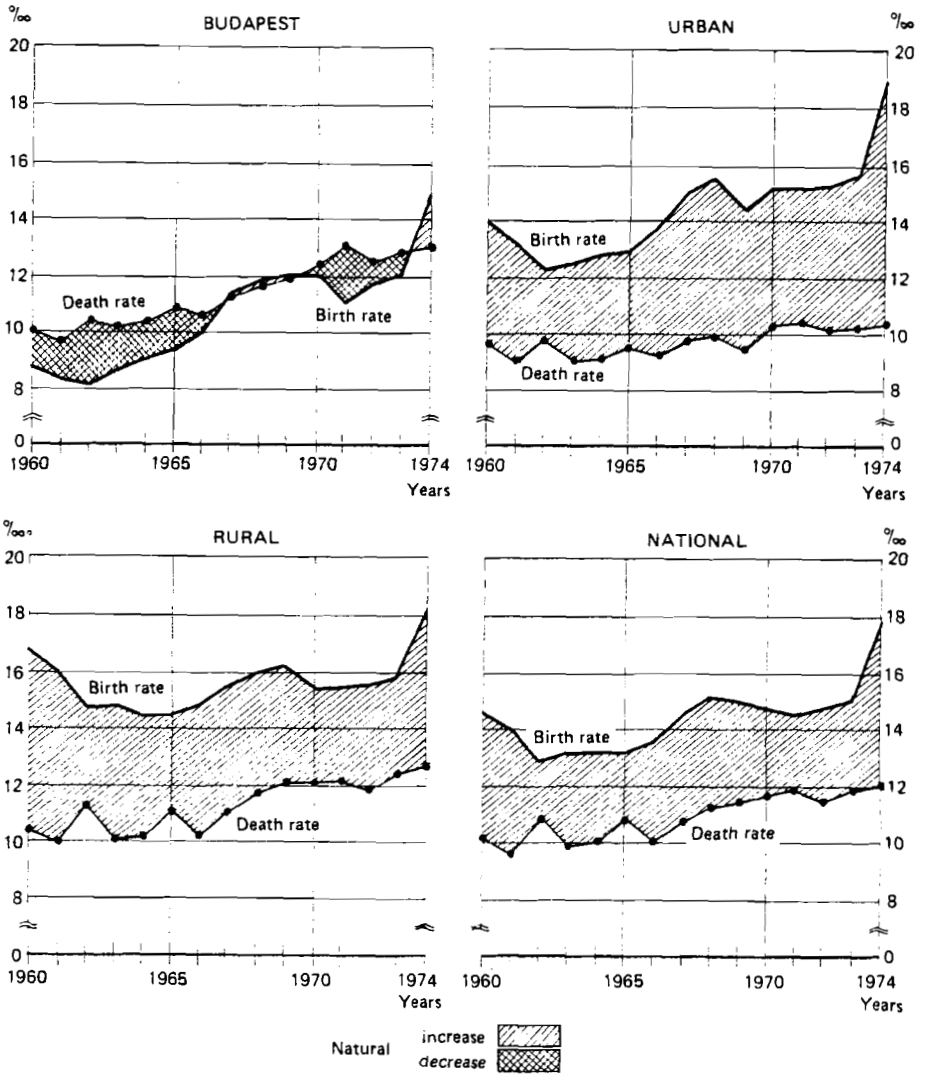

FIGURE 1 Crude birth and death rates per 1000 population, by type of settlement: 1960–1974.

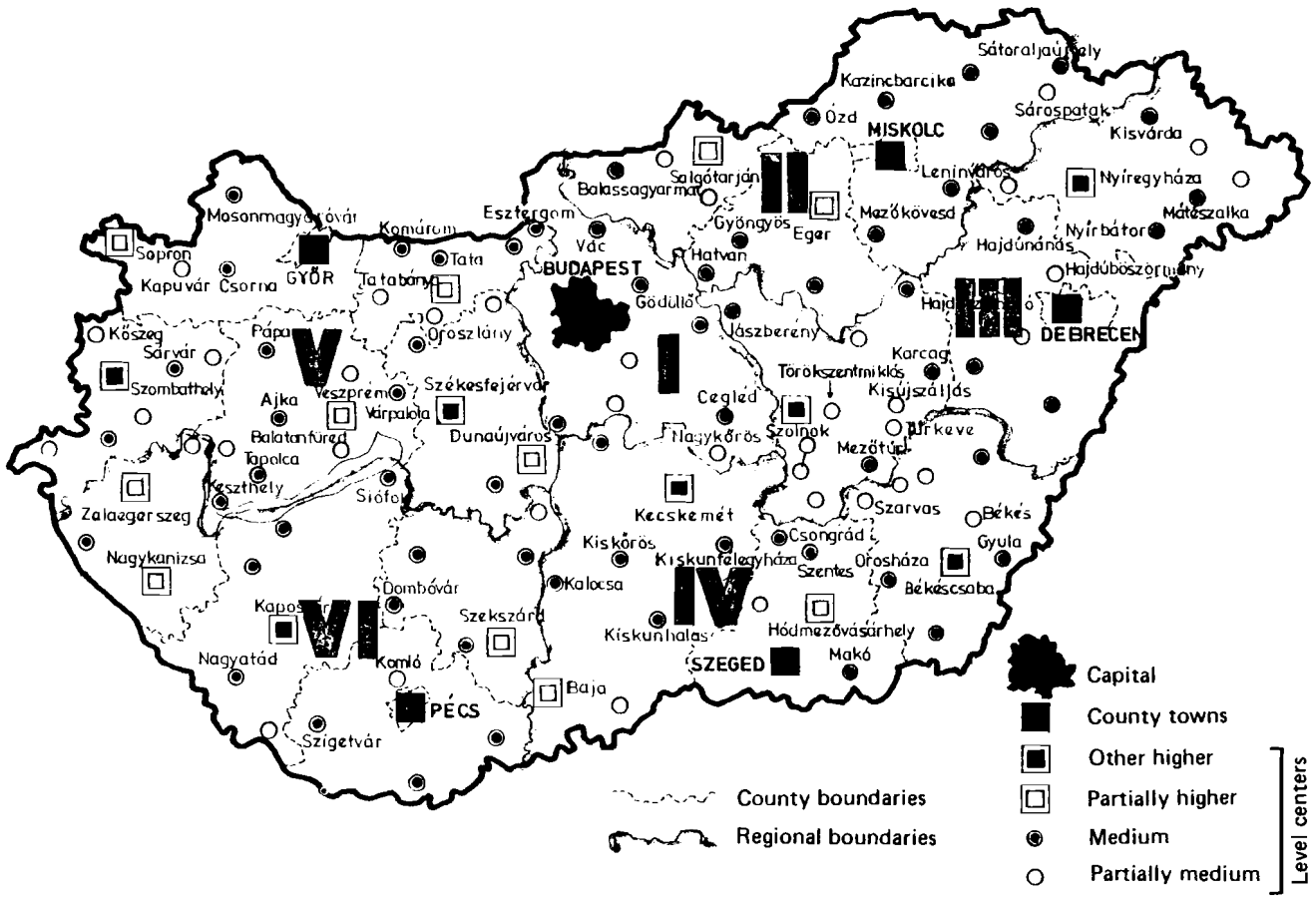

FIGURE 2 Regional subdivisions and towns at 1 January 1974.

TABLE 6 Regional division of Hungary since 1971.

Region[a]	Counties and county towns in each region
Central	Budapest (capital) Pest
North Hungary	Miskolc (county town) Borsod-Abauj-Zemplén Heves Nógrád
North Plain	Debrecen (county town) Hajdu-Bihar Szabolcs-Szatmár Szolnok
South Plain	Szeged (county town) Bács-Kiskun Békés Csongrád
North Trans-Danubia	Győr (county town) Fejér Győr-Sopron Komárom Vas Veszprém
South Trans-Danubia	Pécs (county town) Baranya Somogy Tolna Zala

[a]Economic-planning districts.

Regional patterns of population growth can be meaningfully analyzed only in relation to the system of human settlements. In Hungary this system is based on a total of 3188 settlements as of 1 January 1974. Of these settlements 83 are towns (urban areas) and the rest are villages. Within the urban system, besides the capital, 5 towns are designated as county towns and the remaining 77 are usually called provincial towns. Legally, towns are settlement units that are so designated because of their size, population growth, and level of infrastructure, and the role they play in the system of neighboring settlements. Table 7 illustrates the development of the settlement system since 1949. In Hungary, official population and vital statistics are provided for each category of settlement shown.

TABLE 7 Development of settlement units, by type: 1949, 1960, 1970, 1974, and 1977.

Type of settlement	Year				
	1949[a]	1960	1970	1974	1977[b]
Budapest	1	1	1	1	1
Other towns	53	62	75	82	87
(County towns)	(3)	(4)	(5)	(5)	(5)
(Rest of towns)	(50)	(58)	(70)	(77)	(82)
Villages	3143	3210	3135	3105	3069
Hungary	3197	3273	3211	3188	3157

[a]According to the administrative division of the country on 20 June 1951.
[b]According to the administrative division of the country on 31 December 1977.
SOURCES: For the years 1949, 1960, and 1970 the data are taken from the respective censuses. Data for 1974 and 1977 are taken from the Demographic Yearbooks of Hungary (1974:502–536, 1977:469).

The governmental concept of the development of human settlement systems, mentioned earlier and described more fully in Section 4.2, introduces a new classification of settlements which goes beyond the simple urban–rural level. This new classification, which was accepted in 1971, is based on a number of factors: the individual settlement's regional division of labor, its socioeconomic function, its envisaged importance in terms of organization, management, and services, its population, and the types of attractions in the area. Accordingly, national, higher, medium, lower, and other settlement centers may be distinguished; Figure 2 illustrates their regional distribution. Table 7 shows the evolution of the settlement system according to the more traditional categories, which are mainly used for statistical reporting. Regularly published statistics only partially follow the traditional classification, although appropriate disaggregation of data is possible: a recent publication of the Central Statistical Office (1974) offers a fine example.

2.3 Regional Fertility Patterns

The most important single cause for the slow growth of the national population has been the prolonged low level of fertility. But beyond national trends, considerable regional differences in fertility patterns are important factors influencing multiregional population growth.

Since 1960 the level of fertility has been barely enough to ensure population replacement. Fertility dropped to its lowest level during the first half of the 1960s, with the total fertility rate reaching a minimum value of 1.8 in 1962. By the late 1960s fertility had increased again, although only for a short time (Klinger 1969–1971). By 1972 the total fertility rate was again near 1.9.

A new wave of increased fertility began in 1974, as a result of population policy measures introduced in 1973. Even this wave reached its peak in 1975, and since then there has been a gradual fertility decline. This trend implies reproduction of the population at a rate below replacement level. The gross reproduction rate (GRR) never reached unity before 1974, while the net reproduction rate (NRR) was consistently between 0.81 and 0.95 over the same period (Table 8).

The current higher reproduction rate of the population is not expected to continue much longer, even on a year-to-year basis, because the increased fertility level which Hungary is now experiencing will probably not continue.

The fertility trends of the past 15 years have shown remarkable urban–rural and other regional differences, although these differences are gradually diminishing (Table 9). The fertility level of the urban population has been consistently lower than that of the rural population, but its level in Budapest is particularly low. While in 1960 the total fertility rate was 2.0 for Hungary as a whole, it was a mere 1.2 in Budapest and 1.9 in other urban areas. Therefore, most of the reproductive potential was provided by the rural population, with its total fertility rate of 2.4. This situation remained almost unchanged throughout the sixties and early seventies, except for a significant increase in fertility in Budapest. However, the increase in fertility beginning in 1974 has affected both the urban and the rural populations, although there has been a slightly faster growth in provincial towns (Table 10). As a result, the total fertility rate in 1974 reached a formidable 2.6 for the rural population.

Even wider regional differences can be observed in both the level and the trends of fertility. Counties in the northeastern part of Hungary have always formed a region of high fertility (the boundaries of which, of course, cut across the so-called planning regions used in the present analysis). In 1960, when the national fertility level was low, the counties of Borsod, Hajdu-Bihar, and Szabolcs-Szatmár had a total fertility rate of over 2.5. At the other end of the scale, fertility in counties in the southeastern part of the country (Békés and Csongrád) was below the national average. In central Hungary, only the counties of Heves and Pest showed an unusually low fertility level. The rest of the counties had a near-average fertility level, except perhaps Baranya in South Trans-Danubia, which had a relatively higher share of national minorities.

During the 14-year period after 1960, the regional pattern of fertility changed relatively little, except for the general increase of fertility which affected the population of every county. Generally speaking, counties with lower fertility in 1960 demonstrated a higher fertility increase during the next 14 years. Thus, counties like Békés and Csongrád in the southeast, Heves and Pest in the north, and Szolnok in central Hungary had a 5 percent (i.e., above-average) increase of fertility. In contrast, counties with a formerly high fertility rate were slow to follow the national trend. As a result, the regional differences in the level of fertility have diminished somewhat with the general increase of fertility observed in the early 1970s.

TABLE 8 Selected fertility rates: 1960–1977.

Year	General fertility rate[a]	Total fertility rate	Reproduction rate	
			Gross	Net
1960	59.7	2.039	0.975	0.907
1961	56.6	1.936	0.938	0.880
1962	52.5	1.795	0.868	0.808
1963	53.4	1.823	0.880	0.819
1964	53.2	1.811	0.872	0.829
1965	53.2	1.812	0.875	0.831
1966	54.5	1.882	0.907	0.863
1967	57.7	2.010	0.970	0.923
1968	58.7	2.060	0.997	0.952
1969	58.1	2.042	0.984	0.939
1970	56.6	1.997	0.953	0.912
1971	55.9	1.945	0.931	0.890
1972	56.9	1.929	0.931	0.894
1973	58.2	1.948	0.943	0.905
1974	69.6	2.304	1.117	1.070
1975	72.8	2.380	1.157	1.107
1976	69.9	2.254	1.096	1.049
1977	67.3	2.168	1.056	1.011

[a]Per 1000 female population aged 15–49.
SOURCES: Demographic Yearbooks of Hungary (1960–1977).

These fertility trends are amply confirmed by statistics on birth order. During the period of low fertility in the 1960s, the proportion of first-order births gradually increased from 44 to over 49 percent, while third- and higher-order births dropped from nearly 27 to 17 percent. The increase of fertility after 1973 led to a reversal (even if possibly only short term) caused primarily by a sudden increase in second- and third-order births (Table 11).

This trend was most remarkable in the urban population, particularly in Budapest, where as many as 65 percent of all births were of first order in 1965, and where in 1970 a mere 8 percent of all births were of third and higher orders. The proportion of second-order births for urban areas excluding Budapest, however, jumped to well over the national average in 1974. On the other hand, over the period studied, the proportion of first-order births in the rural population has never increased over 45 percent, and third- and higher-order births have always constituted at least 19 percent of all live births. One can only make educated guesses about the future course of these trends. Many observers feel that the downward trend in the level of fertility that began in 1976 will continue.

2.4 Regional Mortality Patterns

Hungary has always been a country of relatively high mortality compared to the rest of the European continent (Klinger 1969–1971). In the early 1970s,

TABLE 9 Fertility trends, by type of settlement: 1960, 1965, 1970, 1974, and 1977.

Type of settlement	Year	General fertility rate	Total fertility rate
Budapest	1960	33.3	1.235
	1965	34.6	1.182
	1970	43.4	1.512
	1974	56.1	1.797
	1977	56.7	1.778
Other towns	1960	55.3	1.856
	1965	50.5	1.644
	1970	55.1	1.835
	1974	69.2	2.178
	1977	67.2	2.021
Villages	1960	70.2	2.352
	1965	61.5	2.153
	1970	63.0	2.314
	1974	75.5	2.641
	1977	72.0	2.468
Total	1960	59.7	2.039
	1965	53.2	1.812
	1970	56.6	1.997
	1974	69.6	2.304
	1977	67.3	2.168

SOURCES: Demographic Yearbooks of Hungary (1960, 1965, 1970, 1974, and 1977:144).

TABLE 10 Total fertility rates, by type of settlement, as a percentage of the national total: 1960, 1965, 1970, and 1977.

Type of settlement	1960	1965	1970	1974	1977
Budapest	60.6	65.2	75.7	78.0	82.0
Other towns	91.0	90.7	91.9	94.5	93.2
Villages	115.4	118.8	115.9	114.6	113.8
Total	100.0	100.0	100.0	100.0	100.0

SOURCE: Basic data from Table 9.

TABLE 11 Percentage distribution of live births, by order and type of settlement: 1960, 1965, 1970, 1974, and 1977.

Type of settlement	Year	Birth order			
		1st	2nd	3rd	4th and higher
Budapest	1960	58.5	27.5	8.2	5.8
	1965	65.1	24.8	5.9	4.2
	1970	60.4	30.8	5.4	2.9
	1974	52.6	37.6	7.2	2.6
	1977	49.0	39.3	8.7	3.0
Other towns	1960	47.2	29.6	11.5	11.7
	1965	52.9	30.1	8.5	8.5
	1970	51.3	34.7	7.7	6.3
	1974	45.0	40.5	9.5	5.0
	1977	45.1	40.8	9.7	4.4
Villages	1960	40.7	29.6	13.8	15.9
	1965	43.8	30.9	11.6	13.7
	1970	45.1	34.0	10.4	10.5
	1974	41.7	37.1	12.2	9.0
	1977	43.5	37.5	11.6	7.4
Total	1960	44.0	29.3	12.7	14.0
	1965	48.8	29.9	10.1	11.2
	1970	49.3	33.7	8.9	8.1
	1974	44.5	38.3	10.5	6.7
	1977	45.0	38.9	10.4	5.7

SOURCES: Demographic Yearbooks of Hungary (1960, 1965, 1970, 1974, and 1977:146).

Hungary was ranked 22nd among the 26 European countries for which expectation of life estimates were available. In 1974 a new-born boy could expect to live only 66.5 years and a new-born girl 72.1 years. These expectations are only slightly higher (a mere 1.3 years for males and 2.8 years for females) than the corresponding figures for 1960, 14 years earlier. Even this increase, at least for the males, was almost entirely due to the decline in infant mortality.

This slow improvement in mortality rates was relatively steady among the females, but there were reversals among the males. In fact, the expectation of life at birth of an average male member of the population, which was 67 years in 1964, gradually declined until the early 1970s and has not been matched since. This is mainly due to the dramatic increase in male mortality at later ages, particularly in the 45–54 age groups. Every two or three years cyclical trends can be seen in the general level of mortality, because of periodic influenza epidemics that cause considerable winter or early-spring mortality peaks (Szabady 1974). One of the natural results of these trends is a gradual widening

in the difference between female and male expectations of life; this difference has grown from 4.4 years in 1959–1960 to 5.9 years in 1974.

Heart diseases are the largest single cause of death in Hungary. The expectation of life at birth (1969–1970 data) could be increased by 5.3 years for males and 6.0 years for females if such diseases could be eliminated. Taken together, all forms of cancer are the second most-frequent cause of death in Hungary, shortening the average expectation of life by about 2.4 years. All violent causes of death form a third major group of contributors to high mortality, primarily among males. If this group of causes of death could be eliminated, 2.2 years could be added to the expectation of life at birth for males. Accidents are responsible for only slightly more than half of these deaths, and motor-vehicle accidents are not particularly frequent. A remarkable feature of accident mortality is the high proportion of suicides, in which aspect Hungary leads the international statistics.

There are surprisingly few urban–rural differences in mortality, although some regional differences exist. In 1959–1960 the expectation of life at birth for males in urban areas was only 0.6 years longer than that in rural areas. The corresponding difference for females was 1.1 years.

Even the regional pattern of mortality demonstrates a great deal of homogeneity. In 1959–1960 the expectation of life at birth for each county fell within a range of 2.5 years for males and 3 years for females, although the regional patterns were not identical for the two sexes (see Table 12). The counties of Szolnok and Csongrád on the left bank of the lower Tisza River form the region of lowest mortality; in 1959–1960 expectations of life exceeded 66 years for males and 70 years for females. At that time the counties of Vas, Hajdu, and Győr in western Hungary also matched these statistics. In other counties, such as Veszprém or Hajdu-Bihar, lower female mortality was accompanied by an almost average male mortality. Counties in southern Hungary form a continuous region of high male mortality from Somogy to Bács-Kiskun. Out of these counties, however, only Somogy belongs to the area of high female mortality, while other counties with a similarly high female mortality level are scattered around various parts of the country as far from each other as Komárom and Szabolcs-Szatmár (Pallós 1971).

Infant death has been a major contributor to the high mortality levels in Hungary. There were 47.6 infant deaths per thousand live births as recently as 1960. After some improvements during the early 1960s, the infant mortality rate declined to 38.8 per thousand by 1965, after which came a long period of stagnation. It should be noted, however, that the last few years have witnessed some remarkable improvements in infant mortality: by 1977 the rate had dropped to 26 per thousand.

A noteworthy feature of infant mortality trends is the widening difference between urban and rural areas. During the period 1960–1974 improvements in infant mortality in rural areas nearly paralleled national trends. Somewhat similar trends were observed in the mortality rates in provincial towns, while

TABLE 12 Expectation of life at birth, by sex and by county: 1959–1960 and 1969–1970.

County	Males		Females	
	1959–1960	1969–1970	1959–1960	1969–1970
Baranya	64.39	65.33	69.60	70.68
Bács-Kiskun	64.03	65.04	68.84	71.55
Békés	65.42	66.60	69.56	72.46
Borsod-Abauj-Zemplén	64.59	65.99	68.92	72.23
Csongrád	66.19	66.54	70.64	72.15
Fejér	66.15	66.51	68.88	71.46
Győr-Sopron	65.95	67.06	69.61	72.37
Hajdu-Bihar	66.14	66.36	69.96	71.99
Heves	63.75	67.48	69.42	72.06
Komárom	65.48	66.44	67.67	71.03
Nógrád	64.74	67.77	69.19	72.54
Pest	64.90	65.56	69.84	72.15
Somogy	64.13	66.17	67.55	70.77
Szabolcs-Szatmár	64.64	65.37	67.85	71.71
Szolnok	66.26	67.39	70.66	72.28
Tolna	64.69	65.66	69.30	71.48
Vas	66.06	68.08	70.20	71.74
Veszprém	65.22	67.44	70.12	72.14
Zala	64.99	66.62	69.06	71.87
Total	65.18	66.51	69.57	72.11

SOURCES: E. Pallós (1971), and personal communication.

the situation hardly changed in Budapest, where the rate was nearly 42 per thousand live births even as recently as 1974. Because infant deaths are a major factor behind the general mortality levels in Hungary, we may expect to find the lowest level of infant mortality in the counties where the general mortality level is low, such as Csongrád, Szolnok, and Hajdu-Bihar along the left bank of the Tisza River, and Vas. On the other hand, the counties of Bács-Kiskun and Szabolcs-Szatmár were notable for their high infant mortality level in 1960.

There was a general reduction in infant mortality levels between 1960 and 1974. Mortality in the county town of Pécs and the county of Tolna actually increased during this period, in contrast to the national trend, and there were three more counties where the decline was less than 20 percent. However, nearly half of the counties reduced their infant mortality levels by at least 40 percent during the 15-year period, and the remaining counties, all situated in the northern half of the country, achieved reductions of between 20 and 40 percent.

2.5 *Internal Migration*

When conditions of slow natural population increase prevail throughout a country, internal migration becomes the main factor governing the regional redistribution of the population. Continuing industrialization within Hungary and rapid development of large-scale, highly-mechanized socialized farms have tended to move people to new production centers across county and regional boundaries (Bene 1975). During the 15-year period after 1960 between 700,000 and 970,000 people changed their place of residence annually, either permanently or temporarily.* Although the great majority of these moves were of a temporary character only, each year between one quarter and one third of a million people changed their permanent residence.

It is difficult to judge the net effect of these moves over an intercensal period, since some migrants changed their place of residence several times during the period. However, we know from census data that a net loss of 574,000 people was sustained by the rural areas during the 1960–1969 intercensal period, due entirely to migration (Table 4). Since the total natural increase of the rural population amounted to less than half of this total, rural–urban migration was the cause of an actual population decrease in the rural areas of more than 5 percent over the intercensal period.

In spite of the inherent shortcomings of migration statistics based on continuous registration by place of residence, the time series data available in Hungary from 1955 onward make it possible to review and analyze migration trends and patterns. A quick glance at Figure 3 clearly reveals a gradual decline in the intensity of migration during this period. In fact, the number of permanent migrants dropped from 34 per thousand in 1960 to less than 24 per thousand in 1974. There was also a drop of nearly 30 percent in the intensity of temporary migration during the same period. However, the overall decline in migration was not smooth. There were significant decreases in the permanent migration trend, particularly in 1967 and in 1972. A drastic reduction in the intensity of temporary migration occurred in the period from 1963 to 1964. The reduction affected both urban and rural populations, but particularly that of Budapest. The intensity of permanent in-migration to Budapest declined by

*A *permanent migrant* is defined as a person who gives up his/her dwelling and chooses a dwelling in some other settlement as his/her permanent residence. A person can only have one permanent residence at any given time. In the case of permanent migration, the place of origin is the previous place of permanent residence, while the destination is the new permanent residence.

A *temporary migrant* is defined as a person who, while retaining his/her permanent dwelling, changes residence and designates a dwelling in another settlement as a temporary residence. A person can only have one permanent and one temporary residence at any time. A temporary return migrant is defined as a migrant who gives up his/her temporary residence and returns to his/her permanent dwelling. A move from one temporary residence to another, however, is always related to the migrant's permanent dwelling, which may tend to exaggerate the number of temporary return migrations. Since 1975 a notification system has covered the entire population of Hungary, including all age groups. Prior to this the system only covered the adult population (variously defined at different times) and their children who moved with them. The registration forms list a number of personal characteristics including occupation, place of work, and the reason for the move. Detailed cross-classifications of the statistics for migrants are produced and published annually by the Central Statistical Office.

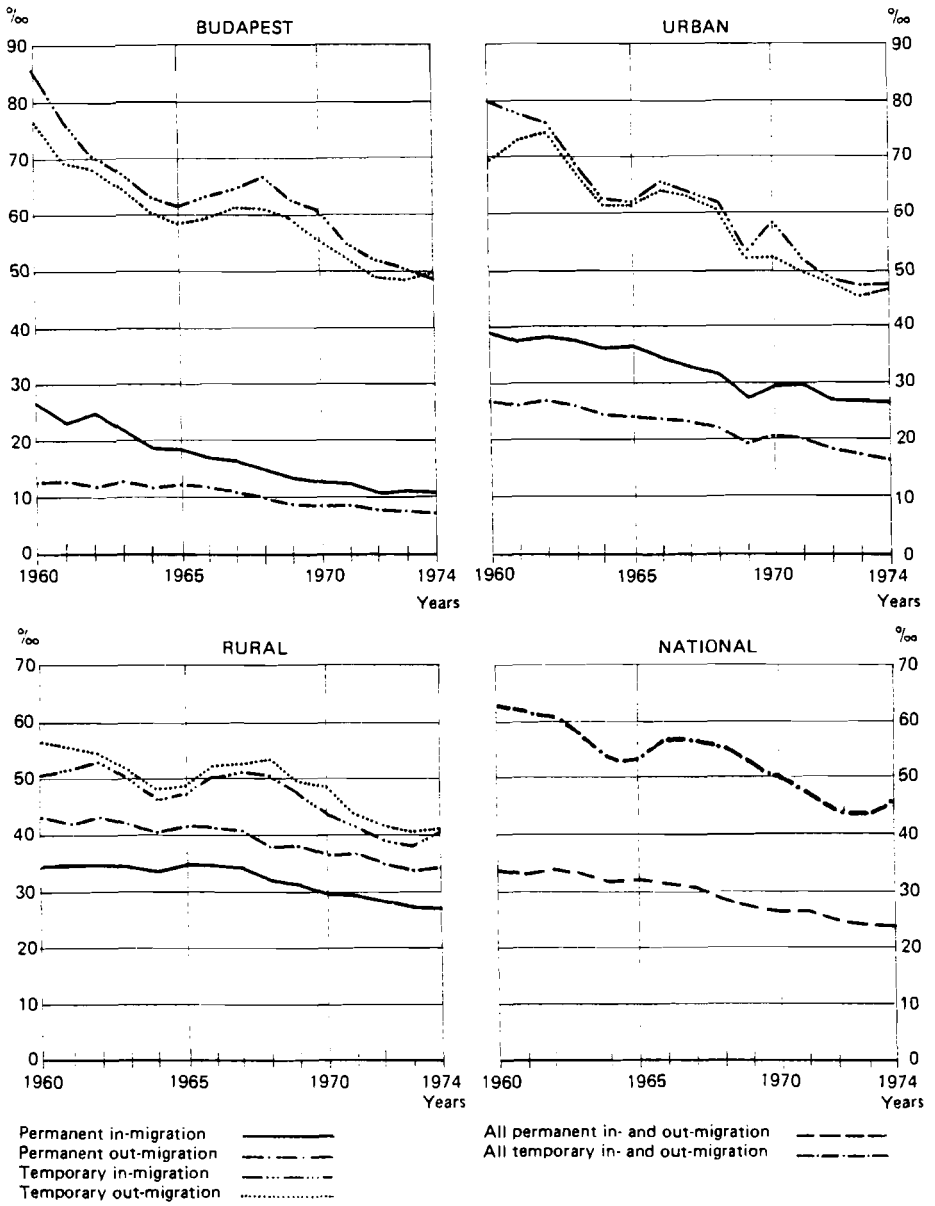

FIGURE 3 Crude migration rates per 1000 population, by type of migration and by type of settlement: 1960–1974.

nearly 60 percent over the 15-year period and the permanent out-migration also dropped to below 40 percent of the 1960 figure.

As far as the direction of migration is concerned this decline affected nearly all the main migration streams (Table 13). The most sizeable declines occurred in the migration between villages, in urban–rural migration, and in the flow of people into Budapest. The intensity of migration into provincial towns (if not its actual volume) also declined, while the migration of people from rural areas to the provincial towns remained relatively unchanged. These figures indicate that during the period when great efforts were made to decentralize industry and to increase development of the infrastructure in the provincial towns, the capital became less attractive to potential movers. On the other hand, the aging of the rural, agricultural population, the faster growth of family income in agriculture, and the greater ease of travel between rural and urban areas due to the improvement of roads and transport facilities substantially reduced the impetus to leave the rural areas.

A close examination of the regional patterns of migration (leaving aside for the moment the capital and the county towns) shows that nearly all counties have sustained migration losses between 1967 and 1972. Only the counties of Fejér and Komárom in the North Trans-Danubia region and Pest county which surrounds the capital show consistent migration gains. The former counties have fast-growing industries, including large-scale mining, while Pest county serves a steadily-growing belt of villages which form part of the Budapest agglomeration and show visible signs of suburbanization. In the later part of the 15-year period, Heves county in the north and Somogy and Veszprém along the shores of the resort area of Lake Balaton joined the group of counties with a moderate net migration gain.

On a more aggregated level, all regions of the country except for the Central and North Trans-Danubia regions suffered migration loss over the period studied. Table 14 shows the regional distribution of the population from 1960 to 1977, and Tables 15 and 16 give detailed migration data for 1974. However, only the Central region benefited significantly from migration. It is important to note that these migration trends have led to a closing of the regions to both permanent and temporary migration. This can be measured by finding the proportion of all migration (i.e., all inter- and intraregional migrations, but excluding migrations within municipalities) that is due to internal migration alone (i.e., migrations within regions). On this basis, all of the regions became substantially more closed over the period 1960–1974, particularly the Central and North Trans-Danubia regions, as shown in Table 17.

Expressed in another way, these migration data show that an average person in Hungary can be expected to make over four migratory moves* during his/her whole lifetime, if both permanent and temporary moves are considered. Approximately two-thirds of these moves involve a temporary change of

*We recall that migration is defined as a crossing of municipal boundaries.

TABLE 13 Number of migrants[a] and crude migration rates, by destination and type of migration: 1960 and 1974.

	Origin															
	Permanent								Temporary							
	Budapest		Other towns		Villages		Total in-migration		Budapest		Other towns		Villages		Total in-migration	
Destination	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1960																
Budapest	–	–	10.7	4.3	37.1	6.4	47.7	26.7	–	–	32.0	13.0	122.7	21.5	154.8	86.8
Other towns	6.1	3.4	15.0	6.1	63.1	11.0	84.2	34.2	30.8	17.3	36.0	14.6	106.8	18.7	173.6	70.5
Villages	16.0	9 0	31.9	13.0	158.4	27.7	206.3	36.1	108.1	60.6	82.9	33.7	111.2	19.5	302.1	52.9
Total out-migration	22.1	12.4	57.6	23.3	258.6	45.2	338.2	33.9	138.9	77.9	150.9	61.3	340.7	59.6	630.5	63.3
1974																
Budapest	–	–	6.9	2.2	15.1	2.9	22.0	10.7	–	–	26.7	8.6	72.5	13.7	99.2	48.4
Other towns	5.1	2.5	16.7	5.3	61.4	11.6	83.3	26.7	26.3	12.9	41.2	13.2	82.3	15.5	149.8	48.0
Villages	10.0	4.9	27.6	8.8	104.1	19.7	141.7	26.8	74.9	36.5	79.5	25.5	61.2	11.6	215.6	40.8
Total out-migration	15.1	7.4	51.2	16.4	180.6	34.2	247.0	23.6	101.2	49.4	147.4	47.2	216.0	40.9	464.6	44.5

[a]Per 1000 population of the place of origin.
SOURCES: Demographic Yearbooks of Hungary (1960:125, 1974:304).

TABLE 14 Percentage distribution of the resident population and population growth, by region: 1960, 1974, and 1977.

Region	Percentage regional distribution			Average annual rate of population growth (per thousand)	
	1960	1974	1977	1960–1974	1960–1977
Central	25.6	28.4	28.6	10.82	10.98
North Hungary	13.1	13.0	12.9	2.85	3.03
North Plain	16.2	14.8	14.7	−3.18	−2.04
South Plain	15.1	13.9	13.8	−2.39	−1.62
North Trans-Danubia	16.8	17.4	17.6	6.14	6.87
South Trans-Danubia	13.2	12.5	12.4	−0.74	−0.04
Total	100.0	100.0	100.0	3.41	4.03

SOURCES: Demographic Yearbooks of Hungary (1974, 1977: 24, 25).

residence and consequently do not contribute much to the redistribution of the population. The remainder (approximately one third of the total) are permanent migrations, which, on balance, generate a steady population redistribution. It is remarkable that even this summary indicator vividly shows the migration decline that took place in the 1960s, since the gross migration expectation in 1960 was nearly 6.5. Males may expect to make one more move during their lifetime than females, but this "extra" move is normally expected to be only temporary (Compton 1971).

The majority of permanent moves occur over short distances: more than half take place within the same county, and an additional quarter involve moves between neighboring counties. The "friction" generated by distance is thus considerable. Thus, most migratory activity in Hungary is localized in nature, with the exception of migrations to Budapest, which exerts a sufficiently strong attraction over the whole country. On the other hand, temporary migrants are willing to travel across longer distances, and in most cases the proportion of temporary moves taking place within the same county does not exceed one third of the total.

A distinctive feature of migrants in Hungary, as elsewhere, is their age structure (see Figure 4, parts a–c). Approximately 60 percent of all permanent migrants are in the 15–39 age group. This age concentration is even more pronounced among temporary migrants, where nearly 75 percent are in this age group. Tables 18, 19, and 20 show the age pattern in detail, by type of migration and by sex, for 1960, 1974, and 1977, respectively. The age-specific migration schedules in Hungary conform to patterns observed elsewhere (Rogers *et al.* 1977). Some of the more prominent features of the Hungarian schedule for permanent migrants may be summarized as follows.

TABLE 15 Number of permanent migrants[a] and crude migration rates, by region: 1974.

Region of destination	Region of origin													
	Central		North Hungary		North Plain		South Plain		North Trans-Danubia		South Trans-Danubia		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Central	23.2	7.7	4.6	3.3	7.7	4.9	4.7	3.2	5.5	3.0	3.2	2.4	49.0	4.6
North Hungary	2.4	0.8	27.8	20.4	3.4	2.1	0.8	0.5	1.0	0.5	0.5	0.3	35.8	3.4
North Plain	3.5	1.1	2.5	1.8	26.9	17.3	1.8	1.2	1.1	0.6	0.7	0.5	36.5	3.4
South Plain	3.0	1.0	0.8	0.5	2.1	1.3	25.1	17.2	1.1	0.6	1.4	1.0	33.6	3.2
North Trans-Danubia	3.8	1.2	1.2	0.8	1.9	1.2	1.7	1.1	36.5	19.9	3.5	2.6	48.6	4.6
South Trans-Danubia	2.2	0.7	0.6	0.4	0.8	0.5	1.6	1.1	2.7	1.4	35.6	27.2	43.5	4.1
Total	38.1	12.7	37.5	27.5	42.8	27.6	35.8	24.6	47.8	26.0	44.9	34.3	246.9	23.5

[a]Per 1000 (middle-year) population of the place of origin.
SOURCE: Demographic Yearbook of Hungary (1974: 24, 25, 346–353).

TABLE 16 Number of temporary migrants[a] and crude migration rates, by region: 1974.

Region of destination	Region of origin													
	Central		North Hungary		North Plain		South Plain		North Trans-Danubia		South Trans-Danubia		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Central	36.9	12.3	20.8	15.2	38.6	24.9	14.7	10.1	16.8	9.1	10.8	8.2	138.7	13.2
North Hungary	20.5	6.8	30.4	22.3	6.0	3.8	1.7	1.1	2.4	1.3	1.0	0.7	62.0	5.9
North Plain	38.4	12.8	6.4	4.7	28.2	18.2	3.7	2.5	3.4	1.8	1.1	0.8	81.2	7.7
South Plain	15.0	5.0	1.8	1.3	3.8	2.4	30.5	20.9	3.1	1.6	2.5	1.9	56.7	5.4
North Trans-Danubia	16.8	5.6	2.7	1.9	3.4	2.1	3.1	2.1	4.2	2.2	6.3	4.8	74.3	7.0
South Trans-Danubia	11.0	3.6	1.0	0.7	1.1	0.7	2.4	1.6	6.5	3.5	29.7	22.7	51.7	4.9
Total	138.7	46.5	63.0	46.2	81.1	52.4	56.1	38.6	74.1	40.4	51.6	39.5	464.6	44.3

[a]Per 1000 (middle-year) population of the place of origin.
SOURCE: Demographic Yearbook of Hungary (1974: 24, 25, 354–361).

TABLE 17 Proportion of all migration[a] that is due to internal migration[b] alone, by type of migration and region: 1960, 1974, and 1977.

Region	Year	Proportion of internal migration[b]	
		Permanent	Temporary
Central	1960	0.271	0.105
	1974	0.364	0.154
	1977	0.400	0.181
North Hungary	1960	0.534	0.273
	1974	0.609	0.321
	1977	0.629	0.369
North Plain	1960	0.441	0.130
	1974	0.513	0.210
	1977	0.530	0.261
South Plain	1960	0.510	0.170
	1974	0.567	0.370
	1977	0.603	0.410
North Trans-Danubia	1960	0.511	0.207
	1974	0.608	0.397
	1977	0.635	0.429
South Trans-Danubia	1960	0.613	0.312
	1974	0.673	0.404
	1977	0.681	0.441

[a]That is, all inter- and intraregional migration, excluding migrations within municipal boundaries.
[b]That is, all migration within a given region, excluding migrations within municipal boundaries.
SOURCES: Demographic Yearbooks of Hungary (1960, 1974, and 1977:340–347, 348–355).

1. Among permanent migrants, the pattern in the pre-labor-force ages follows that of the labor-force ages, because children migrate with their parents. In recent years, however, the rates of pre-labor-force-age migration have decreased somewhat more than the migration rates of labor-force-age parents. (The actual figures for this age group might also have been influenced by a definite, if not fully quantified, deterioration in the completeness of registration for the years 1974–1976.)
2. The left-skewed unimodal trend in the labor-force ages shows higher peaks for females, but wider peaks with a more gradual slope for males.
3. The decline over the past 15 years in the intensity of migration affected primarily the 20–35 age groups for both males and females.

The age patterns of temporary migrations show a unimodal curve when ages under 5 years and over 80 years are excluded. The peaks of the schedules are approximately three times higher than those for permanent migrants.

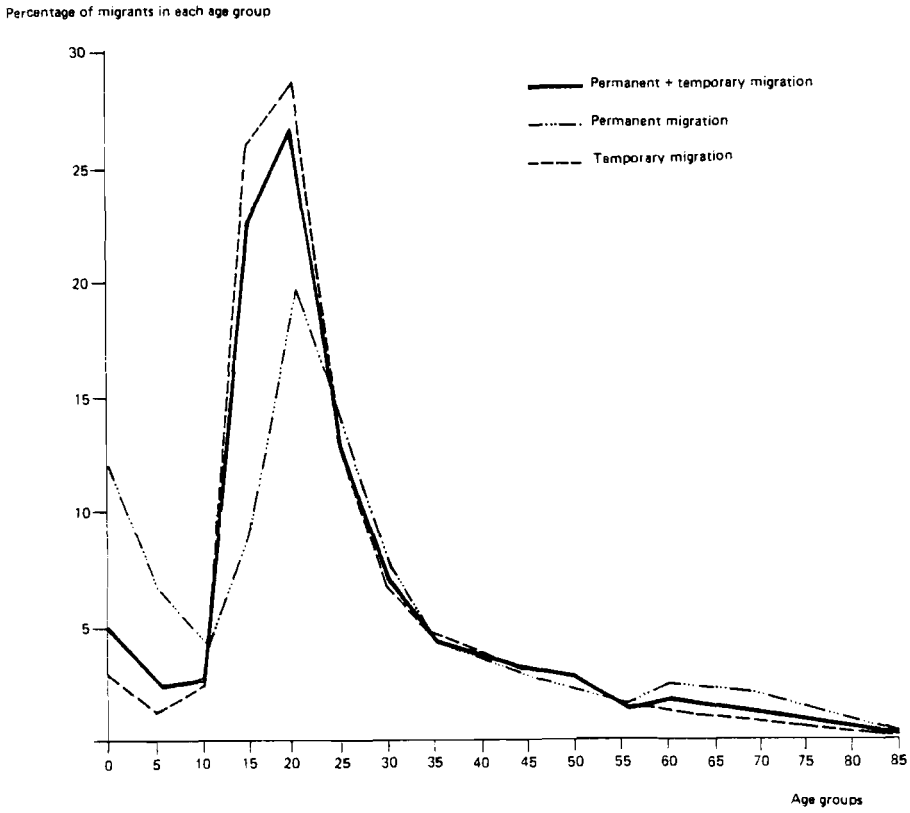

FIGURE 4(a) Age profile of migration based on the percentage distribution of the total number of migrants, by age group; total (both sexes): 1974. (Migrations within regional boundaries are not included.)

It is also noteworthy that the peaks for males are higher than those for females.

According to Table 21, the average age of permanent migrants was over 25.8 years for males and just slightly more for females during the period 1960–1977. In 1974 the average age for temporary migrants was 26.6 years for males and 24.9 years for females. The average age of temporary migrants has undergone a sizeable decline: over the period 1960–1977 it dropped by 2.6 years for males, and by 3.3 years for females.

The reasons behind individual moves are of great interest to demographers, planners, and policy makers. The behavioral aspects can be approximately assessed from regular migration statistics; these are based on information given by the migrants about the reason for their move at the time of notification of their new address. Economic motives and the desire for a residence closer to

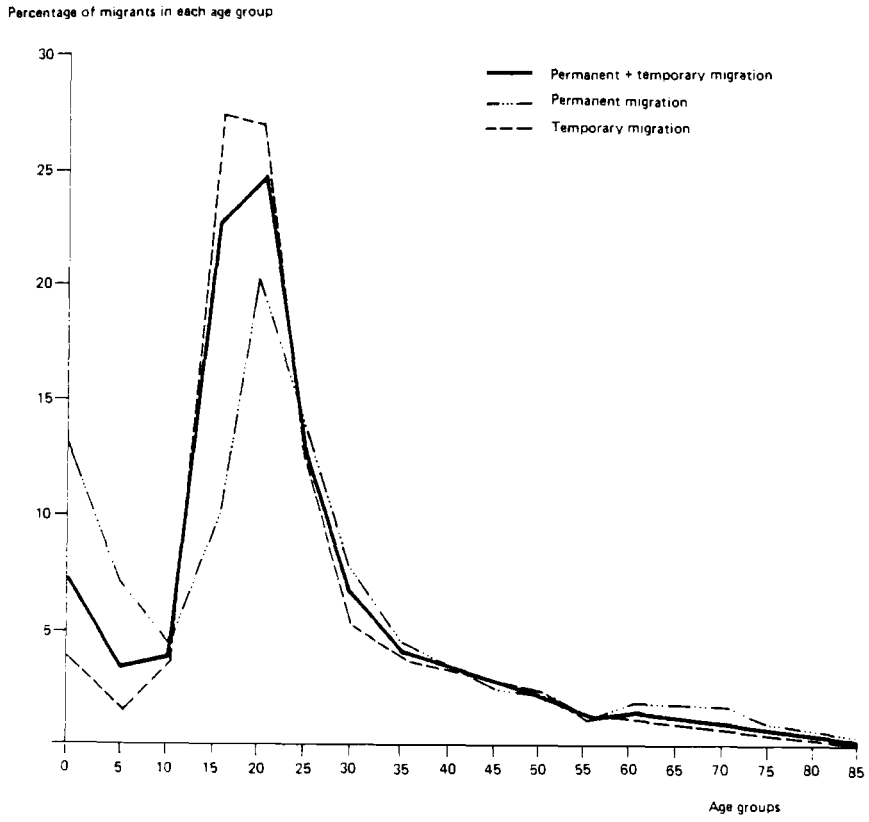

FIGURE 4(b) Age profile of migration based on the percentage distribution of the total number of migrants, by age group; total (both sexes): 1974. (Migrations within regional boundaries are included.)

work are the most significant reasons given and, in 1974, they accounted for nearly 30 percent of all permanent and 60 percent of all temporary changes of residence. Another very important reason for moving is dependency; this accounted for 37 percent of permanent migrants in 1974 (Table 22).

The social motives of marriage, education, and medical treatment are prominent among the factors mentioned by both temporary and permanent migrants although, of course, the pattern varies with the type of migration (see Table 22). The relative significance of individual reasons for permanent migration varies little across different types of settlement, but this is not true for temporary migration.

A thorough analysis of factors that generate migration took place in the late 1960s, based on migration data for the period prior to 1965 (Compton 1971).

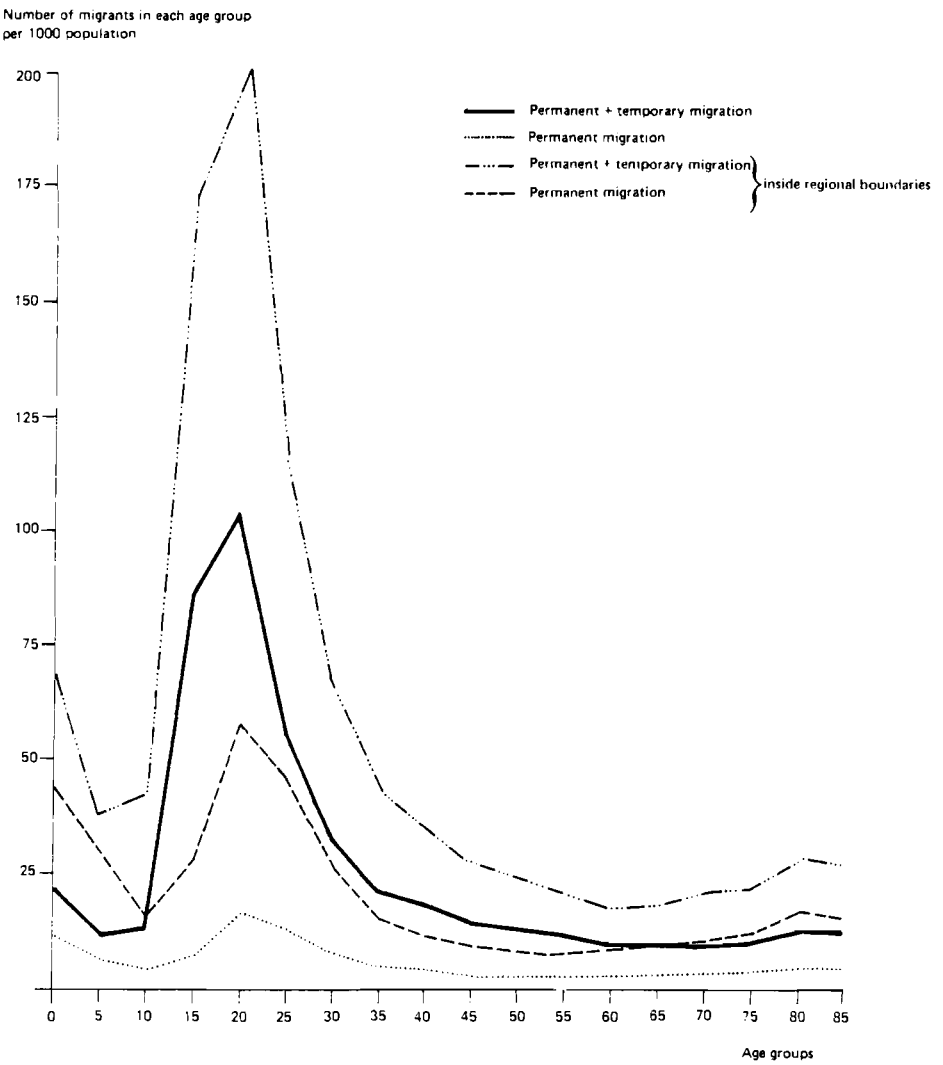

FIGURE 4(c) Age profile of migration based on age-specific migration rates; total (both sexes): 1974.

It focused attention on the spatial variations of the socioeconomic characteristics of the places involved in the migration process. The study highlighted the quality and availability of housing as being the most significant variable influencing geographical mobility in Hungary. Dependency, living standards, and per-capita income are the other major determinants (explaining nearly 87 percent of the regional variations in some types of net migration). Economic disparities are apparently, therefore, the prime determinants of net migration.

TABLE 18 Age-specific migration rates[a], by sex and type of migration: 1960.

Age group	Permanent migration			Temporary migration		
	Both sexes	Males	Females	Both sexes	Males	Females
0–4	48.6	48.4	48.8	22.4	22.3	22.5
5–9	32.1	32.1	32.2	16.3	16.1	16.6
10–14	22.0	22.2	21.8	13.5	13.4	13.6
15–19	52.0	39.7	65.0	173.7	221.1	125.9
20–24	83.8	70.8	96.1	197.0	265.1	132.5
25–29	62.9	71.1	55.1	109.4	168.4	52.7
30–34	38.0	42.7	33.5	74.2	117.0	33.5
35–39	25.8	29.0	22.9	58.9	95.3	25.8
40–44	21.1	24.2	18.4	50.4	80.5	23.9
45–49	15.3	17.2	13.7	40.0	63.2	19.4
50–54	13.8	14.5	13.1	35.8	53.9	19.4
55–59	13.2	12.5	13.8	31.8	42.8	21.8
60+	16.0	14.7	17.0	23.4	23.6	23.3
All ages	33.9	33.8	33.9	63.1	87.9	40.1

[a]Migrants per 1000 (middle-year) population of the same age group and sex.
SOURCE: Demographic Yearbook of Hungary (1960:201).

TABLE 19 Age-specific migration rates[a], by sex and type of migration: 1974.

	Permanent migration			Temporary migration		
Age group	Both sexes	Males	Females	Both sexes	Males	Females
0–4	43.5	42.9	44.1	23.2	23.2	23.1
5–9	25.5	25.0	26.0	10.7	10.3	11.2
10–14	16.4	15.8	17.0	25.8	29.3	22.0
15–19	29.4	20.0	39.3	149.3	159.8	138.1
20–24	56.2	47.2	65.6	140.7	150.9	130.0
25–29	46.0	52.3	39.6	74.9	97.9	51.5
30–34	26.8	31.0	22.5	39.7	56.2	23.2
35–39	16.9	19.0	15.0	26.8	40.0	14.4
40–44	12.7	14.2	11.2	22.2	32.7	12.1
45–49	9.2	10.6	7.9	18.1	27.0	9.7
50–54	7.7	8.1	7.4	16.5	24.8	9.2
55–59	7.5	6.9	8.0	14.5	20.1	9.7
60+	10.5	9.7	11.1	9.8	10.8	9.0
All ages	23.6	23.5	23.6	44.3	54.0	35.2

[a]Migrants per 1000 (middle-year) population of the same age group and sex.
SOURCE: Demographic Yearbook of Hungary (1974:314, 315).

TABLE 20 Age-specific migration rates[a], by sex and type of migration: 1977.

Age group	Permanent migration			Temporary migration		
	Both sexes	Males	Females	Both sexes	Males	Females
0–4	31.7	30.3	33.3	11.5	13.1	9.8
5–9	20.0	19.3	20.8	6.4	7.2	5.4
10–14	15.4	14.9	16.0	25.2	29.4	20.7
15–19	30.0	20.0	40.5	138.8	159.3	117.3
20–24	51.6	42.4	61.4	119.0	139.0	97.9
25–29	43.0	45.8	40.1	65.2	87.7	42.0
30–34	24.5	26.7	22.2	33.1	47.1	18.9
35–39	16.2	17.9	14.5	23.0	34.8	11.6
40–44	11.4	12.3	10.7	17.7	26.7	9.3
45–49	8.8	9.5	8.2	15.0	22.8	7.6
50–54	7.0	7.1	6.9	12.2	18.6	6.3
55–59	7.5	6.7	8.1	11.3	16.2	7.2
60+	10.1	8.8	11.1	8.5	9.8	7.5
All ages	21.5	20.7	22.2	36.4	47.1	26.3

[a]Migrants per 1000 (middle-year) population of the same age group and sex.
SOURCE: Demographic Yearbook of Hungary (1977:308, 309).

TABLE 21 Selected migration indicators, by sex and type of migration: 1960, 1974, and 1977.

Indicator	Permanent migration			Temporary migration		
	1960	1974	1977	1960	1974	1977
Total number of migrants						
Both sexes	338,206	246,940	228,420	630,448	464,558	387,563
Males	162,796	119,416	106,842	423,159	274,413	243,406
Females	175,410	127,524	121,578	207,289	190,145	144,157
Crude migration rates per 1000 population						
Both sexes	33.8	23.6	21.5	63.0	44.4	36.4
Males	33.8	23.5	20.7	87.9	54.0	47.1
Females	33.9	23.6	22.2	40.1	35.2	26.3
Standardized migration[a] rates						
Both sexes	33.8	23.5	21.1	63.0	41.9	35.6
Males	33.8	23.5	20.2	87.9	50.5	45.2
Females	33.9	23.7	22.1	40.1	33.7	26.2
Decline of the level of migration[a]						
Both sexes	0.695	0.624		0.665	0.565	
Males	0.695	0.538		0.575	0.514	
Females	0.699	0.652		0.840	0.653	
Average gross number of migrations expected at birth						
Both sexes	2.22	1.54	1.39	4.23	2.86	2.43
Males	2.19	1.51	1.31	5.91	3.40	3.06
Females	2.26	1.57	1.47	2.65	2.36	1.81
Average age of migrants						
Both sexes	26.00	26.03	26.75	29.19	25.90	26.35
Males	25.79	25.87	26.42	29.30	26.59	26.72
Females	26.21	26.18	27.03	28.97	24.91	25.72
Median age of migrants						
Both sexes	23.6	23.7	24.3	24.7	22.5	22.9
Males	24.5	24.7	25.1	25.5	23.3	23.5
Females	23.0	23.0	23.7	23.4	21.6	22.2
Modal age of migrants						
Both sexes	22.9	23.2	23.5	21.1	19.9	21.0
Males	25.0	24.6	24.8	21.4	19.9	21.2
Females	22.1	22.4	22.8	20.6	19.9	20.7

[a] Based on the age composition of the population at 1 January 1960.

SOURCES: Demographic Yearbooks of Hungary (1960, 1974, and 1977:308, 309).

TABLE 22 Percentage distribution of permanent and temporary migrants, by reason for migration and by settlement type: 1974.

	Type of settlement						
	Budapest		Other towns		Villages		Total
Reason	In	Out	In	Out	In	Out	
Permanent migration							
Work	30.9	25.4	31.0	30.1	26.0	27.8	28.1
Dependent	27.4	29.9	35.7	35.1	39.3	38.2	37.1
Education	1.0	0.3	0.4	0.5	0.3	0.3	0.4
Marriage	15.8	9.6	12.2	12.8	15.9	15.6	14.6
Medical treatment	0.6	0.6	0.3	0.3	0.2	0.3	0.3
Others	14.3	34.2	20.4	21.2	18.3	17.8	19.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Temporary migration							
Work	74.8	50.9	52.5	56.4	57.0	64.5	61.6
Dependent	1.4	11.2	3.8	5.3	12.1	4.2	5.0
Education	16.5	10.8	37.0	27.6	10.9	23.7	23.6
Marriage	1.1	5.2	1.2	2.0	3.6	1.3	1.8
Medical treatment	2.9	5.6	1.9	3.4	4.2	2.3	2.8
Others	2.3	16.3	3.6	5.3	12.2	4.0	5.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE: Demographic Yearbook of Hungary (1974:333).

The same study also revealed that "pull" factors operate more forcefully than "push" factors, as far as permanent migration is concerned. In other words, the particular place of origin plays a less important role in the decision to migrate than do the socioeconomic characteristics of the place of destination.

2.6 Population Redistribution and Structural Change

Over the period studied, regional natural increases of population and the migratory processes reviewed above have modified the distribution of the population in the country in a significant way, and have introduced major changes in regional age structures.

Between 1960 and 1974, population increases were only recorded in the northern part of Hungary, while in the two southern regions, as well as in the North Plain region, population decreased (Figure 5). Population growth was fastest in the Central region, where the average annual rate of population growth

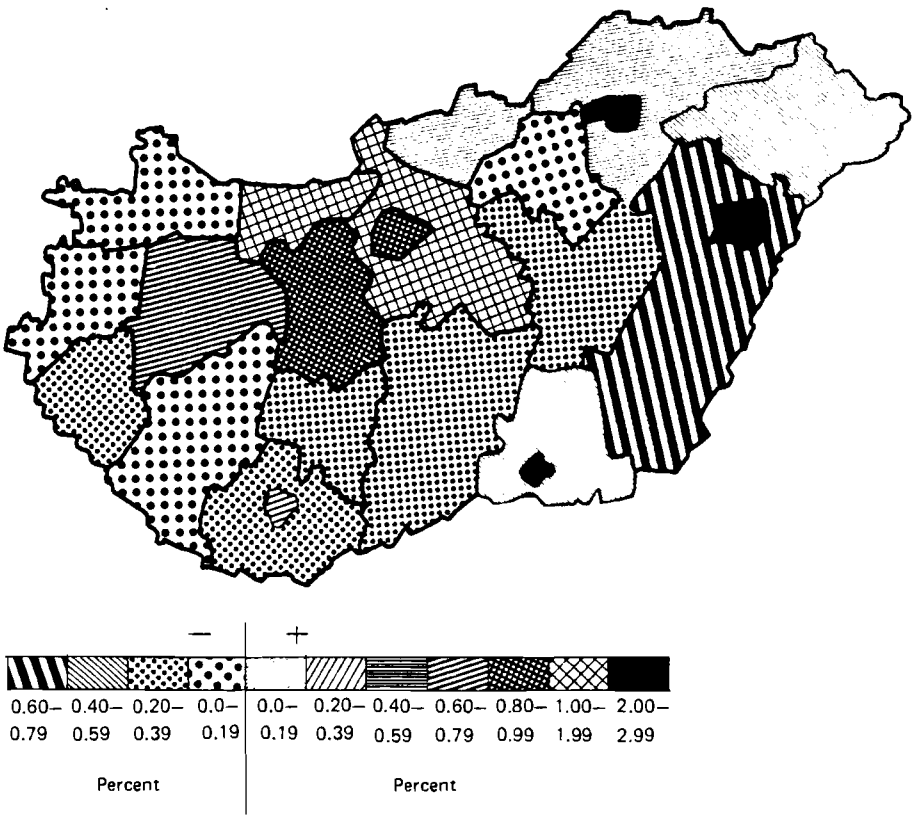

FIGURE 5 Average annual rate of population growth, by counties and county towns: 1960–1975.

was about three times the national average. Next came the region of North Trans-Danubia with approximately twice the national growth rate, while North Hungary showed a population growth rate just below the national level. On the other hand, large population decreases occurred in the two regions of the Hungarian Plain, at average annual rates of more than 2 per thousand (Table 14).

These divergent processes generated a regional population redistribution that primarily affected the population of the Central region on the one hand, and the populations of the Hungarian Plain regions, on the other. The Central region's share of the total population increased over the 15-year period from 25.6 percent in 1960 to 28.4 percent in 1974. The population decline in the Hungarian Plains compensated for the Central region's gains, since the total share of the two Plains regions declined from 31.3 to 28.7 percent over the same period. The proportion of the population in the remaining three regions was essentially unchanged, although the share of the two Trans-Danubia regions has declined somewhat.

These redistribution trends are clearly reflected in the changes in the urban–rural composition of the population. In parallel with the population decline of the less-urbanized regions, the proportion of the population that is rural had, by 1974, declined by nearly seven percent from the 1960 level of 57.4 percent, and of the corresponding increase in the urban share, nearly three quarters occurred in the populations of provincial towns. The question of the speed of these changes has been touched upon previously in Section 1 (Table 3).

During the relatively short period between 1960 and 1974 the population of Hungary aged considerably. The proportion of children under 15 years of age declined by 5.4 percent, while the proportion of people aged 60 years and over increased by 4.4 percent. This aging process occurred in every region without exception, but most noticeably in the Central and South Plain regions. In these two regions in 1974, the proportion of children under 15 years did not reach 20 percent, and the proportion in the 60+ age group exceeded 19 percent. The aging process was fastest in these regions, and only the rate of aging of the population of the North Plain region is comparable. In the case of the Hungarian Plain regions, the aging process was definitely the result of sustained out-migration of people in the labor-force ages. The effect of this out-migration was slightly moderated, but apparently not eliminated, by the relatively higher fertility observed in the North Plain region. The increase in the proportion of people aged 15–39 in the Central and North Trans-Danubia regions was the result of continuing migration gains in the labor-force ages (Table 23).

Similar effects can be observed in the age structure of the urban and rural populations. Here the aging of the population was most rapid in the villages, and in Budapest, as shown in Table 24 and Figure 6. In the villages the out-migration of people in the labor-force ages took its toll, mainly in the 15–39 age group. The age structure of the population of Budapest was modified by the joint effects of low fertility and moderate migration gain. The aging process in the population of provincial towns was somewhat modified by the continuous and sizeable net migration gain, and was less rapid than that experienced by the villages and by Budapest.

3 MULTIREGIONAL POPULATION ANALYSIS

3.1 Methodology

The regional distribution and redistribution of the population and the factors that govern redistribution are closely interconnected. The population and vital statistics data of a country, even when they are as refined as is usually the case with Hungarian official statistics, can hardly hope to follow these complex interrelationships. As a result, much of the available information, and consequently most parts of previous analyses, could not penetrate deeply enough to the core of problems and therefore could not precisely assess the role of the individual factors behind regional population changes. It is unnecessary to

TABLE 23 Percentage distribution of the resident population, by broad age group and region, total (both sexes): 1960, 1974, and 1977.

	Region						
Age group	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia	Total
1960							
0–14	21.4	26.6	29.6	24.9	27.2	25.2	25.4
15–39	36.9	38.4	36.3	35.9	37.3	36.2	36.8
40–59	27.1	22.5	21.4	24.7	22.6	24.0	24.0
60+	14.6	12.5	12.7	14.8	12.9	14.6	13.8
1974							
0–14	16.1	21.8	23.9	19.4	21.5	20.3	20.0
15–39	39.1	36.9	36.1	36.1	38.3	36.0	37.4
40–59	25.6	24.6	22.8	24.3	23.7	24.8	24.4
60+	19.2	16.7	17.2	20.2	16.5	18.9	18.2
1977							
0–14	17.8	22.1	24.3	20.3	22.3	20.8	20.8
15–39	38.1	36.1	35.7	35.6	37.7	35.8	36.8
40–59	25.1	25.4	23.4	24.5	24.0	25.2	24.6
60+	19.0	16.4	16.6	19.6	16.0	18.2	17.8

SOURCES: Demographic Yearbooks of Hungary (1960, 1974, and 1977:28, 29).

emphasize the importance of precise identification of these factors, and the measurement of their relative importance in the regulation of the processes of regional population redistribution.

Methods of multiregional mathematical demography have been developed by Rogers and associates during the past decade. [See Rogers (1975, 1978), and Willekens and Rogers (1978).] During the past few years a team at the International Institute for Applied Systems Analysis (IIASA), headed by Professor Rogers, has developed a package of computer programs that provide a ready tool for the utilization of these methods. The programs compute multiregional life tables, projections of multiregional population systems, and analyses of stable multiregional populations (Willekens and Rogers 1978).

The multiregional analysis of Hungary's population that follows relies on numerical results of this computer analysis, kindly provided by IIASA. Since the applied methodology is described elsewhere, the analysis below will focus only on the results.

3.2 Data

The present study has used officially-published Hungarian data on population and vital statistics. In recent years these statistics have been based on the

TABLE 24 Percentage distribution of the resident population, by broad age group and type of settlement, total (both sexes): 1960, 1974, and 1977.

	Type of settlement			
Age group	Budapest	Other towns	Villages	Total
1960				
0–14	19.7	24.7	27.4	25.4
15–39	36.7	38.9	36.0	36.8
40–59	28.5	23.3	23.0	24.0
60+	15.1	13.1	13.6	13.8
1974				
0–14	14.0	20.1	22.1	19.9
15–39	39.1	41.7	34.2	37.4
40–59	26.5	22.9	24.6	24.5
60+	20.4	15.3	19.1	18.2
1977				
0–14	15.9	21.8	22.2	20.9
15–39	38.0	40.9	33.7	36.8
40–59	25.9	22.8	25.3	24.6
60+	20.2	14.5	18.8	17.7

concept of "resident" population, namely people with permanent residence in a given locality, who do not have temporary residence elsewhere. The statistics also include people with temporary residence in the locality concerned, a concept that was first introduced in the 1970 census and that is assuming an increasingly dominant role. All data in this study (if not stated otherwise) are based on statistics referring to the resident population.

Vital statistics used in the analysis, however, are listed according to the permanent place of residence of mothers, in the case of births, and of the deceased, in the case of deaths. This may cause some theoretical discrepancies within the data base when computing rates and other derived measures.

Continuous migration statistics in Hungary, which have been recorded since 1955, are based on the system of compulsory notification of place of residence. From 1975 the system has been operated by the municipalities, where every permanent or temporary change of residence must be reported using special forms, one for the place of origin (exit form) and one for the place of destination (entry form).

Tabulations of migrants by place of origin and place of destination are also included, although, for reasons of economy, these have not been disaggregated by age and sex. For this particular study, migrants were also cross-classified by sex and five-year age groups, as well as by direction of migration.* Appropriate

*The tables were specially prepared and kindly provided by the Hungarian Central Statistical Office for the purposes of this study.

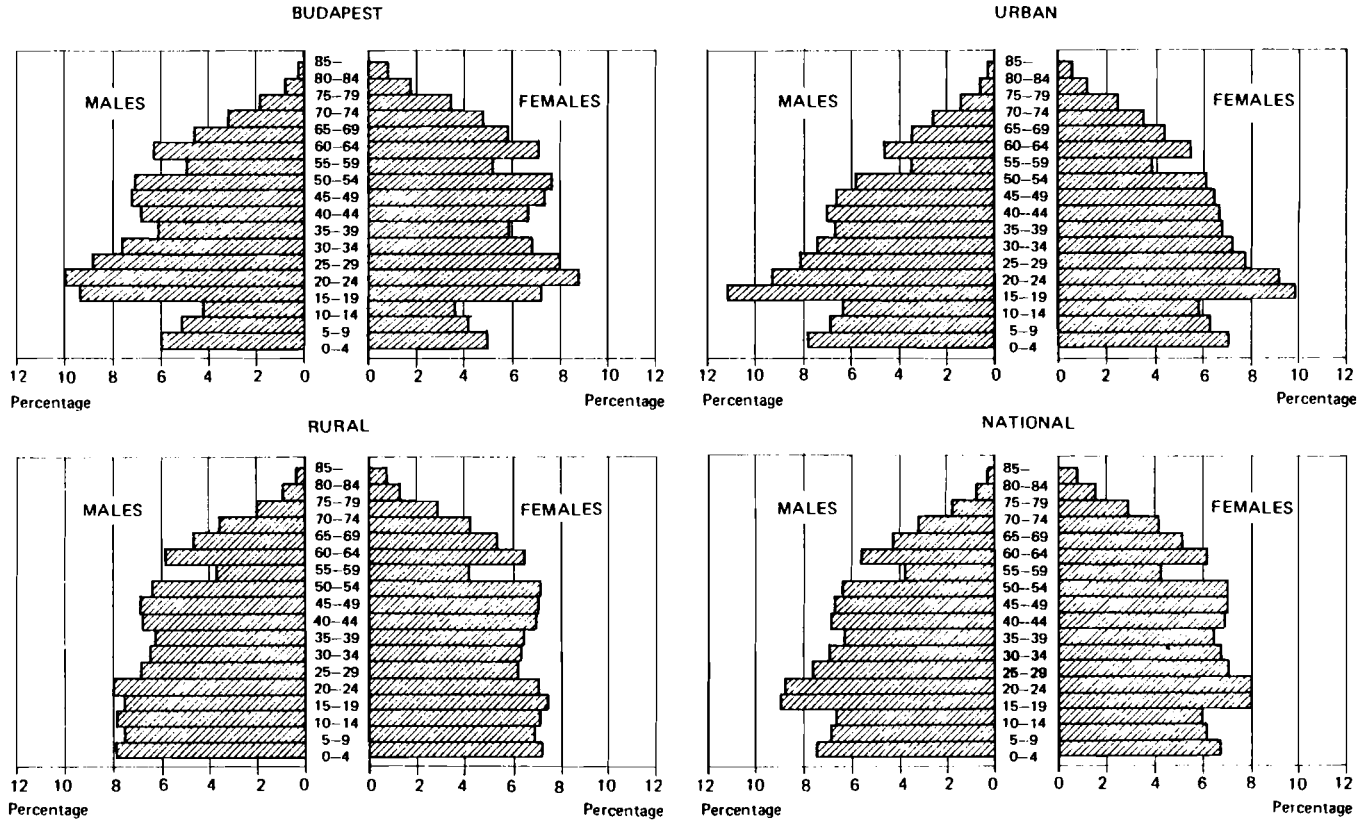

FIGURE 6 Sex and age structure of the resident population, by type of settlement: 1974.

data for the migrants between regions were aggregated from data for the counties and county towns. Data on permanent and temporary migrants were grouped together. Both sexes were considered jointly. The input data for the multiregional analysis are shown in Appendix A.

3.3 The Multiregional Life Table

A major tool for multiregional demographic analysis is the multiregional life table, which provides an excellent summary of various measures of mortality and migration for a multiregional population system. As proposed by Rogers (1975), such a life table describes the mortality *and* migration experiences of a multiregional population system, through the calculation of the life histories of hypothetical cohorts born in the set of regions considered and subjected to the age-specific regional mortality schedules as well as the age- and destination-specific regional schedules of internal migration observed during the base period. Such rates for Hungary are given in Appendix B.

The parameters of a multiregional life table describe the life experience of an average person born in a region. This is done from the point of view not only of mortality, but also of migration, by indicating in which particular region certain periods of that person's life are expected to be spent. In this way it gives a spatial meaning to some of the most basic demographic indicators, the life-table statistics.

Table 25 summarizes the results from the 1974 cross-sectional data. It shows both the total expectation of life of a baby born in a given region, and also a breakdown into the regions where various proportions of that life are expected to be spent. People born in the Central region have the shortest expectation of life at birth, namely 68.4 years. People of North Trans-Danubian origin are, in this respect, the most "privileged" with an expectation of life of 69.7 years. (All these remarks are, of course, only relative, as the expectations of life of the various regional populations are remarkably concentrated within the narrow range of only 1.3 years.)

No matter in which region a person is born, he or she can expect less than half of his or her lifetime to be spent in the region of birth. The proportions of expected lifetime spent in the region of birth will be highest for people born in the Central and North Trans-Danubia regions. This is due to the strong attractions of the area, exerted not only on in-migrants, but also on the native population. At the other end of the scale one finds the North Plain region, which holds its native-born people for only slightly more than one third of their expected lifetime.

Looking at the same results from the point of view of the region of residence, we see that the Central region benefits the most. A sizeable proportion of the life of an average Hungarian will be spent in this region, regardless of his or her region of birth. For example, a person born in northern Hungary (including the North Plain region) can expect to live at least one quarter of his

TABLE 25 Expectation of life at birth, by region of residence and region of birth, total (both sexes): 1974.

Region of residence	Region of birth					
	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia
Central	33.4	17.1	19.2	15.0	13.9	13.1
North Hungary	6.8	29.3	7.0	4.5	4.3	3.7
North Plain	8.8	7.8	25.7	6.3	5.2	4.6
South Plain	6.3	4.8	6.1	31.8	4.7	5.2
North Trans-Danubia	8.0	6.4	7.0	6.7	35.3	9.8
South Trans-Danubia	5.1	3.7	4.1	4.8	6.3	32.4
Total	68.4	69.1	69.1	69.1	69.7	68.8

TABLE 26 Migration levels, by region of residence and region of birth, total (both sexes): 1974.

Region of residence	Region of birth					
	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia
Central	0.4884	0.2473	0.2786	0.2168	0.1993	0.1904
North Hungary	0.0987	0.4247	0.1006	0.0658	0.0610	0.0543
North Plain	0.1281	0.1123	0.3724	0.0909	0.0751	0.0671
South Plain	0.0927	0.0688	0.0879	0.4601	0.0668	0.0749
North Trans-Danubia	0.1174	0.0935	0.1016	0.0967	0.5069	0.1428
South Trans-Danubia	0.0747	0.0534	0.0589	0.0697	0.0909	0.4705
Total	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

or her life in this region. In addition, this proportion is never less than 19 percent for an average person born in any of the other regions (Table 26). These proportions are very high if compared with those found for other countries. A part of the difference may be explained by the bias introduced by considering temporary migration in conjunction with permanent migration. Temporary migrants may change residence for as little as three weeks. However, other people may be classified as temporary migrants for several years. Further study of the "migrant" concept is needed. Detailed data on these two kinds of migration are presented in Appendix D. The complete set of expectations of life by region of birth and region of residence is shown in Appendix C.

We can, of course, compare the levels of migration between any two of the regions. As suggested by Table 26, the Central region exerts the strongest attraction on the population of other regions. Its attraction is weakest for the population of North Trans-Danubia which itself makes major gains from internal migration. This region exerts the second strongest attraction. The remaining regions, namely South Trans-Danubia, North Hungary, North Plain, and South Plain, are all net losers of population from migratory processes.

Finally, one of the more useful indicators in a multiregional life table is the survivorship function, that specifies the survivors of an initial cohort born in a given region and subjected to the multiregional schedules of mortality and out-migration. Figure 7 illustrates such survivorship functions for each region.

3.4 Multiregional Population Projections

3.4.1 THE MULTIREGIONAL MODEL

The regional fertility, mortality, and interregional migration data described above can be used to construct a multiregional projection model that is based on a multiregional growth matrix (Rogers 1975). When this matrix is applied to the age- and region-specific initial population of the country, set out as a vector, one can extrapolate the evolution of the population to the end of each projection period, of say five years. Such an operation can be continued by consecutively projecting the evolving initial population over time. It must be emphasized, however, that in the current study, the elements of the matrix are assumed to remain constant in time, which reflects an assumption of constant age-specific fertility and mortality schedules and constant age- and destination-specific migration schedules for the population of each region considered. This projection is therefore a straight extrapolation, and should not be interpreted as a forecast.

As shown by Rogers (1975) the age composition of the population of each region, as well as each region's share of the total population of the country, becomes increasingly independent of the initial age structures and regional distributions as the projection proceeds. In other words, if sufficient time elapses, the regional population tends to "forget" its initial age structure and

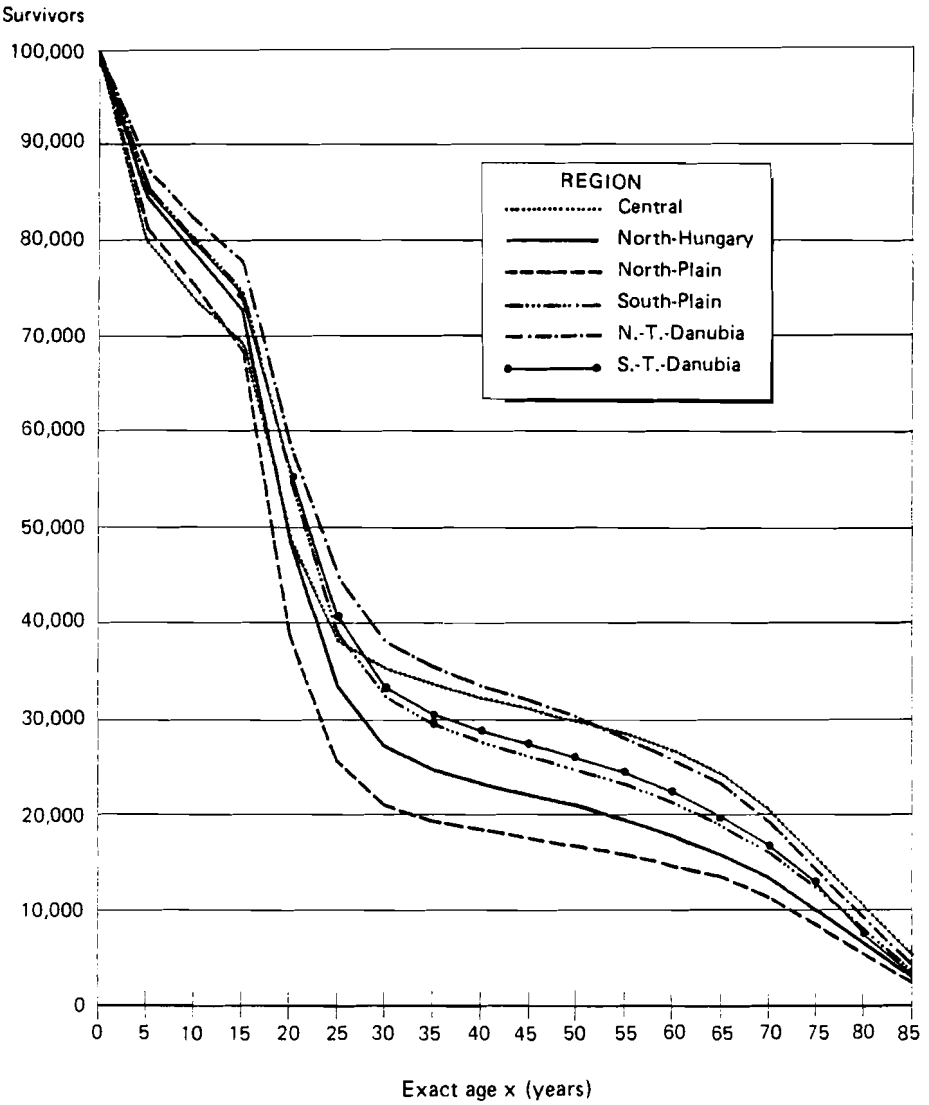

FIGURE 7 Expected number of survivors at exact age x in their region of birth.

population share when it is exposed to a constant regime of fertility, mortality, and migration. After a long enough period, the age structure of the regional population and the regional distribution of the country's population reach constant levels, and a population which has reached this stage is called a stable multiregional population. An essential assumption of the model is that the country's population is undisturbed by external migration; in Hungary this condition is fulfilled.

Regional population projections and regional stable populations were also calculated as a central component of the IIASA comparative study. The main objective of the regional projections is to highlight the long-term demographic and regional implications of the current demographic patterns. The regional growth rates and the compositions of the stable population by age and regional distribution are important indicators of these trends.

3.4.2 MULTIREGIONAL POPULATION GROWTH

Table 27 summarizes the results of multiregional population projections for Hungary by regions, over the period 1974–2024. It shows regional projections for population, share of the national population, mean age, and annual population growth rate. As can be seen, the time variations in each series are gradually damped by a progessive smoothing out of the regional age distributions. As a result, none of the regional population growth rates will be more than 0.5 percent higher or lower than the national growth rate by 2024. There is also a high degree of stabilization in the regional mean ages. Needless to say, the smoothing out of the regional age distribution is rapidly reflected in the time trend of the mean age of the regional populations. Between 2014 and 2024 the mean age of every region changes by less than 0.2 years.

The same process of strong stabilization appears in the regional distribution of the population. In the final decade of the projection period considered, the proportion of the regional population in the national total will change by no more than 0.7 percent in all the regions, except for North Trans-Danubia. One remarkable feature is that the regional population distribution that emerges closely resembles the initial distribution observed in 1974. Only the shares of the Central region, and particularly the North Trans-Danubia region will increase sizeably, and the South Plain region will lose the most. Table 28 shows that the regional population distribution in 2024 will be remarkably close to the stable distribution.

The projected regional growth ratios exceed unity for each region throughout the projection period, except for the South Plain region in 1994 (Table 29).

The 5-year growth ratio of the stable population that eventually will develop is 1.0151. It is calculated as the dominant characteristic root of the growth matrix. It implies an annual intrinsic growth rate equal to 3.06 per thousand which is a value relatively distant from the national growth rate projected for the year 2024 (2.05 per thousand).

3.4.3 STABLE REGIONAL POPULATION

The stable regional population that emerges from the multiregional projection exercise will have a steady but low rate of growth, namely 3 per thousand per annum in each region. Its regional distribution has been described above. The regional age distributions at stability are illustrated in Figure 8, in relation to the age distribution of the initial regional populations.

TABLE 27 Projection of multiregional population growth, by region, summary indicators: 1974–2024.

Region	Year	Population (X 1000)	Percentage of national population	Mean age	Annual growth rate (per 1000)
Central	1974	2968	28.41	37.60	
	1979	3076	28.66	37.45	7.2
	1984	3161	28.89	37.39	5.4
	1989	3210	29.02	37.51	3.1
	1994	3245	29.11	37.67	2.1
	1999	3287	29.17	37.74	2.6
	2004	3336	29.20	37.62	2.9
	2009	3392	29.25	37.65	3.4
	2014	3433	29.29	37.60	2.4
	2019	3472	29.32	37.60	2.2
	2024	3513	29.33	37.55	2.3
North Hungary	1974	1358	13.00	35.28	
	1979	1385	12.91	35.48	4.0
	1984	1403	12.82	35.72	2.6
	1989	1411	12.76	36.05	1.2
	1994	1417	12.71	36.35	0.7
	1999	1427	12.66	36.47	1.4
	2004	1440	12.60	36.36	1.9
	2009	1455	12.55	36.31	2.1
	2014	1465	12.50	36.20	1.4
	2019	1476	12.46	36.14	1.4
	2024	1489	12.43	36.02	1.7
North Plain	1974	1544	14.77	34.52	
	1979	1576	14.69	34.53	4.2
	1984	1598	14.60	34.62	2.8
	1989	1611	14.56	34.85	1.5
	1994	1620	14.54	35.10	1.2
	1999	1637	14.52	35.21	2.0
	2004	1658	14.52	35.10	2.6
	2009	1683	14.51	35.09	2.9
	2014	1700	14.50	35.02	2.0
	2019	1716	14.49	35.00	1.9
	2024	1735	14.48	34.93	2.2
South Plain	1974	1451	13.89	37.11	
	1979	1470	13.69	36.98	2.5
	1984	1480	13.52	36.90	1.3
	1989	1480	13.38	36.95	0.1
	1994	1479	13.27	37.02	−0.1
	1999	1486	13.19	36.98	0.9

TABLE 27 *Continued.*

Region	Year	Population (X 1000)	Percentage of national population	Mean age	Annual growth rate (per 1000)
South Plain	2004	1499	13.12	36.78	1.7
(*continued*)	2009	1516	13.07	36.71	2.3
	2014	1527	13.03	36.59	1.5
	2019	1539	13.00	36.54	1.6
	2024	1554	12.98	36.45	1.9
North Trans-	1974	1824	17.46	34.84	
Danubia	1979	1899	17.70	34.82	8.1
	1984	1960	17.91	34.85	6.3
	1989	2001	18.09	35.08	4.1
	1994	2033	18.24	35.37	3.2
	1999	2071	18.37	35.51	3.7
	2004	2113	18.50	35.43	4.0
	2009	2157	18.60	35.44	4.1
	2014	2191	18.69	35.41	3.1
	2019	2221	18.76	35.44	2.8
	2024	2253	18.81	35.40	2.8
South Trans-	1974	1304	12.48	36.45	
Danubia	1979	1327	12.36	36.38	3.5
	1984	1342	12.26	36.35	2.3
	1989	1347	12.18	36.48	0.8
	1994	1351	12.12	36.64	0.6
	1999	1362	12.08	36.67	1.6
	2004	1377	12.06	36.50	2.2
	2009	1394	12.02	36.43	2.5
	2014	1406	12.00	36.33	1.7
	2019	1419	11.98	36.29	1.8
	2024	1434	11.97	36.21	2.1
Total	1974	10448	100.00	36.15	
	1979	10734	100.00	36.11	5.4
	1984	10943	100.00	36.12	3.9
	1989	11060	100.00	36.30	2.1
	1994	11456	100.00	36.50	1.5
	1999	11270	100.00	36.57	2.2
	2004	11423	100.00	36.45	2.7
	2009	11598	100.00	36.43	3.0
	2014	11723	100.00	36.36	2.1
	2019	11843	100.00	36.34	2.0
	2024	11977	100.00	36.27	2.2

TABLE 28 Observed (1974), projected (1979–2024), and stable regional shares [$SHA_i(t)$] of the total population: 1974–stability.

Year	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia	Total
1974	0.2841	0.1300	0.1477	0.1389	0.1745	0.1248	1.0000
1979	0.2866	0.1291	0.1468	0.1369	0.1770	0.1236	1.0000
1984	0.2888	0.1283	0.1460	0.1352	0.1791	0.1226	1.0000
1989	0.2902	0.1276	0.1456	0.1338	0.1809	0.1218	1.0000
1994	0.2911	0.1271	0.1454	0.1327	0.1824	0.1212	1.0000
1999	0.2917	0.1266	0.1452	0.1319	0.1837	0.1208	1.0000
2004	0.2920	0.1260	0.1452	0.1312	0.1850	0.1206	1.0000
2009	0.2925	0.1255	0.1451	0.1307	0.1860	0.1202	1.0000
2014	0.2929	0.1250	0.1450	0.1303	0.1869	0.1200	1.0000
2019	0.2932	0.1246	0.1449	0.1300	0.1876	0.1198	1.0000
2024	0.2933	0.1243	0.1448	0.1298	0.1881	0.1197	1.0000
Stability	0.2929	0.1232	0.1444	0.1287	0.1911	0.1197	1.0000

TABLE 29 Projected 5-year regional ratios of population growth $[\lambda_i(t)]$.[a]

Year	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia	Total
1979	1.036410	1.020223	1.021179	1.012714	1.041384	1.017548	1.027280
1984	1.027456	1.012839	1.013890	1.006770	1.031856	1.011314	1.019528
1989	1.015669	1.005810	1.007746	1.000378	1.020907	1.004211	1.010713
1994	1.010770	1.003715	1.006124	0.999461	1.016171	1.002998	1.007710
1999	1.013155	1.007061	1.010191	1.004673	1.018487	1.007903	1.011160
2004	1.014799	1.009290	1.012998	1.008405	1.020434	1.011145	1.013591
2009	1.016906	1.010805	1.014728	1.011367	1.020882	1.012483	1.015296
2014	1.012031	1.006842	1.010125	1.007607	1.015456	1.008560	1.010745
2019	1.011219	1.007101	1.009645	1.007875	1.013989	1.008925	1.010283
2024	1.011779	1.008749	1.010814	1.009478	1.014327	1.010659	1.011306
Stability	←			1.015146		→	

[a]The average annual growth rate is $r_i = 0.2 \ln [\lambda_i(t)]$.

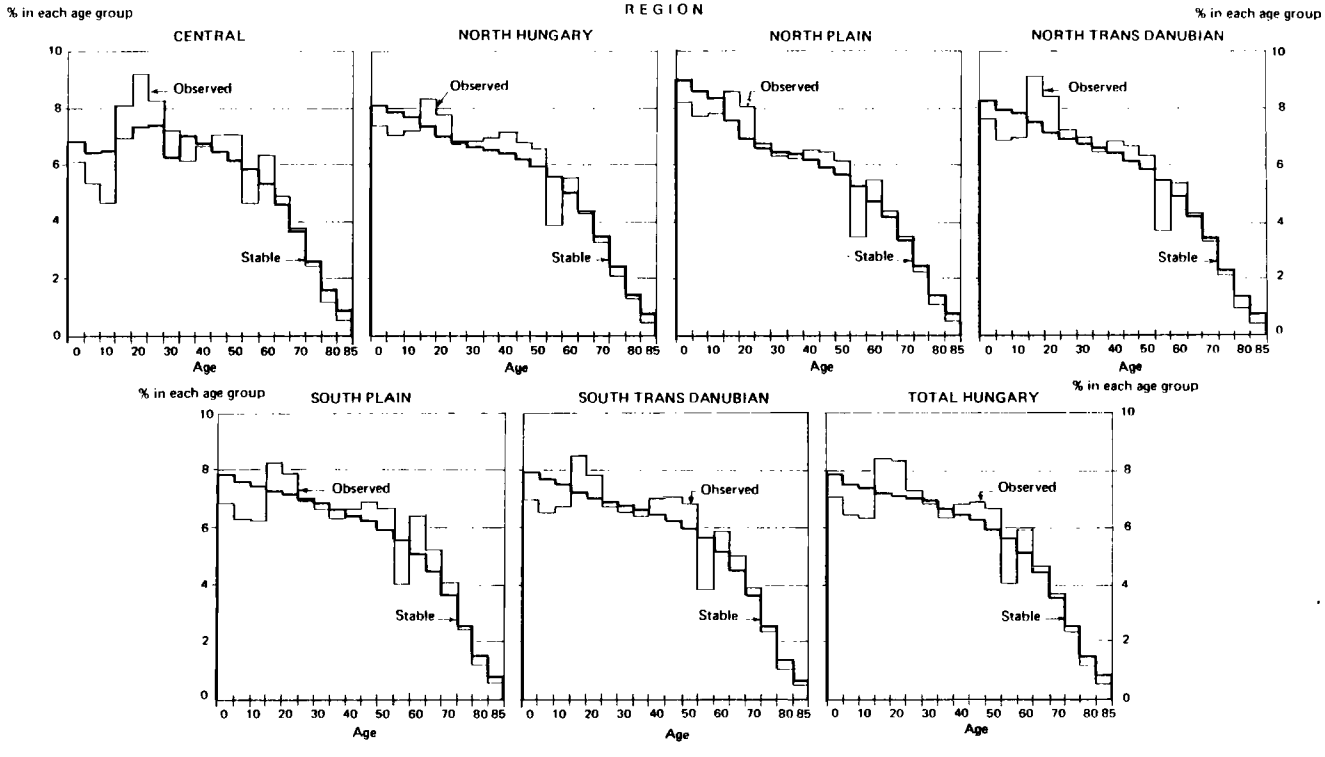

FIGURE 8 Observed (1974) and stable regional age distribution of the total population.

The regional age distributions at stability show the characteristic shape for a growing stable population in each region except the Central. Thus, the proportion of the population in each 5-year age group declines steadily with increasing age. A significant drop in the proportions between the first two age groups is the result of the high infant mortality still prevailing throughout the country. There is also a steep decline in the proportion of population in the early labor-force ages at stability for the two northern regions: this can be associated with known patterns of out-migration.

The stable age distribution of the population for the Central region differs significantly from the rest. At first sight, it appears to be the age distribution of a declining stable population, with its characteristic "mushroom" shape. In fact, the proportion of people aged between 20 and 35 in the stable population is considerably greater than the proportion in the younger age groups. But because we have seen that the Central region will have a growing stable population, we attribute this peculiarity to the continuing migration gain that the region is assumed to experience, together with a sustained natural decrease.

3.5 Regional Fertility and Migration Patterns

3.5.1 ANALYTICAL TOOLS

The application of the multiregional population model allows one to probe deeper into the joint impacts of regional patterns of fertility, mortality, and migration. Fertility and migration patterns in both stationary (life-table) and stable populations can also be analyzed. For each population gross and net rates of reproduction and migraproduction may be calculated. The analysis that follows will essentially be based on the matrices of net reproduction rates (NRR) and net migraproduction rates (NMR). Table 30 summarizes the age patterns of the three components of population change considered, namely, the mean ages of childbearing, death, and migration. They are calculated from cross-sectional data referring to 1974.

3.5.2 REGIONAL POPULATION REPRODUCTION

The complex interactions between regional fertility and mortality, and inter-regional migration flows directly determine the regional patterns of population reproduction. The results are summarized in the NRR matrix given in Table 31 (part a). The "total" row in the matrix shows the net reproduction rate of cohorts born in a given region. In 1974 net reproduction rates in most of the regions were between 1.09 and 1.10, reflecting the recent increase in national fertility. The South Plain region unexpectedly lagged behind the general trend with a net reproduction rate of 1.08, while the NRR for the Central region was by far the lowest.

TABLE 30 Mean age of the population, and mean ages of childbearing, death, and migration: 1974.

Region of destination	Mean age of			Region of out-migration					
	Population[a]	Childbearing	Death	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia
Central	37.60	25.39	65.97	–	27.69	26.27	28.80	28.37	29.08
North Hungary	35.28	24.79	65.24	28.04	–	25.95	26.94	26.39	26.85
North Plain	34.52	24.94	65.38	26.79	26.21	–	24.58	26.50	26.20
South Plain	37.11	24.88	66.90	28.90	26.80	24.09	–	26.55	26.47
North Trans-Danubia	34.84	24.90	65.76	28.84	25.91	25.86	27.34	–	26.00
South Trans-Danubia	36.45	24.43	66.31	28.87	27.12	26.22	26.88	25.89	–

[a]On 1 January 1974.

TABLE 31 Spatial fertility expectancies, by region: 1974.

Region of birth of child	Region of birth of parent					
	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia
a. Net reproduction rates						
Central	0.416253	0.258909	0.314994	0.213566	0.192169	0.180287
North Hungary	0.117042	0.474966	0.116753	0.065522	0.060122	0.050652
North Plain	0.190437	0.149499	0.415303	0.117024	0.088308	0.075097
South Plain	0.101822	0.066388	0.095344	0.509839	0.065605	0.076782
North Trans-Danubia	0.130863	0.096711	0.106659	0.101380	0.590601	0.170281
South Trans-Danubia	0.078338	0.048299	0.054315	0.071191	0.102348	0.539178
Total	1.034756	1.094774	1.103366	1.078522	1.099153	1.092276
b. Net reproduction allocations (proportional distribution)						
Central	0.402271	0.236495	0.285484	0.198017	0.174834	0.165056
North Hungary	0.113111	0.433849	0.105815	0.060752	0.054699	0.046373
North Plain	0.184040	0.136557	0.376396	0.108504	0.080342	0.068752
South Plain	0.098402	0.060641	0.086412	0.472720	0.059687	0.070295
North Trans-Danubia	0.126468	0.088339	0.096667	0.093999	0.537323	0.155895
South Trans-Danubia	0.075707	0.044118	0.049227	0.066008	0.093115	0.493628
Total	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

The elements of the matrix show where the reproduction of a cohort born in a given region will actually occur. The regional allocation of spatial net reproduction is given in Table 31 (part b). It shows, for example, that only about 40 percent of the reproduction of a cohort born in the Central region (NRR = 1.03) will occur in the same region. Another 18 percent of the Central cohort's reproduction will occur in the North Plain region, and only about 8 percent in South Trans-Danubia; the remaining 35 percent will be approximately equally shared by the other three regions. Only for the cohort born in the North Trans-Danubia region will more than half of the cohort's reproduction occur in the region of birth; the corresponding proportion for the North Plain region is less than 40 percent. Between 17 and 28 percent of the reproduction of cohorts born in the other 5 regions will take place in the Central region, as shown in the first row of Table 31 (part b).

3.5.3 REGIONAL MIGRAPRODUCTION RATES

In addition to the net reproduction rate matrix, multiregional demography includes the calculation of net migraproduction rates (NMR). These rates show the total number of out-migrations that a person born in any given region is expected to make during his or her lifetime, from the region of birth or from any other region (Table 32). The "total" row represents the total number of moves that an average member of each regional cohort is expected to make during his or her lifetime, taking into consideration both the interregional migration probabilities and the regional mortality patterns affecting the person. As can be seen, people born in the two northern regions of Hungary and those born in the Central region are the most mobile, with an average of over two out-migrations throughout their entire lifetime. The matrix elements describe the regional origins and destinations of these moves. The allocation matrix is given in Table 33.

As may be expected, at least 44 percent of the moves of each regional cohort are made from the region of birth. Out-migration from the Central region plays a particularly important role: in fact, leaving aside those born in the Central region, between 23 and 30 percent of all moves of an average Hungarian will be directed out of the Central region, regardless of the initial region of birth. The North Plain region is also a prominent area from which people migrate. In general, the two northern regions of the country and the Central region appear to be the primary sources of major interregional migratory flows.

4 REGIONAL POPULATION POLICIES AND PLANS

4.1 Historical Perspective

The question of how policies are related to urbanization and regional development issues has been defined in various ways during the past decade in Hungary,

TABLE 32 Net migraproduction rates, by region[a] (both sexes): 1974.

Region of out-migration	Region of birth					
	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia
Central	1.2040	0.5891	0.7078	0.4972	0.4495	0.4206
North Hungary	0.1899	0.9267	0.1923	0.1131	0.1049	0.0896
North Plain	0.3726	0.2995	1.1134	0.2362	0.1820	0.1561
South Plain	0.1402	0.0950	0.1318	0.8382	0.0941	0.1084
North Trans-Danubia	0.1621	0.1233	0.1352	0.1289	0.8272	0.2067
South Trans-Danubia	0.1049	0.0682	0.0762	0.0967	0.1341	0.8120
Total	2.1737	2.1018	2.3567	1.9103	1.7918	1.7934

[a]Moves within regional boundaries are not considered here.

TABLE 33 Net migraproduction allocations[a], total (both sexes): 1974.

Region of out-migration	Region of birth					
	Central	North Hungary	North Plain	South Plain	North Trans-Danubia	South Trans-Danubia
Central	0.5539	0.2804	0.3003	0.2603	0.2508	0.2345
North Hungary	0.0874	0.4409	0.0816	0.0592	0.0585	0.0499
North Plain	0.1714	0.1425	0.4724	0.1236	0.1016	0.0871
South Plain	0.0645	0.0452	0.0559	0.4388	0.0525	0.0604
North Trans-Danubia	0.0746	0.0586	0.0574	0.0675	0.4617	0.1153
South Trans-Danubia	0.0482	0.0324	0.0323	0.0506	0.0749	0.4528
Total	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

[a]Figures from calculations based on migration data for both permanent and temporary migrants.

sometimes without an explicit identification of the issues, their full meaning, and their component parts. Even the terminology used has been rather vague in form. Terms such as "strategy", or more recently "concept for development" are often used as synonyms for "policy". These terms are used at all levels of government in a rather broad sense, referring to a set of actions (stated or unstated) which affect the size, structure, and development of the settlement system in the broadest possible sense. In recent years, more and more emphasis has been laid on policies directed toward the development of technology and the improvement of the quality of life in both urban and rural areas. These policies also form an integral part of the national socioeconomic policy. In accordance with generally accepted principles, we may list the (somewhat

arbitrary) stages of policy formulation as follows: (a) identification of problems; (b) short- and long-term goal formulation; (c) adoption of goals; (d) selection, application, and enforcement of policy instruments; and (e) establishment of an evaluation mechanism.

It is obvious that population studies, and particularly demographic analysis, can and in fact should contribute to the formulation of each of the stages, although, of course, their role is more important in some stages than in others (such as in the two initial stages and in the evaluation stage). The primary objectives of Hungarian population research, related to problems of urbanization and regional development, have also been most concerned with the two initial stages. Some aspects of evaluation are closely associated with the previous stages of policy formulation, although requests for the assistance of population researchers have only recently been expressed.

Population studies have provided a basic input for the development of urbanization and settlement-system policies since the late 1950s, when up-to-date principles and methods of policy formulation were first applied. However, the impact of these studies on various stages of policy formulation has been rather uneven. In the early years of the period, for example, problems of general socioeconomic development, and specifically of urbanization, shortage of resources, and the relatively modest technical and technological means available for urban development, set serious limitations on the establishment and implementation of policies for urban development. Housing construction was one of the most crucial elements of these policies. More sophisticated policies emerged only after the late 1950s, along with the introduction of more-advanced regional and town-planning methods, as well as the acceleration of technological development.

4.2 Current Regional Policies

The application of planned economic, regional, and settlement-development policies forms the core of socioeconomic policy. The principal aims are the effective utilization of the resources of both the national and the various regional economies, as well as the reduction of significant regional differences in employment, productivity, and cultural levels. Basic development objectives and the political means by which they are carried out differ by region and by settlement type. Fundamentals that determine the direction, timing, and conditions of development should be taken into consideration. For example, this may mean that in certain areas the development of industry or modern large-scale agricultural farming is preferred, while in other areas the aim is a rapid development of health resorts, and internal and international tourism. Long-term development, as defined in national and regional plans, can be achieved only when economic and social policy is associated with a complex, extensive, and scientifically-based settlement-development policy.

The National Settlement System Development Concept, as defined in a government decision of 1971, is fulfilling the requirements outlined above for the first time in the history of Hungarian economic planning. This policy precisely defines the overall aim for the development of the various settlement systems up to the end of the century, as well as the hierarchical order of the settlements and their respective means of development. Population is not only an important factor in this concept, but is one of its fundamental elements.

The purpose of this policy is to establish a functional relationship between the settlements which will be suitable for the reasonable long-term spatial location of productive resources, and which will contribute to the reduction of the present large differences in the living conditions of the urban and rural populations. It attempts to ensure the concerted development of national technical networks such as transportation, energy, and water-supply. Further aims are to reduce the amount of internal migration and to make it easier for workers to reach their places of work in a shorter time and at lower cost.

The hierarchical order of the settlements is established by the various roles played by each settlement. These roles are defined by the regional division of labor, and such socioeconomic functions as the organization and control of activities, services, and supplies. Also included in the hierarchical assessment are the size of the population and the level of attraction of the area.

According to the "Concept," the settlements of Hungary are grouped into categories indicating the scope of their functions: namely, national center, higher center, medium center, lower center, and other settlements. Budapest, the capital, stands at the top of the hierarchy. The policy sets 2.6–2.8 million as the upper limit for its population, including the population of the urban agglomeration around it. On the next level, the five county towns are to be developed into special high-level centers with 150,000–300,000 inhabitants. The roles of seven further towns in the medium-center category will be upgraded; it is envisaged that they will have an average population of 80,000–150,000. These centers will have important economic, administrative, educational, health, and other service functions. The lower-center category includes urban centers with an average of 8,000–15,000 inhabitants. These will have a similar, though more restricted, function than the settlements immediately above them in the hierarchical order.

4.3 Implementation of Regional Policies and Plans

The most important tools for regional and settlement development are the medium- and long-range plans for the national economy; the government, through economic and sociopolitical measures, is responsible for carrying out these plans.

In the future, industry will be regarded as the most important component of regional development. For economic efficiency, new industrial plants will be established and improvements will be made to those already in operation.

This means that in the case of sources of energy and other natural resources whose production is geographically fixed, existing conditions and the distance of transportation will play a determining role. In the case of those industries where the requirements of effective operation are not so strongly based on proximity to natural resources, the location should be adjusted to the regional supply of labor.

Besides industry, modern large-scale agriculture plays an important role. In places where natural resources are available, the plans aim to develop agricultural centers.

The spatial redistribution of the population and labor force should also be taken into account in the future; the size and direction of future population movement may be influenced by the economic and sociopolitical measures adopted to achieve the development targets defined in the plans.

The most important sociopolitical aims of the plans are the spatial equalization of the income and living conditions of the population, the improvement of social, cultural, and communal facilities, better fulfillment of housing requirements, and development of the trade system.

Last but not least, future development policies should make an effort to eliminate harmful side-effects that endanger the natural environment, or should at least minimize existing effects and prevent the creation of new ones.

5 CONCLUSIONS

Demographic studies, through their findings regarding the causes and consequences of urbanization, regional development, and spatial distribution of the population, can also contribute to the formulation of a sensible and scientifically well-founded population policy. Investigations have not been restricted solely to empirical studies. Recently, more and more attention has been paid to theoretical problems, among them the establishment of adequate research methods. Some of the methodological studies have dealt with the problems of quality and optimal utilization of available statistical information. Others have focused on the causes and development of simple deterministic and stochastic models, and have tried to apply them to describe the geographical distribution of the population and the changes in it. Special attention has also been given to the application of projection methods appropriate for the potential and requirements of the country concerned.

Although these earlier studies have been extremely valuable, one major deficiency should be noted: their separation of the various demographic factors. Intensive analyses were carried out separately on fertility, mortality, and migration, but the complex interactions between these three components could not be fully appreciated because of the lack of an adequate method. The multiregional demographic method, developed for the complex analysis of the dynamics of multiregional population systems, however, greatly contributes to the elimination of these earlier deficiencies and offers possibilities for obtaining more accurate insights regarding spatial population dynamics.

In Hungary the importance of multiregional population analysis is underlined by the ever-growing number of requests from regional planners for demographic research at national and regional levels. In this context, the questions most frequently raised are: at which stage of planning, to what extent, and on which level of spatial structure could the results of the analyses be utilized? The answers to these questions are very important since they may also be decisive as far as the direction and scope of further research are concerned.

It is hoped that the analyses described in this report will give useful demographic information for the preparation of plans which will determine regional development targets, as well as set in motion the policy measures needed. However, it cannot be shown conclusively that the model in this study can be satisfactorily used for testing the consequences of policies aimed at influencing – directly or indirectly – the spatial distribution of the population.

The present and earlier analyses indicate that the demographic behavior of the population differs, in several cases, by counties within regions, as well as by settlement types. Therefore, it seems likely that new light could be shed on the application of the model if different settlement types were used instead of areal units, and if the differences between the fertility and migration behavior of the urban and rural populations were investigated. In this way, the analysis would provide more accurate information for designing a complex population distribution policy.

REFERENCES

Bene, L. (1975) Three decades of internal migration. Demográfia 18(2–3): 253–269, in Hungarian.

Compton, P. (1971) Some Aspects of the Internal Migration of Population in Hungary Since 1957. Publication No. 33. Budapest: Demographic Research Institute.

Demographic Yearbooks of Hungary, for the years 1960–1974. Budapest: Central Statistical Office.

Faluvégi, A. (1972) The agglomeration of the population around big cities and their administrative expansion in the twentieth century. Regional Statistics 22(6): 611–628, in Hungarian.

Klinger, A. (1969–1971) Demographic situation of Hungary during the 1960s. Parts I–VI. Statistical Review, in Hungarian.

Koloszár, M. (1975) Interrelations between settlement systems and socioeconomic development. Pages 64–73, National Settlement Strategies East and West, edited by H. Swain. CP-75-3. Laxenburg, Austria: International Institute for Applied Systems Analysis.

Kőszegfalvi, G. (1976) Regional Development and Infrastructure. Budapest: Müszaki Könyvkiadó, in Hungarian.

Pallós, E. (1971) Life tables of Hungary from 1900/01 to 1967/68. Publication No. 34. Budapest: Demographic Research Institute, in Hungarian.

Rogers, A. (1975) Introduction to Multiregional Mathematical Demography. New York: Wiley.

Rogers, A., R. Raquillet, and L. Castro (1977) Model Migration Schedules and their Applications. RM-77-57. Laxenburg, Austria: International Institute for Applied Systems Analysis.

Rogers, A. (1978) The Formal Demography of Migration and Redistribution: Measurement and Dynamics. RM-78-15. Laxenburg, Austria: International Institute for Applied Systems Analysis.

Settlement Network (1974). Budapest: Central Statistical Office.

Szabady, E. (1974) The Population of Hungary. Publication No. 38. Budapest: Demographic Research Institute.

Tekse, K. (1977) Contribution of Demographic Analysis to Urbanization Policy in Hungary. Conference of the International Union for the Scientific Study of Population, Mexico.

Willekens, F., and A. Rogers (1978) Spatial Population Analysis: Methods and Computer Programs. RR-78-18. Laxenburg, Austria: International Institute for Applied Systems Analysis.

APPENDIXES

Appendix A

OBSERVED POPULATION AND NUMBERS OF BIRTHS, DEATHS, AND MIGRANTS (BOTH TEMPORARY AND PERMANENT): BY AGE AND REGION, TOTAL (BOTH SEXES), 1974.

APPENDIX A

region central

age	population	births	deaths	migration from central	migration from n.hung.	migration from n.plain	migration to s.plain	migration to n.t-danu	migration to s.t-danu
0	183240.	0.	2090.	5553.	826.	1547.	874.	1052.	648.
5	157052.	0.	45.	2520.	334.	649.	381.	451.	274.
10	137336.	0.	61.	1878.	288.	416.	265.	391.	225.
15	241620.	6153.	150.	7932.	5305.	11100.	3543.	3312.	2237.
20	273523.	19484.	226.	12985.	6329.	11590.	4855.	6138.	3820.
25	246690.	18442.	229.	9491.	3003.	5456.	2470.	3114.	1999.
30	215011.	6603.	329.	5434.	1729.	2861.	1332.	1458.	981.
35	184038.	1759.	367.	3025.	1106.	1928.	734.	838.	569.
40	200090.	363.	685.	2543.	988.	1635.	720.	696.	451.
45	210055.	0.	1136.	2116.	851.	1398.	584.	599.	397.
50	210403.	0.	1723.	1751.	707.	1100.	507.	577.	420.
55	138638.	0.	1731.	992.	400.	551.	325.	383.	271.
60	189406.	0.	3754.	1093.	473.	667.	456.	484.	332.
65	145450.	0.	4632.	934.	278.	374.	287.	368.	228.
70	112054.	0.	5938.	814.	207.	265.	268.	321.	187.
75	72390.	0.	5995.	555.	104.	162.	200.	212.	115.
80	34329.	0.	4617.	356.	50.	105.	108.	132.	76.
85	16784.	0.	3832.	196.	32.	47.	65.	76.	29.
total	2968109.	48804.	37540.	60168.	22966.	41851.	17974.	20602.	13259.

region n.hung.

age	population	births	deaths	migration from central	migration from n.hung.	migration from n.plain	migration to s.plain	migration to n.t-danu	migration to s.t-danu
0	100335.	0.	902.	807.	5671.	580.	180.	259.	93.
5	96908.	0.	40.	428.	2882.	319.	78.	131.	69.
10	98719.	0.	35.	702.	2947.	251.	78.	206.	46.
15	113429.	4046.	94.	6505.	12300.	1818.	483.	738.	304.
20	106637.	10402.	101.	6452.	13186.	2333.	698.	1040.	411.
25	92435.	5962.	102.	3022.	7658.	1181.	332.	519.	224.
30	93441.	2739.	147.	1806.	3783.	680.	167.	267.	110.
35	94550.	951.	239.	1184.	2292.	379.	95.	179.	65.
40	97890.	228.	401.	1092.	1802.	365.	107.	184.	63.
45	92897.	0.	491.	906.	1402.	275.	90.	101.	43.
50	90522.	0.	713.	816.	1261.	240.	89.	90.	40.
55	53031.	0.	575.	434.	568.	104.	44.	50.	23.
60	74968.	0.	1507.	420.	665.	142.	56.	52.	26.
65	58422.	0.	1849.	323.	570.	80.	37.	44.	31.
70	44892.	0.	2346.	249.	486.	76.	17.	33.	18.
75	28258.	0.	2433.	146.	327.	46.	13.	18.	10.
80	13967.	0.	1956.	79.	221.	25.	2.	11.	9.
85	6672.	0.	1593.	35.	99.	8.	1.	5.	4.
total	1357973.	24328.	15524.	25406.	58120.	8902.	2567.	3927.	1589.

region n.plain

age	population	births	deaths	migration from n.plain to central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	127636.	0.	1112.	1550.	685.	5119.	846.	422.	177.
5	120278.	0.	56.	789.	331.	2449.	217.	230.	89.
10	121525.	0.	49.	1309.	283.	2929.	312.	206.	62.
15	133739.	4992.	110.	13673.	1895.	13039.	1428.	966.	279.
20	124525.	13422.	138.	11878.	2479.	13651.	1651.	1305.	513.
25	104499.	7546.	137.	5399.	1271.	6693.	695.	740.	251.
30	97776.	3488.	172.	2886.	607.	3032.	352.	421.	180.
35	96851.	1352.	226.	2080.	413.	1871.	189.	289.	91.
40	101370.	413.	355.	1777.	335.	1374.	145.	183.	52.
45	101290.	0.	535.	1459.	291.	1051.	126.	125.	55.
50	95104.	0.	746.	1152.	222.	868.	94.	117.	42.
55	53748.	0.	625.	526.	127.	442.	61.	59.	25.
60	84102.	0.	1470.	572.	108.	666.	50.	80.	33.
65	68217.	0.	2078.	465.	95.	602.	58.	62.	31.
70	53391.	0.	2618.	360.	88.	538.	54.	49.	24.
75	34233.	0.	2901.	225.	57.	413.	39.	38.	14.
80	16981.	0.	2293.	134.	40.	236.	20.	12.	10.
85	8339.	0.	1936.	71.	14.	97.	9.	12.	1.
total	1543604.	31213.	17552.	46305.	9336.	55070.	5942.	5316.	1889.

region s.plain

age	population	births	deaths	migration from s.plain to central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	98825.	0.	838.	828.	183.	431.	4421.	323.	313.
5	91603.	0.	43.	463.	103.	186.	2380.	172.	152.
10	91179.	0.	34.	637.	68.	196.	3033.	186.	141.
15	120017.	4007.	102.	4092.	415.	1187.	12604.	784.	679.
20	114406.	10361.	149.	4947.	765.	1676.	12913.	1326.	1111.
25	101807.	6496.	120.	2440.	305.	671.	6875.	650.	547.
30	96688.	2856.	191.	1391.	170.	354.	3364.	370.	270.
35	91564.	933.	217.	806.	109.	196.	2070.	221.	172.
40	96128.	211.	365.	778.	131.	160.	1546.	149.	150.
45	100163.	0.	561.	625.	71.	110.	1320.	128.	102.
50	97377.	0.	773.	560.	66.	91.	1148.	127.	83.
55	58703.	0.	740.	302.	34.	46.	563.	58.	59.
60	93829.	0.	1779.	402.	51.	53.	826.	91.	63.
65	76144.	0.	2287.	378.	45.	50.	849.	78.	57.
70	59444.	0.	3023.	346.	16.	51.	710.	72.	47.
75	36736.	0.	3066.	241.	21.	40.	509.	49.	51.
80	17767.	0.	2434.	131.	12.	14.	325.	29.	32.
85	8880.	0.	2169.	69.	3.	11.	153.	11.	12.
total	1451260.	24864.	18891.	19436.	2568.	5523.	55609.	4824.	4041.

region n.t-danu

age	population	births	deaths	migration from n.t-danu to central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	138718.	0.	1026.	978.	222.	287.	282.	7140.	618.
5	126733.	0.	43.	528.	137.	163.	148.	3235.	283.
10	127686.	0.	44.	684.	114.	131.	117.	4597.	293.
15	166786.	4840.	103.	4620.	649.	840.	860.	17359.	2097.
20	154039.	15336.	161.	5980.	806.	1135.	1090.	18300.	2476.
25	132471.	8920.	136.	3019.	475.	672.	551.	10153.	1159.
30	126589.	3841.	181.	1523.	258.	381.	329.	5023.	544.
35	117949.	1197.	228.	789.	173.	250.	207.	2723.	324.
40	125200.	288.	379.	829.	147.	174.	160.	2299.	309.
45	122769.	0.	618.	682.	92.	143.	108.	1576.	218.
50	115946.	0.	949.	620.	91.	104.	103.	1466.	221.
55	67616.	0.	771.	376.	41.	47.	61.	759.	129.
60	97443.	0.	1848.	432.	45.	60.	74.	911.	149.
65	79169.	0.	2544.	400.	29.	46.	53.	892.	110.
70	61798.	0.	3313.	350.	29.	38.	47.	831.	95.
75	37919.	0.	3231.	255.	21.	22.	26.	560.	68.
80	17144.	0.	2394.	150.	14.	13.	10.	319.	32.
85	7869.	0.	1823.	74.	6.	10.	7.	175.	12.
total	1823844.	34422.	19792.	22285.	3349.	4516.	4233.	78318.	9137.

APPENDIX A *Continued.*

region s.t-danu

age	population	births	deaths	migration from s.t-danu to central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	90952.	0.	892.	511.	112.	152.	275.	682.	6078.
5	85466.	0.	38.	275.	68.	71.	147.	350.	3472.
10	88303.	0.	28.	393.	36.	61.	160.	507.	3579.
15	111394.	4019.	76.	2946.	289.	304.	790.	2099.	13166.
20	102138.	10003.	104.	3781.	382.	490.	1016.	2565.	13953.
25	87665.	5506.	96.	1876.	212.	242.	524.	1215.	8018.
30	84589.	2213.	128.	984.	99.	126.	249.	614.	4081.
35	83107.	702.	175.	578.	59.	98.	155.	356.	2548.
40	91754.	177.	316.	468.	73.	68.	141.	305.	2248.
45	92269.	0.	478.	410.	41.	39.	116.	244.	1732.
50	89518.	0.	689.	395.	35.	36.	81.	201.	1529.
55	50084.	0.	583.	278.	18.	24.	52.	138.	803.
60	77334.	0.	1417.	330.	35.	33.	62.	165.	1031.
65	65918.	0.	2148.	274.	26.	23.	61.	146.	1009.
70	51978.	0.	2777.	269.	16.	22.	39.	122.	921.
75	30893.	0.	2828.	157.	13.	11.	46.	90.	637.
80	13936.	0.	2070.	104.	4.	7.	19.	46.	316.
85	6436.	0.	1570.	40.	4.	4.	10.	22.	137.
total	1303694.	22620.	16373.	14069.	1522.	1811.	3943.	9867.	65258.

Appendix B

AGE-SPECIFIC MORTALITY, FERTILITY, AND MIGRATION RATES: BY REGION, 1974.

APPENDIX B

death rates

age	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.011406	0.008990	0.008712	0.008480	0.007396	0.009807
5	0.000287	0.000413	0.000466	0.000469	0.000339	0.000445
10	0.000444	0.000355	0.000362	0.000373	0.000345	0.000317
15	0.000621	0.000829	0.000822	0.000850	0.000618	0.000682
20	0.000826	0.000947	0.001108	0.001302	0.001045	0.001018
25	0.000928	0.001103	0.001311	0.001179	0.001027	0.001095
30	0.001530	0.001573	0.001759	0.001975	0.001430	0.001514
35	0.001994	0.002528	0.002333	0.002370	0.001933	0.002106
40	0.003423	0.004096	0.003502	0.003797	0.003027	0.003444
45	0.005408	0.005285	0.005282	0.005601	0.005034	0.005181
50	0.008189	0.007877	0.007844	0.007938	0.008185	0.007697
55	0.012486	0.010843	0.011628	0.012606	0.011403	0.010842
60	0.019820	0.020102	0.017479	0.018960	0.018965	0.018323
65	0.031846	0.031649	0.030462	0.030035	0.032134	0.032586
70	0.052992	0.052259	0.049034	0.050855	0.053610	0.053426
75	0.082815	0.086100	0.084743	0.083460	0.085208	0.091542
80	0.134493	0.140044	0.135033	0.136996	0.139641	0.148536
85	0.228313	0.238759	0.232162	0.244257	0.231669	0.243940
gross	2.989107	3.068756	2.970218	3.057513	3.015035	3.162506
crude	0.012648	0.011432	0.011371	0.013017	0.010852	0.012559
m.age	77.7614	78.2132	78.2023	78.2828	78.4336	78.3501

fertility rates

age	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
5	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
10	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
15	0.025466	0.035670	0.037326	0.033387	0.029019	0.036079
20	0.071233	0.097546	0.107786	0.090563	0.099559	0.097936
25	0.058543	0.064499	0.072211	0.063807	0.067335	0.062807
30	0.030710	0.029313	0.035673	0.029538	0.030342	0.026174
35	0.009558	0.010058	0.013960	0.010190	0.010148	0.008447
40	0.001814	0.002329	0.004074	0.002195	0.002300	0.001929
45	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
50	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
55	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
60	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
65	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
70	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
75	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
80	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
85	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
gross	0.986621	1.197075	1.355152	1.148401	1.193525	1.166864
crude	0.016443	0.017915	0.020221	0.017133	0.018873	0.017351
m.age	25.8049	25.1512	25.5330	25.3049	25.4042	24.9025

outmigration rates
****

migration from central to

age	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.057302	0.030305	0.004508	0.008442	0.004770	0.005741	0.003536
5	0.029347	0.016046	0.002127	0.004132	0.002426	0.002872	0.001745
10	0.024895	0.013674	0.001777	0.003029	0.001930	0.002847	0.001638
15	0.138354	0.032828	0.021956	0.045940	0.014664	0.013707	0.009258
20	0.167141	0.047473	0.023139	0.042373	0.017750	0.022441	0.013966
25	0.103502	0.038473	0.012173	0.022117	0.010013	0.012623	0.008103
30	0.064160	0.025273	0.008041	0.013306	0.006195	0.006781	0.004563
35	0.044556	0.016437	0.006010	0.010476	0.003988	0.004553	0.003092
40	0.035149	0.012709	0.004938	0.008171	0.003598	0.003478	0.002254
45	0.028302	0.010074	0.004051	0.006655	0.002780	0.002852	0.001890
50	0.024059	0.008322	0.003360	0.005228	0.002410	0.002742	0.001996
55	0.021076	0.007155	0.002885	0.003974	0.002344	0.002763	0.001955
60	0.018505	0.005771	0.002497	0.003522	0.002408	0.002555	0.001753
65	0.016975	0.006421	0.001911	0.002571	0.001973	0.002530	0.001568
70	0.018402	0.007264	0.001847	0.002365	0.002392	0.002865	0.001669
75	0.018621	0.007667	0.001437	0.002238	0.002763	0.002929	0.001589
80	0.024090	0.010370	0.001456	0.003059	0.003146	0.003845	0.002214
85	0.026513	0.011678	0.001907	0.002800	0.003873	0.004528	0.001728
gross	4.304752	1.539706	0.530102	0.951999	0.447105	0.513262	0.322578
crude	0.059573	0.020271	0.007738	0.014100	0.006056	0.006941	0.004467
m.age	32.7069	33.0087	31.4818	29.8485	35.2529	35.2572	34.1280

migration from n.hung. to

age	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.075647	0.008043	0.056521	0.005781	0.001794	0.002581	0.000927
5	0.040317	0.004417	0.029740	0.003292	0.000805	0.001352	0.000712
10	0.042849	0.007111	0.029852	0.002543	0.000790	0.002087	0.000466
15	0.195259	0.057349	0.108438	0.016028	0.004258	0.006506	0.002680
20	0.226188	0.060504	0.123653	0.021878	0.006546	0.009753	0.003854
25	0.139947	0.032693	0.082847	0.012777	0.003592	0.005615	0.002423
30	0.072912	0.019328	0.040485	0.007277	0.001787	0.002857	0.001177
35	0.044357	0.012522	0.024241	0.004008	0.001005	0.001893	0.000687
40	0.036909	0.011155	0.018408	0.003729	0.001093	0.001880	0.000644
45	0.030324	0.009753	0.015092	0.002960	0.000969	0.001087	0.000463
50	0.028015	0.009014	0.013930	0.002651	0.000983	0.000994	0.000442
55	0.023062	0.008184	0.010711	0.001961	0.000830	0.000943	0.000434
60	0.018154	0.005602	0.008870	0.001894	0.000747	0.000694	0.000347
65	0.018572	0.005529	0.009757	0.001369	0.000633	0.000753	0.000531
70	0.019580	0.005547	0.010826	0.001693	0.000379	0.000735	0.000401
75	0.019817	0.005167	0.011572	0.001628	0.000460	0.000637	0.000354
80	0.024844	0.005656	0.015823	0.001790	0.000143	0.000788	0.000644
85	0.022782	0.005246	0.014838	0.001199	0.000150	0.000749	0.000600
gross	5.397677	1.364100	3.128026	0.472288	0.134817	0.209520	0.088927
crude	0.074015	0.018709	0.042799	0.006555	0.001890	0.002892	0.001170
m.age	30.2052	32.3898	29.1963	30.1213	29.8924	30.0586	33.4470

APPENDIX B *Continued.*

	migration from n.plain to						
age	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.065804	0.012144	0.005367	0.040106	0.003494	0.003306	0.001387
5	0.034129	0.006560	0.002752	0.020361	0.001804	0.001912	0.000740
10	0.041975	0.010771	0.002329	0.024102	0.002567	0.001695	0.000510
15	0.233888	0.102236	0.014169	0.097496	0.010678	0.007223	0.002086
20	0.252736	0.095386	0.019867	0.109625	0.013258	0.010480	0.004120
25	0.144011	0.051666	0.012163	0.064048	0.006651	0.007081	0.002402
30	0.076072	0.029516	0.006208	0.031010	0.003600	0.004306	0.001432
35	0.050934	0.021476	0.004264	0.019318	0.001951	0.002984	0.000940
40	0.038138	0.017530	0.003305	0.013554	0.001430	0.001805	0.000513
45	0.030674	0.014404	0.002873	0.010376	0.001244	0.001234	0.000543
50	0.026234	0.012113	0.002334	0.009127	0.000988	0.001230	0.000442
55	0.023071	0.009786	0.002363	0.008224	0.001135	0.001098	0.000465
60	0.017942	0.006801	0.001284	0.007919	0.000595	0.000951	0.000392
65	0.019189	0.006816	0.001393	0.008825	0.000792	0.000909	0.000454
70	0.020846	0.006743	0.001648	0.010077	0.001011	0.000918	0.000450
75	0.022960	0.006573	0.001665	0.012064	0.001139	0.001110	0.000409
80	0.026618	0.007891	0.002356	0.013898	0.001178	0.000707	0.000589
85	0.024463	0.008514	0.001679	0.011632	0.001079	0.001439	0.000120
gross	5.748430	2.134642	0.440094	2.558810	0.272978	0.251943	0.089964
crude	0.080239	0.029998	0.006048	0.035676	0.003849	0.003444	0.001224
m.age	30.3501	31.0176	31.2849	29.6271	29.1864	31.2214	31.5958

	migration from s.plain to						
age	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.065763	0.008378	0.001852	0.004361	0.044736	0.003268	0.003167
5	0.037728	0.005054	0.001124	0.002031	0.025982	0.001878	0.001659
10	0.046732	0.006986	0.000746	0.002150	0.033264	0.002040	0.001546
15	0.164652	0.034095	0.003458	0.009890	0.105018	0.006532	0.005658
20	0.198748	0.043241	0.006687	0.014650	0.112870	0.011590	0.009711
25	0.112841	0.023967	0.002996	0.006591	0.067530	0.006385	0.005373
30	0.061218	0.014386	0.001758	0.003661	0.034792	0.003827	0.002792
35	0.039033	0.008803	0.001190	0.002141	0.022607	0.002414	0.001878
40	0.030314	0.008093	0.001363	0.001664	0.016083	0.001550	0.001560
45	0.023522	0.006240	0.000709	0.001098	0.013179	0.001278	0.001018
50	0.021309	0.005751	0.000678	0.000935	0.011789	0.001304	0.000852
55	0.018091	0.005145	0.000579	0.000784	0.009591	0.000988	0.001005
60	0.015837	0.004284	0.000544	0.000565	0.008803	0.000970	0.000671
65	0.019135	0.004964	0.000591	0.000657	0.011150	0.001024	0.000749
70	0.020894	0.005821	0.000269	0.000858	0.011944	0.001211	0.000791
75	0.024799	0.006560	0.000572	0.001089	0.013856	0.001334	0.001388
80	0.030562	0.007373	0.000675	0.000788	0.018292	0.001632	0.001801
85	0.029167	0.007770	0.000338	0.001239	0.017230	0.001239	0.001351
gross	4.801716	1.034564	0.130641	0.275749	2.893577	0.252321	0.214865
crude	0.063394	0.013393	0.001769	0.003806	0.038318	0.003324	0.002784
m.age	31.5485	34.9523	30.6548	28.1569	30.5412	32.2836	32.7560

migration from n.t-danu to

age	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.068679	0.007050	0.001600	0.002069	0.002033	0.051471	0.004455
5	0.035429	0.004135	0.001081	0.001286	0.001168	0.025526	0.002233
10	0.046489	0.005357	0.000893	0.001026	0.000916	0.036002	0.002295
15	0.158437	0.027700	0.003891	0.005036	0.005156	0.104079	0.012573
20	0.193373	0.038821	0.005232	0.007368	0.007076	0.118801	0.016074
25	0.121000	0.022790	0.003586	0.005073	0.004159	0.076643	0.008749
30	0.063655	0.012031	0.002038	0.003010	0.002599	0.039680	0.004297
35	0.037864	0.006689	0.001467	0.002120	0.001755	0.023086	0.002747
40	0.031294	0.006621	0.001174	0.001390	0.001278	0.018363	0.002468
45	0.022962	0.005555	0.000749	0.001165	0.000880	0.012837	0.001776
50	0.022467	0.005347	0.000785	0.000897	0.000888	0.012644	0.001906
55	0.020897	0.005561	0.000606	0.000695	0.000902	0.011225	0.001908
60	0.017148	0.004433	0.000462	0.000616	0.000759	0.009349	0.001529
65	0.019326	0.005052	0.000366	0.000581	0.000669	0.011267	0.001389
70	0.022493	0.005664	0.000469	0.000615	0.000761	0.013447	0.001537
75	0.025106	0.006725	0.000554	0.000580	0.000686	0.014768	0.001793
80	0.031381	0.008749	0.000817	0.000758	0.000583	0.018607	0.001867
85	0.036091	0.009404	0.000762	0.001271	0.000890	0.022239	0.001525
gross	4.870455	0.938430	0.132667	0.177777	0.165795	3.100179	0.355607
crude	0.066803	0.012219	0.001836	0.002476	0.002321	0.042941	0.005010
m.age	32.2965	37.2045	32.2284	32.0858	31.9946	30.9213	31.6045

migration from s.t-danu to

age	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	0.085869	0.005618	0.001231	0.001671	0.003024	0.007498	0.066826
5	0.051284	0.003218	0.000796	0.000831	0.001720	0.004095	0.040624
10	0.053634	0.004451	0.000408	0.000691	0.001812	0.005742	0.040531
15	0.175898	0.026447	0.002594	0.002729	0.007092	0.018843	0.118193
20	0.217226	0.037019	0.003740	0.004797	0.009947	0.025113	0.136609
25	0.137877	0.021400	0.002418	0.002761	0.005977	0.013860	0.091462
30	0.072774	0.011638	0.001171	0.001490	0.002945	0.007262	0.048268
35	0.045652	0.006955	0.000710	0.001179	0.001865	0.004284	0.030659
40	0.035998	0.005101	0.000796	0.000741	0.001537	0.003324	0.024500
45	0.027983	0.004444	0.000444	0.000423	0.001257	0.002644	0.018771
50	0.025436	0.004413	0.000391	0.000402	0.000905	0.002245	0.017080
55	0.026216	0.005551	0.000359	0.000479	0.001038	0.002755	0.016033
60	0.021414	0.004267	0.000453	0.000427	0.000802	0.002134	0.013332
65	0.023347	0.004157	0.000394	0.000349	0.000925	0.002215	0.015307
70	0.026723	0.005175	0.000308	0.000423	0.000750	0.002347	0.017719
75	0.030881	0.005082	0.000421	0.000356	0.001489	0.002913	0.020620
80	0.035591	0.007463	0.000287	0.000502	0.001363	0.003301	0.022675
85	0.033717	0.006215	0.000622	0.000622	0.001554	0.003418	0.021287
gross	5.637601	0.843054	0.087714	0.104366	0.230014	0.569969	3.802484
crude	0.073997	0.010792	0.001167	0.001389	0.003024	0.007568	0.050056
m.age	31.8732	36.0094	31.8585	31.0388	32.2610	31.4687	31.0165

Appendix C

EXPECTATIONS OF LIFE: BY REGION OF BIRTH AND REGION OF RESIDENCE, TOTAL (BOTH SEXES), 1974.

APPENDIX C

age	initial region of cohort central						
***	**********						
	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	68.38330	33.39821	6.74666	8.75760	6.34273	8.02834	5.10975
5	67.19092	30.49646	7.08389	9.16809	6.65403	8.42477	5.36368
10	62.29055	26.29662	6.96758	8.95246	6.52972	8.27297	5.27121
15	57.41810	22.33109	6.81819	8.68299	6.36827	8.06847	5.14909
20	52.60275	19.10231	6.52337	8.17982	6.09470	7.74976	4.95280
25	47.84459	16.82447	6.03697	7.43369	5.66681	7.24550	4.63712
30	43.08655	14.92997	5.47694	6.67063	5.15976	6.60902	4.24025
35	38.41373	13.17847	4.90750	5.93597	4.63378	5.93748	3.82053
40	33.80351	11.51613	4.33010	5.21460	4.10211	5.25031	3.39027
45	29.35728	9.95441	3.76251	4.51904	3.58273	4.57402	2.96456
50	25.08071	8.47439	3.21222	3.85127	3.07780	3.91751	2.54753
55	21.00419	7.07656	2.68629	3.21808	2.59204	3.28874	2.14248
60	17.13127	5.75631	2.18577	2.62326	2.12716	2.68874	1.75002
65	13.59898	4.56756	1.72843	2.08141	1.69869	2.13732	1.38557
70	10.49687	3.53915	1.32767	1.60264	1.31741	1.64979	1.06021
75	7.89552	2.68545	0.99174	1.20108	0.99385	1.24070	0.78271
80	5.80195	2.00543	0.72127	0.87830	0.72863	0.91217	0.55614
85	4.27178	1.51134	0.52307	0.64576	0.52645	0.67570	0.38946

age	initial region of cohort n.hung.						
***	**********						
	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.05524	17.07739	29.32732	7.75659	4.75165	6.45986	3.68244
5	67.12605	17.77267	25.79121	8.04719	4.94865	6.72603	3.84030
10	62.25814	17.57763	21.40594	7.89528	4.90440	6.65986	3.81503
15	57.36605	17.25816	17.25447	7.68733	4.83962	6.55266	3.77381
20	52.58135	16.50681	13.93370	7.36030	4.71677	6.36802	3.69574
25	47.82266	15.22232	11.74585	6.83683	4.46966	6.02445	3.52354
30	43.06672	13.75499	10.17182	6.20853	4.12268	5.54397	3.26473
35	38.39226	12.27236	8.83792	5.56360	3.73696	5.01224	2.96918
40	33.79209	10.81256	7.61664	4.91488	3.33518	4.45682	2.65601
45	29.35867	9.40986	6.49205	4.28049	2.93478	3.90188	2.33962
50	25.08183	8.05240	5.45121	3.66201	2.53738	3.35519	2.02365
55	21.00399	6.75190	4.49269	3.06979	2.14959	2.82734	1.71268
60	17.12212	5.50740	3.60728	2.50836	1.77311	2.31899	1.40698
65	13.59808	4.38372	2.82084	1.99649	1.42424	1.85127	1.12152
70	10.49642	3.40437	2.14196	1.54116	1.11042	1.43470	0.86382
75	7.89427	2.58776	1.58043	1.15797	0.84240	1.08352	0.64219
80	5.80074	1.93553	1.13338	0.84912	0.62162	0.80074	0.46035
85	4.26977	1.46079	0.80672	0.62595	0.45279	0.59734	0.32619

age initial region of cohort n.plain
*** **********

	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.13291	19.26242	6.95567	25.74232	6.07602	7.02357	4.07291
5	67.12337	19.99074	7.20567	22.08291	6.30746	7.29845	4.23815
10	62.26870	19.69976	7.06963	17.86388	6.21996	7.21237	4.20311
15	57.37915	19.23590	6.88325	13.94085	6.08677	7.08223	4.15015
20	52.58962	18.16638	6.58832	11.05262	5.85130	6.87204	4.05896
25	47.84085	16.50412	6.12378	9.39129	5.46539	6.49101	3.86525
30	43.08853	14.78208	5.56681	8.21240	4.98949	5.96348	3.57426
35	38.41844	13.11051	4.99256	7.19783	4.48862	5.38357	3.24535
40	33.81085	11.49288	4.40805	6.25503	3.97909	4.77830	2.89750
45	29.36617	9.95567	3.83229	5.37578	3.47951	4.17578	2.54714
50	25.09037	8.48768	3.27323	4.55091	2.99239	3.58652	2.19964
55	21.01386	7.09387	2.73818	3.78166	2.52261	3.01892	1.85862
60	17.14247	5.77366	2.22863	3.06817	2.07224	2.47466	1.52510
65	13.60897	4.58212	1.76240	2.42362	1.65613	1.97201	1.21268
70	10.50560	3.55022	1.35385	1.85789	1.28548	1.52610	0.93205
75	7.90110	2.69240	1.01109	1.38530	0.97039	1.15063	0.69129
80	5.80684	2.00952	0.73530	1.00715	0.71209	0.84870	0.49409
85	4.27412	1.51254	0.53283	0.73442	0.51481	0.63112	0.34840

age initial region of cohort s.plain
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	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.13250	14.98700	4.54957	6.28269	31.80647	6.68652	4.82025
5	67.03992	15.54506	4.72515	6.50551	28.33259	6.93836	4.99325
10	62.18744	15.33679	4.67666	6.39616	24.01284	6.85273	4.91225
15	57.29953	14.99912	4.60469	6.24378	19.93526	6.71981	4.79687
20	52.51914	14.38402	4.48414	6.00243	16.50619	6.51342	4.62894
25	47.80209	13.38905	4.25193	5.60735	14.04141	6.15500	4.35735
30	43.05197	12.17031	3.92280	5.11164	12.19430	5.65629	3.99664
35	38.39717	10.90705	3.56064	4.59810	10.61154	5.11021	3.60963
40	33.79377	9.64003	3.17504	4.07199	9.16052	4.53762	3.20857
45	29.35485	8.41324	2.78374	3.55250	7.82815	3.96789	2.80933
50	25.08525	7.22339	2.39493	3.04517	6.59457	3.41067	2.41652
55	21.00732	6.07817	2.01632	2.55718	5.44959	2.87229	2.03377
60	17.14779	4.98477	1.65208	2.09576	4.39396	2.35740	1.66382
65	13.61472	3.98596	1.31406	1.67056	3.44531	1.88027	1.31856
70	10.50175	3.11240	1.01420	1.29189	2.61780	1.45576	1.00969
75	7.89396	2.38298	0.76175	0.97356	1.92932	1.09921	0.74714
80	5.79237	1.79733	0.55784	0.71657	1.37557	0.81210	0.53296
85	4.25078	1.37128	0.40839	0.53175	0.95846	0.60561	0.37530

APPENDIX C *Continued.*

age	initial region of cohort n.t-danu						
***	**********						
	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.66950	13.88728	4.25240	5.22798	4.65303	35.31685	6.33197
5	67.23737	14.33729	4.39524	5.40226	4.80620	31.77414	6.52224
10	62.34877	14.15696	4.35062	5.34509	4.75158	27.33776	6.40675
15	57.45379	13.87781	4.28399	5.26236	4.67371	23.10843	6.24749
20	52.63022	13.36035	4.16661	5.11173	4.53614	19.47167	5.98371
25	47.88524	12.49135	3.95406	4.83440	4.29122	16.74524	5.56898
30	43.12404	11.38298	3.65747	4.45423	3.95731	14.60720	5.06486
35	38.43975	10.21210	3.32305	4.03355	3.58623	12.74124	4.54358
40	33.81741	9.03983	2.96483	3.58978	3.19710	11.00781	4.01806
45	29.35131	7.90336	2.59947	3.14257	2.80791	9.39614	3.50186
50	25.06500	6.80206	2.23721	2.70189	2.42515	7.89848	3.00020
55	20.99103	5.74398	1.88557	2.27617	2.05417	6.51424	2.51689
60	17.10639	4.72070	1.54414	1.86812	1.69402	5.23028	2.04912
65	13.56788	3.78646	1.22897	1.49245	1.35974	4.08292	1.61734
70	10.47182	2.97223	0.95144	1.15867	1.06148	3.09320	1.23481
75	7.88153	2.29039	0.71768	0.87708	0.80735	2.27895	0.91009
80	5.79200	1.74048	0.52784	0.64892	0.59715	1.63321	0.64439
85	4.27542	1.34253	0.38939	0.48608	0.43744	1.17038	0.44959

age	initial region of cohort s.t-danu						
***	**********						
	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	68.85155	13.10699	3.74057	4.62318	5.15512	9.83513	32.39055
5	67.17405	13.69756	3.91235	4.83358	5.37738	10.23968	29.11350
10	62.31492	13.56086	3.87995	4.79124	5.29891	10.04387	24.74009
15	57.41300	13.33288	3.83063	4.72787	5.18183	9.74538	20.59441
20	52.60090	12.87592	3.74304	4.61251	4.99447	9.28313	17.09182
25	47.85420	12.05882	3.56769	4.38173	4.69361	8.60748	14.54487
30	43.09721	10.99927	3.31067	4.04993	4.30550	7.80276	12.62907
35	38.41679	9.87291	3.01561	3.67720	3.88534	6.97504	10.99069
40	33.79976	8.74064	2.69708	3.28014	3.45295	6.14273	9.48622
45	29.34452	7.64404	2.37047	2.87735	3.02545	5.33286	8.09435
50	25.06128	6.58221	2.04399	2.47795	2.60665	4.55303	6.79744
55	20.97772	5.56056	1.72510	2.09010	2.20158	3.81098	5.58939
60	17.08344	4.57195	1.41488	1.71741	1.81079	3.10460	4.46382
65	13.53437	3.66730	1.12770	1.37334	1.44993	2.45926	3.45682
70	10.43734	2.88106	0.87474	1.06814	1.13026	1.89505	2.58809
75	7.83722	2.22084	0.66071	0.80988	0.85839	1.42315	1.86425
80	5.75986	1.69458	0.48863	0.60287	0.63698	1.04813	1.28866
85	4.25181	1.31401	0.36325	0.45529	0.46828	0.77873	0.87224

age region of residence at age x central

	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	68.38331	33.39821	6.74666	8.75760	6.34273	8.02834	5.10975
5	67.19862	32.54146	6.82475	8.84796	6.22230	7.79120	4.97094
10	62.29413	28.54987	6.73208	8.72663	6.01059	7.48958	4.78537
15	57.42882	24.22138	6.70841	8.73833	5.88876	7.23647	4.63547
20	52.63203	23.79994	5.69691	7.65330	4.98955	6.40165	4.09068
25	47.87138	26.83064	4.22309	6.05429	3.57042	4.34872	2.84423
30	43.08974	28.04466	3.15532	4.61290	2.52144	2.85189	1.90353
35	38.39922	27.41348	2.32766	3.50229	1.80824	2.00634	1.34120
40	33.74927	25.73743	1.68865	2.51706	1.36685	1.46533	0.97395
45	29.27438	23.52267	1.18663	1.74976	0.98462	1.09571	0.73497
50	24.99331	20.91441	0.80765	1.15401	0.72365	0.83267	0.56092
55	20.92087	18.10981	0.53215	0.73396	0.53165	0.61469	0.39860
60	17.10054	15.23012	0.33296	0.46417	0.37666	0.43119	0.26543
65	13.62119	12.43205	0.19451	0.26927	0.24974	0.30236	0.17326
70	10.54807	9.75572	0.11735	0.16803	0.18086	0.21142	0.11469
75	8.01417	7.50268	0.06451	0.10752	0.12452	0.14217	0.07278
80	5.90488	5.54912	0.04127	0.07662	0.08328	0.10357	0.05101
85	4.37017	4.12083	0.03257	0.04805	0.06296	0.07710	0.02866

age region of residence at age x n.hung.

	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.05523	17.07739	29.32731	7.75659	4.75165	6.45986	3.68244
5	67.12241	17.23008	27.75723	7.62082	4.62079	6.28778	3.60570
10	62.25396	16.97931	23.85855	7.40269	4.47531	6.07394	3.46415
15	57.35687	16.69830	19.93399	7.26921	4.33032	5.78734	3.33772
20	52.56113	14.34586	21.52785	6.23643	3.36657	4.55946	2.52496
25	47.76098	10.49303	26.74223	4.39207	1.98260	2.71585	1.43521
30	42.97919	7.50327	28.94307	2.92141	1.18516	1.61649	0.80980
35	38.27562	5.47913	28.44764	1.96413	0.79611	1.07113	0.51748
40	33.71815	4.17186	26.38316	1.44058	0.60114	0.75375	0.36765
45	29.36050	3.07357	24.12818	0.99850	0.42949	0.47988	0.25087
50	25.08092	2.18704	21.39994	0.68137	0.30058	0.33441	0.17759
55	20.98822	1.46136	18.55421	0.43586	0.19198	0.22317	0.12164
60	17.01416	0.89050	15.50700	0.28439	0.11568	0.13722	0.07937
65	13.54402	0.59722	12.55880	0.17318	0.06500	0.09246	0.05736
70	10.43755	0.38029	9.81652	0.11930	0.03200	0.05702	0.03243
75	7.81695	0.22765	7.44600	0.07099	0.01825	0.03348	0.02058
80	5.72621	0.14247	5.49660	0.04234	0.00602	0.02242	0.01635
85	4.19292	0.08915	4.05437	0.02098	0.00392	0.01430	0.01020

APPENDIX C *Continued.*

age	region of residence at age x n.plain						
***	**********						
	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.13291	19.26242	6.95567	25.74232	6.07602	7.02357	4.07291
5	67.11799	19.56176	6.78739	24.06145	5.94523	6.80883	3.95333
10	62.26648	19.40328	6.59607	20.12471	5.77719	6.55157	3.81366
15	57.37308	19.22256	6.48140	16.09511	5.54704	6.33503	3.69194
20	52.57333	17.05386	5.66176	17.47917	4.46469	5.07168	2.84216
25	47.83582	13.37956	4.07112	22.71364	2.76159	3.26898	1.64092
30	43.14655	9.95387	2.67972	25.81167	1.68487	2.05088	0.96554
35	38.52987	7.48971	1.87559	26.16369	1.07018	1.32347	0.60722
40	33.98178	5.54152	1.32990	25.13515	0.73845	0.84350	0.39327
45	29.56895	3.94118	0.93834	23.32051	0.51806	0.57111	0.27975
50	25.32306	2.69931	0.63632	21.03536	0.35575	0.40698	0.18934
55	21.26348	1.75539	0.42655	18.43052	0.24834	0.27349	0.12920
60	17.41146	1.10120	0.24721	15.65071	0.15031	0.17869	0.08334
65	13.78786	0.74623	0.17660	12.57665	0.11403	0.11786	0.05648
70	10.65849	0.48480	0.12352	9.85713	0.08117	0.07704	0.03483
75	7.94287	0.30517	0.07927	7.43677	0.05176	0.04963	0.02027
80	5.87031	0.20872	0.05563	5.53417	0.03132	0.02770	0.01277
85	4.30779	0.14537	0.02903	4.08379	0.01953	0.02685	0.00322

age	region of residence at age x s.plain						
***	**********						
	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.13250	14.98700	4.54957	6.28269	31.80647	6.68652	4.82025
5	67.02470	14.78801	4.38360	6.05341	30.83490	6.39133	4.57344
10	62.16784	14.37965	4.19419	5.84495	27.28881	6.09906	4.36117
15	57.26969	13.93715	4.02660	5.63356	23.68867	5.80557	4.17814
20	52.45676	11.86639	3.21142	4.59225	24.49379	4.77984	3.51306
25	47.71732	8.28404	1.83638	2.75734	29.72650	2.90784	2.20522
30	42.94967	5.74253	1.13174	1.67713	31.24511	1.79552	1.35765
35	38.33466	4.08870	0.74652	1.04595	30.39420	1.14986	0.90944
40	33.75641	3.09115	0.52597	0.69611	28.03966	0.77427	0.62925
45	29.35517	2.23352	0.31886	0.44457	25.38264	0.55531	0.42026
50	25.12074	1.64650	0.22155	0.30085	22.24645	0.40357	0.30182
55	21.04051	1.17709	0.14638	0.19926	19.02451	0.27367	0.21960
60	17.25224	0.83563	0.09638	0.13226	15.84989	0.19606	0.14202
65	13.72585	0.62383	0.06171	0.09820	12.69665	0.14004	0.10542
70	10.55273	0.44184	0.03289	0.07111	9.83142	0.09803	0.07744
75	7.89856	0.29527	0.02681	0.04720	7.40280	0.06443	0.06206
80	5.74142	0.19070	0.01605	0.02555	5.42642	0.04159	0.04111
85	4.10475	0.12712	0.00660	0.02140	3.90552	0.02249	0.02160

ge region of residence at age x n.t-danu
***

	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	69.66950	13.88727	4.25240	5.22798	4.65303	35.31685	6.33197
5	67.24479	13.63724	4.10005	5.06761	4.46118	33.89042	6.08828
10	62.35899	13.24724	3.91809	4.87389	4.27187	30.15532	5.89258
15	57.46596	12.86436	3.75686	4.69871	4.12060	26.29764	5.72779
20	52.65244	11.00837	2.99031	3.81587	3.30367	26.76310	4.77112
25	47.94495	7.67260	1.88712	2.45765	2.08167	30.71634	3.12957
30	43.20496	5.13555	1.14489	1.50981	1.31751	32.10853	1.98867
35	38.51175	3.67965	0.74690	0.97165	0.86893	30.84884	1.39578
40	33.86880	2.88957	0.50233	0.63923	0.59455	28.20761	1.03552
45	29.35082	2.17800	0.32532	0.42799	0.41046	25.27059	0.73846
50	25.03530	1.65319	0.22572	0.27853	0.30143	22.02139	0.55504
55	20.97676	1.22511	0.14145	0.18065	0.21096	18.83061	0.38797
60	17.06061	0.84880	0.08720	0.11762	0.13478	15.62439	0.24782
65	13.50779	0.62887	0.05719	0.07762	0.08679	12.49383	0.16349
70	10.42784	0.44935	0.04186	0.05165	0.05707	9.71670	0.11121
75	7.87927	0.31976	0.02963	0.03390	0.03334	7.38937	0.07326
80	5.78926	0.22696	0.02181	0.02580	0.02001	5.45105	0.04363
85	4.31608	0.15997	0.01408	0.02319	0.01683	4.07655	0.02546

age region of residence at age x s.t-danu
***

	total	central	n.hung.	n.plain	s.plain	n.t-danu	s.t-danu
0	68.85155	13.10699	3.74057	4.62318	5.15512	9.83513	32.39055
5	67.17384	13.05920	3.62386	4.49164	4.98668	9.51534	31.49711
10	62.31837	12.73415	3.46207	4.32029	4.77755	9.14879	27.87551
15	57.41367	12.38563	3.32563	4.14300	4.57915	8.68464	24.29562
20	52.59934	10.52374	2.56773	3.23749	3.75406	7.28128	25.23504
25	47.84906	7.17994	1.47491	1.84889	2.39330	4.77996	30.17206
30	43.09512	4.73630	0.82010	1.03830	1.44450	3.00998	32.04593
35	38.40141	3.31078	0.51423	0.63820	0.96573	2.01007	30.96240
40	33.77960	2.47456	0.35550	0.39506	0.68515	1.44642	28.42291
45	29.32209	1.91587	0.22575	0.25714	0.48075	1.05251	25.39007
50	25.02551	1.49455	0.15989	0.18504	0.33498	0.77940	22.07164
55	20.90781	1.13917	0.11305	0.13248	0.24717	0.58615	18.68979
60	16.92698	0.75082	0.07744	0.08278	0.16245	0.38316	15.47033
65	13.30172	0.52552	0.04671	0.05170	0.11521	0.26702	12.29555
70	10.20429	0.37605	0.02796	0.03500	0.07709	0.18360	9.50459
75	7.56112	0.24202	0.01889	0.02100	0.06177	0.12655	7.09087
80	5.54233	0.17593	0.01084	0.01561	0.03570	0.08263	5.22162
85	4.10959	0.10337	0.01092	0.01156	0.02548	0.05646	3.90180

Appendix D

PERMANENT AND TEMPORARY MIGRANTS: BY AGE AND BY REGIONS OF ORIGIN AND RESIDENCE, TOTAL (BOTH SEXES), 1974

D.1 Permanent migrants
D.2 Temporary migrants
D.3.1 All migrants, but excluding those moving within regional boundaries
D.3.2 All migrants, including those moving within regional boundaries

APPENDIX D.1 *(a) Migrants from the Central region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubian	South-T-Danubian	Hungary
0- 4	2 970	296	517	331	460	269	4 843
5- 9	1 529	132	243	185	229	149	2 467
10-14	858	84	131	92	116	90	1 371
15-19	2 066	254	285	238	273	168	3 284
20-24	4 427	473	599	457	653	350	6 959
25-29	3 590	327	529	391	584	339	5 760
30-34	2 248	217	285	241	323	202	3 516
35-39	1 168	118	147	139	189	116	1 877
40-44	903	103	130	136	129	106	1 507
45-49	767	73	97	90	123	68	1 218
50-54	607	63	76	82	106	68	1 002
55-59	327	59	61	69	95	48	659
60-64	443	74	93	138	141	84	973
65-69	388	54	88	116	118	64	828
70-74	392	43	80	104	116	40	775
75-79	270	44	49	88	84	39	574
80-84	174	11	38	47	52	23	345
85 +	96	10	15	28	20	9	178
Total	23 223	2 436	3 463	2 972	3 811	2 232	38 136

APPENDIX D.1 *(b) Migrants from the North Hungary region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Total
0- 4	452	4 205	343	111	150	67	5 328
5- 9	255	2 162	186	52	77	45	2 777
10-14	186	1 198	120	26	56	21	1 607
15-19	467	2 880	285	65	113	67	3 877
20-24	1 058	6 106	545	177	261	118	8 265
25-29	693	4 077	349	133	196	99	5 547
30-34	385	2 106	210	67	91	43	2 902
35-39	216	1 183	121	22	58	19	1 619
40-44	204	887	92	31	58	19	1 291
45-49	139	606	61	22	25	12	865
50-54	122	536	49	18	31	13	769
55-59	88	281	31	16	14	7	437
60-64	100	362	45	18	17	9	551
65-69	83	351	35	16	23	9	517
70-74	89	316	33	8	12	11	469
75-79	53	253	25	8	9	7	355
80-84	33	178	15	2	7	4	239
85+	13	70	3	-	2	3	91
Total	4 636	27 757	2 548	792	1 200	573	37 506

APPENDIX D.1 *(c) Migrants from the North Plain region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T Danubia	Hungary
0- 4	876	506	3 927	317	278	104	6 008
5- 9	506	232	1 962	167	143	68	3 078
10-14	289	121	1 207	113	89	43	1 862
15-19	856	381	3 022	213	192	78	4 742
20-24	1 753	764	6 034	442	379	184	9 556
25-29	1 144	496	3 722	319	286	121	6 098
30-34	561	215	1 851	170	141	61	2 999
35-39	319	145	1 108	92	103	42	1 809
40-44	285	102	807	55	55	21	1 325
45-49	196	70	581	55	31	22	955
50-54	168	63	471	39	26	13	780
55-59	86	30	273	30	14	9	442
60-64	166	48	454	29	39	19	755
65-69	165	50	434	25	38	15	727
70-74	131	51	411	34	25	18	670
75-79	107	39	331	24	23	9	533
80-84	59	30	198	16	7	6	316
85 +	36	11	79	6	7	1	140
Total	7 703	3 354	26 872	2 146	1 876	834	42 785

APPENDIX D.1 *(d) Migrants from the South Plain region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	454	119	274	3 132	221	184	4 384
5- 9	291	58	134	1 790	121	115	2 509
10-14	200	37	91	1 139	76	79	1 622
15-19	431	69	183	2 609	135	148	3 575
20-24	846	165	326	4 738	318	311	6 704
25-29	663	108	251	3 389	259	236	4 906
30-34	394	67	145	1 947	150	127	2 830
35-39	236	44	87	1 238	96	91	1 792
40-44	211	49	67	883	56	70	1 336
45-49	149	22	42	753	51	44	1 061
50-54	118	14	42	667	49	35	925
55-59	85	7	19	355	21	21	508
60-64	145	20	36	583	45	34	863
65-69	149	21	31	598	27	39	865
70-74	152	7	35	530	38	25	787
75-79	97	15	30	402	21	28	593
80-84	66	8	7	259	20	19	379
85 +	29	2	7	116	8	10	172
Total	4 716	832	1 807	25 128	1 712	1 616	35 811

APPENDIX D.1 *(e) Migrants from the North Trans-Danubia region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	510	122	136	140	5 220	349	6 477
5- 9	294	76	89	83	2 544	191	3 277
10-14	203	53	59	68	1 585	103	2 071
15-19	607	81	119	116	3 624	306	4 853
20-24	1 165	188	205	219	7 980	562	10 319
25-29	816	146	153	134	5 453	386	7 088
30-34	441	83	90	113	2 891	205	3 823
35-39	234	54	55	70	1 576	120	2 109
40-44	251	42	43	48	1 291	102	1 777
45-49	204	29	36	34	847	65	1 215
50-54	141	18	23	24	687	41	934
55-59	86	6	12	14	355	26	499
60-64	125	15	24	20	540	49	773
65-69	125	14	18	23	568	42	790
70-74	103	14	17	22	556	42	754
75-79	74	13	13	12	402	38	552
80-84	52	7	4	4	225	22	314
85 +	25	5	6	3	113	5	157
Total	5 456	966	1 102	1 147	36 457	2 654	47 782

APPENDIX D.1 *(f) Migrants from the South Trans-Danubia region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	268	59	92	176	476	4 708	5 779
5- 9	177	28	46	106	265	2 816	3 438
10-14	110	16	38	90	147	1 827	2 228
15-19	290	62	61	133	334	3 892	4 772
20-24	654	91	124	256	687	6 643	8 455
25-29	516	71	102	198	476	4 698	6 061
30-34	260	45	52	123	299	2 567	3 346
35-39	144	17	39	67	172	1 633	2 072
40-44	123	22	27	61	146	1 359	1 738
45-49	101	11	14	55	95	1 012	1 288
50-54	79	6	11	28	60	850	1 034
55-59	68	6	8	16	52	437	587
60-64	122	14	21	25	73	712	967
65-69	92	7	12	31	84	776	1 002
70-74	108	7	16	25	76	731	963
75-79	65	11	7	25	52	524	684
80-84	45	1	4	8	33	258	349
85 +	15	2	4	6	10	120	157
Total	3 237	476	678	1 429	3 537	35 563	44 920

APPENDIX D.2 *(a) Migrants from the Central region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	2 583	530	1 030	543	592	379	5 657
5- 9	991	202	406	196	222	125	2 142
10-14	1 020	160	285	173	275	135	2 048
15-19	5 866	5 051	10 815	3 305	3 039	2 069	30 145
20-24	8 558	5 856	10 991	4 398	5 485	3 470	38 758
25-29	5 901	2 676	4 927	2 079	2 530	1 660	19 773
30-34	3 186	1 512	2 576	1 091	1 135	779	10 279
35-39	1 857	988	1 781	595	649	453	6 323
40-44	1 640	885	1 505	584	567	345	5 526
45-49	1 349	778	1 301	494	476	329	4 727
50-54	1 144	644	1 024	425	471	352	4 060
55-59	665	341	490	256	288	223	2 263
60-64	650	399	574	318	343	248	2 532
65-69	546	224	286	171	250	164	1 641
70-74	422	164	185	164	205	147	1 287
75-79	285	60	113	112	128	76	774
80-84	182	39	67	61	80	53	482
85+	100	22	32	37	56	20	267
Total	36 945	20 531	38 388	15 002	16 791	11 027	138 684

APPENDIX D.2 *(b) Migrants from the North Hungary region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	355	1 466	237	69	109	26	2 262
5- 9	173	720	133	26	54	24	1 130
10-14	516	1 749	131	52	150	25	2 623
15-19	6 038	9 420	1 533	418	625	237	18 271
20-24	5 394	7 080	1 788	521	779	293	15 855
25-29	2 329	3 581	832	199	323	125	7 389
30-34	1 421	1 677	470	100	176	67	3 911
35-39	968	1 109	258	73	121	46	2 575
40-44	888	915	273	76	126	44	2 322
45-49	767	796	214	68	76	31	1 952
50-54	694	725	191	71	59	27	1 767
55-59	346	287	73	28	36	16	786
60-64	320	303	97	38	35	17	810
65-69	240	219	45	21	21	22	568
70-74	160	170	43	9	21	7	410
75-79	93	74	21	5	9	3	205
80-84	46	43	10	-	4	5	108
85 +	22	29	5	1	3	1	61
Total	20 770	30 363	6 354	1 775	2 727	1 016	63 005

APPENDIX D.2 *(c) Migrants from the North Plain region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	674	179	1 192	129	144	73	2 391
5- 9	283	99	487	50	87	21	1 027
10-14	1 020	162	1 722	199	117	19	3 239
15-19	12 817	1 514	10 017	1 215	774	201	26 538
20-24	10 125	1 710	7 617	1 209	926	329	21 916
25-29	4 255	775	2 971	376	454	130	8 961
30-34	2 325	392	1 181	182	280	79	4 439
35-39	1 761	268	763	97	186	49	3 124
40-44	1 492	233	567	90	128	31	2 541
45-49	1 263	221	470	71	94	33	2 152
50-54	984	159	397	55	91	29	1 715
55-59	440	97	169	31	45	16	798
60-64	406	60	212	21	41	14	754
65-69	300	45	168	29	24	16	582
70-74	229	37	127	20	24	6	443
75-79	118	18	82	15	15	5	253
80-84	75	10	38	4	5	4	136
85 +	35	3	18	3	5	-	64
Total	38 602	5 982	28 198	3 796	3 440	1 055	81 073

APPENDIX D.2 *(d) Migrants from the South Plain region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	374	64	157	1 289	102	129	2 115
5- 9	172	45	52	590	51	37	947
10-14	437	31	105	1 894	110	62	2 639
15-19	3 661	346	1 004	9 995	649	531	16 186
20-24	4 101	600	1 350	8 175	1 008	800	16 034
25-29	1 777	197	420	3 486	391	311	6 582
30-34	997	103	209	1 417	220	143	3 089
35-39	570	65	109	832	125	81	1 782
40-44	567	82	93	663	93	80	1 578
45-49	476	49	68	567	77	58	1 295
50-54	442	52	49	481	78	48	1 150
55-59	217	27	27	208	37	38	554
60-64	257	31	17	243	46	29	623
65-69	229	24	19	251	51	18	592
70-74	194	9	16	180	34	22	455
75-79	144	6	10	107	28	23	318
80-84	65	4	7	66	9	13	164
85 +	40	1	4	37	3	2	87
Total	14 720	1 736	3 716	30 481	3 112	2 425	56 190

APPENDIX D.2 *(e) Migrants from the North Trans-Danubia region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	468	100	151	142	1 920	269	3 050
5- 9	230	61	74	65	691	92	1 213
10-14	481	61	72	49	3 012	190	3 865
15-19	4 013	568	721	744	13 735	1 791	21 572
20-24	4 815	618	930	871	10 320	1 914	19 468
25-29	2 203	329	519	417	4 700	773	8 941
30-34	1 082	175	291	216	2 132	339	4 235
35-39	555	119	195	137	1 147	204	2 357
40-44	578	105	131	112	1 008	207	2 141
45-49	478	63	107	74	729	153	1 604
50-54	479	73	81	79	779	180	1 671
55-59	290	35	35	47	404	103	914
60-64	307	30	36	54	371	100	898
65-69	275	15	28	30	324	68	740
70-74	247	15	21	25	275	53	636
75-79	181	8	9	14	158	30	400
80-84	98	7	9	6	94	10	224
85 +	49	1	4	4	62	7	127
Total	16 829	2 383	3 414	3 086	41 861	6 483	74 056

APPENDIX D.2 *(f) Migrants from the South Trans-Danubia region.*

Age-groups (Years)	Central	North-Hungary	North-Plain	South-Plain	North-T-Danubia	South-T-Danubia	Hungary
0- 4	243	53	60	99	206	1 370	2 031
5- 9	98	40	25	41	85	656	945
10-14	283	20	23	70	360	1 752	2 508
15-19	2 656	227	243	657	1 765	9 274	14 822
20-24	3 127	291	366	760	1 878	7 310	13 732
25-29	1 360	141	140	326	739	3 320	6 026
30-34	724	54	74	126	315	1 514	2 807
35-39	434	42	59	88	184	915	1 722
40-44	345	51	41	80	159	889	1 565
45-49	309	30	25	61	149	720	1 294
50-54	316	29	25	53	141	679	1 243
55-59	210	12	16	36	86	366	726
60-64	208	21	12	37	92	319	689
65-69	182	19	11	30	62	233	537
70-74	161	9	6	14	46	190	426
75-79	92	2	4	21	38	113	270
80-84	59	3	3	11	13	58	147
85 +	25	2	-	4	12	17	60
Total	10 832	1 046	1 133	2 514	6 330	29 695	51 550

APPENDIX D.3.1

Age group	Number of		Total number of migrants	Number of		Percentage distribution of the number of		
	Permanent migrants	Temporary migrants		permanent	temporary	permanent	temporary	total number
				migrants in proportion of the total number of migrants		of migrants by age-groups		
0-4	8 657	7 686	16 343	52.97	47.03	12.03	2.88	4.82
5-9	4 743	3 289	8 012	59.20	40.80	6.59	1.22	2.36
10-14	2 947	5 773	8 720	33.80	66.20	4.10	2.16	2.57
15-19	7 010	69 227	76 237	9.20	90.80	9.74	25.93	22.49
20-24	14 330	76 703	91 033	15.74	84.26	19.92	28.73	26.86
25-29	10 521	33 713	44 234	23.78	76.22	14.62	12.63	13.05
30-34	5 806	17 653	23 459	24.75	75.25	8.07	6.61	6.92
35-39	3 372	11 260	14 632	23.05	76.95	4.69	4.22	4.32
40-44	2 844	9 991	12 835	22.16	77.84	3.95	3.74	3.79
45-49	2 036	8 393	10 429	19.52	80.48	2.83	3.14	3.08
50-54	1 626	7 401	9 027	18.01	81.99	2.26	2.77	2.66
55-59	1 104	3 942	5 046	21.88	78.12	1.53	1.48	1.49
60-64	1 788	4 208	5 996	29.82	70.18	2.49	1.58	1.77
65-69	1 614	2 919	4 533	35.61	64.39	2.24	1.09	1.34
70-74	1 482	2 293	3 775	39.26	60.74	2.06	0.86	1.11
75-79	1 109	1 401	2 510	44.18	55.82	1.54	0.52	0.74
80-84	650	780	1 430	45.45	54.55	0.90	0.29	0.42
85+	301	403	704	42.76	57.24	0.42	0.15	0.21
Total	71 940	267 015	338 955	21.22	78.78	100.00	100.00	100.00

APPENDIX D.3.2

Age-groups	Number of		Total number of migrants	Number of		Percentage distribution of the number of		
	Permanent migrants	Temporary migrants		permanent	temporary	permanent	temporary	total number
				migrants in proportion of the total number of migrants		of migrants by age-groups		
0- 4	32 819	17 506	50 325	65.21	34.79	13.29	3.77	7.07
5- 9	17 546	7 404	24 950	70.32	29.68	7.11	1.60	3.51
10-14	10 761	16 922	27 683	38.87	61.13	4.36	3.65	3.89
15-19	25 103	127 534	152 637	16.45	83.55	10.17	27.45	21.45
20-24	50 258	125 763	176 021	28.55	71.45	20.35	27.07	24.74
25-29	35 450	57 672	93 122	38.07	61.93	14.36	12.41	13.09
30-34	19 416	28 760	48 176	40.30	59.70	7.86	6.19	6.77
35-39	11 278	17 883	29 161	38.67	61.33	4.57	3.85	4.10
40-44	8 974	15 673	24 647	36.41	63.59	3.63	3.37	3.46
45-49	6 602	13 024	19 626	33.64	66.36	2.67	2.80	2.76
50-54	5 444	11 606	17 050	31.93	68.07	2.20	2.50	2.40
55-59	3 132	6 041	9 173	34.14	65.86	1.27	1.30	1.29
60-64	4 882	6 306	11 188	43.64	56.36	1.98	1.36	1.57
65-69	4 729	4 660	9 389	50.37	49.63	1.91	1.00	1.32
70-74	4 418	3 657	8 075	54.71	45.29	1.79	0.79	1.13
75-79	3 291	2 220	5 511	59.72	40.28	0.79	0.48	0.77
80-84	1 942	1 261	3 203	60.63	39.37	0.79	0.27	0.45
85-x	895	666	1 561	57.34	42.66	0.36	0.14	0.22
Total	246 940	464 558	711 498	34.71	65.29	100.00	100.00	100.00

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Kálmán Tekse (1932–1978). See Dedication, page iii.