III. ESTIMATION OF THE DISTRIBUTION OF MIGRANTS BY AGE AND SEX

As with estimates of the volume of migration, estimates of the age distribution of migrants can be obtained from direct census questions, from indirect census-based measures and from large surveys and registers. In addition, model migration age schedules can be used when data on age distributions are lacking or where data are incomplete or distorted by errors. These methods are discussed below in turn.

A. Age and sex distributions from a census with a question on place of residence at a fixed prior date

1. General considerations

When base rates are prepared from a census that has a question on place of residence at a fixed prior date (such as five years prior the census), the region of previous residence should be tabulated by region of residence at the census and by age group and sex. If there are many regions, this tabulation will require a large number of age and sex distributions. For example, if there were 30 provinces in a country, there would be 30 * 29 = 870 streams, each tabulated by age and sex. Although such tabulations may not be feasible in countries with limited computer capacity, at a minimum there should be tables of the numbers of in-migrants and out-migrants for each region by age and sex (only 60 tables in the case of 30 provinces). The age groups should correspond to those to be used in the projection. Thus, if the projection is by five-year age groups, then migration should be tabulated by the same age groups. It is also necessary to have the total population of each region by the same age and sex categories so that rates can be calculated.

When the base period or the age groups do not correspond to those used in the projection, adjustments need to be made. Although there is no single solution to the problem of adjusting migration observed over one-time interval to a different time interval, there are methods which give reasonable approximations in many situations (see Long and Boertlein, 1990). When the problem relates to differences in the divisions of age groups, either model age schedules of migrants (Rogers and Castro, 1981) or age distributions from another similar population can be used.

When the time interval used in the census and that used in the projection differ, there is also a problem of the relationship of the age at the time of the move to the age at the census. When the time intervals correspond, the age at the census identifies a cohort and one need only be careful to apply the migration rates to the corresponding cohort in the projection. For example, those aged 20-24 at the time of the census were aged 15-19 five years prior to the census and their mobility rate should be applied to those aged 15-19 at the beginning of a five-year projection interval. However, if the time interval in the base data is either shorter or longer than that used in the projections, there is a risk of assigning the observed mobility to the wrong age group.

2. Example for Argentina

Table 8 shows the number of in-migrants and out-migrants for Buenos Aires by age and sex. However, migrants are only divided into 10- or 20-year age groups and these groups need to be divided into five-year age groups for purposes of projection. Because rates of migration are known to vary significantly by age, it is not sufficient simply to prorate the migrants according to the distribution of the total population within the broad age groups.

TABLE 8.	IN-MIGRANTS AND OUT-MIGRANTS BY AGE AND SEX	, Buenos Aires,	1975-1980,	ACCORDING TO 1980) CENSUS OF
	Arge	NTINA			

	In-mig	rants	Out-m	igrants	
Age group	Males	Females	Males	Females	
5-14	63 485	64 283	25 203	24 958	
15-24	92 493	79 762	31 737	31 415	
25-44	140 976	123 266	61 945	55 436	
45-64	40 936	42 347	23 031	22 208	
65 +	14 498	23 713	6 519	10 930	
TOTAL	352 388	333 371	148 435	144 947	

Source: Censo Nacional de Población y Vivienda, 1980, República Argentina (Buenos Aires, n.d.), table M.10.

The best approach is to find another age distribution of migrants for a similar area or to choose the model age distribution that best fits the available age distribution and to use it to divide the broad age groups into five-year age groups. The model age distribution is that which fitted rural-urban migrants in the Union of Soviet Socialist Republics (Rogers and Castro, 1981). This model was chosen because it was a published distribution for rural-urban migration and is suited for illustrating the method. Because only the distributions within each age range are used from the model, the choice of the model is not too critical. If one were preparing an actual projection for Argentina, however, one might try to find other evidence to determine whether this model was the best one available.

This method is shown in table 9 for the in-migrants to Buenos Aires. Within each of the broad age groups, the model migration rates for each five-year age group are multiplied by the population in that age group to obtain the number of expected migrants if those migration rates held. The ratio of each of these estimated number of migrants to the total migrants in the broad age group is then computed and this figure is multiplied by the actual number of migrants to obtain the numbers in each five-year age group.

			1980	1980 census		
Age group	Total population	Model migration distribution	Age groups in-migrants	Reported in-migrants	Adjusted in-migrani	
0-4 ≝	394 528	0.0225			46 804	
5-9	342 124	0.0190	5-14	63 485	34 331	
10-14	295 779	0.0187		Į	29 154	
15-19	276 244	0.1301	15-24	92 493	25 632	
20-24	276 427	0.3391	ſ	l	66 861	
25-29	265 069	0.1938)		ſ	85 118	
30-34	251 569	0.0809 }	25-44	{ 140 976	33 709	
35-39	221 029	0.0384			14 060	
40-44	197 569	0.0247			8 088	
45-49	191 059	0.0205		1	13 018	
50-54	180 559	0.0192 {	• 45-64	40 936	11 520	
55-59	155 232	0.0188			9 698	
60-64	107 935	0.0186		l	6 700	
65-69	87 384	0.0186]		ſ	5 949	
70-74	60 414	0.0186 }	• 65+	{ 14 498	4 110	
75+	65 262	0.0186 J		l	4 439	
TOTAL	3 368 183	1.00		352 388	399 192	

TABLE 9. USE OF MODEL AGE MIGRATION SCHEDULE TO DIVIDE BROAD AGE GROUPS MALE MIGRATION TO BUENOS AIRES, 1980

Source: For model migration schedule, the urban-rural migration in the Union of Soviet Socialist Republics from Andrei Rogers and Luis J. Castro, Model Migration Schedules. Research Report 81-30. (Laxemburg, Austria, International Institute of Applied Systems Analysis, 1981). Ages 0-4 derived from model in proportion to observed migration ages 5-14.

• Derived from model in proportion to observed migration of ages 5-14.

B. AGE DISTRIBUTIONS FROM CENSUS DATA ON PLACE OF PREVIOUS RESIDENCE AND DURATION OF RESIDENCE

1. General considerations

If place of previous residence and duration of residence were obtained instead of place of residence at a fixed prior date, it is necessary to have a tabulation of migrants with fewer than five years duration by place of current residence, place of previous residence, age and sex. Such a table is usually not found among published data. If the entire census or a substantial sample of the census is available on a computer file, however, it should be possible to make the tabulation. In making this tabulation, the duration could be fixed to five years or under; the format of the tables would then be the same as those from data obtained from a question on place of residence at a fixed prior time, although the interpretation would be somewhat different.

If flows between regions are not tabulated, but in- and out-migration for each region are tabulated, these data can be used in a way similar to that described in the previous section, although additional adjustments may be needed for the problems peculiar to data on previous place of residence, as discussed earlier.

If only in-migrants by age and duration have been tabulated and one is willing to make the additional assumption that migrants from different origins have the same age distribution, then these can be used to estimate the age distribution of migrants. This procedure does not, however, provide any direct data on the age distribution of out-migrants. In this case, the age distribution of out-migrants has to be set equal to the distribution of in-migrants to the major destination of migrants from each region.

2. Example from the 1971 census of Indonesia

The provincial volumes of the 1971 Indonesian census included a tabulation of migrants by age, sex and duration of residence. The data for female migrants to East Java are shown in table 10. By summing the numbers of migrants with durations of zero to four years within each age group, one obtains an approximate

Duration of residence	Age group									
in current province	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Under 1 year	777	436	520	928	824	482	261	244	107	
1 year	1 396	1 453	1 245	2 074	2 927	1 690	846	502	297	
2 years	1 497	1 688	1 447	1 947	2 071	1 474	817	692	177	
3 years	653	1 510	1 134	1 509	1 623	1 950	645	741	420	
4 years	200	964	1 047	1 356	1 637	1 317	727	698	211	
5 years	0	951	888	877	1 455	1 426	751	734	371	
6 years	0	1 119	1 300	1 200	1 109	1 469	860	859	554	
7 years	0	474	635	576	608	1 339	762	627	244	
8 years	0	211	458	479	684	1 358	785	558	263	
9 years	0	183	664	760	366	804	605	488	338	
10 years +	0	0	3 022	4 751	4 904	6 760	8 608	10 676	9 622	
Not stated	519	831	694	876	939	879	1 050	619	633	
TOTAL	5 042	9 820	13 054	17 333	19 147	20 948	16 717	17 438	13 237	

TABLE 10. FEMALE MIGRANTS TO THE PROVINCE OF EAST JAVA, INDONESIA, BY AGE AND DURATION OF RESIDENCE IN 1971

Source: Based on Sensus Penduduk Indonesia, 1971 (1971 Population Census), Series E, No. 13. (Jakarta, Biro Pusat Statistic, 1974), table 24.

distribution of in-migrants by age for a five-year period. The distribution is approximate because return migrants that both moved from the province and returned during the five-year period are included in the distribution, whereas they should be excluded when the base data for projections is prepared. If these return migrants differ significantly from other migrants in age, they will distort the age distribution.

The Indonesian data also show that for approximately 7 per cent of the migrants the duration of residence was indicated as "not stated". These responses should be prorated according to the duration of residence distribution within each age group, unless there is other information to indicate that they have a different distribution by duration.

The Indonesian data are typical of those from many countries in that they provide only the age distribution of in-migrants. Since the provinces of destination are known from the tabulations of previous place of residence by duration of residence for migrants to each province, it is possible to determine the major destination of migrants from East Java by the combining data from each of the other provincial volumes. In this way it was determined that the major destinations were Jakarta, Central Java and South Sumatra. If one is willing to assume that migrants from East Java to these destinations were similar to other in-migrants to these destinations, then it is possible to estimate the age distribution of out-migrants from East Java by averaging the distributions of in-migrants to the major destinations. In the example given in table 11, unweighted average are calculated, ignoring the different sizes of each migration stream. This is a reasonable approach when the major migration streams are of similar sizes and the age data are subject to inaccuracy. In many cases, it may be preferable to calculate weighted averages of the percentage distributions, giving greater weight to the larger streams.

Age		Males		Females					
group	To Jakarta	To Lampung	Average	To Jakarta	To Lampung	Average			
0-4	9.95	14.20	12.08	10.75	15.36	13.06			
5-9	7.72	12.68	10.20	8.34	13.76	11.05			
10-14	11.29	9.50	10.40	14.80	11.71	13.26			
15-19	21.80	10.16	15.98	23.79	13.93	18.86			
20-24	20.33	14.28	17.31	15.63	12.50	14.07			
25-29	12.72	13.04	12.88	9.73	10.60	10.17			
30-34	5.95	9.79	7.87	5.41	7.63	6.52			
35-39	4.35	5.03	4.69	3.36	5.17	4.27			
40-44	2.33	4.19	3.26	2.59	2.56	2.58			
15-49	1.33	2.95	2.14	1.90	1.90	1.90			
50-54	0.96	1.68	1.32	1.26	1.77	1.52			
55-59	0.56	1.27	0.92	0.88	1.43	1.16			
50-64	0.30	0.67	0.49	0.69	0.76	0.73			
55-69	0.17	0.39	0.28	0.46	0.55	0.51			
70-74	0.12	0.09	0.11	0.21	0.18	0.20			
75+	0.13	0.08	0.11	0.21	0.19	0.20			
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00			

 TABLE 11. IN-MIGRATION WITH DURATIONS FROM ZERO TO FOUR YEARS, BY AGE AND SEX, FOR MAJOR DESTINATIONS OF MIGRANTS FROM EAST JAVA, ACCORDING TO 1971 CENSUS OF INDONESIA

 (Percentage distributions)

Source: Calculated from Sensus Penduduk Indonesia, 1971 (1971 Population Census). (Jakarta, Biro Pusat Statistic, 1974).

Because many computer programs deal only with the number of migrants, the final step is to scale the age distributions by the numbers of in-migrants and out-migrants estimated earlier to determine the number in each age group. The number of net migrants is also calculated. Although working only with net migrants can create inconsistencies in projections, some computer programs are designed to accept only estimates of net migrants. The steps in the calculation are illustrated in table 12. The first column is taken from table 11. These percentages are then multiplied by the estimated total number of female migrants, which was obtained by summing the number of female migrants to each of the other provinces as recorded in each of the provincial volumes of the census.

		Number of									
Age group	Out-migrants (percentage) (1)	Out-migrants (numbers) (2)	Adjusted out-migrants (3)	In-migrants (numbers) (4)	Adjusted In-migrants (5)	Net migrant. (6)					
0-4	13.06	14 208	13 668	4 523	3 781	-9 886					
5-9	11.05	12 026	11 569	6 051	5 059	-6 510					
10-14	13.26	14 425	13 877	5 393	4 509	-9 368					
15-19	18.86	20 525	19 745	7 814	6 533	-13 213					
20-24	14.07	15 307	14 725	9 082	7 593	-7 133					
25-29	10.17	11 062	10 642	6 913	5 779	-4 863					
30-34	6.52	7 096	6 826	3 296	2 755	-4 071					
35-39	4.27	4 642	4 465	2 877	2 405	-2 060					
40-44	2.58	2 802	2 696	1 212	1 013	-1 683					
45-49	1.90	2 068	1 989	993	830	-1 159					
50-54	1.52	1 649	1 586	900	752	-834					
55-59	1.16	1 257	1 209	481	402	-807					
60-64	0.73	789	759	371	310	-449					
65-69	0.51	550	529	433	362	-167					
70-74	0.20	212	204	246	206	2					
75 +	0.20	218	209	249	208	-1					
Тота	l 100.00	108 834	104 698	50 834	42 497	-62 201					

TABLE 12. CALCULATION OF GROSS AND NET MIGRATION FOR FEMALES BY AGE, EAST JAVA, INDONESIA, 1971

Sources: Column (1) was taken from table 11.

Column (2) was obtained by multiplying the percentages in column (1) by the total number of out-migrants obtained by summing the in-migrants from East Java in each of the other provinces.

Column (3) equals column (2) multiplied by (1-0.5 · proportion return migrants), or 0.962.

Column (4) was obtained by adding the migrants with durations 0-4 in table 10.

Column (5) equals column (4) multiplied by (1-0.5 • proportion of return migrants given in table 4), or 0.836.

Column (6) is column (3) minus column (2).

The number of in-migrants is obtained by summing the numbers with durations from zero to four years given in table 8. Because these data were obtained from questions on place of previous residence and duration of residence, an adjustment was made for return migration, as described in chapter II. Although the proportion of return migrants may differ by age, the necessary data to determine that aspect are not available for Indonesia and the rate for all migrants in the stream has been used.

The number of net migrants is then estimated by subtracting column (2) from column (3). In estimating the number of net migrants for each future projection period, it is important first to estimate the numbers of in-migrants and out-migrants; and then to take the difference, as it is not easy to adjust net migration numbers by age unless they are always of the same sign. This matter is discussed further in chapter IV.

C. Age distributions from surveys

Although surveys may not provide accurate estimates of the number of interregional migrants, they may provide adequate information on the age and sex distribution of migrants. Even if the numbers of migrants in each age group are not sufficient to provide reliable estimates of age-specific rates, the survey data should be able to locate the age at which migration rates peak and the relative rate of decline from that peak. With this information, an appropriate model age distribution can be found.

Table 13 shows the age and sex distribution of interregional migrants in the United States based on the Current Population Survey. Columns (8)-(11) of table 13 show the numbers of migrants from each of the regions. Although these data refer to the five-year period 1980-1985, this is an annual survey and for each year similar tables are available for migration over the past year.

		Same			Differe	nt house	in the Uni	ited State	s (mover	s)		_
Region and		house							Different	state		Movers
age group,		(non-		Same		Same		North-	Mid-			from
1985	Total	movers)	Total	county	Total	state	Total	east	west	South	West	abroad
United States												
Total	216 108	125 982	86 269	47 858	38 411	19 629	18 782	3 423	4 952	6 148	4 259	3 857
5-9	16 566	7 927	8 287	4 945	3 342	1 587	1 755	246	485	568	457	352
10-14	17 226	9 961	6 977	4 119	2 858	1 418	1 440	226	384	509	322	288
15-19	18 325	11 803	6 124	3 518	2 606	1 354	1 253	213	329	401	310	398
20-24	20 466	7 996	11 878	6 303	5 575	3 018	2 557	455	753	854	494	593
25-29	21 106	5 587	14 850	7 954	6 896	3 516	3 380	650	880	1 088	763	669
30-34	19 752	8 085	11 159	6 283	4 876	2 516	2 361	404	621	760	576	508
35-44	31 299	18 405	12 329	6 804	5 525	2 684	2 841	532	751	936	621	566
45-54	22 398	16 330	5 859	3 155	2 704	1 397	1 308	261	304	458	285	209
55-64	22 151	17 489	4 474	2 308	2 166	1 161	1 004	225	231	322	226	189
65+	26 818	22 400	4 332	2 470	1 862	979	883	211	213	252	206	86
Median age	33.6	41.3	28.3	28.2	28.5	28.5	28.5	29.4	28.0	28.4	28.6	27.2
North-east												
Total	46 058	30 814	14 412	8 667	5 745	3 343	2 402	1 184	328	651	238	832
5-9	3 130	1 747	1 287	837	450	249	202	90	37	61	13	96
10-14	3 398	2 275	1 065	717	348	200	149	86	15	40	7	58
15-19	4 060	2 978	1 002	644	358	222	136	70	23	33	ģ	80
20-24	4 286	2 276	1 899	1 056	843	541	302	165	29	83	24	111
25-29	4 097	1 404	2 556	1 455	1 101	622	478	238	53	136	52	136
30-34	3 921	1 780	2 030	1 214	815	458	357	155	54	102	46	111
35-44	6 796	4 531	2 131	1 256	875	465	410	203	74	95	38	134
45-54	5 028	4 040	936	532	404	227	178	86	22	44	25	51
55-64	5 114	4 340	735	452	283	172	111	60	10	27	13	39
65+	6 220	5 442	771	504	267	187	80	30	9	30	10	16
Median age	35.2	41.5	28.8	28.7	29.0	28.7	29.3	28.8	30.5	29.0	31.5	27.6
Midwest												
Total	54 214	33 015	20 742	12 391	8 352	4 924	3 428	378	1 526	854	669	457
5-9	4 272	2 155	2 087	1 298	789	416	373	37	164	75	98	30
10-14	4 552	2 781	1 743	1 084	658	386	272	27	127	69	49	29
15-19	4 680	3 187	1 442	895	547	310	237	27	92	63	56	51
20-24	5 162	2 016	3 086	1 718	1 369	916	453	59	225	127	43	60
25-29	5 250	1 400	3 723	2 152	1 571	945	625	80	259	158	129	127
30-34	5 045	2 276	2 721	1 689	1 032	584	448	49	207	95	96	48
35-44	7 666	4 842	2 751	1 668	1 083	566	517	58	242	112	106	73
45-54	5 310	4 092	1 201	717	484	292	192	18	81	58	35	17
55-64	5 605	4 602	988	537	450	297	153	18	63	52	21	16
65+	6 672	5 665	1 000	633	367	212	155	6	67	46	36	7
Median age	33.2	40.6	27.7	27.8	27.6	27.3	28.0	27.5	28.0	28.0	28.4	27.3

TABLE 13. MOBILITY BY REGION AND AGE, UNITED STATES OF AMERICA, 1980-1985

TABLE 13 (continued)

Region and		Same house				nt house i			Different			Movers
age group,		(non-		Same		Same		North-	Mid-			from
1985	Total	movers)	Total	county	Total	state	Total	east	west	South	West	abroad
South												
Total	73 167	40 999	30 988	15 758	15 229	7 184	8 045	1 389	1 954	3 617	1 085	1 180
5-9	5 699	2 601	2 992	1 679	1 313	594	719	94	187	322	117	105
10-14	5 839	3 168	2 578	1 431	1 147	485	662	96	177	311	77	93
15-19	6 096	3 710	2 276	1 201	1 075	545	530	91	126	231	82	110
20-24	6 885	2 439	4 263	2 100	2 163	1 012	1 151	167	304	530	149	182
25-29	7 192	1 870	5 144	2 576	2 568	1 191	1 377	238	329	591	219	177
30-34	6 591	2 642	3 772	1 911	1 861	935	926	116	217	444	149	177
35-44	10 391	5 829	4 376	2 156	2 219	1 041	1 178	210	272	562	135	187
45-54	7 767	5 422	2 275	1 105	1 170	591	578	97	133	279	69	70
55-64	7 391	5 695	1 650	737	914	448	465	127	97	202	39	45
65+	9 317	7 622	1 661	862	799	342	457	151	112	145	49	34
Median age	33.7	42.0	28.3	27.8	28.7	29.0	28.5	30.3	27.8	28.5	27.7	27.8
West												
Total	42 669	21 154	20 127	11 042	9 086	4 178	4 908	472	1 144	1 025	2 267	1 388
5-9	3 465	1 423	1 921	1 132	789	329	461	25	98	110	228	121
10-14	3 438	1 738	1 592	887	705	347	358	17	65	88	188	109
15-19	3 489	1 927	1 404	777	626	276	350	24	88	74	163	158
20-24	4 133	1 265	2 629	1 429	1 200	549	651	64	195	114	278	239
25-29	4 568	912	3 427	1 770	1 656	757	899	95	239	203	363	228
30-34	4 194	1 387	2 636	1 468	1 168	538	630	83	143	119	284	172
35-44	6 446	3 202	3 072	1 724	1 348	613	735	62	163	167	343	171
45-54	4 294	2 776	1 447	801	646	287	360	60	67	77	156	71
55-64	4 042	2 852	1 101	582	519	244	275	19	61	41	153	89
65+	4 600	3 672	900	472	428	238	190	24	25	31	110	29
Median age	32.7	41.0	28.7	28.7	28.7	28.9	28.5	30.7	27.7	28.1	28.8	26.5

Source: United States of America, Bureau of the Census, Geographical Mobility: 1985, Current Population Reports, P-20, No. 420 (Washington, D.C., Government Printing Office, 1987), table 12.

D. AGE DISTRIBUTIONS FROM REGISTERS

Age distributions of migrants can sometimes be obtained from population registers. However, they may not be accurate because registers tend to correspond to changes of legal residence. There is generally more incentive for property owners to register and others who must have legal proof of registration. Temporary workers are less likely to appear in registration records. In general, it may be difficult to assume that the migrants registering have the same age and sex composition as those who failing to register.

E. USE OF MODEL MIGRATION SCHEDULES

Model migration schedules provide a means of estimating the age distribution of migrants when there is no information or only limited information about their age distribution. Rogers and Castro (1981) have shown that most migration streams have an age distribution that peaks in the early adult years, usually between 20 and 30, and then declines. Migration of children under the age of entry into the labour force tends to decline with age, paralleling the rates of their parents. The relative magnitude of pre-labour force migration depends upon the extent to which entire families move, compared with single workers. Where a significant proportion of migration to or from a place is related to marriage, schooling, military service or other non-labour force reasons, age distributions may become distorted from those represented in the model schedules. In most countries, however, most migration streams appear to correspond to the model schedules.

Rogers and Castro (1981) show that these model schedules can be expressed in terms of equations of the form:

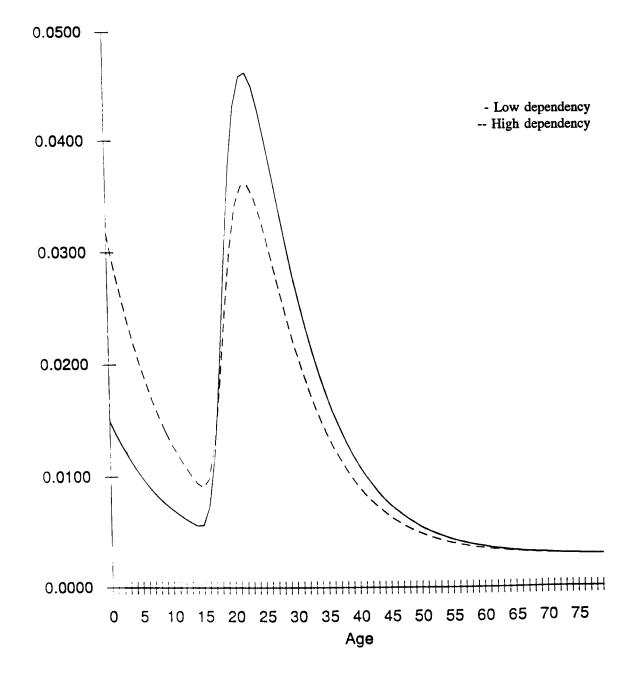
$$M(x) = a_1 \exp(-\alpha_1 x) + a_2 \exp\{-\alpha_2 (x - \mu) - \exp(-\lambda (x - \mu))\} + c,$$

where M(x) = migration rate at age x, and a_1 , α_1 , a_2 , α_2 , μ , λ and c are constants.

The first term represents the pre-labour force migration and the second term, the labour force age migration. In countries where there is substantial migration at retirement ages, a third term representing the increase in migration around retirement may be needed. For most developing countries, however, this aspect may be neglected.

The figure given below shows the simplified model age distribution obtained by Rogers and Castro on the basis of observing several European populations. The sharp peak around age 25 and the following decline is typical of most migration distributions.





Model schedules can be used when there are no adequate data on the age distribution of migration, when data in broad age groups need to be divided into smaller groups or when age distributions from sample data need to be smoothed to remove sampling error. The latter two uses require the fitting of aa model distribution to the observed data, which can be a difficult task involving iterative non-linear procedures.

Castro (1985) attempts to simplify the process of fitting a model schedule to data by relating the age peak to the age of entry into the labour force. This method also provides a potential means of selecting an appropriate age schedule when there are no data on the age of migrants, but age-specific labour force participation rates are available.

Tables A.3 and A.4 in annex II provide a small set of model schedules based on the work of Rogers and Castro with European data. These model schedules vary by two factors (a) the age of the labour force peak; and (b) the relative proportion of pre-labour force migration. The standard model represents the average derived by Rogers and Castro from over 100 model schedules for each sex from Europe and Japan. The variants for low and high labour force peaks correspond to the value of m, approximately one standard deviation above and below the standard;, while the high and low dependency rates correspond to values of a_1 , which are one standard deviation above and below the average.

In selecting models for developing countries, the low labour force peak may be appropriate because the age at entry into the labour force is younger in these countries than in the European countries and Japan. For migration streams involving rural resettlement, however, the migrants tend to be older and also to have a high proportion of dependents. For those streams, either the average or high labour force peak and the high dependency would be appropriate.

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