

ESTIMATING FUTURE SCHOOL ENROLMENT FOR COLOMBIA, 1961-1981

1. NATURE OF THIS CHAPTER.

This chapter will be in the nature of a case study, to illustrate the method of estimating future school enrolment by means of school retention ratios. The study will be based on actual data available for Colombia, covering mainly the years from 1951 to 1960. A preliminary analysis of these data will be made to ascertain relevant characteristics and trends of educational development in this country over the past decade. Detailed operations will be shown for the calculation of school retention ratios in primary schools and in general secondary schools. Estimates will be made on the probable enrolment of pupils in these schools for each of the years 1961-1965, and at five-year intervals from 1966 to 1981. Approximate teacher requirements for primary schools over these periods of time will be estimated in order to provide a basis for estimating the future enrolment in teacher training schools. Vocational school enrolment will be roughly estimated from trends of the recent past. These separate estimates will then be combined to provide a reasonable perspective of future school enrolment in this country over the next twenty years. Finally, with the help of available estimates of the future population in the relevant age groups and other pertinent data, the enrolment estimates will be tested for their consistency and reasonableness.

Previous work in estimating the future enrolment in the primary school of Colombia, for the period 1960 to 1970, has been done by the Secretariat of the United Nations Economic Commission for Latin America and published in 1962, in a paper entitled, *Some aspects of population growth in Colombia*.¹ Still earlier, an official study on educational development in Colombia, during the period 1945/1946 to 1953/1954, was made under the auspices of a government commission and published in a volume entitled, *Estudio sobre las condiciones del desarrollo de Colombia*.² These, and other official documents of the United Nations and the Government of Colombia, have been very useful in the preparation of the present study. It must be emphasized, however, that the methods used, and the results obtained in the present study are only intended for illustrative purposes and do not imply any official endorsement either by the Government of Colombia or by the United Nations.

2. ANALYSIS OF BASIC DATA

Current statistics on education in Colombia are compiled by the Ministerio de Educación Nacional and published extensively in the *Anuario general de estadística*,³ under the auspices of the Departamento Administrativo Nacional de Estadística, as well as in special bulletins devoted to educational and cultural statistics. They are also found in summary form in the various volumes of the *World survey of education*, published by Unesco.⁴

Future population estimates for Colombia, by sex and age, covering the period 1950-1980, based on three alternative assumptions, may be found in the United Nations publication, *The population of South America, 1950-1980*.⁵ However, for technical reasons, we have preferred to use a set of population estimates, separately for the urban and rural populations, prepared at a later date by the Secretariat of the Economic Commission for Latin America.⁶

We shall now make a preliminary analysis of some of the basic data available from these sources, in order to prepare the ground for making estimates of future school enrolment in Colombia, covering the period from 1961 to 1981.

We first note, from table IV-1, that total school enrolment in this country had practically doubled between 1951 and 1960. In fact, the increase in

1. United Nations. Economic Commission for Latin America. *Some aspects of population growth in Colombia* (doc. E/CN.12/618; 10 November 1962).
2. Colombia. Comité Nacional de Planeación. Misión «Economía y Humanismo». *Estudio sobre las condiciones del desarrollo de Colombia* (Bogotá, 1958).
3. Colombia. Departamento Administrativo Nacional de Estadística. *Anuario general de estadística, 1951/52-1960*. Bogotá, 1954-1962.
4. UNESCO. *World survey of education*, Vol. I (general); Vol. II (primary education); Vol. III (secondary education). Paris, 1955, 1958, 1961.
5. United Nations. *The population of South America, 1950-1980* (Future population estimates by age and sex, Report II, doc. ST/SOA/Series A, Population studies, No. 21). New York, 1955.
6. United Nations. Economic Commission for Latin America. *Proyección de la población urbana, población rural y fuerza trabajadora* (Secretariat working paper, 5 April 1960).

enrolment at the second level was more than twofold, with the teacher training schools showing the most rapid rate of increase, followed by the vocational secondary schools and then the general secondary schools. If we consider the primary schools only, for which we have a longer record available, covering the period from 1946 to 1960, we find the most rapid rate of increase among the private urban schools, followed by the public urban and the private rural schools, with the public rural schools lagging somewhat behind in its rate of growth, as may be seen from table IV-2.

If we consider the enrolment in all public schools (urban and rural combined), we find that the

proportion of all pupils enrolled in these schools was 85 per cent in 1960. This proportion had decreased from 94 per cent in 1946 (see table IV-3). This shows a growing importance of private schools at this level of education, due mainly to the exceptionally rapid rate of growth of private schools in urban areas, as noted above. However, even in rural areas the rate of growth of private schools had surpassed that of public schools. Also, over the period of 14 years, the proportion of all pupils enrolled in urban schools (public and private combined) had increased from 49 per cent in 1946 to 62 per cent in 1960. These trends seem fairly clear from table IV-3.

Table IV-1 Colombia: *Pupil enrolment in all schools at the first and second levels of education, 1951-1960.*

(Enrolment by thousands)

Year	First level		Second level		Total first and second levels
	All primary schools	General secondary schools	Teacher training schools	Vocational secondary schools	
1951	875	64.4	7.4	35.1	982
1952	923	65.2	7.8	36.7	1 033
1953	1 055	65.6	8.6	40.5	1 170
1954	1 125	69.9	9.9	37.8	1 243
1955	1 236	77.4	11.8	45.4	1 371
1956	1 312	93.3	14.3	73.3	1 493
1957	1 381	107.6	16.4	68.1	1 573
1958	1 493	115.0	19.1	80.4	1 708
1959	1 569	128.5	24.0	80.3	1 802
1960	1 690	140.3	28.0	85.4	1 944

Source: Unless otherwise noted, all school enrolment data used in this and subsequent tables are taken from: Colombia. Departamento Administrativo Nacional de Estadística. *Anuario General de Estadística*, annual volumes, 1951-1960. Bogotá, 1954-1962.

Table IV-2 Colombia: *Pupil enrolment in all primary schools, 1946-1960, by public and private, urban and rural schools.*

(Enrolment by thousands)

Year	All primary schools	Public schools		Private schools	
		Urban	Rural	Urban	Rural
1946	712	307	361	41	2.3
1947	739	315	372	48	2.7
1948	765	331	389	45	1.3
1949	766	341	395	29	1.1
1950	808	360	398	49	1.6
1951	875	383	414	74	4.1
1952	923	419	427	77	0.3
1953	1 055	459	465	129	2.1
1954	1 125	486	491	145	2.9
1955	1 236	530	524	177	5.6
1956	1 312	578	536	193	4.9
1957	1 381	623	545	208	4.8
1958	1 493	692	576	221	4.3
1959	1 569	737	594	232	6.1
1960	1 690	799	633	252	6.2

Table IV-3 Colombia: *Primary school enrolment, 1946-1960, by public and private schools, and by urban and rural schools.*

(Enrolment by thousands)

Year	All primary schools	Public	Private	Per cent public	Urban	Rural	Per cent urban
1946	712	668	44	94	349	363	49
1947	739	688	51	93	364	375	49
1948	765	719	46	94	375	390	49
1949	766	736	30	96	370	397	48
1950	808	758	50	94	409	400	50
1951	875	797	78	91	457	418	52
1952	923	846	77	92	496	427	54
1953	1 055	923	131	87	588	467	56
1954	1 125	977	148	87	631	494	56
1955	1 236	1 053	183	85	707	529	57
1956	1 312	1 114	198	85	771	541	59
1957	1 381	1 168	213	85	831	550	60
1958	1 493	1 268	225	85	913	580	61
1959	1 569	1 331	238	85	969	600	62
1960	1 690	1 432	258	85	1 051	639	62

The percentage of girls enrolled in all primary schools had increased somewhat from 49 per cent in 1946 to 50 per cent in 1960. This increase is due largely to the urban schools, where the proportion of girls enrolled rose from 50 per cent in 1946 to 51 per cent in 1960. In the rural schools, there was a slight decrease from 49 per cent in 1946 to 48 per cent in 1960. These trends are shown in detail in table IV-4.

We have official data on primary school enrolment published in detail every year, by age, sex and grade, separately for public urban, public rural, private urban and private rural schools. We have summarized these data for 1960 in two tables: table IV-5 showing the distribution for urban schools, public and private; and table IV-6 for rural schools, public and private. Since the number of pupils in each age-sex-grade category for private schools is relatively small compared with public schools, we shall combine the enrolment in public and private schools, and keep the

distinction only between the urban and rural schools.

First, analysing the distribution of pupils by age, we note at once that there is a very wide range of ages among pupils of the same grade, in both the urban and rural schools. In grades 1 and 2, all age groups are represented from 7 years and under to 15 years and over. The median age of pupils in grade 1 was 8.6 years for boys, 8.5 years for girls, and 8.6 years for both sexes in urban schools. For pupils in grade 2, the corresponding median ages were: 10.0 years for boys, 9.9 years for girls, and 9.9 years for both sexes. The difference between sexes disappears in grade 3, where the median age for boys and girls alike was 11.1 years. Thereafter, the girls tended to be slightly older than the boys. In rural schools, the pupils were generally older than their counterparts in urban schools, and the boys were older than the girls, on the average, in every grade except the fourth. (See table IV-7.)

Table IV-4 Colombia: *Female pupils as percentage of all pupils in primary schools, by urban and rural schools, 1946-1960*

(Enrolment by thousands)

Year	All primary schools		Urban primary schools		Rural primary schools	
	Number of pupils	Per cent female	Number of pupils	Per cent female	Number of pupils	Per cent female
1946	712	49	349	50	363	49
1947	739	49	364	50	375	48
1948	765	49	375	50	390	48
1949	766	49	370	50	397	48
1950	808	49	409	50	400	48
1951	875	49	457	50	418	48
1952	923	49	496	49	427	48
1953	1 055	49	588	50	467	47
1954	1 125	49	631	51	494	48
1955	1 236	49	707	50	529	48
1956	1 312	49	771	50	541	47
1957	1 381	49	831	51	550	48
1958	1 493	50	913	51	580	48
1959	1 569	50	969	51	600	48
1960	1 690	50	1 051	51	639	48

Table IV-5 Colombia: Age, sex and grade distribution of pupils enrolled in urban primary schools, 1960

Age	Sex	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Total	
		Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
7 and under	Male	42 982	19 101	2 959	2 598	-	-	-	-	-	-	45 941	21 699
	Female	46 856	18 668	3 060	1 384	-	-	-	-	-	-	49 916	20 052
8	Male	42 806	8 686	18 780	8 495	1 856	1 456	-	-	-	-	63 442	18 637
	Female	44 158	8 540	19 230	10 094	1 970	997	-	-	-	-	65 358	19 631
9	Male	25 772	4 250	25 322	5 791	11 472	7 990	1 190	909	-	-	63 756	18 940
	Female	26 126	3 711	27 052	6 939	11 351	8 351	1 283	722	-	-	65 812	19 723
10	Male	16 989	2 449	21 440	3 587	17 731	5 302	6 646	6 426	1 014	1 984	63 820	19 748
	Female	17 398	1 984	22 858	4 067	18 176	6 373	6 441	6 259	847	1 457	65 720	20 140
11	Male	9 098	1 220	13 961	2 041	15 981	3 274	10 826	4 789	3 609	4 245	53 475	15 569
	Female	8 933	884	14 881	2 142	16 367	4 207	10 595	5 639	3 609	4 179	54 385	17 051
12	Male	6 239	855	10 255	1 603	13 801	2 433	12 355	4 009	7 271	5 103	49 921	14 003
	Female	5 790	542	10 505	1 387	13 672	3 014	12 265	5 366	7 444	6 343	49 676	16 652
13	Male	2 587	298	4 666	593	7 059	977	8 454	1 778	6 660	2 913	29 426	6 559
	Female	2 165	181	4 559	414	7 419	1 336	8 245	2 548	7 386	4 002	29 774	8 481
14	Male	1 135	167	2 082	320	3 493	527	4 771	1 073	5 384	1 924	16 865	4 011
	Female	895	80	1 799	167	3 417	663	4 662	1 441	5 655	2 892	16 428	5 243
15 and over	Male	843	90	763	187	1 201	305	2 096	542	3 436	1 377	8 339	2 501
	Female	400	77	630	143	1 130	356	1 721	782	3 099	1 965	6 980	3 323
Total	Male	185 567		125 443		94 858		65 864		44 920		516 652	
	Female	187 388		131 311		98 799		67 969		48 878		534 345	
Both sexes		372 955		256 754		193 657		133 833		93 798		1 050 997	

Table IV-6 Colombia: Age, sex and grade distribution of pupils enrolled in rural primary schools, 1960

Age	Sex	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Total	
		Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
7 and under	Male	54 765	551	1 676	33	-	-	-	-	-	-	56 441	584
	Female	54 532	506	2 083	34	-	-	-	-	-	-	56 615	540
8	Male	47 166	379	9 504	128	338	27	-	-	-	-	57 008	534
	Female	43 916	328	10 400	130	408	35	-	-	-	-	54 724	493
9	Male	35 210	232	16 311	179	1 532	82	111	3	-	-	53 164	496
	Female	32 300	214	17 372	122	1 514	63	98	2	-	-	51 284	401
10	Male	29 602	187	20 524	136	2 844	103	415	40	16	2	53 401	468
	Female	25 848	144	20 677	116	2 782	78	390	45	31	11	49 728	394
11	Male	17 125	119	16 740	142	2 945	91	743	61	128	13	37 681	426
	Female	14 653	105	16 443	94	2 983	99	702	57	105	19	34 886	374
12	Male	14 810	116	16 911	112	3 410	120	1 109	96	272	83	36 512	527
	Female	11 365	88	14 891	72	3 102	86	1 005	78	295	86	30 658	410
13	Male	6 678	44	8 338	36	2 076	32	752	32	277	12	18 121	156
	Female	5 000	18	7 405	30	1 896	37	758	21	181	11	15 240	117
14	Male	4 101	8	4 487	15	1 342	20	621	14	269	4	10 820	61
	Female	2 864	10	3 886	9	1 267	9	526	15	192	2	8 735	45
15 and over	Male	1 731	17	1 549	13	613	19	388	32	247	9	4 528	90
	Female	1 216	11	1 392	-	582	5	295	17	158	26	3 643	59
Total	Male	212 841		96 834		15 594		4 417		1 332		331 018	
	Female	193 118		95 156		14 946		4 009		1 117		308 346	
	Both sexes	405 959		191 990		30 540		8 426		2 449		639 364	

Table IV-7 Colombia *Median age of pupils in all primary schools, by sex and grade, and by urban and rural schools, 1960*

Schools	Sex	Age of pupils				
		Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<i>Urban schools:</i>						
Median age	Male	8.6	10.0	11.1	12.1	12.9
	Female	8.5	9.9	11.1	12.2	13.0
	Both sexes	8.6	9.9	11.1	12.2	13.0
Normal age for grade		(7.5)	(8.5)	(9.5)	(10.5)	(11.5)
Percentage of pupils above normal age		52	61	64	66	64
<i>Rural schools:</i>						
Median age	Male	9.1	11.0	11.9	12.7	13.5
	Female	8.9	10.8	11.8	12.7	13.1
	Both sexes	9.0	10.9	11.9	12.7	13.3
Normal age for grade		(7.5)	(8.5)	(9.5)	(10.5)	(11.5)
Percentage of pupils above normal age		62	79	77	78	72

Source: Age-sex-grade distribution of pupils shown in tables IV-5 and IV-6

Since compulsory schooling in Colombia begins after boys and girls have reached the age of 7 years, we may assume that the normal age for pupils in grade 1 should be 7.5 years. If they progress by one grade each year, the normal ages for the following grade should be: 8.5 in grade 2; 9.5 in grade 3; 10.5 in grade 4; and 11.5 in grade 5. Thus it may be seen that, in urban schools, the median age of pupils was about 1 year above normal in grade 1 and about 1.5 years above normal in each of the following grades. The discrepancy in rural schools is greater: about 1.5 years in grade 1; nearly 2.5 years in grades 2 and 3; and about 2 years in grades 4 and 5. This is, of course, due to the large number of pupils who fail to progress grade by grade normally and have to repeat their grades one or more times. As a result, about 60 per cent of all pupils in urban schools, and nearly 70 per cent of all pupils in rural schools, were above normal age for their grades.

We shall now proceed with a grade analysis of pupils, to find out what proportion of pupils progress regularly through primary school from grade to grade, what proportion of them repeat their grades at least once during their school course, and what proportion drop out of school before the completion of their primary schooling. For this we shall need to go back

at least five years for enrolment data, separating the repeaters from the new pupils enrolled in each grade. We have such data available from the official sources, beginning in 1952. Since it is to be expected that many pupils would have transferred from public to private schools, and vice versa, or from rural to urban schools, and vice versa, we shall combine all primary school enrolment, public and private, urban and rural, and keep the distinction only between male and female pupils. Table IV-8 gives total enrolment, by sex and grade, of all pupils in primary schools, for each year from 1952 to 1960. Table IV-9 gives the number of repeaters, by sex and grade, for the same period of years. Table IV-10 gives the number of new pupils enrolled each year, by sex and grade, which is obtained by subtraction of the number of repeaters from the total number of pupils enrolled.

From table IV-8 to IV-10, we obtain grade progression ratios, percentages of repeaters, and grade retention ratios for each of the cohorts enrolled between 1952 and 1960, as shown in tables IV-11 to IV-13. The combined experience of all the cohorts is expressed by the average ratios shown in the last line of each table. Thus, about 46 per cent of all pupils in grade 1 progress to grade 2 the following year; about 27 per cent of them repeat the grade;

making a total of about 73 per cent remaining in school after their first year. Similarly, about 41 per cent of grade 2 pupils progress to grade 3; about 25 per cent repeat their grade; making a total of 66 per cent remaining in school for the next year. Among pupils in grade 3; about 61 per cent progress to grade 4; about 16 per cent are repeaters; totalling 77 per cent who remain in school during the following year. About the same proportion of grade 4 pupils remains in school, of which 65 per cent progress

to grade 5 and 11 per cent repeat their grade. Finally, about 10 per cent of grade 5 pupils remain in school the following year as repeaters. These calculations are based on the average ratios for both sexes combined. As the difference between the experience of the male and female cohorts is very small in most cases, we may dispense with separate calculations for the two sexes. In other instances, it may be advisable, and even necessary, to carry out such separate calculations.

Table IV-8 Colombia: *Total enrolment in all primary schools, by sex and grade, 1952-1960*

Year	Sex	Number of pupils enrolled in each grade				
		1	2	3	4	5
1952	Male	242 349	132 900	54 394		43 745
	Female	224 841	130 486	53 392		40 426
	Both sexes	467 190	263 386	107 786		84 171
1953	Male	276 746	150 235	62 518	38 721	19 866
	Female	256 536	147 227	61 671	38 228	20 784
	Both sexes	533 282	297 462	124 189	76 949	40 650
1954	Male	288 994	154 412	65 186	38 383	22 124
	Female	273 080	154 304	66 194	38 769	23 904
	Both sexes	562 074	308 716	131 380	77 152	46 028
1955	Male	315 017	168 948	73 590	43 970	27 015
	Female	296 128	166 948	73 325	43 735	27 408
	Both sexes	611 145	335 896	146 915	87 705	54 423
1956	Male	327 793	178 950	79 296	49 013	32 057
	Female	309 927	176 385	78 326	48 548	31 240
	Both sexes	637 720	355 335	157 622	97 561	63 297
1957	Male	335 861	189 484	85 166	53 736	34 498
	Female	319 300	188 445	85 607	53 378	35 815
	Both sexes	655 161	377 929	170 773	107 114	70 313
1958	Male	366 415	196 584	92 660	58 747	39 144
	Female	349 311	197 060	93 557	59 188	40 457
	Both sexes	715 726	393 644	186 217	117 935	79 601
1959	Male	373 229	209 304	99 905	64 381	44 283
	Female	355 539	210 040	99 280	64 966	47 645
	Both sexes	728 768	419 344	199 185	129 347	91 928
1960	Male	398 408	222 277	110 452	70 281	46 252
	Female	380 506	226 467	113 745	71 978	49 995
	Both sexes	778 914	448 744	224 197	142 259	96 247

Table IV-9 Colombia: Number of repeaters in all primary schools,
by sex and grade, 1952-1960

Year	Sex	Number of repeaters in each grade				
		1	2	3	4	5
1952	Male	61 759	32 842	8 450		5 379
	Female	54 430	32 711	8 370		3 999
	Both sexes	116 189	65 553	16 820		9 378
1953	Male	74 315	36 389	9 067	4 156	1 762
	Female	65 889	35 570	8 985	4 007	1 897
	Both sexes	140 204	71 959	18 052	8 163	3 659
1954	Male	78 600	37 609	9 839	3 996	2 014
	Female	69 255	36 954	9 993	4 039	2 001
	Both sexes	147 855	74 563	19 832	8 035	4 015
1955	Male	82 880	39 703	10 690	4 816	2 368
	Female	73 445	39 703	10 814	4 618	2 544
	Both sexes	156 325	79 406	21 504	9 434	4 912
1956	Male	85 993	40 927	11 045	4 861	2 651
	Female	76 909	40 734	11 114	5 076	2 597
	Both sexes	162 902	81 661	22 159	9 937	5 248
1957	Male	88 351	43 246	12 205	5 735	3 152
	Female	78 208	42 822	12 103	5 467	3 269
	Both sexes	166 559	86 068	24 308	11 202	6 421
1958	Male	92 422	45 278	13 416	6 383	3 639
	Female	82 559	45 055	13 313	6 446	3 667
	Both sexes	174 981	90 333	26 729	12 829	7 306
1959	Male	92 745	44 949	12 615	5 711	2 911
	Female	82 450	43 536	12 120	4 752	2 449
	Both sexes	175 195	88 485	24 735	10 463	5 360
1960	Male	105 476	52 637	17 175	8 482	5 046
	Female	94 698	53 387	17 125	8 557	5 225
	Both sexes	200 174	106 024	34 300	17 039	10 271

By compounding these average grade retention ratios, we obtain a first approximation of over-all school retention ratios for a cohort of grade 1 pupils, as follows:

Starting with a given cohort of grade 1 pupils : 10 000
 After the first year, 73.11 per cent of these would have remained in school
 (.7311 x 10,000): 7 311
 After the second year, 66.26 per cent of those remaining would have continued in school (.6626 x 7,311): 4 844
 After the third year, 76.70 per cent of these would have continued in school for the next year (. 7670 x 4,844): 3 715

After the fourth year, 76.76 per cent of these would have been left in school
 (.7676 x 3,715): 2 852
 After the fifth year, 9.80 per cent of these would have remained as repeaters in the fifth grade (.0980 x 2,852): 279

A more refined method of computing the over-all school retention ratios will be introduced in the next section of this chapter.

Since the end result of primary schooling is represented in the number of pupils who successfully complete their fifth grade (normally after five years at school), we shall compare the number of pupils who passed their examination at the end of grade 5

each year with the number of new pupils who were enrolled in grade 1 four years earlier. Thus we find that the percentage of each cohort successfully completing its primary schooling has increased from about 13 per cent (of the 1952 cohort) to about 16 per cent (of the 1956 cohort). The difference between the sexes is slightly in favour of the girls, but is hardly significant for the most recent cohort which completed its primary schooling in 1960. (See table

IV-14). It should be noted that, due to the considerable number of repeaters grade by grade, the pupils who completed their fifth grade in any given year actually came from several different cohorts, and pupils in any single cohort would have completed their schooling in several successive years. However, we might assume that these retarding effects cancel each other to a large extent.

Table IV-10 Colombia: *Number of new pupils in all primary schools, by sex and grade, 1952-1960*

Year	Sex	Number of new pupils in each grade				
		1	2	3	4	5
1952	Male	180 590	100 058	45 944		38 366
	Female	170 411	97 775	45 022		36 427
	Both sexes	351 001	197 833	90 966		74 793
1953	Male	202 431	113 846	53 451	34 565	18 104
	Female	190 647	111 657	52 686	34 221	18 887
	Both sexes	393 078	225 503	106 137	68 786	36 991
1954	Male	210 394	116 803	55 347	34 387	20 110
	Female	203 825	117 350	56 201	34 730	21 903
	Both sexes	414 219	234 153	111 548	69 117	42 013
1955	Male	232 137	129 245	62 900	39 154	24 647
	Female	222 683	127 245	62 511	39 117	24 864
	Both sexes	454 820	256 490	125 411	78 271	49 511
1956	Male	241 800	138 023	68 251	44 152	29 406
	Female	233 018	135 651	67 212	43 472	28 643
	Both sexes	474 818	273 674	135 463	87 624	58 049
1957	Male	247 510	146 238	72 961	48 001	31 346
	Female	241 092	145 623	73 504	47 911	32 546
	Both sexes	488 602	291 861	146 465	95 912	63 892
1958	Male	273 993	151 306	79 244	52 364	35 505
	Female	266 752	152 005	80 244	52 742	36 790
	Both sexes	540 745	303 311	159 488	105 106	72 295
1959	Male	280 484	164 355	87 290	58 670	41 372
	Female	273 089	166 504	87 160	60 214	45 196
	Both sexes	553 573	330 859	174 450	118 884	86 568
1960	Male	292 932	169 640	93 277	61 799	41 206
	Female	285 808	173 080	96 620	63 421	44 770
	Both sexes	578 740	342 720	189 897	125 220	85 976

Table IV-11 Colombia: *Grade progression ratios of pupils in all primary schools, by sex and grade, 1952-1960*

(Percentage ratios)

Cohort	Sex	Grade progression ratio between grades			
		1 and 2	2 and 3	3 and 4	4 and 5
1952	Male	46.98	40.22	63.55	...
	Female	49.66	40.38	64.09	...
	Both sexes	48.27	40.30	63.84	...
1953	Male	42.21	36.84	55.00	51.94
	Female	45.74	38.17	56.31	57.30
	Both sexes	43.91	37.50	55.65	54.60
1954	Male	44.72	40.74	60.07	64.21
	Female	46.60	40.51	59.09	64.13
	Both sexes	45.63	40.62	59.58	64.17
1955	Male	43.81	40.40	60.00	66.88
	Female	45.81	40.26	59.29	65.49
	Both sexes	44.78	40.33	59.64	66.19
1956	Male	44.61	40.77	60.53	63.95
	Female	46.99	41.67	61.17	67.04
	Both sexes	45.77	41.22	60.85	65.49
1957	Male	45.05	41.82	61.48	66.07
	Female	47.61	42.58	61.61	68.92
	Both sexes	46.30	42.20	61.55	67.49
1958	Male	44.85	44.40	63.32	70.42
	Female	47.67	44.23	64.36	76.36
	Both sexes	46.23	44.32	63.84	73.40
1959	Male	45.45	44.57	61.86	64.00
	Female	48.68	46.00	63.88	68.91
	Both sexes	47.03	45.28	62.87	67.47
Average: 1952-1959	Male	44.71	41.22	60.73	63.92
	Female	47.35	41.73	61.23	66.88
	Both sexes	45.99	41.47	60.98	65.40

Source: Calculated from data in tables IV-8 and IV-10.

Table IV-12 Colombia: *Percentage of repeaters in all primary schools, by sex and grade, 1952-1960*

Cohort	Sex	Percentage of repeaters the year after in				
		grade 1	grade 2	grade 3	grade 4	grade 5
1952	Male	30.66	27.38	16.67	...	...
	Female	29.30	27.26	16.83	...	...
	Both sexes	30.01	27.32	16.75	...	...
1953	Male	28.40	25.03	15.74	10.32	10.14
	Female	27.00	25.10	16.20	10.57	9.63
	Both sexes	27.73	25.07	15.97	10.44	9.88
1954	Male	28.68	25.71	16.41	12.55	10.70
	Female	26.90	25.73	16.34	11.91	10.64
	Both sexes	27.81	25.72	16.37	12.23	10.67
1955	Male	27.30	24.22	15.01	11.05	9.82
	Female	25.97	24.40	15.15	11.61	9.47
	Both sexes	26.66	24.31	15.09	11.33	9.64
1956	Male	26.95	24.17	15.39	11.70	9.83
	Female	25.23	24.28	15.45	11.26	10.46
	Both sexes	26.12	24.22	15.42	11.48	10.14
1957	Male	27.52	23.90	15.75	11.88	10.55
	Female	25.86	23.91	15.55	12.08	10.24
	Both sexes	26.71	23.90	15.65	11.98	10.39
1958	Male	25.31	22.87	13.61	9.72	7.44
	Female	23.60	22.09	12.95	8.03	6.05
	Both sexes	24.48	22.48	13.28	8.87	6.73
1959	Male	28.26	25.15	17.19	13.17	11.39
	Female	26.64	25.42	17.25	13.17	10.97
	Both sexes	27.47	25.28	17.22	13.17	11.17
Average: 1952-1959	Male	27.89	24.80	15.72	11.48	9.98
	Female	26.31	24.77	15.72	11.23	9.64
	Both sexes	27.12	24.79	15.72	11.36	9.80

Source: Calculated from data in tables IV-8 and IV-9.

Table IV-13 Colombia: *Grade retention ratios of pupils in all primary schools, by sex and grade, 1952-1960*

(Percentage ratios)

Cohort	Sex	Grade retention ratios between grades				Retention after grade 5
		1 and 2	2 and 3	3 and 4	4 and 5	
1952	Male	77.64	67.60	80.22	...	...
	Female	78.96	67.64	80.92	...	...
	Both sexes	78.28	67.62	80.59	...	...
1953	Male	70.61	61.87	70.74	62.26	10.14
	Female	72.74	63.27	72.51	67.87	9.63
	Both sexes	71.64	62.57	71.62	65.04	9.88
1954	Male	73.40	66.45	76.48	76.76	10.70
	Female	73.50	66.24	75.43	76.04	10.64
	Both sexes	73.44	66.34	75.95	76.40	10.67
1955	Male	71.11	64.62	75.01	77.93	9.82
	Female	71.78	64.66	74.44	77.10	9.47
	Both sexes	71.44	64.64	74.73	77.52	9.64
1956	Male	71.57	64.94	75.93	75.66	9.83
	Female	72.22	65.95	76.62	78.30	10.46
	Both sexes	71.88	65.44	76.27	76.97	10.14
1957	Male	72.57	65.72	77.24	77.95	10.55
	Female	73.46	66.49	77.16	81.00	10.24
	Both sexes	73.00	66.10	77.20	79.47	10.39
1958	Male	70.17	67.27	76.93	80.15	7.44
	Female	71.27	66.32	77.32	84.39	6.05
	Both sexes	70.70	66.80	77.12	82.27	6.73
1959	Male	73.71	69.71	79.05	77.18	11.39
	Female	75.32	71.42	81.13	82.08	10.97
	Both sexes	74.49	70.57	80.09	79.65	11.17
Average: 1952-1959	Male	72.60	66.02	76.45	75.41	9.98
	Female	73.66	66.50	76.94	78.11	9.64
	Both sexes	73.11	66.26	76.70	76.76	9.80

Source: Calculated from data in tables IV-8, IV-9, and IV-10

Table IV-14 Colombia: *Number of pupils who successfully completed their primary schooling, 1956-1960, compared with new pupils in grade 1, 1952-1956*

Year	Sex	Cohort of new pupils in grade 1 (a)	Year	Sex	Number of pupils who passed their examination in grade 5 (b)	(b) as % of (a)
1952	Male	180 590	1956	Male	22 925	12.7
	Female	170 411		Female	23 247	13.6
	Both sexes	351 001		Both sexes	46 172	13.2
1953	Male	202 431	1957	Male	26 235	13.0
	Female	190 647		Female	26 023	13.6
	Both sexes	393 078		Both sexes	52 258	13.3
1954	Male	210 394	1958	Male	29 757	14.1
	Female	203 825		Female	31 373	15.4
	Both sexes	414 219		Both sexes	61 130	14.8
1955	Male	232 137	1959	Male	32 729	14.1
	Female	222 683		Female	34 575	15.5
	Both sexes	454 820		Both sexes	67 304	14.8
1956	Male	241 800	1960	Male	38 354	15.9
	Female	233 018		Female	37 562	16.1
	Both sexes	474 818		Both sexes	75 916	16.0

Finally, we shall compare the number of pupils enrolled in all primary schools with the estimated school-age population of the country. Official estimates of the population 7-14 years of age, considered as the school-age population, are available for each year since 1945 (excepting 1955). When we compare the total enrolment in all primary schools with these estimates of the school-age population,

we find that the proportion of the school-age population enrolled in primary school has increased from about 33 per cent in 1945 to about 60 per cent in 1960. (See table IV-15.)

However, the development of primary education in urban and in rural areas has been quite disparate as may be seen from the following comparisons, based on official data available for 1957, 1958 and 1959:

Year	Estimated urban population 7-14 years of age (thousands) (a)	Enrolment in all urban primary schools		Estimated rural population 7-14 years of age (thousands) (c)	Enrolment in all rural primary schools	
		Thousands of pupils (b)	(b) as % of (a)		Thousands of pupils (d)	(d) as % of (c)
1957	961	831	86.5	1 616	550	34.0
1958	984	913	92.8	1 649	580	35.2
1959	1 009	969	96.0	1 687	600	35.6

We shall now turn to an analysis of available data relating to all types of education at the second level. We shall distinguish three broad types of schools at this level: (a) the general secondary schools (*enseñanza secundaria general o bachillerato*), of six years' duration; (b) the teacher training schools, of which there are two types - the *escuela normal superior*, also of six years' duration, and the *escuela normal rural*, of four years' duration; and (c) all forms of vocational secondary schools (*enseñanza secundaria técnica*), including industrial schools

of five to seven years' duration, commercial schools of four to five years' duration, agricultural schools of three to six years' duration, training schools for nursing assistants (*escuela auxiliar de enfermería*) of three to five years' duration, schools of rural household arts (*enseñanza hogar para campesinas*) of three years' duration, *escuelas complementarias* of four to five years' duration, besides schools of fine arts and private religious schools, and other secondary schools not otherwise specified.

Table IV-15 Colombia: Total enrolment in all primary schools, compared with estimated population 7-14 years of age, 1945-1954; 1956-1960
(Thousands of persons and of pupils)

Year	Estimated population 7-14 years of age (a)	Total enrolment in all primary schools		Year	Estimated population 7-14 years of age (b)	Total enrolment in all primary schools	
		Number	As % of (a)			Number	As % of (b)
1945	2 030	678	33.4	1953	2 422	1 055	43.6
1946	2 076	712	34.3	1954	2 474	1 125	45.5
1947	2 122	739	34.8	1956	2 537	1 312	51.7
1948	2 169	765	35.3	1957	2 577	1 381	53.6
1949	2 217	766	34.6	1958	2 634	1 493	56.7
1950	2 252	808	35.9	1959	2 696	1 569	58.2
1951	2 302	875	38.0	1960	2 826	1 690	59.8
1952	2 360	923	39.1				

Sources: 1945-1954: *Estudio sobre las condiciones del desarrollo de Colombia*; 1956-1960: *Anuario general de estadística*, volumes 1956 to 1960

Pupils enrolled in most of these schools are reported by year of study and by age, but without cross-tabulation. These data, for 1960, are summarized in tables IV-16 to IV-18. Since private schools are of particular importance among the general secondary schools, we have kept the distinction between public and private schools in this category. In the other categories we have combined the public and the private school enrolments, although in the case of the commercial schools, the enrolment was predominantly in private schools. Table IV-16 shows that, of the total enrolment in general secondary schools, as of 1960, about 64 per cent were pupils in private schools and only 36 per cent in public schools. Two-thirds of all pupils were male and one-third female. Female pupils constituted about 20 per cent of all enrolment in the public schools, and about 40 per cent in the private schools. The median age of pupils in these schools was around 16 years for male pupils and 15 years for female pupils. The median year of study was approximately the third year for male pupils

and about halfway between the second and third years for female pupils. (See table IV-16.)

More than three-fourths of all the pupils in teacher training schools were female, the proportion of female pupils being somewhat higher (81 per cent) in the rural teacher training schools, as compared with that in the higher teacher training schools (75 per cent). The median age of male pupils in all teacher training schools was nearly 17 years, while the median age of female pupils was one year lower. In the higher teacher training schools, of six years' duration, about three-fourths of the pupils were in their first, second or third year of study; while in the rural teacher training schools, with a four-year course, more than two-thirds of the pupils were in their first or second year of study. The median year of study for all pupils in the higher teacher training schools was somewhat below the third year; it was slightly above the second year in the rural teacher training schools. (See table IV-17.)

Table IV-16 Colombia: Pupils enrolment in general secondary schools, public and private, distributed by sex and year of study, and by sex and age, 1960

Distribution of pupils	Public schools		Private schools	
	Male	Female	Male	Female
(a) By year of study:				
First year	13 057	4 193	16 661	12 052
Second year	8 555	2 527	11 535	8 834
Third year	6 478	1 611	9 064	6 480
Fourth year	5 325	1 048	6 856	4 473
Fifth year	3 906	573	5 208	2 620
Sixth year	3 015	439	3 937	1 882
(b) By age of pupils:				
Under 12 years	481	121	1 239	808
12 years	2 853	933	5 287	3 916
13 years	4 850	1 709	7 390	6 084
14 years	6 073	2 046	8 657	6 874
15 years	6 353	2 104	8 331	6 889
16 years	5 691	1 462	7 325	5 280
17 years	4 975	1 017	5 899	3 513
18 years	3 787	601	4 368	1 851
19 years	2 736	263	2 280	687
20 years and over	2 537	135	2 485	439
Total number of pupils	40 336	10 391	53 261	36 341
Median year of study	2.8	2.4	2.9	2.7
Median age of pupil	15.9	15.2	15.5	15.1

In the industrial schools, male pupils outnumbered female pupils by approximately 3 to 1. Their median age (16.6 years) and median year of study (2.2) were approximately the same as for female pupils. Female pupils outnumbered male pupils in the commercial schools by more than 2 to 1. Their median age (15.9 years) was about a year and a half lower than the median age of male pupils (17.3 years). The median year of study (2.1 for male pupils; 2.2 for female pupils) indicates that nearly half of all pupils enrolled were in their first year of study. This last observation applies equally to the other types of vocational schools combined, where the number of female pupils in their first year of study was actually just over half of the total female enrolment. (See table IV-18.)

We shall now attempt to find the grade retention ratios for pupils in general secondary schools, in the same manner as we have done for the primary school pupils. However, in this case we do not have the data on number of repeaters, so we can only

relate the total number of pupils in their first year of study in a given year to the total number in their second year of study the year following, and so on. We shall assume that there is a transfer of pupils between the public and the private schools, so we shall combine the enrolment of public and private schools. We shall not add up the male and female pupils, as we did in the case of primary school enrolment, because here we have a larger difference between the sexes, both in the number of pupils enrolled in each year of study and in their manner of progression through the secondary school.

Table IV-19 gives the number of pupils of each sex enrolled in general secondary schools, by year of study, for each year from 1953 to 1960. Dividing the number of pupils in the second year of study in a given year by the enrolment in the first year of study in the previous year gives us an approximate retention ratio for that cohort. This can be done similarly for the other cohorts until the sixth year of study is reached. These approximate retention

ratios are shown in table IV-20. The average ratios, based on the combined experience of seven cohorts, imply that of 100 male pupils beginning their first year of study, about 76 would remain in school the following year. After two years, only 66 would still remain; after three years, 58; after four years, 49; after five years, 44. The experience of female pupils

would be less favourable. Out of 100 female pupils beginning their first year of study together, only 73 would be left during their second year; 57 after two years; 42 after three years; 26 after four years; and only 22 after five years. A slightly more refined method of computing these over-all retention ratios will be found in the next section of this chapter.

Table IV-17 Colombia: *Pupils enrolment in "higher" and "rural" teacher training schools (public and private schools combined), distributed by sex and year of study, and by sex and age, 1960*

Distribution of pupils	"Higher" teacher training schools		"Rural" teacher training schools	
	Male	Female	Male	Female
<i>(a) By year of study:</i>				
First year	1 724	5 153	744	2 959
Second year	997	3 402	416	1 895
Third year	768	2 310	293	1 289
Fourth year	566	1 670	237	976
Fifth year	470	1 021	-	-
Sixth year	336	797	-	-
<i>(b) By age of pupils:</i>				
Under 12 years	37	99	16	258
12 years	262	796	67	317
13 years	472	1 815	111	793
14 years	574	2 534	191	1 130
15 years	678	2 664	247	1 383
16 years	601	2 200	258	1 080
17 years	635	1 717	247	936
18 years	528	1 143	171	604
19 years	395	707	149	322
20 years and over	679	678	233	296
<i>Total number of pupils:</i>	4 861	14 353	1 690	7 119
Median year of study	2.7	2.6	2.2	2.3
Median age of pupil	16.7	15.7	16.8	15.8

Table IV-18 Colombia: *Pupil enrolment in vocational secondary schools, (public and private schools combined), distributed by sex and year of study, and by sex and age, 1960*

Distribution of pupils	Industrial schools		Commercial schools		Other types of vocational schools ¹	
	Male	Female	Male	Female	Male	Female
(a) By year of study						
First year	4 144	1 383	5 553	13 035	1 462	3 987
Second year	2 118	711	2 956	7 776	826	2 018
Third year	1 282	671	1 343	4 762	487	1 219
Fourth year	860	293	1 186	2 262	184	402
Fifth year	395	140	560	744	182	148
Sixth year	147	52	-	-	6	-
Seventh year	47	-	-	-	-	-
(b) By age of pupils:						
Under 12 years	84	55	185	315	...	...
12 years	270	216	480	1 585	...	...
13 years	753	339	483	2 744	...	...
14 years	1 176	459	893	4 341	...	...
15 years	1 330	412	1 562	5 743	...	...
16 years	1 555	372	1 694	5 146	...	...
17 years	1 179	423	1 749	4 118	...	...
18 years	1 197	481	1 598	2 546	...	...
19 years	703	198	1 356	1 212	...	...
20 years and over	746	295	1 598	829	...	...
Total number of pupils:	8 993	3 250	11 598	28 579	3 147	7 774
Median year of study	2.2	2.3	2.1	2.2	2.1	2.0
Median age of pupil	16.6	16.4	17.3	15.9	...	...
1. Including agricultural, rural household arts, nursing assistants schools, and <i>escuelas complementarias</i> ; excluding fine arts and religious schools and other secondary schools not otherwise specified. Total enrolment in the latter types of schools, not distributed by year of study or by age, comprised 13,030 male and 9,045 female pupils in 1960.						
- Nil						
... Information not available						

Again, the end result of general secondary education would be represented by the number of pupils who successfully complete their secondary course (normally in six years, disregarding the possibility

of repeaters passing their final examination in later years). From data available on three cohorts of each sex, we arrive at the following comparisons:

Year	Sex	Cohort of pupils in first year of study (a)	Year	Sex	Number of pupils who passed final examination (b)	(b) as % of (a)
1953	Male	14 252	1958	Male	5 228	36.7
	Female	10 921		Female	1 763	16.1
1954	Male	14 902	1959	Male	5 745	38.6
	Female	9 431		Female	2 018	21.4
1955	Male	15 960	1960	Male	5 880	36.8
	Female	9 929		Female	2 190	22.1

Table IV-19 Colombia: *Enrolment in general secondary schools (public and private combined), by sex and year of study, 1953-1960*

Year	Sex	Number of pupils enrolled, by year of study					
		1st	2nd	3rd	4th	5th	6th
1953	Male	14 252	8 591	6 225	4 846	3 465	2 649
	Female	10 921	5 880	3 830	2 676	1 387	896
1954	Male	14 902	9 977	7 365	5 453	3 973	3 047
	Female	9 431	6 178	4 273	2 570	1 479	1 299
1955	Male	15 960	10 888	8 242	6 446	4 745	3 597
	Female	9 929	6 919	4 800	3 103	1 608	1 210
1956	Male	19 844	13 677	10 415	8 125	6 137	4 695
	Female	10 832	7 498	5 253	3 559	1 914	1 400
1957	Male	22 612	15 233	12 172	9 405	6 750	5 295
	Female	12 552	8 689	6 443	4 447	2 378	1 651
1958	Male	23 812	16 187	12 512	10 114	7 448	5 685
	Female	14 132	9 215	6 651	4 620	2 670	1 995
1959	Male	27 043	18 634	14 218	11 280	8 653	6 629
	Female	14 661	10 448	7 135	4 973	2 725	2 098
1960	Male	29 718	20 090	15 542	12 181	9 114	6 952
	Female	16 245	11 361	8 091	5 521	3 193	2 321

Table IV-20 Colombia: *Approximate grade retention ratios in all general secondary schools, by sex and year of study, 1953-1960*
(Percentage ratios)

Cohort	Sex	Approximate retention ratios between years of study				
		1st and 2nd	2nd and 3rd	3rd and 4th	4th and 5th	5th and 6th
1953	Male	70.00	85.73	87.60	81.99	87.94
	Female	56.57	72.67	67.10	55.27	92.98
1954	Male	73.06	82.61	87.52	87.02	90.54
	Female	73.36	77.70	72.62	62.57	81.81
1955	Male	85.70	95.66	98.58	95.21	98.95
	Female	75.52	75.92	74.15	61.68	87.06
1956	Male	76.76	89.00	90.30	83.08	86.28
	Female	80.22	85.93	84.66	66.82	86.26
1957	Male	71.59	82.14	83.09	79.19	84.22
	Female	73.41	76.55	71.71	60.04	83.89
1958	Male	78.25	87.84	90.15	85.55	89.00
	Female	73.93	77.43	74.77	58.98	78.58
1959	Male	74.29	83.41	85.67	80.80	80.34
	Female	77.49	77.44	77.38	64.21	85.17
Average: 1953-1959	Male	75.66	86.63	88.99	84.69	88.18
	Female	72.93	77.66	74.63	61.37	85.11

Source: Calculated from data in table IV-19.

Since our data on enrolment in teacher training schools and various types of vocational secondary schools are not homogeneous, we shall not try to work out even approximate retention ratios. However, we shall note, in the case of teacher training schools, that the number of pupils who passed their final examination each year during the most recent years were: 1,578 in 1958; 1,838 in 1959; and 2,099 in

1960. These numbers represent about 50 per cent of the number of pupils who began their training in the period 1953-1955, five years earlier. Compared with the total number of pupils enrolled in all teacher training schools during the earlier period, the proportion of those completing their training five years later was about 18 per cent, as shown below:

Year	Total enrolment in all teacher training schools (a)	Number of pupils in first year of study (b)	Year	Number who passed final examination (c)	(c) as % of (b)	(c) as % of (a)
1953	8 611	3 190	1958	1 578	49.5	18.3
1954	9 869	3 580	1959	1 838	51.3	18.6
1955	11 802	4 324	1960	2 099	48.5	17.8

Adding together the pupil enrolment in all types of schools at the second level - general, teacher training and vocational - and comparing the number of pupils enrolled with official estimates of the

population 15-19 years of age, we note the steady increase in the secondary enrolment ratio from about 9 in 1951 to about 18 in 1960, as follows.

Year	Population 15-19 years of age according to Census (C) or official estimate (E) (thousands)	Total enrolment of pupils in all schools at the second level (thousands)	Secondary enrolment ratio (per cent)
1951	(C) 1 150	107	9
1956	(E) 1 289	181	14
1957	(E) 1 318	192	15
1958	(E) 1 347	215	16
1959	(E) 1 377	233	17
1960	(E) 1 408	254	18

3. ESTIMATING FUTURE SCHOOL ENROLMENT

Having analysed the basic data available concerning school enrolment at the first and second levels of education, we shall now proceed to make some reasonable estimates of future enrolment of pupils at these levels. We shall first estimate the probable size of total enrolment in all primary schools for each year between 1961 and 1966, and thereafter at five-year intervals for 1971, 1976 and 1981. For this purpose we shall make use of the various ratios worked out in the preceding section, concerning regular progression of pupils from one grade to the next, the percentage of pupils who repeat their grades, and the proportion of pupils who remain in school after passing through each grade.

We have seen from our preliminary analysis that,

starting with a given cohort of 10,000 pupils in grade 1 and applying the *average* grade retention ratios, we might expect some 7,300 of them to remain in school after one year; about 4,800 to remain in school after two years; about 3,700 to remain after three years; nearly 2,900 to remain after four years; and about 300 who would still be in school after five years. There are, however, two sources of error in this approximate procedure. The first is due to the nature of the average ratios, which were based on the combined experience of 7 or 8 different cohorts. The actual experience of a given cohort, as it moves through the entire school course, may be quite different from what is implied by the average ratios. The second source of error is due to the complications arising from the fact that a pupil may repeat a grade more than once, whereas the application of the

average ratios implies that all repeaters share the same experience as non-repeaters once they are grouped together in the same grade. The net effect of these sources of error is likely to underestimate the number of pupils remaining in school, mainly as repeaters, after the first year or two.

Wherever possible, therefore, it would be advisable to carry out a grade cohort analysis over a period of years - as much as twice the duration of the full primary school course - in order to establish overall school retention ratios which could serve as a guide for the estimation of future enrolment. We shall illustrate this procedure with two examples

based on available data for Colombia: analysis of a grade 1 cohort of male pupils from 1955 to 1960; and of a cohort of both sexes from 1952 to 1960.

In order to provide for the possibility of some pupils repeating a grade more than once, but still keep our computations within realistic bounds, let us make an arbitrary assumption that pupils might repeat no more than three times in grade 1 or grade 2 and no more than twice in any of the higher grades.¹

Now let us take a cohort of male pupils enrolled in grade 1 in 1955, starting with a round number of 10,000:

1955: Cohort of male pupils in grade 1 10 000

From table IV-11 and table IV-12, we find that the grade progression ratio for a male cohort in 1955 between grades 1 and 2 was 43.81 per cent, and repeaters from the same cohort in grade 1 the next year was 27.30 per cent. Hence we put down, as pupils from our cohort remaining in school in 1956.

1956: Pupils progressed from grade 1 to grade 2 (.4381 x 10,000)	4 381
First-time repeaters in grade 1 (.2730 x 10,000)	2 730
Total remaining in school	<u>7 111</u>

Again from tables IV-11 and IV-12, we find that the grade progression ratio and percentage of repeaters applicable to grade 2 pupils in 1956 were, respectively, 40.77 and 24.17. These ratios we shall apply to the 4,381 pupils who had previously passed to grade 2. The respective ratios applicable to grade 1 pupils in 1956 were 44.61 and 26.95, which we shall apply to the 2,730 pupils who had repeated grade 1.

1957: Pupils progressed from grade 2 to grade 3 (.4077 x 4,381)	1 786
First-time repeaters in grade 2 (.2417 x 4,381)	1 059
Pupils progressed from grade 1 to grade 2 (.4461 x 2,730)	1 218
Second-time repeaters in grade 1 (.2695 x 2,730)	736
Total remaining in school	<u>4 799</u>

Following similar routine, we arrive at the numbers of pupils remaining in school in succeeding years, as following:

1958: Pupils progressed from grade 3 to grade 4 (.6148 x 1,786)	1 098
First-time repeaters in grade 3 (.1575 x 1,786)	281
Pupils progressed from grade 2 to grade 3 (.4182 x 2,277)	952
Second-time repeaters in grade 2 (.2390 x 1,059)	253
First-time repeaters in grade 2 (.2390 x 1,218)	291
Pupils progressed from grade 1 to grade 2 (.4505 x 736)	332
Third-time repeaters in grade 1 (.2752 x 736)	203
Total remaining in school	<u>3 410</u>
1959: Pupils progressed from grade 4 to grade 5 (.7042 x 1,098)	773
First-time repeaters in grade 4 (.0972 x 1,098)	107

1. Theoretically, under such an assumption a pupil might spend a maximum of 4 years in each of the first two grades, and a maximum of 3 years in each of the higher grades, making a total of 17 years spent in primary school!

Of course this would be inconceivable, but we propose to make such an assumption mainly in order to facilitate our computation for purposes of illustration.

Pupils progressed from grade 3 to grade 4 (.6332 x 1,233)	781
Second-time repeaters in grade 3 (.1361 x 281)	38
First-time repeaters in grade 3 (.1361 x 952)	130
Pupils progressed from grade 2 to grade 3 (.4440 x 876)	389
Third-time repeaters in grade 2 (.2287 x 253)	58
Second-time repeaters in grade 2 (.2287 x 291)	67
First-time repeaters in grade 2 (.2287 x 332)	76
Pupils progressed from grade 1 to grade 2 (.4485 x 203)	91
Fourth-time repeaters in grade 1 (none)	-
Total remaining in school	2 510

1960. First-time repeaters in grade 5 (.1139 x 773)	88
Pupils progressed from grade 4 to grade 5 (.6400 x 888)	568
Second-time repeaters in grade 4 (.1317 x 107)	14
First-time repeaters in grade 4 (.1317 x 781)	103
Pupils progressed from grade 3 to grade 4 (.6186 x 557)	345
Third-time repeaters in grade 3 (none)	-
Second-time repeaters in grade 3 (.1719 x 130)	22
First-time repeaters in grade 3 (.1719 x 389)	67
Pupils progressed from grade 2 to grade 3 (.4457 x 292)	130
Fourth-time repeaters in grade 2 (none)	-
Third-time repeaters in grade 2 (.2515 x 67)	17
Second-time repeaters in grade 2 (.2515 x 76)	19
First-time repeaters in grade 2 (.2515 x 91)	23
Total remaining in school	1 396

Thus we may conclude that, for our cohort of male pupils in grade 1 in 1955, the over-all school retention ratios were as follows:

After the first year	71.11 per cent
After the second year	47.99 per cent
After the third year	34.10 per cent
After the fourth year	25.10 per cent
After the fifth year	13.96 per cent

We have carried out a similar analysis for a cohort of female pupils over the same period, and came to the following over-all school retention ratios:

After the first year	71.78 per cent
After the second year	48.96 per cent
After the third year	35.05 per cent

After the fourth year 26.48 per cent
After the fifth year 14.77 per cent

One might say that relatively more girls remained in school from year to year, but the difference between the sexes is not substantial.

In order to get a longer perspective, we shall now follow the progress of a cohort for eight years, from 1952 to 1960. Since the difference between the sexes was seen to be relatively small, we shall take a cohort of both sexes together. Again we shall be using the grade progression ratios and percentages of repeaters as given in tables IV-11 and IV-12. Without further explanations, we shall show the computational steps and results as follows:

1952: Cohort of pupils, both sexes, in grade 1	10 000
1953: Pupils progressed from grade 1 to grade 2 (.4827 x 10,000)	4 827
First-time repeaters in grade 1 (.3001 x 10,000)	3 001
Total remaining in school	7 828
1954: Pupils progressed from grade 2 to grade 3 (.3750 x 4,827)	1 810
First-time repeaters in grade 2 (.2507 x 4,827)	1 210
Pupils progressed from grade 1 to grade 2 (.4391 x 3,001)	1 318
Second-time repeaters in grade 1 (.2773 x 3,001)	832
Total remaining in school	5 170

1955: Pupils progressed from grade 3 to grade 4 (.5958 x 1,810)	1 078
First-time repeaters in grade 3 (.1637 x 1,810)	296
Pupils progressed from grade 2 to grade 3 (.4062 x 2,528)	1 027
Second-time repeaters in grade 2 (.2572 x 1,210)	311
First-time repeaters in grade 2 (.2572 x 1,318)	339
Pupils progressed from grade 1 to grade 2 (.4563 x 832)	380
Third-time repeaters in grade 1 (.2781 x 832)	231
Total remaining in school	<u>3 662</u>
1956: Pupils progressed from grade 4 to grade 5 (.6619 x 1,078)	714
First-time repeaters in grade 4 (.1133 x 1,078)	122
Pupils progressed from grade 3 to grade 4 (.5964 x 1,323)	789
Second-time repeaters in grade 3 (.1509 x 296)	45
First-time repeaters in grade 3 (.1509 x 1,027)	155
Pupils progressed from grade 2 to grade 3 (.4033 x 1,030)	415
Third-time repeaters in grade 2 (.2431 x 311)	76
Second-time repeaters in grade 2 (.2431 x 339)	82
First-time repeaters in grade 2 (.2431 x 380)	92
Pupils progressed from grade 1 to grade 2 (.4478 x 231)	103
Fourth-time repeaters in grade 1 (none)	-
Total remaining in school	<u>2 593</u>
1957: First-time repeaters in grade 5 (.1014 x 714)	72
Pupils progressed from grade 4 to grade 5 (.6549 x 911)	597
Second-time repeaters in grade 4 (.1148 x 122)	14
First-time repeaters in grade 4 (.1148 x 789)	-
Pupils progressed from grade 3 to grade 4 (.6085 x 615)	374
Third-time repeaters in grade 3 (none)	-
Second-time repeaters in grade 3 (.1542 x 155)	24
First-time repeaters in grade 3 (.1542 x 415)	64
Pupils progressed from grade 2 to grade 3 (.4122 x 353)	146
Fourth-time repeaters in grade 2 (none)	-
Third-time repeaters in grade 2 (.2422 x 82)	20
Second-time repeaters in grade 2 (.2422 x 92)	22
First-time repeaters in grade 2 (.2422 x 103)	25
Total remaining in school	<u>1 449</u>
1958: Second-time repeaters in grade 5 (.1039 x 72)	7
First-time repeaters in grade 5 (.1039 x 597)	62
Pupils progressed from grade 4 to grade 5 (.6749 x 479)	323
Third-time repeaters in grade 4 (none)	-
Second-time repeaters in grade 4 (.1198 x 91)	11
First-time repeaters in grade 4 (.1198 x 374)	45
Pupils progressed from grade 3 to grade 4 (.6155 x 234)	144
Third-time repeaters in grade 3 (none)	-
Second-time repeaters in grade 3 (.1565 x 64)	10
First-time repeaters in grade 3 (.1565 x 146)	23

Pupils progressed from grade 2 to grade 3 (.4220 x 67)	28
Fourth-time repeaters in grade 2 (none)	-
Third-time repeaters in grade 2 (.2390 x 22)	5
Second-time repeaters in grade 2 (.2390 x 25)	6
Total remaining in school	664
1959: Third-time repeaters in grade 5 (none)	-
Second-time repeaters in grade 5 (.0673 x 62)	4
First-time repeaters in grade 5 (.0673 x 323)	22
Pupils progressed from grade 4 to grade 5 (.7340 x 200)	147
Third-time repeaters in grade 4 (none)	-
Second-time repeaters in grade 4 (.0887 x 45)	4
First-time repeaters in grade 4 (.0887 x 144)	13
Pupils progressed from grade 3 to grade 4 (.6384 x 61)	39
Third-time repeaters in grade 3 (none)	-
Second-time repeaters in grade 3 (.1328 x 23)	3
First-time repeaters in grade 3 (.1328 x 28)	4
Pupils progressed from grade 2 to grade 3 (.4432 x 11)	5
Fourth-time repeaters in grade 2 (none)	-
Third-time repeaters in grade 2 (.2248 x 6)	1
Total remaining in school	242
1960: Third-time repeaters in grade 5 (none)	-
Second-time repeaters in grade 5 (.1117 x 22)	2
First-time repeaters in grade 5 (.1117 x 147)	16
Pupils progressed from grade 4 to grade 5 (.6647 x 56)	37
Third-time repeaters in grade 4 (none)	-
Second-time repeaters in grade 4 (.1317 x 13)	2
First-time repeaters in grade 4 (.1317 x 39)	5
Pupils progressed from grade 3 to grade 4 (.6287 x 12)	8
Third-time repeaters in grade 3 (none)	-
Second-time repeaters in grade 3 (.1722 x 4)	1
First-time repeaters in grade 3 (.1722 x 5)	1
Pupils progressed from grade 2 to grade 3 (.4528 x 1)	0
Fourth-time repeaters in grade 2 (none)	-
Total remaining in school	72

Summing up, we may say that, for our cohort of pupils in grade 1 in 1952, the overall retention ratios were as follows.¹

After the first year	78.28 per cent
After the second year	51.70 per cent
After the third year	36.62 per cent
After the fourth year	25.93 per cent
After the fifth year	14.49 per cent
After the sixth year	6.64 per cent
After the seventh year	2.42 per cent
After the eighth year	0.72 per cent

Keeping the same assumption regarding repeaters, and using the same grade progression ratios and percentages of repeaters by grade as shown in table IV-11 and IV-12, we shall follow each of the cohorts starting in grade 1 during the period 1952 to 1959

until the year 1960, which is as far as our available data could take us. The results are shown in table IV-21, where each line represents the experience of one cohort. The cohort of 1952 has been followed for nine years; that of 1959, only two. The average

1. Compared with the retention ratios obtained for the 1955 cohort, these results show a higher degree of school retention on the whole; and because we have followed the progress of the cohort over a longer period of time, we have discovered that even after the eighth year, almost 1 per cent of the original cohort could still be found in school. This is most likely a direct result of our assuming the possibility of third-time repeaters in the first two grades. If we had limited repeaters to no more than twice in any grade, we would probably have exhausted our cohort after the seventh year.

experience of the eight different cohorts is summarized in the second line from the bottom of the table.¹

For our purpose, as will be clear presently, we prefer not to use these average ratios, but to take the respective ratio of the latest cohort in each column. These figures are reproduced in the last line of table IV-21. If our assumptions are valid, by applying these ratios to the actual numbers of new

pupils in grade 1 of the respective years, and adding in the entire cohort of new pupils in grade 1 for 1960, we should be able to obtain the total enrolment in all grades for 1960. Let us see how it works.

1. Note that each average percentage ratio is based on a different number of cohorts: eight for the first, seven for the next, and so on. The last figure in this line is simply the experience of one cohort, that of 1952.

From the cohort of new pupils in grade 1:		Take the following percentages:	We obtain the number of pupils remaining in 1960:
Year	Number		
1952	351 001	0.72	2 527
1953	393 078	2.27	8 923
1954	414 219	6.33	26 220
1955	454 820	14.41	65 540
1956	474 818	26.79	127 204
1957	488 602	37.36	182 542
1958	540 745	50.85	274 969
1959	553 573	74.50	412 412
1960	578 740	100.00	578 740
Total			1 679 077

Table IV-21 Colombia: *School retention ratios in all primary schools, 1952-1960*

(Percentage ratios)

Cohort of new pupils in grade 1 of year	Percentage of cohort remaining in school after:							
	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years
1952	78.28	51.70	36.62	25.93	14.49	6.64	2.42	0.72
1953	71.64	49.49	34.32	24.64	13.97	6.20	2.27	...
1954	73.44	49.35	34.78	25.49	14.27	6.33	...	...
1955	71.44	48.47	34.62	25.81	14.41	...	...	...
1956	71.89	49.32	35.21	26.79	...	...	...	...
1957	73.01	49.82	37.36	...	...	...	...	...
1958	70.71	50.85	...	...	...	...	...	...
1959	74.50	...	...	...	...	...	...	...
<i>Average cohort:</i>								
1952-1959	73.11	49.86	35.48	25.73	14.28	6.39	2.35	0.72
<i>Latest cohort:</i>								
1952-1959	74.50	50.85	37.36	26.79	14.41	6.33	2.27	0.72

Compared with the total enrolment reported for 1960, which is 1 690 361, our reconstructed total is short by less than 1 per cent.¹ This small discrepancy, due partly to inevitable errors of rounding and partly to our assumptions concerning repeaters, need not deter us from using the results of our cohort analysis for the purpose of estimating future school enrolment.²

Here we must pause to make some other necessary assumptions. We find that the cohort of new pupils in grade 1 has increased steadily from 351 000 in 1952 to 579 000 in 1960 (see Table IV-10). The annual increase in the size of the new cohort has varied between 13 000 and 52 000, averaging 28 000 over the period 1952-1960. Since the total number of children 5-9 years of age, according to available estimates (see Table IV-33), has increased some 60 000 each year, this means that the increase in the annual cohort of new pupils had absorbed almost up to 50 per cent of the increase in the population 5-9 years of age. This was possible only by taking into the cohort of new pupils, children who were above or below normal age, as well as those who were at the normal age for beginning primary school. As time goes on, we assume that there would be less and less of the over-aged children deprived of their opportunity to enter primary school at the proper time. Hence the proportion of the additional children to be absorbed by the cohort of new pupils would decrease rather than increase, until such time when practically all the children in the cohort of new pupils would be approximately at the normal age for beginning primary school. For this reason we shall assume that each cohort of new pupils between 1961 and 1966 will continue to increase by 25 000 each year; between 1966 and 1971 by an average of 20 000 each year; between 1971 and 1976 by 15 000 each year; and between 1976 and 1981 by 10 000 each year.

Furthermore, we shall assume that the school retention ratios would remain substantially unchanged for the next five years.³ On the basis of these assumptions, we arrive at estimates of total primary school enrolment for each of the years 1961-1965, as shown in Table IV-22.

The first column of Table IV-22 gives the year, and the second column the size of each cohort of new pupils in grade 1 which are taken into consideration in our estimates. The succeeding columns show the percentage retention ratio applied to each respective cohort, and the resulting number of pupils expected to be remaining in school. This operation is carried out for each of the years 1961-1965. The sums of the numbers, which appear in the last line of the table, are our estimates of the total primary school enrolment for these respective years.

Taking the year 1961, for example, we first apply a ratio of 10 per cent, which comes from adding up the small percentage ratios (0.72 + 2.27 + 6.33) and rounding upwards, to the average size of the cohorts 1953, 1954 and 1955. That gives us an estimated 42 000 pupils from those particular cohorts remaining in 1961. Then we apply the ratio 15 (rounded up from our computed ratio of 14.41) to the cohort of 1956, which gives us 71 000 pupils. The next number, 132 000, comes from applying a ratio of 27 (rounded up from 26.79) to the 1957 cohort; and so on. The sum of the numbers (1 772 000) represents our estimate of the total primary school enrolment in 1961.

Before we proceed with further estimates for the period 1966-1981, we must make some additional assumptions concerning future school retention ratios. Without entering into discussions about school policies regarding pupil wastage in the form of drop-outs and repeaters, we would assume that the school authorities would undoubtedly wish to achieve the goal of reaching maximum retention ratios as soon as possible. We shall therefore assume a gradual increase of grade retention ratios from the present level of 70-80 to a goal of 95 by 1981, if not earlier. On the other hand, we shall assume a reduction of grade 5 repeaters from the present level of about 10 per cent to a goal of 5 per cent by 1976 or earlier. (see Table IV-23).

Under these additional assumptions we may estimate future school retention ratios to increase progressively as shown in Table IV-24. It is implicit in our assumptions that by 1981, if not earlier, there would be no more than 5 per cent of pupils who drop out of school at any grade level (including drop-outs due to death, mental and physical incapacity, and any other causes).

1. If we had started with the total grade 1 cohort of 1952, instead of new pupils only (which would have been theoretically more correct), our result would have come to 1 679 914 - still about 10 000 below the reported enrolment in 1960.
2. If the discrepancy had been substantially larger, we would have been obliged to re-examine our basic data and assumptions, and to modify as may be necessary our computed retention ratios.
3. To save space and computational work, we shall use only rounded percentages and, in addition, we shall add together the small percentages to be applied to cohorts farthest back from the year for which we are going to make our estimates. By rounding each percentage ratio *upward*, we have in fact introduced a slight adjustment in view of the small discrepancy noted above.

Table IV-22 Colombia: *Estimated enrolment in all primary school, 1961-1965*

(Thousands of pupils)

Cohort of new pupils in grade 1		Pupils from each cohort remaining in school									
		1961		1962		1963		1964		1965	
Year	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number
1953	393	.	.	.	.	.	.	.	.	.	.
1954	414	.	.	.	.	.	.	.	.	.	.
1955	455	.	.	.	.	.	.	.	.	.	.
Average:											
1953-1955	(421)	10	42	.	.	.	.	.	.	.	.
1956	475	15	71	.	.	.	.	.	.	.	.
Average:											
1954-1956	(448)	.	.	10	45	.	.	.	.	.	.
1957	489	27	132	15	73	.	.	.	.	.	.
Average:											
1955-1957	(473)	.	.	.	.	10	47	.	.	.	.
1958	541	38	206	27	146	15	81	.	.	.	.
Average:											
1956-1958	(501)	.	.	.	.	.	.	10	50	.	.
1959	554	51	283	38	211	27	150	15	83	.	.
Average:											
1957-1959	(528)	.	.	.	.	.	.	.	.	10	53
1960	579	75	434	51	295	38	220	27	156	15	87
1961	*604	100	604	75	453	51	308	38	230	27	163
1962	*629	.	.	100	629	75	472	51	321	38	239
1963	*654	.	.	.	.	100	654	75	491	51	334
1964	*679	.	.	.	.	.	.	100	679	75	509
1965	*704	.	.	.	.	.	.	.	.	100	704
Total estimated enrolment:			1 772		1 852		1 932		2 010		2 089

* Estimated.

Table IV-23 Colombia: *Assumed grade retention ratios in all primary schools, 1961 to 1981 and after, by period and grades.*

(Percentage ratios)

Period	Assumed retention ratio between grades				Repeaters grade 5
	1 and 2	2 and 3	3 and 4	4 and 5	
1961-1965	75	70	80	80	10
1966-1970	80	75	80	80	10
1971-1975	85	80	85	85	10
1976-1980	90	85	90	90	5
1981 and after	95	95	95	95	5

Table IV-24 Colombia: *Assumed school retention ratios in all primary schools, 1961 to 1981 and after, by period and years*

(Percentage ratios)

Cohort of new pupils in grade 1 of each year during period	Assumed percentage of pupils remaining in school after					
	One year	Two years	Three years	Four years	Five years	Six years or more
1961-1965	75	51	38	27	15	10
1966-1970	80	60	48	38	10	5
1971-1975	85	68	58	49	5	-
1976-1980	90	77	69	62	5	-
1981 and after	95	90	86	82	4	-

Now, using the same technique as before, we apply these assumed retention ratios to our estimated cohorts of new pupils in grade 1 each year from 1961 to 1981, and arrive at estimates of total enrolment in primary schools for 1966, 1971, 1976 and 1981. (See table IV-25)

Thus far we have dealt with all primary schools together, both public and private, urban and rural. We might have worked out separately the school retention ratios for urban and rural schools, since we would expect the cohort experiences to be distinctly different between the urban and rural schools. However, even though the primary school is of five years' duration, more than half of the urban schools provide less than five years of schooling, and all but a few of the rural schools, only up to 2 or 3 years of instruction. Hence there must be a large number of pupils who transfer from one type of school to the other during the course of their primary schooling. Furthermore, the distribution of the total population

of the country between urban and rural areas will certainly be changing during the next 20 years. We have therefore not attempted to make independent estimates of urban and rural school enrolment separately.

Nevertheless, we note from table IV-3 that the proportion of total primary school enrolment in urban schools has steadily increased from 49 per cent in 1946 to 62 per cent in 1960. On the assumption that this proportion could still increase to about 64 per cent by 1976 and remain at that level until 1981, we can distribute our estimated primary school enrolment for the entire country according to these proportions and arrive at some tentative estimates as follows (in thousands of pupils):¹

1. In these estimates, the assumed percentage of enrolment in urban schools has been arbitrarily held to a very modest rise, from 62 to 64 per cent, in order to provide for a larger emphasis on the development of rural schools.

Year	Estimated total enrolment in all primary schools	Assumed percentage in urban schools	Estimated enrolment in urban schools	Estimated enrolment in rural schools
		%		
1961	1 772	62	1 099	673
1962	1 852	62	1 148	704
1963	1 932	62	1 198	734
1964	2 010	62	1 246	764
1965	2 089	62	1 295	794
1966	2 173	63	1 369	804
1971	2 723	63	1 715	1 008
1976	3 207	64	2 052	1 155
1981	3 771	64	2 413	1 358

Table IV-25 Colombia: *Estimated enrolment in all primary schools, 1966, 1971, 1976, and 1981*

(Thousands of pupils)

Estimated cohort of new pupils in grade 1		Pupils from each cohort remaining in school							
		1966		1971		1976		1981	
Year	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number
1961	604	25	151	.	.	.	.	.	.
1962	629	27	170	.	.	.	.	.	.
1963	654	38	249	.	.	.	.	.	.
1964	679	51	346	.	.	.	.	.	.
1965	704	75	528	.	.	.	.	.	.
1966	729	100	729	15	109	.	.	.	.
1967	753	.	.	38	286	.	.	.	.
1968	775	.	.	48	372	.	.	.	.
1969	795	.	.	60	477	.	.	.	.
1970	813	.	.	80	650	.	.	.	.
1971	829	.	.	100	829	5	41	.	.
1972	844	.	.	.	.	49	414	.	.
1973	859	.	.	.	.	58	498	.	.
1974	874	.	.	.	.	68	594	.	.
1975	889	.	.	.	.	85	756	.	.
1976	904	.	.	.	.	100	904	5	45
1977	914	.	.	.	.	.	.	62	565
1978	924	.	.	.	.	.	.	69	638
1979	934	.	.	.	.	.	.	77	719
1980	944	.	.	.	.	.	.	90	850
1981	954	.	.	.	.	.	.	100	954
<i>Total estimated enrolment:</i>			2 173		2 723		3 207		3 771

Similarly, if we assume that the proportion of total enrolment in public primary schools will remain approximately at the present level of 85 per cent (leaving 15 per cent in private schools), we can distribute our estimated total enrolment as between public and private schools in the following tentative manner (in thousands of pupils):¹

1. We have no intention of suggesting either the maintenance or the changing of the proportional distribution between public and private school enrolment in Colombia. The present exercise is merely for purposes of illustration.

Year	Estimated total enrolment in all primary schools	Assumed percentage in public schools	Estimated enrolment in public schools	Estimated enrolment in private schools
		%		
1961	1 772	85	1 506	266
1962	1 852	85	1 574	278
1963	1 932	85	1 642	290
1964	2 010	85	1 708	302
1965	2 089	85	1 776	313
1966	2 173	85	1 847	326
1971	2 723	85	2 315	408
1976	3 207	85	2 726	481
1981	3 771	85	3 205	566

In the last section of this chapter we shall apply some tests to see if our various estimates are reasonable. For the moment let us turn our attention to the second level of education dealing first with general secondary schools, then the teacher training schools, and finally the vocational schools.

Unlike the situation with the primary school enrolment, we are handicapped in not having available the number of repeaters in the general secondary schools. There are data on the number of pupils who sat for examinations and those who passed these examinations at the end of each year of study, but even these figures are not distributed by year of study except for the years 1957-1960. In any case, we can only estimate approximately the school retention ratios from the grade retention ratios between years of study as found in table IV-20. Under an assumption that the number of repeaters are fairly constant from one year of study to the next, we can compute approximate school retention ratios by following a cohort of pupils in their first year of study in 1952 through their second year of study in 1953, and so on. Because there is substantial difference in the experience of male and female pupils, we shall work out retention ratios separately for the two sexes.

Table IV-26 gives the approximate retention ratios thus obtained for seven different cohorts of each

sex who began their first year of study during the years 1953-1959. The last two lines sum up the experience of a number of cohorts, varying from seven to three. We have the choice of either using these average ratios, or the ratios of the latest cohorts in each column. Another alternative would be to use the average ratios of the three latest cohorts in each column. Since all these ratios in table IV-26 are approximate in nature, we shall simply take the average ratios as given in the last two lines of the table, and proceed to apply them in making our estimates of the future enrolment in all general secondary schools. We shall assume that the annual cohort of pupils in their first year of study will increase by, 5 000 male and 3 000 female pupils each year between 1961 and 1966; and will further increase by 6 000 male and 4 500 female pupils each year until 1971; by 7 000 male and 6 000 female pupils each year until 1976; and by 8 000 male and 7 000 female pupils each year until 1981.¹ The results, rounded to the nearest hundred, are shown in table IV-27.

1. As elsewhere in this chapter, these assumptions are made for illustrative purposes only. It is implied that the difference between the sexes regarding access to general secondary schools will tend to decrease, though not disappear altogether.

Table IV-26 Colombia: *Approximate school retention ratios in all general secondary schools, by sex, 1953-1960*

(Percentage ratios)

Cohort of pupils in first year of study	Sex	Assumed percentage of pupils remaining after				
		1 year	2 years	3 years	4 years	5 years
1953	Male	70.00	57.83	57.01	47.36	39.89
	Female	56.57	43.95	32.59	21.77	18.27
1954	Male	73.06	69.89	63.11	49.98	44.48
	Female	73.36	55.70	47.15	28.31	22.25
1955	Male	85.70	76.27	63.37	54.22	43.56
	Female	75.52	64.89	46.53	27.44	23.38
1956	Male	76.76	63.05	56.84	45.93	...
	Female	80.22	61.40	45.91	29.48	...
1957	Male	71.59	62.88	53.87	...	...
	Female	73.41	56.84	43.99	...	...
1958	Male	78.25	65.27	...	...	...
	Female	73.93	57.25	...	...	...
1959	Male	74.29	...	...	...	...
	Female	77.49	...	...	...	...
<i>Average cohort:</i>	Male	75.66	65.87	58.84	49.37	42.64
	Female	72.93	56.67	43.23	26.75	21.30

Again, before we continue with our estimates for future years after 1965, we shall adopt certain assumptions regarding retention ratios such that by 1981 or earlier, they would be 95 for both sexes as between one year of study and the next (see table IV-28). Based on such assumptions, we arrive at the assumed percentage of each cohort remaining in school after one up to five years (see table IV-29). We have made no explicit provision for pupils to repeat their last year of study after the sixth year in school, though it would not have made any substantial difference to our final estimates of future enrolment, because the number of such repeaters would have been rather small.

Table IV-30 presents our estimates of future enrolment in all general secondary schools for 1966,

1971, 1976 and 1981, showing how these estimates were obtained.

Thus far have explained and illustrated the method of estimating future school enrolment by the use of school retention ratios, as applied to the available data relating to primary schools and to general secondary schools. In order to estimate the future enrolment in teacher training schools, it would be advisable to use a different approach, based on the number of teachers who will be required in future years in view of our estimated future enrolment in primary schools. Attention must be given also to the requirement of new teachers to replace those leaving the teaching service through death, retirement, resignation and other causes.

Table IV-27 Colombia: *Estimated enrolment in all general secondary schools, 1961-1965, by year and sex of pupils*

(Thousands of pupils)

Cohort of all pupils in the first year of study		Sex	Pupils remaining in school during school year									
Year	No.		1961		1962		1963		1964		1965	
			%	No.	%	No.	%	No.	%	No.	%	No.
1956	19.8	Male	43	8.5	.	.	.	.	.	.	.	.
	10.8	Female	21	2.3	.	.	.	.	.	.	.	.
1957	22.6	Male	49	11.1	43	9.7	.	.	.	.	.	.
	12.6	Female	27	3.4	21	2.6	.	.	.	.	.	.
1958	23.8	Male	59	14.0	49	11.7	43	10.2	.	.	.	.
	14.1	Female	43	6.1	27	3.8	21	3.0	.	.	.	.
1959	27.0	Male	66	17.8	59	15.9	49	13.2	43	11.6	.	.
	14.7	Female	57	8.4	43	6.3	27	4.0	21	3.1	.	.
1960	29.7	Male	76	22.6	66	19.6	59	17.5	49	14.6	43	12.8
	16.2	Female	73	11.8	57	9.2	43	7.0	27	4.4	21	3.4
1961	*34.6	Male	100	34.6	76	26.3	66	22.8	59	20.4	49	17.0
	*18.8	Female	100	18.8	73	13.7	57	10.7	43	8.1	27	5.1
1962	*39.6	Male	.	.	100	39.6	76	30.1	66	26.1	59	23.4
	*21.8	Female	.	.	100	21.8	73	15.9	57	12.4	43	9.4
1963	*44.6	Male	.	.	.	.	100	44.6	76	33.9	66	29.4
	*24.8	Female	.	.	.	.	100	24.8	73	18.1	57	14.1
1964	*49.6	Male	.	.	.	.	.	.	100	49.6	76	37.7
	*27.8	Female	.	.	.	.	.	.	100	27.8	73	20.3
1965	*54.6	Male	.	.	.	.	.	.	.	.	100	54.6
	*30.8	Female	.	.	.	.	.	.	.	.	100	30.8
Total estimated enrolment:		Male		108.6		122.8		138.4		156.2		174.9
		Female		50.8		57.4		65.4		73.9		83.1
		Both sexes		159.4		180.2		203.8		230.1		258.0

* Estimated

Table IV-28 Colombia: *Assumed grade retention ratios in all general secondary schools, 1961 to 1981 and after, by period and sex*

(Percentage ratios)

Period	Sex	Assumed retention ratios between years of study				
		I and II	II and III	III and IV	IV and V	V and VI
1961-1965	Male	80	90	90	85	90
	Female	75	80	75	65	85
1966-1970	Male	80	90	90	90	90
	Female	80	85	80	70	90
1971-1975	Male	85	90	90	90	90
	Female	85	85	85	80	90
1976-1980	Male	90	95	95	95	95
	Female	90	90	90	90	95
1981 and after	Male	95	95	95	95	95
	Female	95	95	95	95	95

Table IV-29 Colombia: *Assumed school retention ratios in all general secondary schools, 1961 to 1981 and after, by period and sex*

(Percentage ratios)

Cohort of pupils in first year of study		Assumed percentage remaining in school after				
Period	Sex	1 year	2 years	3 years	4 years	5 years
1961-1965	Male	80	72	65	55	50
	Female	75	60	45	29	25
1966-1970	Male	80	72	65	59	53
	Female	80	68	54	38	34
1971-1975	Male	85	77	69	62	56
	Female	85	72	61	49	44
1976-1980	Male	90	86	82	78	74
	Female	90	81	73	66	63
1981 and after	Male	95	90	86	82	78
	Female	95	90	86	82	78

Table IV-30 Colombia: *Estimated enrolment in all general secondary schools, 1966, 1971, 1976, and 1981, by sex*

(Thousands of pupils)

Cohort of pupils in the first year of study			Remaining in school (1966)		Cohort of pupils in the first year of study			Remaining in school (1971)	
Year	Sex	Number	%	No.	Year	Sex	Number	%	No.
1961	Male	35	50	18	1966	Male	60	53	32
	Female	19	25	5		Female	34	34	12
1962	Male	40	55	22	1967	Male	66	59	39
	Female	22	29	6		Female	38	38	14
1963	Male	45	65	29	1968	Male	72	65	47
	Female	25	45	11		Female	42	54	23
1964	Male	50	72	36	1969	Male	78	72	56
	Female	28	60	17		Female	46	68	31
1965	Male	55	80	44	1970	Male	84	80	67
	Female	31	75	23		Female	51	80	41
1966	Male	60	100	60	1971	Male	90	100	90
	Female	34	100	34		Female	56	100	56
<i>Total enrolment (1971)</i>	Male			209	<i>Total enrolment</i>	Male			331
	Female			96		Female			177
	Both sexes			305		Both sexes			508

Cohort of pupils in the first year of study			Remaining in school (1976)		Cohort of pupils in the first year of study			Remaining in school (1981)	
Year	Sex	Number	%	No.	Year	Sex	Number	%	No.
1971	Male	90	56	50	1976	Male	125	74	93
	Female	56	44	25		Female	85	63	54
1972	Male	97	62	60	1977	Male	133	78	104
	Female	61	49	30		Female	92	66	61
1973	Male	104	69	72	1978	Male	141	82	116
	Female	67	61	41		Female	99	73	72
1974	Male	111	77	85	1979	Male	149	86	128
	Female	73	72	53		Female	106	81	86
1975	Male	118	85	100	1980	Male	157	90	141
	Female	79	85	67		Female	113	90	102
1976	Male	125	100	125	1981	Male	165	100	165
	Female	85	100	85		Female	120	100	120
<i>Total enrolment (1981)</i>	Male			492	<i>Total enrolment</i>	Male			747
	Female			301		Female			495
	Both sexes			793		Both sexes			1 242

The number of pupils we have estimated to be enrolled in primary schools during the 1961-1981 period are as follows: (1961) 1 772 000; (1966) 2 173 000; (1971) 2 723 000; (1976) 3 207 000; (1981) 3 771 000. How many teachers will be needed in those years?

We find that the average ratio of pupils per teacher in all primary schools combined has decreased from 42 in 1946 to 38 in 1960. If we assume a further reduction in this ratio to 35 by 1976, we obtain the following estimates of the total number of teachers required for the given years: ¹

Year	Estimated total enrolment in primary schools	Assumed ratio of pupils per teacher	Estimated number of teachers in service
1961	1 772 000	38	46 600
1966	2 173 000	37	58 700
1971	2 723 000	36	75 600
1976	3 207 000	35	91 600
1981	3 771 000	35	107 000

Therefore, for each of the five-year periods between those dates, the number of additional teachers required to meet the needs of increased enrolment may be estimated as follows:

Period	Number of additional teachers required during period	Average number of additional teacher required each year
1961-1966	12 100	2 400
1966-1971	16 900	3 400
1971-1976	16 000	3 200
1976-1981	16 100	3 200

In addition, there will be needed a certain number of new teachers each year to replace those who will be leaving the service through death, retirement, resignation and other causes. Let us assume that the average net length of service of a primary school teacher is ten years. This implies an annual replacement of 10 per cent of the teachers in service. Applying this replacement ratio to the estimated total teaching staff during the periods under discussion, we obtain:

1. It should be borne in mind that with further development of primary schools, especially in urban areas, the average pupil teacher ratio may in fact increase, but this would tend to be offset by the generally lower ratios in rural areas.

Period	Average number of teachers in service	Average number of teachers required for replacement
1961-1966	53 000	5 300
1966-1971	67 000	6 700
1971-1976	84 000	8 400
1976-1981	100 000	10 000

Adding together these two requirements, we may estimate the total number of new teachers needed, on the average, during those periods, as follows:

Period	Average annual requirement for new teachers		
	To meet the increase in primary school enrolment	For replacement of teachers leaving the service	Total
1961-1966	2 400	5 300	7 700
1966-1971	3 400	6 700	10 100
1971-1976	3 200	8 400	11 600
1976-1981	3 200	10 000	13 200

Since it takes from four to six years to train a primary school teacher in the teacher training schools, we have to anticipate the above teacher requirements by an average of five years, to arrive at estimates of the necessary enrolment in teacher training schools. We have found earlier, in our analysis of basic data, that the annual output of the teacher training schools has represented about 18 per cent of the training school enrolment five years before. This implies that there were on the average about 5.5 teachers in training in a given year to produce 1 trained teacher five years later.

Now this ratio of 5.5 trainees per teacher output is based on the combined data for two types of teacher training schools - the six-year higher teacher training schools and the four-year rural teacher training schools. In the next 20 years, it would be reasonable to assume that the standards of the rural teacher training schools would be raised to at least five or even six years. Therefore the ratio of trainees per teacher output may be estimated to rise from 5.5 to at least 6.0, say after 1965, and to 6.5 after 1975. Thus we can estimate the future enrolment in teacher training schools by applying these trainee / output ratios to the required number of new teachers each year during each five-year period, as follows:

Period	Average annual number of new teachers required	Assumed ratio of trainees per teachers output	Period	Required average enrolment in teacher training schools
1961-1966	7 700	5.5	1956-1961	42 000
1966-1971	10 100	5.5	1961-1966	56 000
1971-1976	11 600	6.0	1966-1971	70 000
1976-1981	13 200	6.0	1971-1976	79,000

To estimate the average enrolment needed in teacher training schools during the 1976-1981 period we have to make some further assumptions. Supposing that the total number of teachers required in 1986 will be something like 122 700, due to further increase in primary school enrolment and/or further reduction of the pupils per teacher ratio. This would mean an average annual requirement of about 14 500 new teachers (3 000 to meet the increase in enrolment; 11 500 for replacement). With an assumed ratio of 6.5 trainees per teacher output, the required average enrolment in teacher training schools for the 1976-1981 period will be about 94 000.

The actual enrolment in all teacher training schools has increased from 8 600 in 1953 to 28 000 in 1960, the average enrolment during the 1956-1960 period being 20 400. Obviously the expected output of new teachers during the next five years will not meet anticipated requirements as we have estimated them. We can suppose that the shortage will be made up by the recruitment of persons other than graduates of teacher training schools.

Even for the next five-year period, 1961-1965, it is difficult to envisage increasing the enrolment in teacher training schools fast enough to meet the requirement for new teachers for the period beginning in 1966. However, by rapidly expanding the teacher training schools between 1966 and 1970, it would be possible to envisage these schools producing enough trained teachers needed from 1971 onward. Under these assumptions we make the following estimates of total enrolment in teacher training schools for the period 1961-1981:

(1961)	32 000	(1966)	65 000
(1962)	37 000	(1971)	85 000
(1963)	43 000	(1976)	90 000
(1964)	50 000	(1981)	95 000
(1965)	58 000		

We have now estimated future enrolment in all primary schools, in general secondary schools and in teacher training schools, for the period 1961-1981.

For all types of vocational secondary schools, which are quite heterogeneous by nature and subject to changing conditions of supply and demand, we shall not attempt to make separate estimates of enrolment for each type of school. We shall use a simple expedient for estimating approximately the total enrolment in all types of vocational schools by assuming a constant relationship between vocational school enrolment and the total enrolment of all schools at the second level of education.

From data available for the period 1951-1960, we discover that the enrolment in all vocational schools has constituted between 32 and 41 per cent of all enrolment at the second level (see table IV-38). Assuming that this proportion will remain approximately at one-third for the entire period 1961-1981, we can add up our estimates for general secondary schools and teacher training schools for each given year, divide the sum by 2, and consider the result as our estimate of enrolment for all vocational schools taken together.

Finally, we arrive at our estimates of enrolment for all schools at the second level of education by taking the sum of our estimates for the three broad types of education in this level (see table IV-31).

Table IV-31 Colombia: *Estimated enrolment at the second level of education, by type, 1961-1981*

Year	Estimated enrolment in general secondary schools	Estimated enrolment in teacher training schools	Estimated enrolment in vocational secondary schools	Estimated total enrolment in all schools at the second level of education
	(a)	(b)	(c) = (a) + (b) ÷ 2	(d) = (a) + (b) + (c)
1961	159 000	32 000	96 000	287 000
1962	180 000	37 000	108 000	325 000
1963	204 000	43 000	124 000	371 000
1964	230 000	50 000	140 000	420 000
1965	258 000	58 000	158 000	474 000
1966	305 000	65 000	185 000	555 000
1971	508 000	85 000	297 000	890 000
1976	793 000	90 000	442 000	1 325 000
1981	1 242 000	95 000	669 000	2 006 000

Let us now put together the results of our estimates of future school enrolment in Colombia, at the first and second levels of education, for each of the years

1961-1965 and at five-year intervals from 1966 to 1981. This is shown in table IV-32, and in graphic form in chart IV-1.

Table IV-32 Colombia: *Estimated enrolment of pupils at the first and second levels of education, by level and type of education, 1961-1981.*

(Thousands of pupils)

Year	Estimated enrolment at first level: all primary schools	Estimated enrolment at second level			Estimated total enrolment at first and second level
		General secondary schools	Teacher training schools	Vocational secondary schools	
1961	1 772	159	32	96	2 059
1962	1 852	180	37	108	2 177
1963	1 932	204	43	124	2 303
1964	2 010	230	50	140	2 430
1965	2 089	258	58	158	2 563
1966	2 173	305	65	185	2 728
1971	2 723	508	85	297	3 613
1976	3 207	793	90	442	4 532
1981	3 771	1 242	95	669	5 777

4. TESTING THE ENROLMENT ESTIMATES

It remains for us to test the consistency and reasonableness of our enrolment estimates by comparing them with estimates of population in the relevant age groups and other pertinent data. The conscientious technician will not fail to note any inconsistency, discrepancy or unlikelihood shown up by these comparisons. He will then re-examine both his estimates and the other data used for comparison, and come to

some conclusion as to whether he should revise or modify his estimates accordingly.

In the present case we shall make use of a set of population estimates for Colombia prepared by the Secretariat of the United Nations Economic Commission for Latin America, covering the total population, by urban and rural areas and distributed by sex and age groups. We shall extract from these estimates those segments relating to population in three age groups: 5-9, 10-14 and 15-19 years of age. These estimates are shown in table IV-33.

Table IV-33 Colombia: *Estimated population 5-19 years of age, 1951-1981, by urban and rural areas, sex and age groups*

(Thousands of persons)

Year	Area	Male			Female		
		5-9	10-14	15-19	5-9	10-14	15-19
1951	Urban	268	229	208	271	260	271
	Rural	540	447	371	511	407	340
	Total	808	676	579	782	667	611
1956	Urban	361	294	292	399	333	354
	Rural	614	499	371	549	433	300
	Total	975	793	663	948	766	654
1961	Urban	492	389	360	520	462	427
	Rural	636	570	419	571	471	326
	Total	1 128	959	779	1 091	933	753
1966	Urban	631	518	459	651	580	556
	Rural	638	594	486	576	496	362
	Total	1 269	1 112	945	1 227	1 076	918
1971	Urban	787	656	591	801	712	680
	Rural	647	598	507	583	501	382
	Total	1 434	1 254	1 098	1 384	1 213	1 062
1976	Urban	982	814	734	991	872	819
	Rural	675	605	507	607	500	382
	Total	1 657	1 419	1 241	1 598	1 372	1 201
1981	Urban	1 230	1 013	899	1 234	1 066	989
	Rural	720	630	507	642	521	375
	Total	1 950	1 643	1 406	1 876	1 587	1 364

Source: United Nations. Economic Commission for Latin America. Secretariat paper entitled: "Proyección de la población urbana, población rural y fuerza trabajadora de Colombia", (5 de abril de 1960), appendix tables II and IV.

The first test we shall apply to our estimates of school enrolment is to compare them with the available estimates of population in the relevant age groups. We shall relate our estimates of primary school enrolment to the population 5-14 years of age; our estimates of enrolment at the second level to the population 15-19 years of age; and our estimates of total enrolment at the first and second levels to the population 5-19 years of age. This we shall do also with actual observed or reported data for 1951 and 1956. The results of these comparisons, expressed in the form of school enrolment ratios, are given in table IV-34. We note a steady rise of

the primary enrolment ratio from 30 in 1951 to 53 in 1981. A primary enrolment ratio of 53 implies that there will be 53 pupils enrolled in primary school for every 100 children 5-14 years of age. Since we have a five-year primary school on the one hand, and a ten-year age group of children on the other hand, such an enrolment ratio would seem plausible, if we suppose that, even by 1981, there will still be a certain amount of retardation resulting in over-aged pupils in the various grades of the primary school. (See tables IV-5 and IV-6 on the age distribution of pupils in 1960).

Table IV-34 Colombia: *Total school enrolment, by level of education, 1951 and 1956; and estimated 1961-1981, compared with estimated population 5-19 years of age*

(Thousands of persons and of pupils)

Year	Estimated population			Total school enrolment			School enrolment ratio		
	5-14	15-19	5-19	First level	Second level	First and second levels	Primary	Secondary	Total
<i>Observed:</i>									
1951	2 933	1 190	4 123	875	107	982	30	9	24
1956	3 482	1 317	4 799	1 312	181	1 493	38	14	31
<i>Estimated:</i>									
1961	4 111	1 532	5 643	1 772	287	2 059	43	19	36
1966	4 684	1 863	6 547	2 173	555	2 728	46	30	42
1971	5 285	2 160	7 445	2 723	890	3 613	52	41	49
1976	6 046	2 442	8 488	3 207	1 325	4 532	53	54	53
1981	7 056	2 770	9 826	3 771	2 006	5 777	53	72	59

Similarly, we find the secondary enrolment ratio going up from 9 in 1951 to 72 in 1981. This is because we have estimated total enrolment at the second level to increase about 20 times over the thirty-year period, whereas our estimates for primary school enrolment only imply a fourfold increase over the same period. This is shown graphically in chart IV-1, where we find the line showing second-level school enrolment sloping upward much more steeply than the primary enrolment line. Considering that we have schools at the second level varying in duration from 3 or 4 years to 6 or 7 years, and that we are comparing their enrolment with a five-year age group of population, we would conclude that an enrolment ratio of 72, which represents about 72 pupils for every 100 persons in that age group,

is not unreasonably high. In fact, with a fully-developed secondary school system, and an average duration of five-years' schooling at this level, the ratio could rise to 100 or more if all persons 15-19 years of age, and some even beyond this age range, were to be enrolled in these schools.

Turning our attention more particularly to our estimates for enrolment in urban and rural primary schools, and comparing them to the estimated population 5-14 years of age in urban and rural areas, we find that our estimates imply an enrolment ratio for urban schools rising from 44 in 1951 to 59 in 1961, thereafter dropping to 53 in 1981. On the contrary, we envisage a rapid increase of the rural enrolment ratio from 22 in 1951 to 54 in 1981. This is a direct result of our assumption that by 1981 the enrolment

in urban schools would constitute 64 per cent of the total primary school enrolment. This percentage would correspond with the estimated proportion of children 5-14 years of age living in urban areas by 1981. But table IV-35 shows strikingly that, accord-

ing to this assumption, the children living in rural areas would no longer be under-privileged regarding primary education in 1981 as they were in 1951 or in 1956.

Table IV-35 Colombia: *Enrolment in all primary schools, by urban and rural schools, 1951 and 1956; and estimated 1961-1981, compared with estimated population 5-14 years of age*
(Thousands of pupils)

Year	Estimated population 5-14 years of age		Enrolment in all primary schools		Primary enrolment ratio	
	Urban	Rural	Urban	Rural	Urban	Rural
<i>Observed:</i>						
1951	1 028	1 905	457	418	44	22
1956	1 387	2 095	771	541	56	26
<i>Estimated:</i>						
1961	1 863	2 248	1 099	673	59	30
1966	2 380	2 304	1 369	804	58	35
1971	2 956	2 329	1 715	1 008	58	43
1976	3 659	2 387	2 052	1 155	56	48
1981	4 543	2 513	2 413	1 358	53	54

It will be recalled that we arrived at our estimates of primary school enrolment by assuming a certain increase in the annual cohort of new pupils starting in grade 1 each year. We find that the actual cohort of grade 1 new pupils in 1956 (numbering 475 000) was 25 per cent of the estimated population 5-9 years of age (1 923 000 children): Our estimates of beginning cohorts in 1961 and succeeding years would imply an increase of this proportion to 27 per cent in 1961; to 29 per cent in 1966-1971; then decreasing to 28 per cent in 1976 and to 25 per cent in 1981. If all pupils were to begin their primary schooling at the normal age 7.5 years, then possibly no more than 20 per cent of the children aged 5-9 would be expected to enter each new cohort. Any proportion above this percentage would be accounted for by some children beginning their primary schooling at an age either earlier or later than normal.

Our estimates of enrolment in general secondary schools, when compared with the estimated population 15-19 years of age, as shown in table IV-36, implies that each cohort of pupils in their first year of study will constitute a larger portion of the population 15-19 years of age, rising from 2.3 per cent in 1956 to 10.3 per cent in 1981. Total enrolment in these schools, which constituted only 7 per cent of the youth aged 15-

19 in the 1950's, is estimated to take in nearly 45 per cent of the youth population in 1981. We are also assuming a substantial improvement in the proportion of girls enrolled in these schools as compared with boys. Whereas in 1951, only 5 per cent of girls in the age group 15-19 years were enrolled in general secondary schools, as compared with about 10 per cent of boys, we envisage over 36 per cent of girls, as compared with 53 per cent of boys, to be enrolled in 1981. The continuing disparity between the sexes in this regard may be offset in part by the preponderance of girls enrolled in teacher training schools and in many of the vocational schools, as is the case at present (see tables IV-17 and IV-18).

Tables IV-37 compares the annual cohort of pupils in their first year of study in general secondary schools, with pupils completing grade 5 of primary school the year before, and with new pupils entering grade 1 of primary school five years earlier. Whereas our estimated cohort of pupils in their first year of secondary school, as percentage of those completing their primary schooling the year before, might decrease from 78 to 63 per cent, it is anticipated that the rest of the primary school graduates will go into other types of secondary schools (teacher training and vocational). Compared with new pupil

cohorts estimated to begin their primary schooling in the same years, the proportion of those beginning their general secondary education is expected to increase rapidly from 11 per cent in 1961 to 32 per cent in

1981. This is one way to explain the steep rise in estimated secondary enrolment as compared with the more gradual increase in estimated primary school enrolment, as shown in table IV-34 and chart IV-1.

Table IV-36 Colombia: *Annual cohorts of pupils in the first year of study, and total enrolment in all general secondary schools, 1951 and 1956, and estimated 1961-1981, compared with estimated population 15-19 years of age, by sex*

(Thousands of persons and of pupils)

Year	Sex	Estimated population 15-19 years of age	Cohort of pupils in the first year of study		Total enrolment in all general secondary schools	
			Number	As percentage of population 15-19 years of age %	Number	As percentage of population 15-19 years of age %
<i>Observed:</i>						
1951	Male	579	...	...	56.6	9.8
	Female	611	...	...	32.9	5.4
	Both sexes	1 190.	...	...	88.5	7.4
1956	Male	663	19.8	3.0	62.9	9.5
	Female	654	10.8	1.7	30.5	4.7
	Both sexes	1 317	30.6	2.3	93.4	7.1
<i>Estimated:</i>						
1961	Male	779	34.6	4.4	108.6	13.9
	Female	753	18.8	2.5	50.8	6.7
	Both sexes	1 532	53.4	3.5	159.4	10.4
1966	Male	945	60	6.3	209	22.1
	Female	918	34	3.7	96	10.5
	Both sexes	1 863	94	5.0	305	16.4
1971	Male	1 098	90	8.2	331	30.1
	Female	1 062	56	5.3	177	16.7
	Both sexes	2 160	146	6.8	508	23.5
1976	Male	1 241	125	10.1	492	39.6
	Female	1 201	85	7.1	301	25.1
	Both sexes	2 442	210	8.6	793	32.5
1981	Male	1 406	165	11.7	747	53.1
	Female	1 364	120	8.8	495	36.3
	Both sexes	2 770	285	10.3	1 242	44.8

Table IV-38 compares the relative development of the three types of education at the second level, as estimated for 1961-1981, with the actual situation during the 1951-1960 period. We note the increasing importance imputed to the general secondary schools in the future, with their portion of the total enrolment rising from 55 per cent in 1961 to 62 per cent in 1981, somewhat reversing the trend observed between 1951 and 1960 when the percentage of total enrolment in the general secondary schools fell from 60 to 55. On the other hand, we envisage the relative importance of teacher training schools at this level to achieve its maximum during the 1963-1966 period, thereafter declining gradually as the primary schools become more adequately staffed with trained teachers. The percentage of enrolment attributed to vocational schools has, of course, been arbitrarily kept at 33 per cent throughout the coming period.

We may now conclude that, under the various assumptions which have been stated, and based on such data as we have at hand, the estimates which

we have made of future school enrolment in Colombia, at the first and the second levels of education seem fairly reasonable and consistent. As such, they might be useful to administrators for purposes of educational planning. It goes without saying that persons who may have more up-to-date and more recent data at their disposal, as well as intimate knowledge about the peculiar problems and national policies involved, could have done a better job as far as the numerical results are concerned. But we trust that the methods of estimating future school enrolment for a developing country, as illustrated in this chapter, may be more generally useful and applicable in many similar situations.

In the next chapter we shall offer another case study, based principally on the method of school attendance ratios and relying more directly on census and other types of demographic data. The study will concern the Philippines, and will call for estimating the future school enrolment over the period 1965-1981.

Table IV-37 Colombia: *Annual cohorts of pupils in the first year of study in general secondary schools 1957-1960, and estimated 1961-1981, compared with pupils completing primary school the previous year, and with new pupils entering primary school five years before*

(Thousands of pupils)

Cohort of new pupils in grade 1 of all primary schools		Pupils completing grade 5 of all primary schools		Cohort of pupils in the first year of study in general secondary schools			
Year	Number (a)	Year	Number (b)	Year	Number (c)	(c) as % of (b)	(c) as % of (a)
<i>Observed:</i>							
1952	351	1956	46.2	1957	35.2	76.2	10.0
1953	393	1957	52.3	1958	37.9	72.5	9.6
1954	414	1958	61.1	1959	41.7	68.2	10.1
1955	455	1959	67.3	1960	46.0	68.4	10.1
1956	475	1960	75.9	1961	* 53.4	70.4	11.2
<i>Estimated:</i>							
1961	604	1965	121	1966	94	78	16
1966	729	1970	219	1971	146	67	20
1971	829	1975	332	1976	210	63	25
1976	904	1980	452	1981	285	63	32

* Estimated

Table IV-38 Colombia: *Total enrolment at the second level of education, 1951-1960, and estimated 1961-1981, distributed by type of education*

(Thousands of pupils)

Year	Total enrolment at the second level of education	Enrolment in general secondary schools		Enrolment in teacher training schools		Enrolment in vocational secondary schools	
		Number	Per cent	Number	Per cent	Number	Per cent
<i>Observed:</i>							
1951	106.9	64.4	60	7.4	7	35.1	33
1952	109.7	65.2	59	7.8	7	36.7	34
1953	114.7	65.6	57	8.6	8	40.5	35
1954	117.6	69.9	59	9.9	8	37.8	32
1955	134.7	77.4	58	11.8	9	45.4	34
1956	180.9	93.3	52	14.3	8	73.3	41
1957	192.2	107.6	56	16.4	9	68.1	35
1958	214.6	115.0	54	19.1	9	80.4	38
1959	232.8	128.5	55	24.0	10	80.3	35
1960	253.8	140.3	55	28.0	11	85.4	34
<i>Estimated:</i>							
1961	287	159	55	32	11	96	33
1962	325	180	55	37	11	108	33
1963	371	204	55	43	12	124	33
1964	420	230	55	50	12	140	33
1965	474	258	54	58	12	158	33
1966	555	305	55	65	12	185	33
1971	890	508	57	85	10	297	33
1976	1 325	793	60	90	7	442	33
1981	2 006	1 242	62	95	5	669	33

Chart IV-1. Colombia: Total enrolment in primary and secondary schools, observed up to 1960; estimated 1961-1981

