CHAPTER V

ESTIMATING FUTURE SCHOOL ENROLMENT FOR THE PHILIPPINES, 1965-1980

1. NATURE OF THIS CHAPTER

This chapter, like the previous one, will consist of a case study to illustrate methods of estimating future school enrolment. However, unlike chapter IV, where we showed how estimates of future school enrolment may be constructed mainly around school retention ratios based on the available school records concerning pupil enrolment by sex and grade, together with full information on repeaters by grade, here we shall illustrate the use of school attendance ratios, based on population census data on school attendance, which are available for some countries but not for others. Enrolment data available for the Philippines are not as adequate in detail as in the case of Colombia, so it would be difficult to work out grade-retention and school-retention ratios and to apply them for purposes of estimating future enrolment. But we do have, for the Philippines, census data on school attendance for two successive census years: 1948 and 1960, besides similar data from the Philippines Statistical Survey of Households, conducted in October 1956. Hence the method of estimating future school enrolment by the use of school attendance ratios would be particularly suitable in this case.

As before, we shall first make a preliminary analysis of available data pertinent to the study; then make provisional estimates based on these data; and conclude by testing the estimates for their consistency and reasonableness.

We have estimates of future population available for the years 1965, 1970, 1975 and 1980. Therefore we shall attempt future school enrolment estimates for these same years; that is, over a fifteen-year period, at five-year intervals. If desired, annual estimates, particularly for the first five-year period, could be obtained by interpolation.

2. ANALYSIS OF BASIC DATA

Data on school attendance of the population, by age and sex, according to the Censuses of 1948 and 1960, are puplished by the Bureau of the Census and Statistics.[1] From the detailed tables given in the Census reports we reproduce some figures relating to the population 6 to 17 years of age, separately for each sex, as shown in tables V-1 and V-2.

The data in table V-1 refer to school attendance at any time between 1 January and 1 October, 1948, and cover attendance both in public and private schools. It should be noted that the period covered by the census question on school attendance actually involved two school years - 1947-1948 and 1948-1949. Hence there might have been some overstatement of the number of children and youth attending school due to the way the question was formulated.

At the 1960 Census, which was taken on 1 February, the question was, "Did you attend school in 1959?" Again two school years were involved - the latter part of the school year 1958-1959 and the early part of the school year 1959-1960. The results of the 1960 Census seem to show a considerable *decrease* in the ratio of school attendance, for almost every sex and age group, particularly above the age of 13. (See table V-2).

Assuming that the accuracy of the figures is not in doubt, or is at least comparable between the two censuses, one plausible explanation of this phenomenon may be found in the fact that the earlier census was taken soon after the Second World War, and there must have been a tremendous backlog of children and youth who had been deprived of schooling during the war years who were then making up for lost time. However, as we shall see presently, this explanation might be plausible only as regards the decreasing school attendance ratio of those who were at least 6 or 7 years old at the end of the war, but could not apply to the generation of children born during and after the war.

This is shown more clearly when we look at the data on school attendance obtained from a sample survey of households in 1956, from which table V-3 has been derived.[2] A comparison of the three sets

1. Republic of the Philippines. Bureau of the Census and Statistics. *Census of the Philippines 1948.* Summary of Population and Agriculture; *Census of the Philippines, 1960*: Population and Housing, Vol. II, Summary Report. Manila, 1954, 1963.
2. For information concerning the Philippines Statistical Survey of Households, and discussion of educational requirements based on data from this source, see: United Nations. *Population growth and manpower in the Philippines*: a joint study by the United Nations and the Government of the Philippines. (U.N. document ST/SOA/Series A/No.32) New York, 1960.

of ratios - from the 1948 Census, 1956 Survey and 1960 Census - is given in table V-4. From this comparison it appears that the extraordinarily high attendance ratios for the age groups 14-17 at the 1948 Census may have been due wholly or largely to the effect of delayed schooling, since they were already of school age during the war years. Children in the age groups 9-13 at the 1948 Census, who were also of school age during the war, probably included many who had missed school before, hence started late in school during the two school years covered by the 1948 Census. But the 6, 7 and 8-year old children at that census were not old enough to attend school during the war, yet a much larger percentage among them claimed to be attending school at that time, as compared with the children in the same age groups at the 1960 Census. Furthermore, all age groups from 6 to 11 years show higher attendance ratios from the 1956 Survey than either the Census of 1948 or the Census of 1960.

Table V-1. Philippines : *Number and percentage of persons 6-17 years of age attending school, by age and sex, Census of 1948.*
(Thousands of persons)

Age	Male persons			Female persons		
	Total number	Attending school	Per cent	Total number	Attending school	Per cent
6	302	22	*7.2*	283	23	*8.2*
7	339	117	*34.6*	318	116	*36.6*
8	329	170	*51.6*	311	169	*54.2*
9	250	159	*63.6*	241	160	*66.4*
10	307	217	*70.5*	288	209	*72.3*
11	210	165	*78.9*	203	162	*79.9*
12	331	249	*75.3*	301	228	*75.9*
13	226	178	*78.5*	219	171	*77.9*
(7-13)	(1 992)	(1 255)	*(63.0)*	(1 881)	(1 215)	*(64.6)*
14	239	176	*73.5*	236	167	*70.6*
15	233	156	*67.1*	221	137	*62.1*
16	203	126	*62.0*	217	118	*54.4*
17	187	102	*54.4*	193	86	*44.7*
(14-17)	(862)	(560)	*(65.0)*	(867)	(508)	*(58.6)*

Source : Census of the Philippines, 1948 : *Summary of Population and Agriculture.*

Table V-2. Philippines : *Number and percentage of persons 6-17 years of age attending school, by age and sex, Census of 1960.*
(Thousands of persons)

Age	Male persons			Female persons		
	Total number	Attending school	Per cent	Total number	Attending school	Per cent
6	481	15	*3.2*	448	16	*3.7*
7	484	121	*25.0*	455	124	*27.3*
8	434	209	*48.2*	408	210	*51.5*
9	359	227	*63.1*	343	228	*66.4*
10	436	289	*66.3*	405	280	*69.0*
11	298	215	*72.0*	283	209	*74.0*
12	417	278	*66.7*	379	255	*67.2*
13	313	200	*63.9*	306	188	*61.5*
(7-13)	(2 743)	(1 540)	*(56.1)*	(2 579)	(1 494)	*(57.9)*
14	301	155	*51.7*	296	140	*47.3*
15	288	122	*42.2*	277	104	*37.5*
16	275	95	*34.5*	292	85	*29.2*
17	268	76	*28.2*	271	62	*22.7*
(14-17)	(1 132)	(448)	*(39.6)*	(1 136)	391	*(34.4)*

Source : Census of the Philippines, 1960. *Population and Housing,* vol. II : *Summary report.*

Table V-3 Philippines: *Number and percentage of persons 5-17 years of age attending school, by age and sex, Sample survey, 1956*
(Thousands of persons)

Age	Male persons			Female persons		
	Total number	Attending school	Per cent	Total number	Attending school	Per cent
5	369	9	2.3	327	8	2.5
6	393	57	14.5	361	64	17.7
(5-6)	(762)	(66)	(8.7)	(688)	(72)	(10.5)
7	366	222	60.5	319	190	59.6
8	344	251	73.1	338	266	78.6
9	305	250	82.1	280	213	76.3
10	329	269	81.8	291	251	86.3
11	219	189	86.6	230	195	84.7
12	308	228	74.0	285	188	65.8
13	257	166	64.5	233	123	52.8
(7-13)	(2 128)	(1 575)	(74.0)	(1 976)	(1 426)	(72.2)
14	258	134	52.2	242	91	37.7
15	255	105	41.2	243	83	34.2
16	220	69	31.3	266	51	19.2
17	223	65	29.0	229	39	17.2
(14-17)	(956)	(373)	(39.0)	(980)	(264)	(26.9)

Source: Worksheets available to the United Nations Secretariat from the Philippines Statistical Survey of Households, October 1956.

Table V-4 Philippines: *Comparison of school attendance ratios for persons 6-17 years of age, by age and sex, from the Census of 1948, Sample survey of 1956, and Census of 1960*

Age	School attendance ratios					
	Male persons			Female persons		
	Census 1948	Survey 1956	Census 1960	Census 1948	Survey 1956	Census 1960
6	7.2	14.5	3.2	8.2	17.7	3.7
7	34.6	60.5	25.0	36.6	59.6	27.3
8	51.6	73.1	48.2	54.2	78.6	51.5
9	63.6	82.1	63.1	66.4	76.3	66.4
10	70.5	81.8	66.3	72.3	86.3	69.0
11	78.9	86.6	72.0	79.9	84.7	74.0
12	75.3	74.0	66.7	75.9	65.8	67.2
13	78.5	64.5	63.9	77.9	52.8	61.5
(7-13)	(63.0)	(74.0)	(56.1)	(64.6)	(72.2)	(57.9)
14	73.5	52.2	51.7	70.6	37.7	47.3
15	67.1	41.2	42.2	62.1	34.2	37.5
16	62.0	31.3	34.5	54.4	19.2	29.2
17	54.4	29.0	28.2	44.7	17.2	22.7
(14-17)	(65.0)	(39.0)	(39.6)	(58.6)	(26.9)	(34.4)

Source: Tables V-1, V-2 and V-3.

It has been stated that, owing to lack of school buildings after the war, about two-fifths of the primary grades and some of the intermediate grades were authorized to operate under a double-session plan whereby different groups of pupils were accommodated in half-day session – morning or afternoon – using the same classrooms.[1] This of course increased the capacity of existing schools and made it possible for the school enrolment to be substantially expanded without a corresponding increase in the number of schools. We do not know whether this emergency plan is still in operation, or whether it has affected the growth of school enrolment in primary and intermediate schools during the years between the two censuses.

Furthermore, we understand that the 1960 Census data on school attendance excluded persons enrolled in kindergarten, vocational, trade or business schools. Again, we do not know if such pupils were included or not in the 1948 Census, though we have reason to surmise that kindergarten pupils at least had been included. Still, even if all vocational school pupils had been included in the 1948 Census but excluded in 1960, this alone would not be enough explanation for the apparent drop in the attendance ratios of the 14-17 age groups, for the number of pupils enrolled in vocational schools, both public and private, has been less than 20 per cent in all the post-war years.

We are therefore driven to the conclusion that either the 1948 figures were too high, or the 1960 figures too low, for reasons which largely escape us. There remains the alternative that there had been a real downward trend in school enrolment between the two Census dates.

It should be noted that the data we have examined so far refer to "school attendance" and not to enrolment in any particular type or level of school. Enrolment statistics, by level of education and type of schools, are published by Unesco in the *World Survey of Education*. Tables V-5 and V-6 give enrolment figures in primary and secondary schools (public and private) for each year from 1950 to 1960.

1. Unesco. *World Survey of Education*, Vol. II, Primary education, p. 849.

Table V-5 Philippines: *Total enrolment in primary schools, public and private, by sex, 1950 - 1960*

(Thousands of pupils)

Year	Total primary school enrolment	Public	Private	Per cent private	Male	Female	Per cent Female
1950	4 083	3 931	152	3.7	...	...	...
1951	3 930	3 796	134	3.4	...	...	...
1952	3 583	3 439	145	4.0	1 879	1 705	48
1953	3 499	3 365	134	3.8	1 828	1 671	48
1954	3 443	3 304	139	4.0	1 805	1 638	48
1955	3 499	3 555	144	4.1	1 828	1 671	48
1956	3 674	3 519	154	4.2	1 926	1 748	48
1957	3 735	3 575	160	4.3	1 951	1 785	48
1958	3 970	3 801	169	4.3	2 074	1 897	48
1959	4 144	3 969	175	4.2	2 167	1 977	48
1960	4 197	4 001	196	4.7	2 192	2 005	48

Source: Unesco. Questionnaire returns for the *World Survey of Education*.
... *Information not available.*

Table V-6 Philippines: *Total enrolment in secondary schools, public and private, by sex, 1950-1960*

(Thousands of pupils)

Year	Total secondary school enrolment	Public	Private	Per cent private	Male	Female	Per cent female
1950	484	196	288	60	...	...	...
1951	609	212	397	65	...	...	...
1952	590	212	378	64	329	261	44
1953	625	221	404	65	348	277	44
1954	643	229	414	64	356	287	45
1955	628	219	409	65	348	280	45
1956	619	224	395	64	344	275	44
1957	633	225	408	64	349	283	45
1958	621	232	389	63	346	275	44
1959	644	239	405	63	351	293	46
1960	659	246	413	63	358	301	46

Source: Unesco. Questionnaire returns for the *World Survey of Education*.
... Information not available.

Total enrolment in primary schools had reached a fairly high level in 1950, from which there was an apparent recession until 1954, after which it began to increase again, but it was only in 1959 that the previous high level of enrolment was reached and surpassed. Considering that the number of children of primary school age in 1960 must be at least 30 per cent more than in 1950, these figures would tend to confirm the hypothesis suggested by the census data on school attendance that there may have been an actual regression during the decade of the fifties in the proportion of primary school-age children attending school.

As regards total enrolment in secondary schools, while the general trend has been more often upward than downward during the period in question, the net increase from 1950 to 1960 – amounting to about 36 per cent – was probably just enough to keep up with the increase in the population of secondary school-age. These facts should be kept in mind when we begin to estimate future school enrolment at these levels of education.

Private schools have accounted for less than 5 per cent of total primary school enrolment during this period, but more than 60 per cent of the total enrolment at the secondary level. The proportion of girls in primary schools has remained constant at about 48 per cent; it has increased from 44 to 46 per cent in secondary schools.

For public schools only, we have enrolment data going back to 1930, with the exception of four years during the war. These data are summarized in table V-7. Over a period of 30 years, public primary (including intermediate) schools increased their total enrolment from 1,144,000 to 4,001,000 at an average rate of 4.3 per cent per year. However, up to 1949, the previous high-water mark in primary school enrolment, the average annual rate of increase had been about 6.8 per cent. Enrolment in all public secondary schools grew from 75,200 in 1930 to 245,900 in 1960, at an average annual rate of 4 per cent. Again, up to 1949 the average annual growth rate had been 5.5 per cent; between 1949 and 1960 the average rate of increase was only 1.5 per cent per year. It should be borne in mind, however, that private schools at the secondary level, which account for nearly two-thirds of all secondary school enrolment, has in the last ten years shown a substantially higher rate of growth than the public secondary schools.

Table V-7 Philippines: *Enrolment trends in primary and secondary education (public schools only), 1930-1960*

(Thousands of pupils)

Year	Number of pupils enrolled in public schools				
	Primary and intermediate schools	General high schools	Vocational high schools	Teacher training schools [1]	All Secondary schools
1930	1 144	51.5	17.7	6.0	75.2
1931	1 135	43.3	17.6	6.0	66.8
1932	1 136	36.4	15.1	4.2	55.6
1933	1 121	34.7	15.6	2.5	52.8
1934	1 150	36.0	16.5	1.8	54.2
1935	1 181	40.9	16.9	1.3	59.1
1936	1 209	51.9	11.8	1.0	64.7
1937	1 424	55.2	18.2	0.7	74.1
1938	1 666	54.5	17.2	0.7	72.4
1939	1 850	65.6	23.2	0.8	89.6
1940	1 923	77.1	23.8	0.9	101.9
1945	2 388	138.3	17.2	0.3	155.8
1946	3 102	137.9	17.6	0.3	155.8
1947	3 357	150.1	18.0	0.3	168.9
1948	3 693	169.7	23.6	0.3	193.6
1949	3 960	179.1	28.3	0.3	207.7
1950	3 931	165.1	30.3	0.3	195.8
1951	3 796	162.9	30.7	0.3	193.9
1952	3 439	161.5	33.8	0.2	195.5
1953	3 365	179.7	41.2	0.1	221.0
1954	3 303	183.7	45.1	0.0	228.8
1955	3 355	176.2	42.7	-	218.9
1956	3 519	180.6	43.4	-	224.0
1957	3 575	181.5	43.1	-	224.6
1958	3 801	186.1	46.2	-	232.3
1959	3 969	193.1	46.0	-	239.1
1960	4 001	185.3	60.6	-	245.9

1. Teacher training schools at the secondary level were converted into collegiate teacher training schools after 1954.

Source: Unesco. *World Survey of Education*, Vol. II, Primary education; Vol. III, Secondary education; data for recent years from Unesco files.

Distribution of pupils by age, sex and grade, in public primary schools only, for 1952, is reproduced in table V-8, as published in the *World survey of education,* Volume II. It shows a fairly wide age range of pupils in every grade, from under 6 years in grade 1 to 15 years and over in grades 3 to 6. If we consider 7 years as the legal age for entering primary schools, and assume normal progression of one grade each year, the median age of pupils is generally 1 year or more higher than the normal age for each grade. The percentage of pupils 2 years or more above normal age ranges from 17 per cent in grade 1 to 35 per cent in grade 6, indicating a substantial amount of retardation, due probably in large part to the repetition of grades.

Table V-8 Philippines: *Age, sex and grade distribution of pupils in public primary and intermediate schools, 1952*

Age	Sex	Pupils by grade						
		1	2	3	4	5	6	Total
-6	M	487	-	-	-	-	-	487
	F	495	-	-	-	-	-	495
6	M	5 696	529	-	-	-	-	6 225
	F	5 750	481	-	-	-	-	7 231
7	M	212 230	5 229	535	-	-	-	217 994
	F	206 623	6 155	483	-	-	-	213 261
8	M	61 537	146 616	5 283	736	-	-	214 172
	F	52 993	148 917	6 416	856	-	-	209 182
9	M	30 374	63 497	120 194	5 519	894	-	220 478
	F	23 062	53 980	128 045	6 435	975	-	212 497
10	M	16 531	35 225	62 984	101 456	4 954	889	222 039
	F	11 970	28 002	56 576	111 852	5 929	1 032	215 361
11	M	8 852	20 017	38 785	54 966	74 125	4 036	200 781
	F	6 263	15 387	30 418	50 892	81 253	5 035	189 248
12	M	5 631	12 989	25 008	39 315	43 318	56 769	183 030
	F	3 779	9 306	18 760	32 428	39 806	60 164	164 243
13	M	5 148	7 408	14 851	25 574	28 963	34 037	115 981
	F	3 369	4 967	10 387	19 149	22 790	29 625	90 287
14	M	-	7 594	8 859	15 564	18 369	23 549	73 935
	F	-	4 761	5 821	10 869	13 307	17 637	52 395
15	M	-	-	9 383	19 413	25 272	38 243	92 311
	F	-	-	5 590	12 615	15 508	23 714	57 427
Total	M	346 486	299 104	285 882	262 543	195 895	157 523	1 547 433
	F	315 304	271 956	262 496	245 096	179 568	137 207	1 411 627
	MF	661 790	571 060	548 378	507 639	375 463	294 730	2 959 060
Median age								
	(M	7.8	9.0	10.3	11.4	12.4	13.5	.
	(F	7.7	8.9	10.0	11.1	12.0	13.1	.
	(MF	7.8	8.9	10.1	11.3	12.2	13.3	.
Normal age for grade		(7)	(8)	(9)	(10)	(11)	(12)	.
Percentage of pupils 2 years or more above normal age		17	26	31	34	33	35	28

Source: Unesco. *World Survey of Education*, II, Primary Education, p. 855.

For estimates of future population, we shall make use of population projections, by sex and age groups, prepared by the United Nations Secretariat prior to the Census of 1960.[1] Among the four alternative projections, based on different assumptions regarding future trends in fertility and mortality, we shall take the one labelled as "conservative". However, in the light of the results of the 1960 Census, which became available after we had begun the preparation of this chapter, it appears that these estimates are probably too conservative, and perhaps should be revised upwards.[2] Table V-9 gives the population estimates for age groups from 0 to 29 years, for the years 1965, 1970, 1975 and 1980, which are relevant to our present study.

Table V-9 Philippines: *Estimated population 0-29 years of age, by sex and five-year age groups, 1965 - 1980*
(Thousands of pupils)

Age group (years)	Estimated population at mid-year							
	1965		1970		1975		1980	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	2 938	2 862	3 453	3 362	4 092	3 980	4 893	4 756
5 - 9	2 349	2 292	2 775	2 708	3 286	3 206	3 922	3 824
10 - 14	1 943	1 894	2 310	2 252	2 735	2 668	3 245	3 166
15 - 19	1 745	1 586	1 909	1 859	2 275	2 217	2 699	2 632
20 - 24	1 371	1 294	1 700	1 545	1 865	1 818	2 229	2 175
25 - 29	1 117	1 139	1 328	1 255	1 653	1 504	1 820	1 777

Source: United Nations. *Future population estimates by sex and age,* Report III.

3. ESTIMATING THE FUTURE SCHOOL ENROLMENT

After these preliminaries, we shall start the process of making some reasonable estimates of future school enrolment in the Philippines, for the period 1965-1980. We must first, however, define the population of school age, with which we are specifically concerned. The national school system of the Philippines provides ten (or eleven) years of education below the college or university level: 4 years of elementary school (grades 1 to 4), followed by 2 or 3 years of intermediate school (grades 5 to 7), and 4 years of general or vocational high school. Teacher training schools, which were formerly at the secondary level, have recently been converted into collegiate normal schools, and so are not included in the present study. The 7th grade of the intermediate school, which had been abolished by the Education Act of 1940, was authorized to be restored by the Republic Act No. 896 of 1953, but we do not know to what extent this provision has been carried out.[3]

For purposes of the present study, we shall consider the population 7-13 years inclusive (a seven-year age group) as being of primary school age, and persons 14-17 years inclusive (a four-year age group) as being of secondary school age. In addition, we shall also take into consideration children 5 and 6 years of age, since a substantial number of them are already attending primary schools though they are not required to do so. We shall designate this age group as being of pre-school age.

In order to have a rough idea of the order of magnitude of these respective age groups, we might take a first approximation based on the estimates in five-year age groups shown in table V-9. This we do by assuming (merely as an expedient short-cut for our purpose) that the number of persons in each single-year age group is approximately equal to one-fifth of the size of the five-year age group in which

1. United Nations. *The population of South-East Asia (including Ceylon and China: Taiwan),* 1950-1980. Future population estimates by sex and age: Report III (ST/SOA/Series A/No. 30). New York, 1958.
2. A new *Population projection for the Philippines,* 1960-1975, has been prepared by the Philippines Bureau of the Census and Statistics (Demography Division) and published in Manila, 1963. See also: United Nations. *Population projections: Abstracts of recent national projections by age groups for forty-eight areas* (Population Bulletin, Series N, No. 7).
3. See Unesco. *World Survey of Education: II Primary Education,* p. 848.

it is found. Thus we might take two-fifths of the 5-9 age group and consider it as an approximation to the pre-school age group, which we have defined as children 5 and 6 years of age. The remaining three-fifths of the 5-9 age group we shall consider to be in the primary school-age population, together with four-fifths of the 10-14 age group, thus obtaining a first approximation to our primary school-age population, which we have defined as made up of the population aged 7-13 years inclusive. For an approximate estimate of the secondary school-age population, which we have defined as including persons 14-17 years of age, we add one-fifth of the 10-14 age group to three-fifths of the 15-19 age group. Table V-10 shows the results of these first approximations to our respective school-age population groups.

From table V-10 we gather that the primary school-age population as defined may be expected to increase from some 6 million in 1965 to almost 10 million in 1980. The secondary school-age population may likewise increase from about 3 million in 1965 to almost 4.5 million in 1980. In addition, some attention will have to be given to the pre-school age group, numbering between 2 and 3 million over the period 1965-1980. In other words, the sheer size of the educational task ahead during this period may be assessed by the total numbers of children and youth involved: about 10.5 million in 1965, increasing to some 12 million in 1970, 15 million in 1975, and over 17 million in 1980.

This may be a good time to pause and consider the implications of alternative projections of population based on different assumptions concerning future trends of fertility and mortality. Using the same method of first approximation, but based on three alternative projections of population given in the source referred to in the previous section of this chapter,[1] we obtain approximate estimates of the total pre-school, primary and secondary school-age population as shown in table V-11. Thus we see that the size of the combined school-age population groups, as we have calculated by rough approximation, may vary between 10.5 million and 12.5 million in 1965, and between the extremes of about 14 million and 20 million in 1980, depending on the course of fertility and mortality trends during the coming years.

Our estimates of future school enrolment, based on the "conservative" projection, may therefore be invalidated on the grounds of demographic factors alone, by a margin of error which could amount to 15 or 20 per cent.[2]

1. United Nations. *The population of South-East Asia*, 1950-1980.
2. This is by way of warning to those who might be tempted to place too much confidence in the precision of estimates of school enrolment based on given population projections, which are in turn based on certain assumptions regarding future trends of fertility and mortality.

Table V-10 Philippines: *First approximation estimates of school-age population for 1965, 1970, 1975, 1980*
(Thousands of persons)

Population group	Sex	Approximate size of population group			
		1965	1970	1975	1980
Pre-school age	Male	940	1 110	1 314	1 569
(5 and 6 years)	Female	917	1 083	1 282	1 530
	Both sexes	*1 857*	*2 193*	*2 596*	*3 099*
Primary school age	Male	2 964	3 513	4 160	4 949
(7-13 years)	Female	2 890	3 426	4 058	4 827
	Both sexes	*5 854*	*6 939*	*8 218*	*9 776*
Secondary school age	Male	1 436	1 697	1 912	2 268
(14-17 years)	Female	1 330	1 566	1 864	2 212
	Both sexes	*2 766*	*3 173*	*3 776*	*4 480*
Total: three groups	Male	5 340	6 230	7 386	8 786
(5-17 years)	Female	5 137	6 075	7 204	8 569
	Both sexes	*10 477*	*12 305*	*14 590*	*17 355*

Table V-11 Philippines: *First approximation estimates of total school-age population, 1965-1980, according to four alternate population projections*

(Thousands of persons)

Type of projection	Approximate size of total school-age population			
	1965	1970	1975	1980
" Conservative " projection	10 477	12 305	14 590	17 355
" Low mortality " projection	12 454	13 359	16 327	19 906
" Declining fertility "				
(a) Moderate fertility decline	10 477	12 169	13 968	15 827
(b) Rapid fertility decline	10 477	12 032	13 346	14 298

Let us say that, after due consideration we have chosen to base our school enrolment estimates on the " conservative " population projection, fully realizing that our estimates will be subject to error due to faulty assumptions, not only regarding future trends of fertility and mortality, but concerning other factors as well which are not related to the demographic situation.

We are not quite satisfied with the approximate estimates of the school-age population groups shown in table V-10 because of one fallacious assumption. It will be remenbered that we had assumed an equal number of persons in each single-year age group within a given five-year age group. Usually this assumption is not correct, since the number of persons in any single-year age group tends to diminish as we go up the age scale. Sometimes it may happen that exceptional conditions of birth and death rates cause a lower age group to be smaller in number than a higher age group.

A more rational method of splitting an estimated five-year age group into single-year age groups is based on a particular method of interpolation devised by certain American demographers, using what are known as the " Sprague multipliers ", named after the person who first devised the formula from which the method was derived.[1] This is not a magic formula which can produce numbers out of thin air, so to speak, but is merely a convenient way of smoothing out irregularities in the age distribution of a population as reported at a census or, as in our case, originally presented in five-year age groups.

Applying this method to the projected population in five-year age groups as given in table V-9, we obtain estimates of population for each of the single-year age groups from 5 to 17 years. Tables V-12, V-13 and V-14 show how this is done for the estimated population of 1965. The results are given in the last column of each table.

1. See: United States. Department of Commerce. Bureau of the Census. *Handbook of statistical methods for demographers*. Washington, 1951.

Table V-12 Philippines: *Estimated number of persons 5-9 years of age, by sex and single years of age, 1965, based on projections originally given in five-year age groups.*

Sex and age	Operational item	Age group of population				Sum = interpolated number for each age (thousands)
		0-4	5-9	10-14	15-19	
Male:	*Projected number* (thousands)	*2 938*	*2 349*	*1 943*	*1 745*	
5	multiplier	(+ .0336)	(+ .2272)	(- .0752)	(+ .0144)	
	product	+ 98.7	+ 533.7	- 146.1	+ 25.1	*511*
6	multiplier	(+ .0080)	(+ .2320)	(- .0480)	(+ .0080)	
	product	+ 23.5	+ 545.0	- 93.3	+ 14.0	*489*
7	multiplier	(- .0080)	(+ .2160)	(- .0080)	(+ .0000)	
	product	- 23.5	+ 507.4	- 15.5	-	*468*
8	multiplier	(- .0160)	(+ .1840)	(+ .0400)	(- .0080)	
	product	- 47.0	+ 432.2	+ 77.7	- 14.0	*449*
9	multiplier	(- .0176)	(+ .1408)	(+ .0912)	(- .0144)	
	product	- 51.7	+ 330.7	+ 177.2	- 25.1	*431*
Female:	*Projected number* (thousands)	*2 862*	*2 292*	*1 894*	*1 586*	
5	multiplier	(+ .0336)	(+ .2272)	(- .0752)	(+ .0144)	
	product	+ 96.2	+ 520.7	- 142.4	+ 22.8	*497*
6	multiplier	(+ .0080)	(+ .2320)	(- .0480)	(+ .0080)	
	product	+ 22.9	+ 531.7	- 90.9	+ 12.7	*476*
7	multiplier	(- .0080)	(+ .2160)	(- .0080)	(+.0000)	
	product	- 22.9	+ 495.1	- 15.2	+	*457*
8	multiplier	(- .0160)	(+ .1840)	(+ .0400)	(- .0080)	
	product	- 45.8	+ 421.7	+ 75.8	- 12.7	*439*
9	multiplier	(- .0176)	(+ .1408)	(+ .0912)	(- .0144)	
	product	- 50.4	+ 322.7	+ 172.7	- 22.8	*422*

Table V-13 Philippines: *Estimated number of persons 10-14 years of age, by sex and single years of age, 1965, based on projections originally given in five-year age groups*

Sex and age	Operational item	Age group of population					Sum = interpolated number for each age (thousands)
		0-4	5-9	10-14	15-19	20-24	
Male:	*Projected number* (thousands)	*2 938*	*2 349*	*1 943*	*1 745*	*1 371*	
10	multiplier	(- .0128)	(+ .0848)	(+ .1504)	(- .0240)	(+ .0016)	
	product	- 37.6	+ 199.2	+ 292.2	- 41.9	+ 2.2	*414*
11	multiplier	(- .0016)	(+ .0144)	(+ .2224)	(- .0416)	(+ .0064)	
	product	- 4.7	+ 33.8	+ 432.1	- 72.6	+ 8.8	*397*
12	multiplier	(+ .0064)	(- .0336)	(+ .2544)	(- .0336	(+ .0064)	
	product	+ 18.8	- 78.9	+ 494.3	- 58.6	+ 8.8	*384*
13	multiplier	(+ .0064)	(- .0416)	(+ .2224)	(+ .0144)	(- .0016)	
	product	+ 18.8	- 97.7	+ 432.1	+ 25.1	- 2.2	*376*
14	multiplier	(+ .0016)	(- .0240)	(+ .1504)	(+ .0848)	(- .0128)	
	product	+ 4.7	- 56.4	+ 292.2	+ 148.0	- 17.5	*371*
Female:	*Projected number* (thousands)	*2 862*	*2 292*	*1 894*	*1 586*	*1 294*	
10	multiplier	(- .0128)	(+ .0848)	(+ .1504)	(- .0240)	(+ .0016)	
	product	- 36.6	+ 194.4	+ 284.9	- 38.1	+ 2.1	*407*
11	multiplier	(- .0016)	(+ .0144)	(+ .2224	(- .0416)	(+ .0064)	
	product	- 4.6	+ 33.0	+ 421.2	- 66.0	+ 8.3	*392*
12	multiplier	(+ .0064)	(- .0336)	(+ .2544)	(- .0336)	(+ .0064)	
	product	+ 18.3	- 77.0	+ 481.8	- 53.3	+ 8.3	*378*
13	multiplier	(+ .0064)	(- .0416)	(+ .2224)	(+ .0144)	(- .0016)	
	product	+ 18.3	- 95.3	+ 421.2	+ 22.8	- 2.1	*365*
14	multiplier	(+ .0016)	(- .0240)	(+ .1504)	(+ .0848)	(- 0128)	
	product	+ 4.6	- 55.0	+ 284.9	+ 134.5	- 16.6	*352*

Table V-14 Philippines: *Estimated number of persons 15-17 years of age, by sex and single years of age, 1965, based on projections originally given in five-year age groups*

Sex and age	Operational item	Age group of population					Sum = interpolated number for each age (thousands)
		5-9	10-14	15-19	20-24	25-29	
Male:	*Projected number* (thousands)	*2 349*	*1 943*	*1 745*	*1 371*	*1 117*	
15	multiplier	(- .0128)	(+ .0848)	(+ .1504)	(- .0240)	(+ .0016)	
	product	- 30.1	+ 164.8	+ 262.4	- 32.9	+ 1.8	*366*
16	multiplier	(- .0016)	(+ .0144)	(+.2224)	(- .0416)	(+ .0064)	
	product	- 3.8	+ 28.0	+ 388.1	- 57.0	+ 7.1	*362*
17	multiplier	(+ .0064)	(- .0336)	(+ .2544)	(- .0336)	(+ .0064)	
	product	+ 15.0	- 65.3	+ 443.9	- 46.1	+ 7.1	*355*
	Projected number (thousands)	*2 292*	*1 894*	*1 586*	*1 294*	*1 139*	
15	multiplier	(- .0128)	(+ .0848)	(+ .1504)	(- .0240)	(+ .0016)	
	product	- 29.3	+ 160.6	+ 238.5	- 31.1	+ 1.8	*341*
16	multiplier	(- .0016)	(+ .0144)	(+ .2224)	(- .0416)	(+ .0064)	
	product	3.7	+ 27.3	+ 352.7	- 53.8	+ 7.3	*330*
17	multiplier	(+ .0064)	(- .0336)	(+ .2544)	(- .0336)	(+ .0064)	
	product	+ 14.7	- 63.6	+ 403.5	- 43.5	+ 7.3	*318*

By adding together the appropriate numbers from the last columns of tables V-12, V-13 and V-14, we arrive at estimates of our respective school-age population groups, as follows:

Age group	*Population group*	*Sex*	*Number of persons*
5-6	Pre-school-age	Male	1 000 000
		Female	973 000
7-13	Primary school-age	Male	2 919 000
		Female	2 860 000
14-17	Secondary school-age	Male	1 454 000
		Female	1 341 000

We have shown in detail how to apply the "Sprague multipliers" for estimates of single-year population groups from estimates originally given in five-year age goups in order to acquaint the reader with the method. Actually we do not need to go through the full procedure just to obtain our desired results, which is the estimation of specific age groups corresponding to our defined school-age population groups. Table V-15 shows how this can be done by first adding up the separate multipliers for each single year of age within the specified age groups and then applying these aggregate multipliers to the relevant projected numbers. The results thus obtained, shown in the last column of table V-15, are identical to those we have obtained by the extended procedure except for slight discrepancies due to the rounding off of our numbers to the nearest thousand.

Proceeding in the same manner we obtain estimates of these school-age population groups for 1970, 1975, and 1980, using the population estimates reproduced in table V-9. The resulting estimates of school-age population for the period 1965-1980 are summarized in table V-16.

If, for some reason, we needed to make annual estimates of the future school-age population within any of the five-year intervals, we could use the same procedure but would first have to obtain annual estimates of population in five-year age groups from estimates given at five-year intervals, again by interpolation. In the present case, we shall content ourselves with estimates at five-year intervals.[1]

1. The interested reader may wish to work out an exercise to obtain estimates of the various school-age population groups for the Philippines, say for each of the years 1965 to 1969, using the basic data given in this chapter.

Table V-15 Philippines: *Estimated school-age population, in three specified age groups, 1965, based on projections originally given in five-year groups*

Sex and age	Operational item	Age group of population						Sum = interpolated number for each age (thousands)
		0-4	5-9	10-14	15-19	20-24	25-29	
Male:	*Projected number* (thousands)	*2 938*	*2 349*	*1 943*	*1 745*	*1 371*	*1 117*	
5-6	multiplier	(+ .0416)	(+ .4592)	(- .1232)	(+ .0224)	.	.	
	product	+ 122.2	+ 1078.7	- 239.4	+ 39.1	.	.	*1 001*
7-13	multiplier	(- .0432)	(+ .5648)	(+ .9728)	(- .1072)	(+ .0128)	.	
	product	- 126.9	+ 1326.7	+ 1890.2	- 187.1	+ 17.5	.	*2 920*
14-17	multiplier	(+ .0016)	(- .0320)	(+ .2160)	(+ .7120)	(- .1120)	(+ .0144)	
	product	+ 4.7	- 75.2	+ 419.7	+ 1242.4	- 153.6	+ 16.1	*1 454*
Female:	*Projected number* (thousands)	*2 862*	*2 292*	*1 894*	*1 586*	*1 294*	*1 139*	
5-6	multiplier	(+ .0416)	(+ .4592)	(- .1232)	(+ .0224)	.	.	
	product	+ 119.1	+ 1052.5	- 233.3	+ 35.5	.	.	*974*
7-13	multiplier	(- .0432)	(+ .5648)	(+ .9728)	(- .1072)	(+ .0128)	.	
	product	- 123.6	+ 1294.5	+ 1842.5	- 170.0	+ 16.6	.	*2 860*
14-17	multiplier	(+ .0016)	(- .0320)	(+ .2160)	(+ .7120)	(- .1120)	(+ .0144)	
	product	+ 4.6	- 73.3	+ 409.1	+ 1129.2	- 144.9	+ 16.4	*1 341*

Table V-16 Philippines: *Estimated school-age population by specified age groups and by sex, 1965, 1970, 1975, 1980*

(thousands of persons)

Population group	Sex	Estimated number of persons			
		1965	1970	1975	1980
Pre-school-age	Male	1 001	1 176	1 393	1 665
(5 and 6 years)	Female	974	1 149	1 359	1 623
	Both sexes	*1 975*	*2 325*	*2 752*	*3 288*
Primary school-age	Male	2 920	3 482	4 120	4 900
(7-13 years)	Female	2 860	3 396	4 020	4 780
	Both sexes	*5 780*	*6 878*	*8 140*	*9 680*
Secondary school-age	Male	1 454	1 604	1 927	2 282
(14-17 years)	Female	1 341	1 574	1 877	2 225
	Both sexes	*2 795*	*3 178*	*3 804*	*4 507*
Total: three groups	Male	5 375	6 262	7 440	8 847
(5-17 years)	Female	5 175	6 119	7 256	8 628
	Both sexes	*10 550*	*12 381*	*14 696*	*17 475*

Having estimated the future school-age population in three age groups, the next step in our procedure is to estimate what proportion of these population groups may be expected to be attending school during the years 1965-1980. Or rather, we wish to know how many school places should be provided for these age groups of children in the years to come, under certain assumptions concerning the future growth of the school system.

We shall first centre our attention on the primary school-age group, since school attendance in the Philippines is compulsory for every child beginning with the seventh birthday up to the completion of the elementary course, with certain exceptions made in the case of children whose home is too far from the nearest school, or who are being regularly instructed by their parents or guardians, etc.

It would certainly be a desirable goal, to be attained by 1980 if not earlier, to have all the children in the primary school-age group attending school. At present, however, no more than 60-75 per cent of this age group have been attending any school, according to the Censuses of 1948 and 1960 and the Statistical Survey of Households in 1956. The difference between the sexes is rather negligible, with the girls showing a slightly higher attendance ratio than the boys at each of the censuses, but the boys showing a slightly higher ratio from the household survey.

Let us assume that by 1965 the school attendance ratio for both sexes will have reached 80 per cent, and that this ratio will continue to increase steadily by 1 per cent each year, reaching 85 per cent in 1970; and by 1.4 per cent each year thereafter, reaching 92 per cent in 1975 and 99 per cent in 1980. It is perhaps not realistic to aim for a school attendance ratio of 100, even in 1980, since there will likely remain a number of children, who because of mental or physical incapacity would not be able to attend a regular school in any case. On the other hand, by dint of special effort in enforcing compulsory school attendance and by providing enough school teachers and facilities to cope with the increasing school-age population, a school attendance ratio of 99 per cent may well be reached before 1980. For our study, however, let us rest with our assumptions as stated and see what these assumptions would imply in regard to the number of children for whom school places must be provided.

Our estimated number of primary school-age children is expected to increase from 5,780,000 in 1965 to 9,680,000 in 1980. Applying a school attendance ratio rising steadily from 80 per cent in 1965 to 99 per cent in 1980, we obtain the following estimates of the number of children who would be expected to be in school for the years 1965, 1970, 1975 and 1980:

Year	Sex	Number of children (7-13 years)	Assumed attendance ratio %	Number of children expected to be attending school
1965	Male	2 920 000	80	2 336 000
	Female	2 860 000	80	2 288 000
1970	Male	3 482 000	85	2 960 000
	Female	3 396 000	85	2 887 000
1975	Male	4 120 000	92	3 790 000
	Female	4 020 000	92	3 698 000
1980	Male	4 900 000	99	4 851 000
	Female	4 780 000	99	4 732 000

These estimates would imply the provision of approximately 4.6 million school places in 1965 rising to almost 10 million school places in 1980 in order that practically all the children in this age group may be assured of schooling by that time.

However, as we have seen, children at the ages of 5 and 6 years, though not coming under the present compulsory requirement, have in fact been attending school in substantial numbers. According to the Statistical Survey of Households in 1956, about 66,000 boys and about 72,000 girls at these ages were reported to be attending school, constituting some 9 per cent of all boys and over 10 per cent of all girls in this age group. Unless they were to be explicitly exluded from school attendance in the future, we would expect this percentage to increase still further. Let us assume that the school attendance ratio of this age group, both boys and girls, will remain at 10 per cent in 1965, rising to 15 per cent in 1970, 20 per cent in 1975 and 25 per cent in 1980. While some of these children will probably be attending kindergarten, wherever they exist under public or private auspices, the majority of them will most likely show up for enrolment in regular primary schools.

This voluntary school attendance of pre-school-age children is not unusual in many countries and must be taken into consideration when a country is planning for its future development of school education. Furthermore, in the course of the next twenty years, as primary education approaches universality in the Philippines, it is not inconceivable that there may be demand for lowering the age of compulsory schooling, say to 6 years instead of 7. In that event our estimate of 25 per cent school attendance for this age group would have to be raised to something like 50 per cent, if and when compulsory schooling is introduced at the age of 6 years.

Under our assumptions concerning the school attendance ratio of the pre-school-age group, we envisage the number of children in this age group attending school in the coming years as follows:

Year	Sex	Number of children (5-6 years)	Assumed attendance ratio %	Number of children expected to be attending school
1965	Male	1 001 000	10	100 000
	Female	974 000	10	97 000
1970	Male	1 176 000	15	176 000
	Female	1 149 000	15	172 000
1975	Male	1 393 000	20	279 000
	Female	1 359 000	20	272 000
1980	Male	1 665 000	25	416 000
	Female	1 623 000	25	406 000

Now we come to the third of our school-age population groups, those 14-17 years of age. The attendance ratio of this age group was, as we have seen, exceptionally high at the time of the 1948 Census, being 65 per cent for the male population and nearly 59 per cent for the female population. At the 1960 Census these percentages had decreased to 40 per cent male and 34 per cent female. We might assume the male attendance ratio for this age group to rise to 45 per cent in 1965, 55 per cent in 1970, 65 per cent in 1975 and 75 per cent in 1980; and the female attendance ratio from 40 per cent in 1965 to 50 per cent in 1970, 60 per cent in 1975 and 70 per cent in 1980.

It must be remenbered that many of the children in this age group, which we have designated as the secondary school-age group, have actually been attending primary schools, due to delayed starting of school attendance, interruption of primary schooling and other reasons. As conditions improve in this respect, we may expect most or all of this age group to be attending schools at the secondary level.

It appears from the recent school enrolment statistics that, at this level of education, vocational schools at present account for less than 15 per cent of all pupils enrolled, the proportion being less than 30 per cent in public schools and less than 10 per cent in private schools. In the course of further development of secondary education, we might expect more and more pupils after completing their primary education to continue in vocational courses, in order to qualify for occupations which do not require university or professional training.

In the light of these considerations we believe our estimate of the attendance ratio for this age group rising to 75 per cent for boys and 70 per cent for girls over a twenty-year period may not be too optimistic. In any case, these questions concerning educational policy lie beyond the competence of the technician, but the latter must nevertheless anticipate any possible change in trends of school enrolment and take due account of such trends in making his estimates.

On the basis of the assumptions stated above, we arrive at estimates of the number of persons in the age group 14-17 years expected to be attending schools in the years ahead, as follows:

Year	Sex	Number of children (14-17 years)	Assumed attendance ratio %	Number of children expected to be attending school
1965	Male	1 454 000	45	654 000
	Female	1 341 000	40	536 000
1970	Male	1 604 000	55	882 000
	Female	1 574 000	50	787 000
1975	Male	1 927 000	65	1 253 000
	Female	1 877 000	60	1 126 000
1980	Male	2 282 000	75	1 712 000
	Female	2 225 000	70	1 558 000

We shall now summarize our various estimates regarding the number of children and youth expected to be attending school during the period 1965-1980, based on assumed school attendance ratios as stated in the preceding section. This is done in table V-17.

These estimates of persons in the various age groups expected to be attending school may be compared with our estimates of school-age population given in table V-16. We note that the total number of persons expected to be attending school- any school - would increase from about 6 million in 1965 to nearly 8 million in 1970, over 10 million in 1975 and almost 14 million in 1980. The age group most nearly complete in school attendance by 1980 will be the primary school-age group; nearly three-fourths of the secondary school-age group and exactly one-fourth of the pre-school-age group are envisaged to be in school by that time, if these estimates turn out to be close to reality. Of course these proportions are the result of our assumptions regarding the school attendance ratios of the different age-groups.

These figures refer to persons in the different age groups expected to be attending school, without specifying the level of education they will be

receiving or the type of school they will be attending. We shall next attempt to estimate the expected enrolment at the first level (primary) and the second level (secondary) of education, and if possible to indicate the possible distribution of pupils, at the first level of education, between urban and rural areas; and at the second level of education, between public and private schools, and between general and vocational schools.

Table V-18 shows that, in 1950 about 89 per cent of all pupils enrolled in school were found in the primary (including intermediate) schools. By 1955 the proportion of primary school pupils had decreased to 85 per cent, but it had increased again to 86 per cent in 1960. As total school enrolment increases further, we expect this proportion to decrease, since the number of over-aged pupils in primary schools will tend to be reduced and at the same time more and more pupils completing primary education will continue in some form of secondary education. Therefore we shall assume that the percentage of total school enrolment in primary schools will decrease from 85 per cent in 1965 to 82 per cent in 1970; to 79 per cent in 1975 and to 76 per cent in 1980. The percentage of total school enrolment in secondary schools will increase correspondingly.

Table V-17 Philippines: *Estimated number of persons attending school, by specified age groups and by sex, 1965, 1970, 1975, 1980*

(Thousands of persons)

Population group	Sex	Estimated number attending school			
		1965	1970	1975	1980
Pre-school-age	Male	100	176	279	416
(5-6 years)	Female	97	172	272	406
	Both sexes	*197*	*348*	*551*	*822*
Primary school-age	Male	2 336	2 960	3 790	4 851
(7-13 years)	Female	2 288	2 887	3 698	4 732
	Both sexes	*4 624*	*5 847*	*7 488*	*9 583*
Secondary school-age	Male	654	882	1 253	1 712
(14-17 years)	Female	536	787	1 126	1 558
	Both sexes	*1 190*	*1 669*	*2 379*	*3 270*
Total: three groups	Male	3 090	4 018	5 322	6 979
(5-17 years)	Female	2 921	3 846	5 096	6 696
	Both sexes	*6 011*	*7 864*	*10 418*	*13 675*

According to the Statistical Survey of Households, the total population of the Philippines in 1957 was distributed about 35 per cent in urban areas and 65 per cent in rural areas. It is said that the definition of "urban" areas used in the Survey is likely to have overstated the proportion of the urban population. On the other hand, we have reason to believe that urban schools enrol a larger share of the country's school-age children than its indicated proportion of the total population. Leaving out of consideration the distribution of school enrolment at the secondary level, and for our purpose concentrating on the primary school enrolment, we might start with an assumption that some 40 per cent of the present enrolment is found in urban primary schools and 60 per cent in rural primary schools.

Table V-18 Philippines: *School enrolment by level of education, observed 1950-1960; estimated 1965-1980*

(Thousands of pupils)

Year	Total school enrolment	First level (primary)		Second level (secondary)	
		Number	Per cent	Number	Per cent
Observed:					
1950	4 567	4 083	89	484	11
1951	4 539	3 930	87	609	13
1952	4 173	3 583	86	590	14
1953	4 124	3 499	85	625	15
1954	4 086	3 443	84	643	16
1955	4 127	3 499	85	628	15
1956	4 293	3 674	86	619	14
1957	4 368	3 735	86	633	14
1958	4 591	3 970	86	621	14
1959	4 788	4 144	87	644	13
1960	4 856	4 197	86	659	14
Estimated:					
1965	6 011	5 109	85	902	15
1970	7 864	6 448	82	1 416	18
1975	10 418	8 230	79	2 188	21
1980	13 675	10 393	76	3 282	24

It has been estimated that with further urbanization of the country, the proportion of the total population living in rural areas may be expected to decrease to about 56 per cent by 1977.[1] In order to assure a more equitable distribution of future enrolment in primary schools between the urban and rural areas, let us assume a gradual increase of the proportion of urban school enrolment from 40 per cent at present to 44 per cent in 1980, with a corresponding decrease of the rural school enrolment from 60 per cent at present to 56 per cent in 1980.

Under these assumptions, and based on the reported primary school enrolment in 1960 and our estimated enrolment in future years, we may expect the respective enrolment in urban and rural primary schools to develop as shown in table V-19.

It is evident from these estimates that much effort will be called for in the development of primary schools in rural areas, for even with a decreasing percentage of rural population, there would still be a substantial increase in total enrolment in rural primary schools, averaging some 100,000 each year in the near future and increasing to an average of some 200,000 each year in the decade of the 1970's.

1. See: United Nations. *Population growth and manpower in the Philippines*, Appendix C, "Urban and rural population estimates and projections." For a discussion on the implications of future population growth in regard to educational requirements in the Philippines, see chapter VII, section B, of the same publication.

Table V-19 Philippines: *Estimated distribution of primary school enrolment by urban and rural areas, 1960-1980*

(Thousands of pupils)

Year	Estimated primary school enrolment[1]	Urban primary schools		Rural primary schools	
		Assumed per cent	Number of pupils	Assumed per cent	Number of pupils
1960	4 197	*40*	1 679	*60*	2 518
1965	5 109	*41*	2 095	*59*	3 014
1970	6 448	*42*	2 708	*58*	3 740
1975	8 230	*43*	3 539	*57*	4 691
1980	10 393	*44*	4 573	*56*	5 820

1. Reported enrolment for 1960

Table V-20 Philippines: *Estimated enrolment in all secondary schools, and distribution of enrolment between public and private schools according to three different assumptions, 1965, 1970, 1975, 1980*

(Thousands of pupils)

Year	Estimated enrolment at second level	Assumed distribution[1]	Public schools		Private schools	
			Per cent	Number of pupils	Per cent	Number of pupils
1965	902	(a)	*40*	361	*60*	541
		(b)	*45*	406	*55*	496
		(c)	*50*	451	*50*	451
1970	1 416	(a)	*40*	566	*60*	850
		(b)	*50*	708	*50*	708
		(c)	*60*	850	*40*	566
1975	2 188	(a)	*40*	875	*60*	1 313
		(b)	*55*	1 203	*45*	985
		(c)	*70*	1 532	*30*	656
1980	3 282	(a)	*40*	1 313	*60*	1 969
		(b)	*60*	1 969	*40*	1 313
		(c)	*80*	2 626	*20*	656

1. For explanation of the alternative assumptions, see text.

Private schools have played an important role in the development of education in the Philippines, especially at the secondary and higher levels. When the Department of Instruction was created in 1901 under Act No. 74 of the Philippines Commission, it was provided that "nothing in this Act shall be construed in any way to forbid, impede, or obstruct the establishment and maintenance of private schools".[1] Since in recent years private schools

1. See: Unesco. *World Survey of Education*, II, Primary education, p. 848.

have accounted for less than 5 per cent of the total enrolment in all primary schools, we shall not concern ourselves further with the place of private schools at that level. However, as far as secondary schools are concerned, private school enrolment at present accounts for more than 60 per cent of all pupils at this level. We have not sufficient knowledge of the situation to guide us in estimating the distribution of secondary school enrolment between public and private schools in future years.

Simply for purposes of illustration we have estimated separately what could be the number of pupils expected to be enrolled in public and private schools at the secondary level during the 1965-1980 period, according to three different assumptions: (a) that the respective percentages of enrolment in public and private schools would remain constant at approximately the present level, that is, 40 per cent public and 60 per cent private; (b) that the percentage of total enrolment in the public schools would increase slowly from the present level of 40 per cent to something like 60 per cent by 1980; (c) that private secondary schools would maintain their numerical strength throughout the period while most if not all the increase in future enrolment would come from the public schools, so that the percentage of all secondary enrolment found in public schools would increase to about 80 per cent by 1980. We are not competent to express any preference for any of these assumptions, but have worked out their implications as shown in table V-20.

According to somewhat incomplete data, the proportion of vocational pupils in the total enrolment of all schools at the second level, for the years 1953 to 1960, has fluctuated between 9 and 17 per cent. For public schools only, this proportion has increased from about 15 per cent in 1950 to almost 25 per cent in 1960. With further development of secondary vocational education, particularly under public auspices, we may expect the over-all proportion of pupils in vocational schools to rise from, say, 20 per cent in 1965 to about 30 per cent in 1980. The latter percentage may be exceeded if there should be a parallel development of vocational education under private auspices, or if the authorities should adopt a policy favouring the accelerated development of secondary vocational schools in order to meet the rising demand for skilled manpower at the sub-professional level.

Under our assumptions as stated above, we expect to find the total number of pupils at the second level enrolled in vocational courses to increase rapidly from about 180,000 in 1965 to nearly 1 million in 1980, as shown in table V.21.

Table V-21. Philippines: *Total enrolment at the second level, and distribution of enrolment between general and vocational secondary schools, observed 1954-1960, estimated 1965-1980*

(Thousands of pupils)

Year	Total enrolment at second level	General secondary schools		Vocational secondary schools	
		Number of pupils	Per cent	Number of pupils	Per cent
Observed:					
1953	625	540	*86*	85	*14*
1954	643	540	*84*	103	*16*
1955	628	522	*83*	106	*17*
1956	619	518	*84*	101	*16*
1957	633	532	*84*	101	*16*
1958[1]	621	564	*91*	57	*9*
1959[1]	644	575	*89*	69	*11*
1960[1]	659	564	*86*	95	*14*
Estimated					
1965	902	722	*80*	180	*20*
1970	1 416	1 104	*78*	312	*22*
1975	2 188	1 641	*75*	547	*25*
1980	3 282	2 297	*70*	985	*30*

1. Certain types of private vocational schools, with reported enrolment ranging from 35,000 to 56,000 during the years 1953-1957, were not included in the reports for 1958-1960.

4. TESTING THE ENROLMENT ESTIMATES

Having arrived at our estimates of future school enrolment for the period 1965-1980, we shall now test these estimates for their consistency and reasonableness, in the light of historical data we have at our disposal. From table V-7, we find that total primary and intermediate school enrolment (public schools only) had increased from 1,144,000 in 1930 to 4,001,000 in 1960. This implies an average annual rate of increase over the 30-year period of about 4.3 per cent. Part of this increase was due to the growth of the school-age population, but the implied rate of growth of the primary school enrolment was obviously greater than the rate of population growth, which means that there was a net expansion of the primary school system during that period. In order to assess this net expansion of the primary school system over and above the rate of population growth, we shall relate the enrolment figures to a selected age group of the population, thus obtaining a "primary school enrolment ratio" which can serve as a basis of comparison independent of the growth of population. For international comparisons it is customary to use the age group 5-14 years for the computation of a "primary school enrolment ratio".

Based on data published in the *World Survey of Education,* Volume II, and brought up to date, table V-22 shows that the "primary school enrolment ratio" (for public schools only) had increased from 31 for the 1930-1934 period to 56 for the 1955-1959 period. This gives an average annual rate of increase of about 2.4 per cent over the entire period of 25 years (counting from the middle of the 1930-1934 period to the middle of the 1955-1959 period).

We shall now take the total primary school enrolment (public and private schools combined) reported for 1950-1960, and relate it to the population 5-14 years old according to estimates and census enumeration. Thus we find a present enrolment ratio of about 54 having dropped from 63 and 58 in earlier periods (see table V-23). By relating our estimated primary school enrolment for 1965, 1970, 1975 and 1980 to the estimated population in the 5-14 age group for the respective years, we anticipate this ratio to increase successively up to 73 by the year 1980. This would imply an average annual rate of increase of the enrolment ratio amounting to only 1.6 per cent, over the next 20-year period. It is reasonable to expect that the rate of growth of primary school enrolment will tend to level off as we approach the goal of universal primary education. Furthermore, since we are relating

Table V-22 Philippines: *Enrolment in public primary schools in relation to estimated population 5-14 years of age, 1930-1959*

Period	Average annual enrolment in public primary schools (thousands)	Estimated population 5-14 years of age (thousands)	Primary school enrolment ratio (per cent)
1930-1934	1 137	3 680	*31*
1935-1939	1 466	4 139	*35*
1940	1 923	4 411	*44*
1945-1949	3 300	5 372	*61*
1950-1954	3 567	5 907	*60*
1955-1959	3 644	6 519	*56*

Source : Unesco. *World survey of education,* II, Primary education; enrolment figures for 1955-1959 from Unesco files, and estimated population 5-14 years of age based on population estimates published in the United Nations *Demographic Yearbook,* 1960.

Table V-23 Philippines: *Total enrolment at the first level of education (public and private), in relation to estimated population 5-14 years of age, observed 1950-1960; estimated 1965-1980*

Period or year	Total enrolment at first level of education (thousands)	Estimated population 5-14 years of age (thousands)	Primary school enrolment ratio (per cent)
Observed:			
1950-1954 (average)	3 708	5 907	63
1955-1959 (average)	3 804	6 519	58
1960	4 197	[1] 7 805	54
Estimated:			
1965	5 109	8 478	60
1970	6 448	10 045	64
1975	8 230	11 895	69
1980	10 393	14 157	73

1. Census of 1960.

estimated enrolment in a 6 or 7-year primary school to the estimated population in a 10-year age group, an enrolment ratio of around 70 should be considered satisfactory. Hence we conclude that our estimates of future school enrolment at this level of education are consistent with historical trends and reasonably attainable.

Similarly, we find that the secondary school enrolment ratio, based on enrolment in public schools only, related to the estimated population 15-19 years of age, had increased from about 4.3 in 1930-1934 to about 9.3 in 1955-1959, rising at an average rate of approximately 3.1 per cent per year over a period of 25 years. (See table V-24). Our estimates of the future enrolment at the second level, both public and private, imply a secondary school enrolment ratio to rise from about 23 in 1960 to about 62 in 1980, at an average annual rate of increase of approximately 5.1 per cent. (See table V-25). This would seem to call for very special effort towards the development of secondary education, both general and vocational, over the next two decades. Since we are relating our estimates of enrolment for a four-year secondary school to a five-year age group of population, theoretically the enrolment ratio could reach a maximum around 80 per cent. Thus the anticipated ratio of 62 for 1980 is still well below the theoretical maximum.

Comparing tables V-23 and V-25, it will be noted that the rate of progress envisaged for the development of education at the second level is much higher than the anticipated rate of progress for the development of primary education. This is consistent with the normal tendency for a rate of increase to level off somewhat as it approaches the upper limit, which is the case with the development of primary education in the Philippines, whereas this is not so with the stage of development of secondary education, which is still well below the maximum level.

These comparisons are more clearly shown in graphic form. Chart V-1 shows the trends of primary and secondary school enrolment up to 1960, based on published data for public schools only during the earlier years, and for public and private schools combined between 1950 and 1960. The two broken lines indicate the anticipated development of education at the first and second levels between 1960 and 1980, based on our estimates worked out in this chapter.

We have now completed our task of estimating the future school enrolment for the Philippines, for the period from 1965 to 1980, based on the data we have at hand and the methods explained in this chapter. It must be admitted that better estimates could no doubt be obtained by those in possession of more detailed knowledge of the educational situation in the Philippines. We shall be satisfied if we have only shown by this exercise one of the ways in which this difficult task may be accomplished.

Table V-24 Philippines: *Enrolment in public secondary schools in relation to estimated population 15-19 years of age, 1930-1959*

Period	Average annual enrolment in public secondary schools (thousands)	Estimated population 15-19 years of age (thousands)	Secondary school enrolment ratio (per cent)
1930-1934	61	1 428	4.3
1935-1939	72	1 603	4.5
1940	102	1 712	5.9
1945-1949	176	2 012	8.8
1950-1954	207	2 148	9.6
1955-1959	228	2 446	9.3

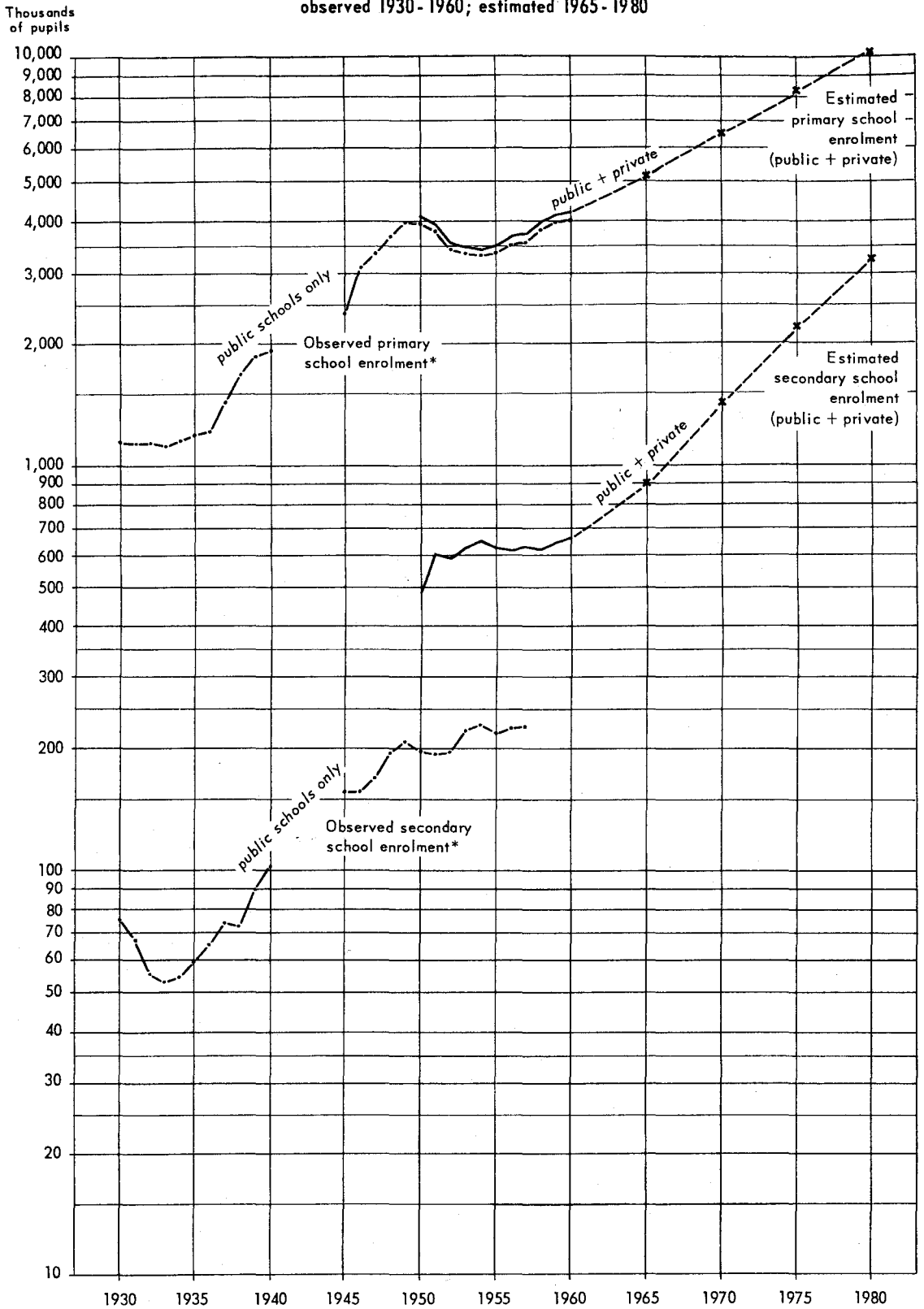
Source: Unesco. *World survey of education*, III, Secondary education; enrolment figures for 1955-1959 from Unesco files, and estimated population 15-19 years of age based on population estimates published in the United Nations *Demographic Yearbook*, 1960.

Table V-25 Philippines: *Total enrolment at the second level of education (public and private), in relation to estimated population 15-19 years of age, observed 1950-1960; estimated 1965-1980.*

Period or year	Total enrolment at second level of education (thousands)	Estimated population 15-19 years of age (thousands)	Secondary school enrolment ratio (per cent)
Observed:			
1950-1954 (average)	590	2 148	27
1955-1959 (average)	629	2 446	26
1960	659	[1]2 814	23
Estimated:			
1965	902	3 331	27
1970	1 416	3 768	38
1975	2 188	4 492	49
1980	3 282	5 331	62

1. Census of 1960.

Chart V - 1. Philippines: Total enrolment in primary and secondary schools, observed 1930 - 1960; estimated 1965 - 1980



*Data not available for 1941 - 1944.