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SPAIN

EDUCATION

FOR ECONOMIC AND SOCIAL DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC
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The Mediterranean Regional Project

SPAIN

EDUCATION FOR ECONOMIC AND SOCIAL DEVELOPMENT

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Page

TABLE OF CONTENTS

Page

CHAPTER II (contd.)

Page

INDEX OF TABLES

Page

CHAPTER II (Contd.)

Page

CHAPTER III (Contd.)

CHAPTER IV

Page

CHAPTER IV (Contd.)

Page

INDEX OF GRAPHS

FOREWORD

In December 1961, Spain became a member of the Mediterranean Regional Project for the study of educational requirements in the light of economic and social development objectives.

The agreement between the O.E.C.D. and Spain stipulates that the signatory country shall organise the work, appointing a competent person as head of the working group. The person appointed, an eminent professor, being unfortunately obliged through unforeseeable circumstances to resign within a very short space of time, the undersigned decided, in agreement with the O.E.C.D. Secretariat, to assume personal responsibility for the direction of the work, particularly in view of the delay in starting the project in the case of Spain. It is undoubtedly to these circumstances that any faults in the report are due.

The Spanish team was made up by the economists and statisticians Miss Consuelo Calavia, Miss Carmen Ruiz, Messrs Luis Cordero, Carlos Diaz de la Guardia and Jaime Bajon and for a limited time, Messrs. Jose Luis Diaz Jares and Antonio Sanchez Burgos. The economists Messrs Pedro Garcia Ferrero and Fernando Rodriguez Garrido have been collaborating in editing this Report.

In October 1962, Fellow economists of the O.E.C.D. joined the Spanish team: Messrs Lawrence Coore, Louis Emmerij, Fred Scholten and Hans Thias. Mr. Mariano Rubio, expert of the O.E.C.D. has been acting since then as co-ordinator of the entire working group. It is worth mentioning that the assistance rendered by these O.E.C.D. specialists has been of inestimable value to the work.

A national supervisory committee was formed at "Director General" levels by the Prime Minister's Office, and the Ministries of Finance, Foreign Affairs, Industry, and Education.

This draft report completed in July 1963, has been examined and approved by the National Directors' Committee for official presentation to the O.E.C.D.

Work on the project has been accelerated to make up for the delay behind other nations in starting. "Ad hoc" statistical data have had to be compiled for the purposes of the project, but lack of time has prevented developments in this direction to the extent desired. In this respect, we must thank the National Statistical Institute for its valuable assistance in providing information specially prepared for this report - manpower statistics according to educational level

and occupation - as well as a number of firms, selected as the most modern in each industrial branch, for their willing co-operation in the survey we conducted into the employment structures of the most advanced Spanish firms.

The establishment of quantitative objectives for attainment by 1975 and overall analysis of education in Spain permit the formulation of a number of recommendations regarding policy. Education must be planned with due regard to the inter-dependence of educational cycles, long-term economic development, and long-term educational development. Lack of time has prevented closer study of such matters as extra-scholastic education, the cost of teaching and the financing thereof, procedures for reinforcement of the teaching body, and so forth. Results should therefore be considered as a first approximation.

In any event, a report such as the present cannot deal with all the aspects which the authorities have to consider. Budget possibilities will be influenced by the necessities of other sectors and by economic circumstances. The distribution of available resources is a matter for the decision of the Government. Moreover, the basically economic criteria adopted, although of major importance, are certainly not the only considerations involved. Subject to the above inevitable limitations, the present report is intended as a valid instrument for the working out of a long-term educational policy.

The publication of this Report coincides with the approval by the Spanish Government of the Economic Development Plan for the four years 1964/1967. Despite the fact that the two studies involved were made quite independently there is fortunately a large measure of agreement between the budget estimates in the Report and the figures in the Plan.

We shall consider that this Report has fulfilled its purpose if it helps to arouse greater interest in educational problems, and can serve as a reference document for the authorities responsible for the Plan's implementation.

Madrid, 1st December, 1963
Dr. JOAQUIN TENA ARTIGAS
Head of the Spanish National
Team for the Mediterranean
Regional Project

CHAPTER I

A SUMMARY OF EDUCATIONAL POLICY 1964-1975

I.1. SUMMARY OF POLICY PROPOSALS

In December 1961 the Spanish Government established, in co-operation with the Organisation for Economic Co-operation and Development, a team to study Spain's long-term needs for education, particularly in the light of the country's needs for qualified manpower, and to prepare recommendations on the use of resources to meet these needs. The work is now completed, and this first Chapter sets out the policy recommendations of the authors of the report. These recommendations are summarised in the paragraphs which follow.

It is proposed that Spain should embark on a major programme of educational development in line with its plans for economic growth which provide for the doubling of the gross national product between 1961 and 1975. This programme, if carried out to the full, would by 1975 put Spain on approximately the same level of educational endeavour as that of France in 1960.

At the primary or lower secondary level enrolments in the 6-13 age group should, according to pending legislation, be practically 100 per cent. The number of pupils will increase from 3,460,900 in 1960 to 4,713,000 in 1975, and the number of teachers from 120,000 to 200,000. Over a million of new pupil places will have to be built by 1975.

At the secondary level 48 per cent of the 14-17 age group should be enrolled by 1975. The number of pupils in general and technical schools will rise from 633,000 in 1960 to well over 2,000,000 in 1975, and 70,000 full-time teachers will be required, as against some 25,000 teachers in 1960, most of them on a part-time basis. Over a million of new pupil places will have to be built during this period.

At the higher level the enrolment ratio of the 18-24 age group should reach 6.4 per cent by 1975, corresponding to 200,000 students, compared with 76,000 in 1960. Some 9,000 full-time teachers will be required, as against 6,300 part-time teachers in 1960, and 44,000 new student places will have to be built.

In order to achieve these targets, together with the required qualitative improvement of education, total public and private expenditure will have to increase more than fourfold, from 15,000 million to 60,000 million pesetas, between 1960 and 1975. In 1975 public expenditure on education should represent some 4 per cent of gross national product.

It is recommended that a planning service be set up within the Ministry of National Education and in close contact with other ministerial departments concerned, in order to work out priorities and to guide operational decisions in the field of education on the basis of long-term objectives. This service should function on a permanent basis, undertaking the necessary analyses and continually adjusting objectives in the light of new information available. In particular, it should be responsible for the Spanish side of the Second Phase of the O.E.C.D. Mediterranean Regional Project which will be directed towards a more efficient use of resources in the development of the educational systems of the participating countries. The Spanish Government has made arrangements for participating in this Second Phase, and the planning service would be the appropriate agency to be put in charge of the Spanish part of this programme.

The following problems must be given special attention by those responsible for the implementation of the educational plan:

(i) the increase of educational opportunities for the lower income groups;

(ii) the reduction of regional inequalities in educational opportunities;

(iii) increased educational opportunities for women;

(iv) the reduction of wastage through pupils dropping out or repeating courses.

One of the most important tasks of the Spanish educational system which should receive high priority is the improvement of scientific and technical education at university level and the expansion of technical education at the secondary level.

The expansion and improvement of the educational system will depend clearly on the number and quality of the teaching staff. It is therefore proposed that the present teaching force, which consists largely of inadequately trained and badly remunerated part-time teachers, particularly at the secondary and higher levels of education, be replaced by properly trained full-time teachers receiving salaries commensurate with the importance of their task and comparable to those of other professions. Special regard should be paid to the possibilities of increasing the employment of women teachers.

In order to ensure the necessary places for the greatly increased number of pupils and to improve the existing facilities which are inadequate, especially at the secondary and higher levels, a vast building programme will have to be put into operation. This programme should be worked out in close co-operation with the O.E.C.D. which has been studying and establishing criteria of functional standards and limits of expenditure for school building.

One of the main obstacles to the judicious planning of education is the lack of information and statistical data. The report therefore recommends strongly that the educational planning service to be created should, in close collaboration with the National Institute of Statistics, collect the statistical information necessary for a coherent planning of education.

I.2. EDUCATION AND ECONOMIC DEVELOPMENT

The recent economic expansion of the country has not been matched by the development of the educational system. Priority has been given to the reconstruction and modernisation of plant, buildings and infrastructure, while the educational infrastructure has been largely neglected. The disadvantages of this policy have become apparent only gradually, but a point has now been reached where a shortage of qualified manpower may prove a real obstacle to further economic growth.

In order to make up for lost time and to narrow the gap between Spain and the industrially advanced European countries - a prerequisite for the integration of Spanish economy into European economy - the first Economic and Social Development Plan 1964-67 has set a relatively ambitious growth rate of six per cent per annum. Such a rate naturally implies major changes in the qualification structure of the labour force. If industry, agriculture and transport are to be modernised and put on a competitive footing with those of other countries, they must not only adopt new techniques, but above all find the qualified manpower to operate these techniques and put them to the best possible use.

Now the qualification structure of the Spanish labour force is not in any way appropriate to such development needs. Hence the importance of planning the educational structure with a view to meeting the manpower needs of an expanding economy. The present study represents a first attempt at such planning within the framework of the Mediterranean Regional Project. It deals mainly with formal education, though it stresses the importance of policies aimed at the training of skilled workers. The aim of the First Phase of the Mediterranean Regional Project is to outline the growth of education which is necessary to produce the skilled manpower required for accelerated economic development. This is what the report has done with regard to Spain for the period ending in 1975.

I.3. FUTURE EDUCATIONAL REQUIREMENTS - QUANTITATIVE OBJECTIVES

The assessment of future educational requirements has been based primarily on estimates of the needs of the economy for qualified manpower. The educational targets for 1975 proceed from the assumption that a doubling of the gross national product between 1961 and 1975 demands corresponding changes in the size and qualification structure of the active population. Greater emphasis will have to be laid, especially in industry, on the four highest occupational categories, i.e. scientific and technical professional workers; other professional workers; technicians; and administrative, executive and managerial workers. This naturally implies a marked improvement in the educational qualifications of the active population.

Two million more people are expected to be at work in 1975, but while the number of those working in industry and services will increase by three million, the number of those working in agriculture will decline by one million. The striking differences which now exist in the distribution of qualified people between these three sectors will have to be reached by 1975. While in 1960 more than four-fifths of the labour force had had elementary education only, 70 per cent of those who had had no education at all were in agriculture. The proportion of the four highest occupational categories in agriculture was very small. By contrast, nearly three-quarters of those who had received secondary or higher education were employed in services, but only 24 per cent in industry.

The most important change will take place in industry, where the proportion of the first three occupational categories, i.e. professional workers and technicians, will reach 3.4 per cent of the industrial labour force in 1975, as compared with 1.9 per cent in 1960. The largest proportionate increase will occur in the third category, that of technicians. At present, there are two professional workers for every technician, and such proportion implies a very unsatisfactory utilisation of highly qualified personnel. Within the group of professional workers, the proportion of scientists and technologists should be increased in view of their importance for the implementation of the Economic and Social Development Plan.

In agriculture, the improvement of agricultural techniques necessary for a rise in productivity will require a very large increase in the number of highly qualified personnel and technicians. Their proportion in the agricultural labour force should rise from 0.1 per cent in 1960 to 0.5 per cent in 1975.

There will also be a large increase in the number of higher and technical personnel in services, especially in trade, transport, banking and education.

The effects of these changes in terms of the desirable distribution of the active population according to educational standards is shown in Table 1.

1.3.1. Graduations and enrolments

This improvement of the educational level of the population will involve considerable changes in the educational system. First, compulsory education is to be extended, according to legislation now before Parliament, by two years, from the age of six to the age of thirteen inclusive, so as to provide a broader intake basis for secondary general and secondary technical education. Middle-level technical personnel is still very scarce in Spain, and a massive increase of the number of graduates from secondary technical schools is urgently needed. Table 2 shows the increases anticipated in the number of graduates by 1975.

To cover these requirements, the educational system will have to increase its output of graduates progressively from all levels of education as a result of the phased growth of the school population. The estimates of Table 2 take into account the fact that not all the graduates will become part of the labour force; consequently, the numbers graduating must exceed the manpower requirements by a proportion which varies according to the estimated participation rate of each type of graduates in the active population. A high rate of participation cannot be expected as a matter of course, especially in the case of women; this must be the aim of a comprehensive manpower policy which covers employment as well as education. Particular attention should be paid to the employment of women graduates, whose rate of participation in the labour force is very low at present.

If the necessary number of graduates is to materialise, enrolments in both public and private education must rise from about 4 million in 1960 to over 6 million by 1975 (1).

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(1) Excluding kindergartens and infant schools.

TABLE 1: PERCENTAGE DISTRIBUTION OF THE ACTIVE POPULATION ACCORDING TO EDUCATIONAL LEVELS 1960 AND 1975

Year	Higher education	Secondary education	Primary education	No education
1960	1.7	3.8	85.5	9.0
1975	2.2	6.2	91.6	-

TABLE 2: NUMBER OF GRADUATES FROM SECONDARY AND HIGHER EDUCATION: 1961 AND 1975

(in thousands)

Level	1961	1975
Secondary		
General(1)	24.4	145.0
Technical	4.4	54.0
Lower vocational training	5.8	108.0
Higher	5.7	27.9
Scientific and technical	(2.0)	(11.3)
Other (including medical subjects)	(3.7)	(16.6)

(1) Including commercial schools

TABLE 3: ENROLMENTS IN EACH LEVEL OF EDUCATION: 1960 AND 1975

(in thousands)

Level	1960	1975
Primary	3224.5	3806.4
Secondary	633.2	2081.6
General	(515.6)	(1571.5)
Technical	(56.7)	(245.3)
Lower vocational	(60.9)	(264.8)
Higher	75.6	199.3
Scientific and technical	(31.7)	(80.6)
Other	(43.9)	(118.7)
Total school population	3933.3	6087.3

The 6-13 age group will be completely enrolled. For the 14-17 group the enrolment ratio will treble, and in higher education it will rise by well over 150 per cent. The imbalance of the present system where 82 per cent of the school population are enrolled at the primary level will thus be corrected: by 1975, the secondary and higher levels should account for some two-fifths of the school population, as against less than one-fifth in 1960. Greater emphasis will have to be laid on scientific and technical education, particularly technical education at the secondary and lower vocational levels.

I.3.2. Teacher requirements

The targets for graduations and enrolments as shown above are based on the assumption that the "productivity" of the educational system will improve as a result of a decrease in the number of pupils who repeat courses or drop out before having completed their studies. This will depend largely on the number and quality of the teaching staff, particularly at

the secondary and higher educational levels. The aim is to create a force of full-time teachers well qualified and adequately remunerated to replace the present force which consists largely of badly remunerated part-time teachers with inadequate qualifications.

TABLE 4: NUMBER OF TEACHERS IN EACH LEVEL OF EDUCATION, 1960, 1975

Teachers	1960	1975
Primary	99,448	141,326
Secondary		
General	19,384	51,267
Technical	1,861	9,812
Lower vocational	na.	8,827
Higher	6,313	8,950

No difficulties are likely to arise at the primary level. The 64,000 teachers needed to achieve a pupil/teacher ratio of 35:1 and to allow for replacements can be easily provided by the primary teacher training schools.

At the secondary level, the anticipated development of the "bachillerato general" will require some 51,000 full-time teachers by 1975, compared with 21,000 teachers, many of whom were part-time, in 1960. There is likely to be a shortage of some 14,000 teachers between 1960/61 and 1966/67 and emergency measures may have to be taken, particularly as far as science teachers are concerned, to meet this situation. These measures would include the recruitment of large numbers of teachers without degrees (e.g. students in higher education) and the upgrading of suitable primary school teachers who are in surplus and could be trained to teach the lower forms of secondary schools. In time, as teachers with degrees become available, those without degrees could be eliminated; in fact, by 1975 the latter should represent only a quarter of the teaching force at the secondary level. By then, the pupil/teacher ratio will be 30:1 in

general secondary, primary teacher training and lower vocational training schools, and 25:1 in secondary technical and medico-technical schools.

The greatest difficulties with respect to teacher supply are likely to arise in higher education. A ratio of 20 students to one full-time teacher in science, technological and medical faculties, and a ratio of 25:1 in other faculties will require a full-time teaching staff four times larger than that of 1960. This calls for a far greater flexibility in the methods of selection and system of promotion of teachers at the secondary as well as higher level than has been the case until now, quite apart from financial incentives designed to encourage full-time teaching. The improvement in the quality of teaching, especially at the higher levels, can be promoted by a system of scholarships and financially assisted study at the universities of more advanced countries.

I.3.3 Building requirements

The requirements for school building take account of the future needs for places (which are a function of enrolments and of the degree to which available places are used) and, in so far as available information allows, of the state of existing facilities.

The situation at the primary level may be considered tolerable owing to the School Building Plan which has provided space for a rapidly growing number of pupils. However, many buildings need renovating, and many one-teacher schools, often situated within a relatively short distance from each other, should be replaced by a smaller number of schools with several classes, making greater use of the school transport system.

At the secondary level, the situation is frankly unsatisfactory in general education, but less so in certain types of technical education, where buildings are markedly under-utilised. The 135 State secondary schools ("institutos") are clearly insufficient to satisfy the demand. This lack largely explains the growing number of so-called "free" pupils and of those who attend recognised private schools. A systematic school building plan similar to that initiated in 1957 for primary education is required if the targets for 1975 are to be reached.

In higher education, the building programme should be linked with measures aimed at ensuring a better utilisation of existing capacity. Some establishments are overcrowded, while others are under-utilised. Steps should be taken to stem the inflow of students to the major universities (Madrid, especially) which are overcrowded, and to develop some of the smaller universities. Also, building could often be used much more intensively than they are at present.

TABLE 5: SCHOOL CAPACITY 1963 AND NEW PLACES TO BE PROVIDED 1964/1974

(in thousands of places)

Level	Capacity	New places to be provided			
	1963	1964-67	1968-71	1972-74	1964-74
Primary	3,920	646	293	87	1,026
Secondary	623	570	636	260	1,466
General	487	498	477	119	1,094
Technical	56	50	78	59	187
Lower vocational	80	22	81	82	185
Higher	96	13	57	33	103
Science/technical	42	1	23	15	39
Other	54	12	34	18	64
Total	4,639	1,229	986	380	2,595

As for school buildings, it should be systematically planned and one of the most urgent tasks in this field is the establishment of criteria of functional standards and limits of expenditure for school buildings at the various educational levels. A team set up by the Government is at present working on this problem in close co-operation with the O.E.C.D.

I.3.4 The cost of educational expansion

The implementation of the educational plan will require a considerable financial effort. Total expenditure on public and private education (excluding vocational education in the agricultural sector) must rise considerably, in constant prices, from 14,000 million pesetas in 1961 to 66,000 million pesetas in 1975. In terms of GNP, it will rise from 1.8 per cent to 4 per cent, i.e. to about the same relative level as that of France and Italy at the present time.

TABLE 6: TOTAL EXPENDITURE BY LEVEL OF EDUCATION

Level of education	1961(1)		1975	
	in 10^6 pesetas	in percentage	in 10^6 pesetas	in percentage
Primary	5,728	40.9	20,586	31.3
Secondary	5,095	36.3	30,394	46.1
Higher	854	6.1	5,165	7.8
Other expenditures	2,342	16.7	9,737	14.8
Total	14,019	100.0	65,882	100.0

NOTE: (1) For private expenditure included in the total, an estimate has been made.

The present cost of education is low mainly because of the predominant share of primary education in the educational system, of the low salaries paid to teachers, and of the neglect of buildings and lack of teaching equipment. If all these deficiencies are to be made up, expenditure will have to be stepped up considerably. It is expected to rise by 20 per cent per annum during the period 1964-67, and by a smaller proportion in subsequent years, the increase being below 7 per cent a year towards the end of the period. The big initial increase is due to the necessary rise in teachers' salaries, to the rise in the number of teachers and to the need for carrying out the investment programme as soon as possible.

I.4. FUTURE EDUCATIONAL REQUIREMENTS - QUALITATIVE OBJECTIVES

The cost of the proposed educational expansion as estimated above is the absolute minimum required to achieve relatively modest results. It is therefore all the more necessary to take every possible measure to improve the structure of the educational system and the quality of education. In this connection the report suggests three main interdependent areas to which special attention should be paid. These are, first, the social and structural balance within the educational system, second, the "productivity" of the educational system, and, third, the content of education.

I.4.1 The social and structural balance

The achievement of the targets for 1975 will require a shift in the educational balance in favour of secondary and higher education, and a corresponding change in the relative importance of the age groups participating in education. The available information shows, however, that a large part of the population has few educational opportunities, that access to education is still limited to the few and that these few are not necessarily the most deserving in terms of ability. To remedy this situation, the following measures are proposed.

(i) Access to education should be facilitated for the lower income groups by suitable financial measures. The "Fondo de Igualdad de Oportunidades" (Fund for Equality of Opportunity) recently created is a first and important step in this direction, but it must be followed up and extended by other measures. Access to education for those who are willing and able to profit from it is not only a question of social justice: a society which is intent on speeding up the pace of its economic development cannot leave potential intellectual capacity untapped.

(ii) The school leaving age is to be raised according to legislation now pending. This is important as far as educational opportunities are concerned, for the granting of scholarships

can only have a limited effect as long as the great majority leave school at an early age. The lower the age at which the selection is made the greater the influence of the family environment on the pupil's chances to pass the test. Thus a selection at an early age will always work to the disadvantage of social groups in the low income bracket. As the democratisation of education depends, first and foremost, on the increase in the enrolment ratio of the 14-17 age group, the extension of compulsory education to the age of 13 inclusive would be a great step forward - on condition that the pupil's educational possibilities are not pre-determined once and for all at that age. He will be directed into one of the two channels, secondary general or secondary technical education, and the system must be flexible enough to enable him to transfer from one to the other, according to his capacities which may become obvious after the beginning of secondary studies. This problem already arises in connection with the admission to secondary education of a certain proportion of pupils at the age of 9 or 10, while the remainder continue primary classes and have no further opportunity to get into secondary education. From this as well as from the pedagogical point of view, it would be much better to delay admission to secondary education to the age of 12 or 13.

(iii) It is essential to increase educational opportunities for women. Short-term measures may be ineffective owing to the habits and prejudices deeply rooted in the social structure of Spain, and a long-term policy would be necessary. For certain tasks and functions, of which teaching is perhaps the best example, women are demonstrably better fitted than men, and this source of talent should not be neglected.

(iv) Another necessity is the reduction of regional inequalities in educational opportunities. This means a better distribution of primary and secondary schools so as to open up to education areas now handicapped by lack of educational facilities at those levels. In higher education, where the minimum viable unit requires a school population which few towns in the country can provide, a redistribution of facilities is not feasible, but the aim should be to prevent the hypertrophy of certain universities, Madrid and Barcelona in particular, and to stimulate the development of those which are insufficiently attended, especially when they are located near industrial areas.

Quite apart from these measures designed to increase educational opportunities in general, special attention should be paid to scientific and technical education at secondary and higher levels, and to vocational training. The reform of technical education in 1957 greatly improved the situation at the secondary level, but even so secondary technical education represented 10 per cent only of total secondary education in 1961. The development of this branch will call for a major effort and for

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top priority. As for vocational training, practically everything remains to be done.

The situation is much better at the higher level. Science and technical students (not including medical students) represented 39 per cent of student population in 1962, a proportion which compares favourably with the average for the other O.E.C.D. countries. However, in certain branches, such as mathematics and physics, the number of students is still very small. It will, therefore, not be necessary to shift the balance in favour of science and technology, but rather to consolidate these branches while expanding higher education in general.

I.4.2 The "Productivity" of education

The increase in educational opportunities would be of little value if it were not accompanied by an increase in the "productivity" of the educational system. During the period 1930-1960 the number of enrolments in higher education more than doubled, but the number of graduations increased by 20 per cent only, though there was an improvement in the balance of studies as between humanistic and scientific subjects. Today, with the outstanding exception of the technical colleges (1) where selection is by examination, less than 50 per cent of students complete their studies.

Several causes account for this low educational survival ratio. The lack of financial resources which forces many students to give up their studies is undoubtedly one of them. The excessive length of the first degree courses is another. The use of teachers who, for financial reasons, can only work part-time and cannot provide enough guidance to students is yet another reason for the low educational performance. These causes suggest their own remedies: scholarships and financial incentives to students who are in need of them, shortening of degree courses, use of full-time teachers adequately remunerated.

The problem is less acute at the secondary level; for instance, 90 per cent of pupils enrolled complete the two-year course of the "bachillerato general superior". But a high proportion of those who complete the "bachillerato elemental" go no further. As for secondary technical schools, they will have to reduce the length of courses from five years at present to three or four years according to the branch, and industrial occupational training will also have to be reduced to two years. This shortening of courses is necessary in view of the pressing need for middle-level technicians and skilled workers.

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(1) The wastage in these Colleges is also high if one takes into account the years necessary to prepare the entrance examinations.

I.4.3 The content of education

The first need is for a simplification of the present educational structure, especially at the secondary level. The main stream should lead from the primary school, via the "bachillerato general", to higher education. But two sub-streams should branch off at two different points of the main stream: secondary vocational training at the completion of primary education, and secondary technical training at the completion of the "bachillerato elemental". This should make for a better dovetailing of the curricula and for greater flexibility in enabling pupils to transfer from one branch to the other.

Another necessary reform is the revision of curricula with a view to shortening the study cycles. As noted above, two years should be sufficient for vocational training, and three to four years for secondary technical training. And four years, instead of the present minimum of five, would seem to be sufficient for a university degree, as is the case in most other developed countries of the O.E.C.D. Where a longer preparation is necessary, the student could follow a two-year doctorate course. In higher technical studies, a distinction should be made between two types of graduate engineers: highly qualified engineers with excellent theoretical knowledge whose study cycle may last six years, and engineers trained in specific techniques who would complete their studies in four years.

As far as teaching methods are concerned, it will be necessary, at least in the early phases of the plan, to make use of the steadily increasing range of new techniques, such as closed circuit television, programmed education, etc., in order to make up for the shortage of teachers.

I.5. THE ADMINISTRATIVE FRAMEWORK

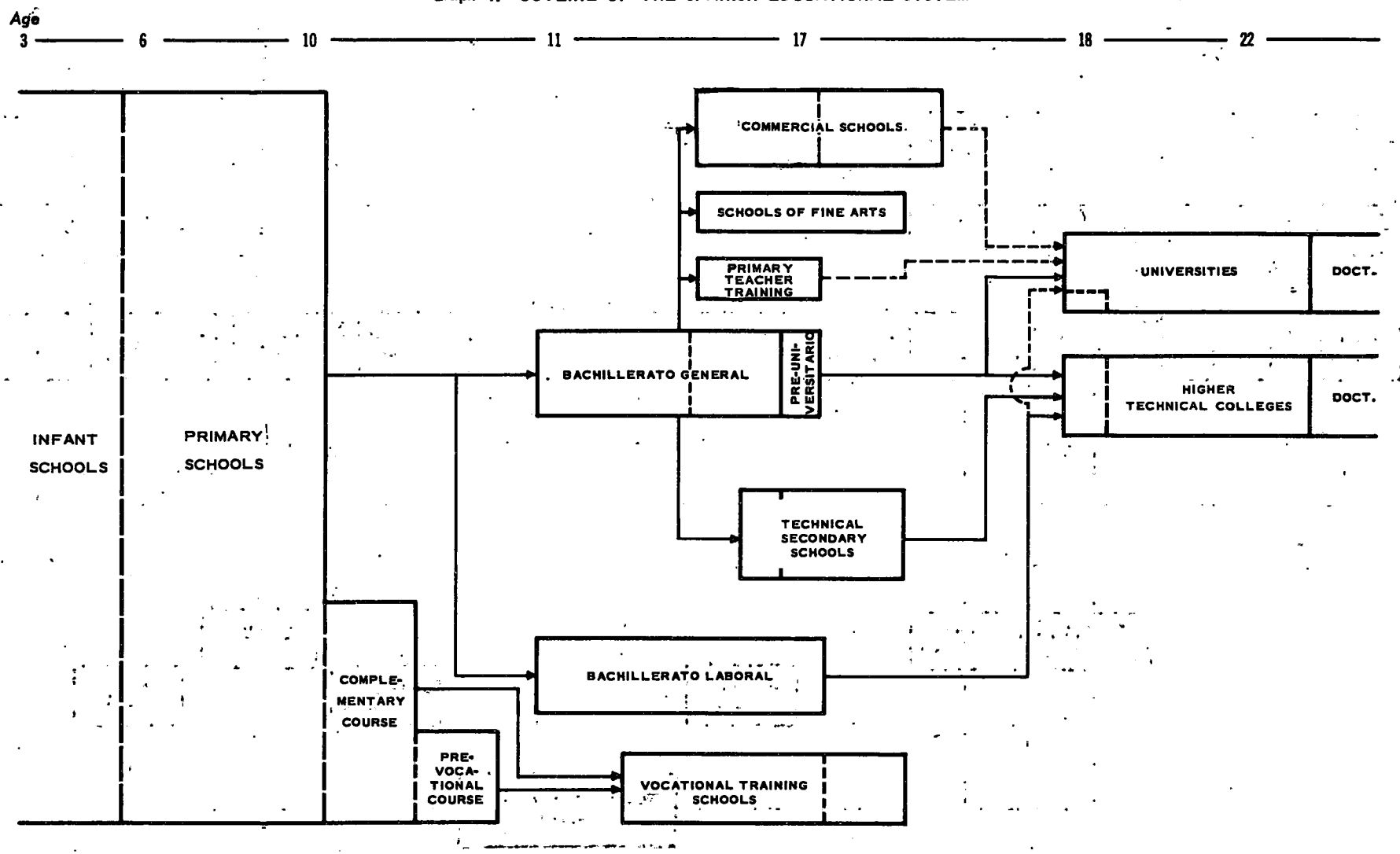
The long-term plan for the development of education provides no more than a basis for the subsequent phase, i.e., the establishment of medium-term operational plans giving practical effect to decisions made on the basis of long-term targets. These decisions will relate to problems such as building of schools, purchase of equipment, supply of teachers, and the corresponding shorter-term plans will require much more detailed analyses than the long-term plan and the continual adjustment of long-term targets in the light of new information and new needs.

It is therefore suggested that the fulfilment of such an important task should give rise to a new administrative service which would centralise all aspects of educational planning and ancillary research, and assume a large measure of responsibility within the Ministry of National Education. In particular, this

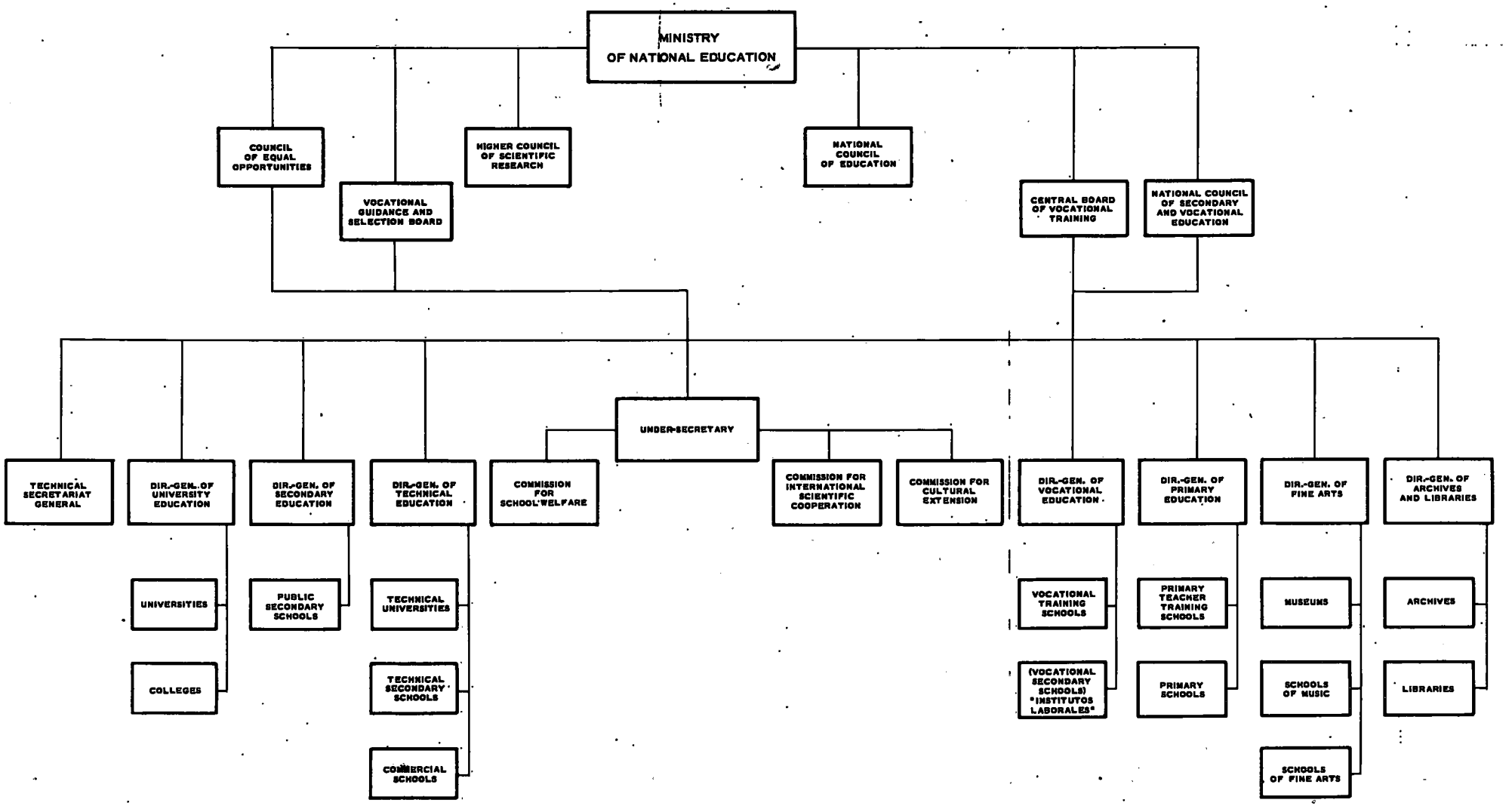
service would assume responsibility for the Spanish side of the Second Phase of the Mediterranean Regional Project which will be directed towards a more efficient use of resources in the development of the educational systems of the participating countries. This service should co-operate closely with other Ministries, especially with the "Comisaria del Plan" and the Ministry of Labour, with a view to integrating educational policy into overall economic policy. This is all the more essential as the Economic and Social Development Plan 1964-67, which has already been approved, lays great emphasis on the development of education. The service should have its own statistical office and collect, in co-operation with the National Institute of Statistics, the essential information necessary for a coherent planning of education in relation to economic needs. The lack of such information is clearly reflected in the blemishes of the present report.

If the proposals of this report are accepted, the Spanish educational system would have a reasonable chance to develop harmoniously and make a vital contribution to the economic and social advancement of the country. The effort required, though very great, is not out of proportion either with the resources available or with the benefits to be expected.

Graph I. OUTLINE OF THE SPANISH EDUCATIONAL SYSTEM



Graph II. : ADMINISTRATIVE STRUCTURE OF EDUCATION IN SPAIN



CHAPTER II

THE PRESENT EDUCATIONAL SYSTEM

II.1. INTRODUCTION

A policy for the development of education should be based on the best possible knowledge of current educational problems. We shall therefore examine the present situation of the educational system in the light of past developments before assessing future educational requirements and the ways and means of satisfying them. We shall thus be able to trace the main trends that are emerging, and at the same time weigh up the chief problems now at issue. In this connection, attention should be drawn at the outset to the limitations of our study. It makes no claim to be a full investigation of the educational system, but merely of a few of its aspects. More specifically, the pedagogical aspects lie largely outside its scope. They cannot, of course, be completely excluded, in view of the close interrelation of all aspects of education. We were thus obliged to express certain opinions which have an indirect bearing on pedagogics. Also, we have concentrated on institutional education and its main branches; adult education has been considered only in passing. Lastly, the gaps in the available statistical data have prevented us from analysing as thoroughly as we should have liked certain basic problems, such as wastage of students and cost of education.

II.2. ORGANISATION AND ADMINISTRATION OF EDUCATION

II.2.1. Educational curricula

The Spanish educational system is at present undergoing a change; its traditional structure has been reformed, particularly in the field of technical education, with a view to meeting new requirements. Further, the "bachillerato laboral" has been created within secondary education, with marked innovating characteristics. Schematically, education in Spain is divided into three levels: primary, secondary, and higher, although certain secondary curricula are - or until recently were - situated at levels considered as higher education in other countries.

Primary education. Primary education in Spain is in four cycles: a) initiation, namely, the kindergartens and infant schools; b) elementary, for children of between 6 and 9

inclusive; c) "perfeccionamiento" (advanced), for children of between 10 and 11; and lastly, d) "iniciación profesional" (preparation for employment), for children of up to 14 inclusive. Compulsory education is at the moment limited to the second and third cycles only. Its extension to the age of 13, i.e. from 6 to 8 years, is now at an advanced stage of study.

Secondary education. The axis around which secondary education revolves is the "bachillerato general" in three cycles: a) elementary, which lasts four years and which is general in nature; b) higher, which lasts two years and is partly general, partly specific (science or humanities); c) "pre-universitario", which is a one-year preparation for university education, and which is also both general and specific.

Admission to the "bachillerato general" is subject to an entrance examination, and the pupil must be 11 years old during the calendar year in which he sits for his first-level examinations. (1).

Completion of the first and second cycles confers the certificate of "bachiller elemental" and "bachiller superior" respectively, the third one-year cycle being taken by those who want to enter university.

A "bachiller elemental" certificate - in the "general" or "laboral" category - is required for admission to commercial secondary education ("escuelas de comercio") which is in two cycles, each lasting three years: the first for "peritos" (commercial technicians), and the second for those wishing to obtain a commercial teacher's certificate ("profesorado").

The "bachillerato laboral" is a fairly recent innovation. It provides general education, simultaneously qualifying students specifically for one of the productive branches of economy. It also grants access to higher education. The "bachillerato laboral" is in two cycles: elementary, of five years, and higher, of two years. Specialization appears in the elementary cycle and comprises agriculture and animal husbandry, industry and mining, merchant marine and fishing and administration. In the higher cycle, several special subjects are taught within the above range.

"Formación profesional industrial" (secondary vocational training for industry) is designed to train skilled workers. It is in three cycles: a) initiation or pre-apprenticeship,

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(1) Which means that the first "bachillerato" year can be started at the age of 9.

which normally starts at the age of 12 and has a general educational curriculum identical with cycle 4 ("iniciacion profesional") in primary education; b) "aprendizaje de oficialía", which lasts three years and which (after a final examination) grants the certificate "oficial industrial"; c) "maestría" which lasts two years and grants the title of "maestro industrial".

Primary school teachers are formed in the "Magisterio" or "normal" schools. Courses last three years and applicants must possess a "bachiller elemental" certificate and pass an entrance examination. The certificate obtained on leaving these schools gives the holder the right to teach in primary schools, but for appointment to a State school he must first pass a competitive examination. Primary teacher training schools pertaining to the Church grant certificates which are valid for Catholic schools, but which must be confirmed by a board of State and Church "magisterio" school teachers before the holder may teach in any other type of school.

Secondary technical schools offer training at the intermediary engineering level. The curriculum includes a preparatory course, a selective course, three "career" courses, and a short three months closing course. A "bachiller general elemental" certificate is sufficient for entrance to the preparatory course, and direct entrance to the selective course may be obtained with "bachillerato general superior", or "bachillerato laboral elemental" certificates.

Lastly, to conclude this brief review of secondary education, there are the "escuelas de Artes y Oficios Artísticos", "escuelas de Bellas Artes", and "Conservatorios de Música". The first are handicrafts (técnicas artesanas) schools, and the two latter teach the fine arts in general.

Higher education. The "pre-universitario" (in science or humanities) must be taken for admission to both universities and higher technical colleges (escuelas técnicas superiores). However, political, economic, and commercial science faculties accept candidates with certificates from commercial schools, and the faculties of philosophy, pedagogic section, accept candidates with primary school teacher certificates. Higher technical colleges and science faculties also accept candidates with secondary technical certificates. In certain faculties (medicine, pharmacy, and sciences) the first course is selective. In higher technical colleges, there is an "initiation" course following the selective course, both of which must be completed within a certain time. Taking a "licencia" (the lowest degree) involves between five and six years of study, according to faculty. Once this degree has been obtained, the doctorate is granted upon successful completion of a short course and oral examination on the thesis presented. The doctorate degree is not regarded as

of major importance in the Spanish educational system and is required solely of those who enter the teaching profession at the higher educational level.

II.2.2. Dovetailing of curricula

Good dovetailing of curricula is essential for an efficient educational system. It cannot be said that this is the case in the Spanish system. It is hoped, however, to remedy the situation by the enactment of a law at present being prepared. This situation is largely due to the creation of new educational programmes ("bachillerato laboral", political, economic, and commercial science) and the far-reaching reform of others (secondary and higher technical education and "vocational training"), not always with sufficient consideration of correlation between programmes. There has indeed been a lack of co-ordination and planning in education in that the educational system has not always been seen as one harmonious whole.

The social value of primary education is very low. This is partly due to the fact that this level of education is badly related to the following level: the last years of compulsory education coincide with an age at which the subject could be attending secondary school. Furthermore, no primary school certificate is required for admission to secondary education. In fact, it is theoretically possible to enrol at a secondary school without ever having attended primary school.

In secondary education there are two levels: a lower level, i.e. the "bachillerato elemental" and the "vocational training" - although the latter is something of a special case - and a higher level, in which the "bachillerato superior", the commercial schools, the technical secondary schools, and the primary teacher training may be included.

Commercial education has been modified by recent legislation: on the one hand, the creation of political, economic and commercial science faculties has brought higher commercial education into the university, while special articulation has been provided at the secondary level, making it possible for commercial graduates (second cycle) to enter this faculty. The situation at the "elemental" level is not clear, and from a certain standpoint it may be said that there is duplication of objectives with the "bachillerato laboral" of the administrative type.

The "bachillerato general" is the most attractive programme, as it grants access to any kind of higher education. This does not apply to the "bachillerato laboral", since entrance into the non-scientific faculties (law, philosophy and humanities, and political, economic, and commercial science) is subject to taking the pre-university course, which means that a total of

eight years secondary schooling is necessary. This is possibly one of the reasons for the lack of interest in the "bachillerato laboral".

Within secondary education, the branches most easily accessible with a variety of qualifications - since the new law governing technical education - are the selective and preparatory courses of the secondary technical schools.

Admission to higher education is gained by:

- taking the humanities in the pre-university course, which grants access to three faculties;
- taking the science of the pre-university course, which grants access to five faculties and all the higher technical colleges;
- possessing the qualification of "perito", obtainable through the higher secondary technical course, which opens the way to the science faculties and higher technical colleges.

A special case is that of admission to the faculties of political, economic and commercial science through commercial secondary schools, and to those of philosophy and humanities - pedagogics branch - via the primary school teacher's certificate.

To sum up, one can note: a lack of articulation between primary and secondary education; the importance of the "bachillerato general" in secondary education; an improvement as regards secondary technical education inasmuch as it gives access to the higher technical colleges.

II.2.3. Public and private schools

Traditionally, private schools have been a major aspect of education in Spain. In fact, State education has in many cases been considered as complementary to them, especially at the secondary level, as private schools have until now been mainly secondary schools. Private primary schools are rare, while higher education is the almost exclusive domain of the State. The granting of degrees has always been considered the sole prerogative of the State, although there are private universities whose graduates have to obtain confirmation of their degrees from public boards.

However, the legal situation has changed as a result of the concordat with the Holy See: this grants the Church the right to establish higher educational institutions. The State recognises the full academic validity of degrees obtained in such

establishments, subject to selection, length of curricula, programmes, and examinations being similar to those in public institutions (1).

The part played by the Church in private education has been preponderant. Many secondary educational establishments are religious institutes and in higher education, the only four institutions authorised to grant degrees pertain to the Church.

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(1) These conditions being satisfied, students are required simply to sit for an overall examination at the end of their studies (on a par with confirmation from a board of Catholic school and State school professors). These final examinations are not necessary if the teaching staff of the university or special Catholic school consists of 75 per cent of professors holding equivalent State degrees and 25 per cent of persons having sat for State examinations on a par with the competitive examinations required for appointment to teaching posts.

TABLE 7: PERCENTAGE DISTRIBUTION OF TOTAL SCHOOL POPULATION BETWEEN STATE, PRIVATE, AND UNRECOGNISED EDUCATION: 1951, 1960

	State		Unrecognised (Libre)		Private	
	1951	1960	1951	1960	1951	1960
Primary education	76	76	-	-	24	24
Secondary education	26	25	36	29	38	46
"Bachillerato general"	16	17	22	32	62	51
Commercial Schools	21	19	79	81	-	-
Primary teacher training	52	36	48	52	-	12
Vocational training schools	62	37	-	-	38	63
"Bachillerato laboral"	100	77	-	-	-	23
Technical schools	53	93	47	7	-	-
Higher education(2)	70	67	30	32	-	1
Technical	84	92	16(1)	5	-	3
Scientific	80	67	20	33	-	-
Medicine	75	67	25	33	-	-
Others	61	49	39	51	-	-

(1) This high percentage of unrecognised education is due to students of Architecture who, owing to current rulings, are enrolled in large numbers at such schools.

(2) "Technical" comprises the higher technical colleges. "Scientific" comprises the faculties of science, pharmacy and veterinary surgery. "Others" comprise political, economic and commercial science, law, philosophy, and humanities. Unless otherwise stated, these terms are so understood throughout this report.

Sources: National Institute of Statistics: "Estadística de la Enseñanza en España". Data obtained with the assistance of the Ministry of National Education (Dirección General de Enseñanza Laboral).

At present, about three-quarters of those at primary level attend State schools, most of the remainder attending Catholic schools. In secondary general education (bachillerato general), the situation is reversed: only 17 per cent of the pupils attend State schools, the remainder being divided into two distinct categories, those in legally recognised schools (1) ("centros privados reconocidos"), and the so-called "free" pupils ("alumnos libres").

Recognised private schools must meet a series of requirements stipulated by the State, concerning staff, facilities, etc. The "free" pupils are those attending the unlicensed schools, those studying by themselves, or those attending private classes. Whichever the case, they are required to pass annual examinations in State schools. About 35 per cent of "bachillerato general" pupils are in recognised Catholic schools, and 16 per cent in other recognised private establishments. Consequently, pupils receiving general secondary education properly speaking, i.e., attending schools which meet minimum requirements of quality, are no more than 68 per cent of the total, and of this percentage, a little more than half is educated by the Church. It is probable that a large part of the remaining 32 per cent is being educated in unlicensed schools, but no information is available in this respect.

Of pupils in vocational training schools more than 60 per cent are in establishments not under the Ministry of National Education. Of this proportion, 65 per cent are in non-religious private and trade union-managed schools - about equally divided between the two categories - a further 24 per cent in Church establishments, and about 11 per cent in the workers' universities ("universidades laborales"). These latter establishments are financed by labour associations under the Ministry of Labour. In as far as the "bachillerato laboral" is concerned, most pupils are in State schools, followed by those of the Church schools.

Unregistered ("free") status has a different significance in secondary and higher education. The unregistered pupil is not required to attend classes at either level, but whereas in secondary education his status arises from lack of space in the official establishments, in higher education it is generally the result of an administrative decision imposing unregistered status on any student who is waiting for the examination results of a previous course, although he can attend lectures and classes. "Free" students account for about one-third of the total number in higher education, but in recognised Church establishments they are no more than a small fraction.

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(1) All recognised establishments, such as "autorizados" (licensed schools), are included with officially recognised schools, in accordance with the classification in the Secondary Education Act, determining the powers granted to the various establishments.

Although private education has not varied substantially in the last few years - it remains unchanged at the primary level - it shows a tendency to increase at the level of vocational training schools, teacher training schools, and that of "bachillerato general"; a high proportion of the "free" pupils at these educational levels attend unrecognised private establishments (see Table 7).

The importance of private education in Spain may to some extent render educational planning more difficult, but this may be overcome by stricter control of the private sector by the authorities, control which should be basically directed towards improving the quality of education. In parallel, the State must offer opportunities at all levels to those wishing to attend State schools: the substantial development of private education - both recognised and unrecognised - is due in part to the inadequate development of State education.

II.2.4. Administration of education

The ordering of education is almost entirely the responsibility of the Ministry of National Education; some exceptions are the schools for agricultural overseers and the seamen's and fishermen's schools, which come respectively under the Ministry of Agriculture and the Ministry of Trade, and the vocational training centres and workers' universities, which are responsible to the Ministry of Labour. With a few minor exceptions, the teaching staff at State schools is also answerable to the Ministry of National Education. The rôle of the local authorities is confined to covering some of the expenses of the State primary and secondary schools. In view of the limited resources at their disposal, this function of the local authorities has been decreasing in importance in the last few years.

The work of planning and co-ordination is carried out by the General Secretariat (see chart of the structure of the Ministry of National Education), to which the Statistical Research Service is answerable, but education statistics are the responsibility of the National Institute of Statistics. The field of action of the other directorates-general also covers some planning functions. The creation of a General Educational Planning Office or Service, with sufficient resources to ensure regular overall planning, seems advisable, as the work that has been done in this field, though valuable, has been often of an incidental nature, or concentrated on a limited educational field. Furthermore, the statistical functions of the Ministry of National Education are divided among various independent offices, and there is sometimes lack of co-ordination in the collection of data. The services are pre-eminently bureaucratic, and their organisation and resources are not such as to allow of any improvement in the statistics, which are defective and incomplete.

In the absence of adequate information and of any overall planning of education, there is a grave danger that the resources devoted to education by the State in the next few years will not have the desired results. It is therefore urgent that all statistical functions be amalgamated in a single service working in co-ordination with the National Institute of Statistics. The service should form part of a planning office which would, in turn, keep in close touch with the "Comisaría del Plan de Desarrollo" (Development Plan Department). The planning office should logically assume the secretariat of the Development Plan Education Committee.

The majority of educational establishments are short of administrative staff, so that some administrative tasks fall on the teachers. The selection, training and refresher courses of such administrative staff call for a thorough overhaul. The question of their remuneration is of great importance to ensure normal productivity. Adequate planning (assuming it to be possible) would be of little use if those responsible for the administration of education had not the necessary training.

II.3. SCHOOL POPULATION

II.3.1. Enrolment ratios

The school population (including courses for illiterates, military colleges, seminaries, and art schools) increased by 34 per cent (or 43 per cent, if the above are excluded) between 1951 and 1961, as compared with a general population increase of about 10 per cent. (Table 8). In 1961, the school population reached 5 million, and the enrolment ratio of the 6-24 age group reached 41.9 per cent in 1960 against 30.7 per cent in 1951, as can be seen in Table 9. In considering the figures in this table, it must be borne in mind that they serve only as a measure of development; they do not represent the effective enrolment ratios of the various age groups, which could only have been obtained by comparing the school population in each group with the size of the age group itself. However, the relevant data are lacking. We have thus been limited to comparing the school population at each educational level with the most closely corresponding age group: 6-11 years at the primary, 11-17 at the secondary, and 18-24 at the higher levels. According to the ratios thus calculated, it would appear that the greatest progress has been made in higher and secondary education.

Using the latest figures available for the various types of education - not always related to the same year - we have estimated enrolment ratios by age groups and levels (1).

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(1) It will be observed that the age groups used in the various tables do not always coincide. Owing to the data available, it was in fact impossible to adopt strictly uniform criteria.

TABLE 8: GROWTH OF TOTAL SCHOOL POPULATION: 1951-1961

School year	Pupils (in millions)	% increase over preceding year
1951	3.76	...
1952	3.81	1.3
1953	3.90	2.4
1954(1)	4.27	9.5
1955	4.37	2.3
1956	4.48	2.5
1957(2)	4.58	2.2
1958	4.67	2.0
1959	4.79	2.6
1960	4.93	2.9
1961	(5.04)	(2.2)

(1) The outstandingly high increase is due to a change in the method of statistical compilation, which improved and completed existing information.

(2) The figures obtained from statistical publications give a total of 4.38 million pupils owing to a reduction of 206,639 in primary education as compared with 1956. Considering the normal rate of growth apparent throughout, this reduction has been regarded as an error, and the published figure replaced by an estimate based on the arithmetical average of primary school attendance during 1956 and 1958.

Source: National Institute of Statistics: "Estadística de la Enseñanza en España".

TABLE 9: ENROLMENT RATIOS BY EDUCATIONAL LEVELS:(1) 1951, 1956 AND 1960

(in percentages)

	Total			Males			Females		
	1951	1956	1960	1951	1956	1960	1951	1956	1960
Primary	60.1	68.9	84.5	59.5	68.2	82.7	60.8	69.7	86.4
Secondary	11.0	14.6	17.5	14.7	19.4	23.0	7.2	9.6	11.7
Higher	1.5	1.7	2.5	2.5	2.8	4.0	.4	.6	.9
TOTAL	30.7	38.1	41.9	31.8	39.4	43.8	29.6	36.8	40.0

(1) Criteria adopted in calculating these ratios

Primary: comparison of schoolchildren of between 6 and 11 with the corresponding age group.

Secondary: comparison of the total number of pupils with the 11 to 17 age group.

Higher: comparison of the total number of students with the 18 to 24 age group.

Total: The total number of students at the three levels, plus those still at the primary level but more than 11 years old, compared with the 6 to 24 age group.

Source: School population: National Institute of Statistics: "Estadística de la Enseñanza en España". Information supplied by the Ministry of National Education ("Direción General de Ensenanza Laboral").

Population data: National Institute of Statistics: information obtained through the "Servicio de Investigaciones Demográficos y Sociales".

The results are shown in Table 64. Less than a quarter of the 2-5 age group was enrolled in 1960, whereas the ratio for the 6-10 age group was 89 per cent. It is to be noted that several thousands of pupils in this group are already at the secondary level. From the age of 13, the enrolment ratios decline rapidly, that for the 14-17 age group being only 15 per cent. The next group, 18-24, shows a further rapid decrease to 4 per cent.

TABLE 10: ENROLMENT RATIOS BY AGE GROUPS IN VARIOUS COUNTRIES

(in percentages)

	Year	5 - 14	15 - 19	20 - 24
SPAIN	1961	74.6	9.7	2.8
United States	1958	89.9	66.2	12.0
United Kingdom	1957	98.8	17.6	3.9
France	1958	90.1	30.8	3.8
Germany (F.R.)	1958	80.2	17.6	4.6
Italy	1957	78.8	15.7	3.9

Source: For Spain: Ministry of National Education (Statistical Department). Other countries: O.E.C.D. "Targets for Education in Europe in 1970".

Comparison of the enrolment ratios by age groups in Spain with those in other countries reveals a fairly favourable situation in the 5 - 14 group, but in the group 15 - 19 the ratio falls far short of requirements. This is possibly due in part to differences in the age at which the "bachillerato" is completed. On the other hand, the continuation of other secondary classes to an age which is normally in the higher educational bracket produces a relatively higher enrolment ratio for the 20 - 24 age group.

II.3.2. Development of school population by educational levels

Over the last ten years the rate of growth of the school population has been much more marked in secondary education than at the other levels. Whereas the number of pupils at the secondary level almost doubled between 1951 and 1961, the corresponding increase was only 43 per cent in higher education and 37 per cent in primary education. Of the 3.8 millions in primary education in 1961, about 538,000 were less than 6 years old.

Of the increase of 312,000 in secondary education between 1951 and 1961, the "bachillerato general" accounted for 252,000. For this branch of education the rate of increase was substantiall uniform throughout these ten years, although a sudden acceleration may be noted in 1961. The increase in the primary teachers training schools was also quite substantial: from 21,000 pupils in 1951 to 43,000 in 1961, most of it in the last five years of the decade. The improvement in teacher salaries doubtless influenced this trend. By contrast, the number of pupils taking the commercial course decreased very greatly, owing mainly to the creation of the faculties of political, economic and commercial science, which absorbed the higher classes of the commercial schools. The "bachillerato laboral", which grew rapidly in relative terms - it was started just at the beginning of the ten-year period - still counted no more than 22,000 pupils at the end of the period (about the same number as those attending commercial schools).

Secondary technical schools expanded substantially in latter years owing to the reforms introduced by the Technical Education Act of 1957. But it should be borne in mind, with respect to both secondary and higher technical education, that since the introduction of the above law statistics somewhat distort the pattern of growth as, owing to the reform of programmes and of the system of admission, pupils formerly preparing in private institutions, and therefore not appearing in educational statistics, now appear in the preparatory and selective courses of the secondary technical schools, and the selective and initiation courses of the higher technical colleges (Table 12).

TABLE 11: SCHOOL POPULATION BY EDUCATIONAL LEVELS, 1961 AND PERCENTAGE CHANGE 1951-56 AND 1956-61

Level	1961 (in thousands)	Percentage change 1951 - 1956	Percentage change 1956 - 1961
Primary education	(3830.0)	23.7	10.9
of which infants	(538.4)	24.8	28.6
Secondary education	667.5	35.0	38.9
"Bachillerato general"	474.1	47.9	44.5
Primary teacher training	43.2	36.2	51.0
Commercial schools	21.7	- 0.4	-57.9
Vocational training schools	63.4	31.2	53.9
"Bachillerato laboral"	22.2	1285.7	128.9
Technical schools	39.8	21.1	116.3
Medical schools	(3.1)	-78.0	0
Higher education	76.7	14.6	24.9
Technical	14.5	46.7	229.5
Scientific	18.9	1.3	17.4
Medical	14.6	25.2	- 8.2
Others	28.7	13.6	14.8
Total formal education	4574.2	24.8	14.5
Miscellaneous(1)	(180.0)	-12.8	55.0
Adult education	(290.0)	-13.0	-21.2
T O T A L	5044.2	19.1	12.5

(1) Includes non-graduated forms of occupational training, arts and crafts, military schooling, religious instruction.

Sources: National Institute of Statistics: "Estadística de la Enseñanza en España". Information supplied by the Ministry of National Education (Direción General de Ensenanza Laboral).

TABLE 12: STUDENT POPULATION IN HIGHER EDUCATION

	Average enrolments 1929-1934	Enrolments 1962		% increase over the period	
		Excluding entrance courses	Including entrance courses	Excluding entrance courses	Including entrance courses
Sciences	3,303	5,356	13,161	62.1	298.4
Pharmacy	3,649	4,989		36.7	
Veterinary surgery	1,739	532		-69.4	
Medicine	11,999	14,984(1)		24.9	
Law	12,212	13,664		11.8	
Philosophy and Humanities	2,199	9,576		335.5	
Political, economic and commercial science	-	6,940		-	
Architecture	946	854	1,668	-9.7	76.3
Engineering	1,591	8,157	16,266	412.7	922.3
Total	37,638	65,052	81,780	72.8	117.3

(1) of which 2,172 foreign students.

Source: National Institute of Statistics: "Main Activities in Spain in the first half of the 20th Century - Statistical Summary". Madrid 1962.

National Institute of Statistics: "Anuario Estadistico de España 1962".
Ministry of National Education (Statistical Department). 1961/1962 data.

In higher education, the increase in student population was relatively slight, less than 4 per cent per year, with a total rise throughout the ten-year period of only 43 per cent. It was due mainly to enrolments at higher technical schools and the faculties of political, economic and commercial science, philosophy, and humanities; enrolments at faculties of law and veterinary surgery decreased.

The rate of growth of higher education is even less satisfactory when it is considered that the levels of the 1930's has still not been attained by the beginning of the 1950's. There was, however, a substantial improvement in the composition of the student population at this level during the past 30 years: students in engineering (including architecture) increased by a factor of 7, while students in medicine and law dropped from 64 per cent in 1932 to 35 per cent in 1962.

The distribution of the school population by educational levels may serve to indicate the degree of development of an educational system: the more advanced the system, the larger the proportions found at secondary and higher levels. In 1961, primary education accounted for nearly 82 per cent of the total school population, and the two upper levels represented 16.5 and 1.9 per cent respectively. Thus, the importance of secondary education is much less than in the countries appearing in Table 13, although differences in educational systems do not allow to draw firm conclusions from such comparisons.

TABLE 13: PERCENTAGE DISTRIBUTION OF SCHOOL POPULATION BY LEVELS IN VARIOUS COUNTRIES

	Year	Primary (1) %	Secondary %	Higher %
SPAIN	1961	81.6	16.5	1.9
United States of America	1959	69.3	22.7	8.0
England and Wales	1958	58.9	39.7	1.4
France	1959	72.2	25.0	2.8
Germany (F.R.)	1959	59.1	37.8	3.0
Italy	1958	69.3	28.2	2.5

(1) Excluding infant schools and kindergartens.

Source: For Spain: Ministry of National Education (Statistical Department). Other countries: O.E.C.D. "Targets for Education in Europe in 1970".

Regarding the distribution of students in higher education, although the traditionally preferred subjects of medicine and law continue to weigh excessively (see Table 12), the structure is rather favourable in comparison with other European countries, owing to recent improvements. Students in science and technical subjects (including those following introductory courses) represented 38 per cent of the total in higher education in 1962, which equals the percentage in France (see Table 14) and exceeds that in Germany and Italy, although it is below the figure for the United Kingdom. The number of engineering students (excluding agricultural engineering) is especially high, higher than in any of the countries mentioned. However, a proportion of the students will not manage to complete the two introductory courses.

TABLE 14

STUDENTS IN SCIENTIFIC AND TECHNICAL SUBJECTS AS PERCENTAGE OF TOTAL NUMBER OF STUDENTS IN HIGHER EDUCATION

	Year	Total in scientific & technical (1) subjects	Pure sciences	Engineering	Agriculture
SPAIN	1962	39	16	19	4
United Kingdom	1960	43	23	17	3
France	1960	38	30(2)	7(2)	1(2)
Germany (F.R.)	1960	35	15	18	2
Italy (3)	1960	25	11	12	2

NOTES: (1) Excluding pharmacy.
(2) Estimated by the O.E.C.D. Secretariat.
(3) Excluding "studenti fuori corso" ("free" students)

Sources: Spain: Ministry of National Education.
Foreign: O.E.C.D. : "Resources of Scientific and Technical Personnel in the O.E.C.D. Area".

The above figures show that the main need is to consolidate the present distribution, that is, ensure that the increase in numbers does not affect the quality of graduates, while at the same time reducing to a minimum the number of students who drop out before completing their studies.

II.3.3. The female element in the school population

There is an increase in the proportion of females at all levels. At the primary level the excess of females over male pupils, although very slight, is due to the fact that in certain areas, and despite all the efforts made in recent years, some boys are put to work before reaching the age of 14. The virtual absence of females in "career" courses of technical education should be noted, although the number of females taking the entry courses has slightly increased. In the universities (not counting technical colleges, scientific faculties and medicine), 24 per cent of the students are female, a figure

TABLE 15: FEMALE STUDENTS AS PERCENTAGE OF TOTAL SCHOOL POPULATION, BY EDUCATIONAL LEVEL, 1951 AND 1961.

Level	1951	1961
Primary education	50.4	(50.6)
Secondary education (1)	35.3	36.9
General and similar	35.6	39.3
Technical secondary	0.4	1.4
Technical medical	66.6	75.4
Higher education	14.0	17.7
Technical	.	0.5
Scientific	22.7	29.7
Medical	3.4	8.8
Others	15.9	24.1

(1) Excluding vocational training and "bachillerato laboral".

Source: National Institute of Statistics "Estadística de la Enseñanza en España"

which could be considered satisfactory, were it not for the fact that a high proportion do not complete their studies. The number of females in the science faculties is about equal to average. The female student population in higher education is mainly concentrated in a few faculties: 40 per cent in humanities and philosophy, and almost another 40 per cent in science (mainly chemistry and pharmacy).

II.3.4. Average age of pupils

The average age of students in higher education is traditionally high. Due to the "numerus clausus" system, which existed in practice for many years until the passing of the Technical Education Law, most of those passing technical college entrance examinations had spent several years preparing for this hurdle. Those who gave up before passing these examinations and turned to other curricula usually completed these at a relatively advanced age.

Since the reform, the situation has changed, and the average age has gone down by approximately three years. The same is occurring in secondary technical schools, the tendency now being to complete such studies by the age of 20. In the 1960 school year, 15 per cent of technical college students were more than 27 years old, 33 per cent of those in their final year being over 28, and 87 per cent over 24.

The first university degree is also taken at a relatively advanced age, as the law stipulates at least five years of study and only a minority gets through without repeating at least one year.

In secondary education, the entrance age is very low: it is in fact possible to start secondary education at the age of 9. This unusual fact is undoubtedly due to the little importance attached to primary education. The general opinion appears to be that postponing the entrance age for the "bachillerato elemental" would be wasting time. This opinion may be to some extent justified by the present or past situation of primary education, but there is no doubt that the solution would be an improvement of primary education. In a country suffering a severe shortage of secondary school teachers, there is little sense in using them for the education of insufficiently mature children. This, without entering into pedagogical considerations which would perhaps also justify postponing the age at which secondary education is started.

II.3.5. Regional problems

Regional differences (1) from the educational standpoint are fairly striking (Table 16). In primary education, enrolment ratios vary by almost 30 per cent between the Duero and Medio Ebro and the North-East region (highest ratios), on the one hand, (2) and the Canaries, (lowest ratio), on the other. Inequality of income is no doubt at the root of such differences, as demonstrated by the close relationship between income per capita and enrolment ratio. Attention should, however, be drawn to the notable exception of the Duero and Medio Ebro region, which occupies fifth place in respect of income per head. Nonetheless, the metropolitan area has a low enrolment ratio for its high income level. This may be explained partly by the number of children at work in the outlying quarters mainly inhabited by recent immigrants, and by the existence, in these areas of rapid growth, of numerous unlicensed private schools which have been created as a result of the shortage of State schools or recognised private schools. In fact, teachers are concentrated in the northern areas of the country.

The enrolment ratio at the "bachillerato general" level is clearly related to income levels: in this case, the relationship is very close, as might well be expected, considering that primary education is both compulsory and free.

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(1) Our division into regions is based on the Development Project for the Mediterranean region of the F.A.O., with certain modifications: removal of the metropolitan area (Province of Madrid) from the central region, as the capital possesses a specific weight capable of altering the overall figures for the region, which is in fact one of the depressed areas; grouping of certain regions (divided according to the F.A.O. system) in cases where differences in income and distribution of towns do not appear sufficiently wide to influence the educational situation. Thus, the following have been lumped together: Cantabrica and Alto Ebro, Euero and Medio Ebro, Extremadura and Andalucía.

(2) If the 6 - 13 age group is taken, the Northeast region is in fact the one possessing the higher ratio. If the 6 - 11 age group is taken, the Duero and Medio Ebro region comes up first.

TABLE 16

ENROLMENT RATIOS AND INCOME PER CAPITA BY REGIONS, 1960

	Income per capita (in thousand pesetas)	Enrolment ratios (in percentages) Primary (1)	"Bachillerato general"(2)
Province of Madrid	27.4	82.9	27.0
Northeast	26.4	93.3	17.1
Cantábrica and Alto Ebro	24.6	92.2	19.0
Levante	19.0	85.7	14.1
Duero and Medio Ebro	15.6	93.9	13.8
Canaries	14.2	67.8	10.2
Extremadura and Andalucía	12.8	71.6	7.4
Galicia	12.4	84.6	10.1
Central	11.7	77.3	6.8
SPAIN	18.1	84.5	12.6

(1) The number of pupils in the 6 - 11 age group has been compared with the total population in this age group.

(2) The number of pupils has been compared with the 11 - 17 age group.

Sources: "Banco de Bilbao" : "Spanish National Income and Provincial Distribution, 1963.
National Institute of Statistics: "Estadistica de la Ensenanza en España".
National Institute of Statistics: "Survival Rates in the Spanish Population, 1960".

There is an enormous concentration of higher technical education in Madrid, although steps have already been taken to distribute education at this level more widely. The concentration in Madrid is slightly less in as far as university faculties are concerned, although the capital still accounts for an excessively high proportion of students. In certain respects, concentration may favour a more rational use of human and material resources: a science faculty needs costly equipment which can only be justified if it is at the service of large numbers. But the present concentration of higher education in Madrid is clearly excessive. It produces enormous differences between universities: it is very difficult to avoid excessive differences in equipment, facilities, etc. when the number of students varies in a 1:40 ratio between the smallest and largest universities. It is logical for the larger university to receive specially favourable treatment, as in fact is the case. But this naturally makes the problem more acute. Both students and professors tend to abandon the smaller universities. But the cost of education to the student in an average size university is certainly less: the more highly concentrated higher education, the greater the number of students obliged to leave home; also living expenses are higher in large cities than in smaller ones.

Thus it would seem that the decentralisation policy should promote the medium-size university, without going too far in this direction: obviously, higher education requires a favourable cultural environment, which is rarely to be found in too small an establishment. Moreover, libraries, housing and other facilities are more readily available where the number of students exceeds a certain minimum. Considering the necessary development of higher education in coming years, greater attention should be paid to the size, specialisation and siting of educational facilities at this level. The possession of reliable information concerning student intake areas may be of assistance in this respect.

Apart from the disproportion in size between the various universities, their present location is largely due to historical factors. There are, for example, no mathematical or modern philology faculties south of Madrid. But there are chemistry faculties in all Spanish universities. There is only one technical college south of Madrid, the Architectural College in Seville, yet faculties are sometimes duplicated in closely neighbouring universities, as is the case of Valladolid and Salamanca, both of which are of very limited influence. Certain marginal adjustments at little cost would appear possible; for example, the existence of law faculties in all districts leads one to conclude that some of them could be used for other subjects, particularly in view of the declining number of law students.

TABLE 17

PERCENTAGE DISTRIBUTION OF STUDENT POPULATION IN HIGHER EDUCATION BY UNIVERSITY DISTRICTS

1961

University district	Total higher education	Scientific faculties	Higher Technical Colleges
SPAIN	100.0	100.0	100.0
Madrid	43.1	44.9	60.5
Barcelona	16.3	18.0	23.1
Valladolid	8.6	3.7	14.5
Granada	5.0	3.5	-
Salamanca	4.9	2.9	-
Zaragoza	4.4	2.6	-
Sevilla	3.7	6.0	0.7
Santiago	3.8	4.9	-
Valencia	3.9	3.3	0.5
Oviedo	3.3	5.7	0.7
Murcia	1.9	2.5	-
La Laguna	1.1	2.0	-

Source: Ministry of National Education (Statistical Department)

II.3.6. Social background of the school population

There is a serious shortage of data needed for any analysis of the social background of the school population. However, the enrolment ratios for the various age groups make it possible to draw some important inferences. Whereas the attendance rate in the 5 - 14 age group is 75 per cent, in the 15 - 19 age group it is below 10 per cent. This means that at the age of 14 or thereabouts, the immense majority of pupils terminate their normal education. The main criterion is, of course, the family's economic resources, which operate both directly and indirectly. Directly, because up to now the inadequate number of scholarships has prevented families with small incomes from giving

their children secondary or higher education. Indirectly, because the intellectual preparation in the lowest age groups is influenced by the family standard. A selection at a very early age will always work to the disadvantage of social groups in the low income bracket.

Some information is available about the social background of higher level students (1), but the social categories defined are so all-embracing that no more than trivial conclusions can be drawn: university students are mainly the sons of those who themselves received higher education; no more than 7 per cent of the students come from those engaged in agriculture; lower income categories (tenant-farmers and labourers, small craftsmen and journeymen) provide only 5 per cent of the higher level student population.

These meagre data reveal that the present use of human resources is very incomplete. Access to higher education has been too closely connected with the economic situation of the family, instead of depending on the intellectual capacity of the individual. This has certainly been a serious obstacle to economic development. The situation will doubtless improve in coming years with the development of assisted education ("protección escolar"). With the recent substantial increase in the number of scholarships access to education for the lower income groups will be greatly facilitated.

II.4. OUTPUT OF THE SYSTEM

Analysis of past development reveals a substantial growth of the school population and an increase of enrolment ratios. But the same cannot be said for the number of graduates.

II.4.1. Graduations

In 1961, only 5,657 students graduated from higher technical colleges and university faculties. (Table 18). This was an increase of only 1,082 over the 1951 graduates figure. The picture is even more discouraging for the last 30 years, during which the graduations from higher education increased by only a little more than 20 per cent (2), i.e. by 250 per cent from higher technical colleges and by only 10 per cent from universities. In 1950, the 1932 graduation level had not yet been attained.

(1) National Institute of Statistics: "Estadística de la Enseñanza Superior en España".

(2) This small increase leads us to believe that the figures understate the case. However, this is officially published information.

TABLE 18: GRADUATES FROM SECONDARY AND HIGHER EDUCATION, 1961 AND TRENDS, 1951-1961

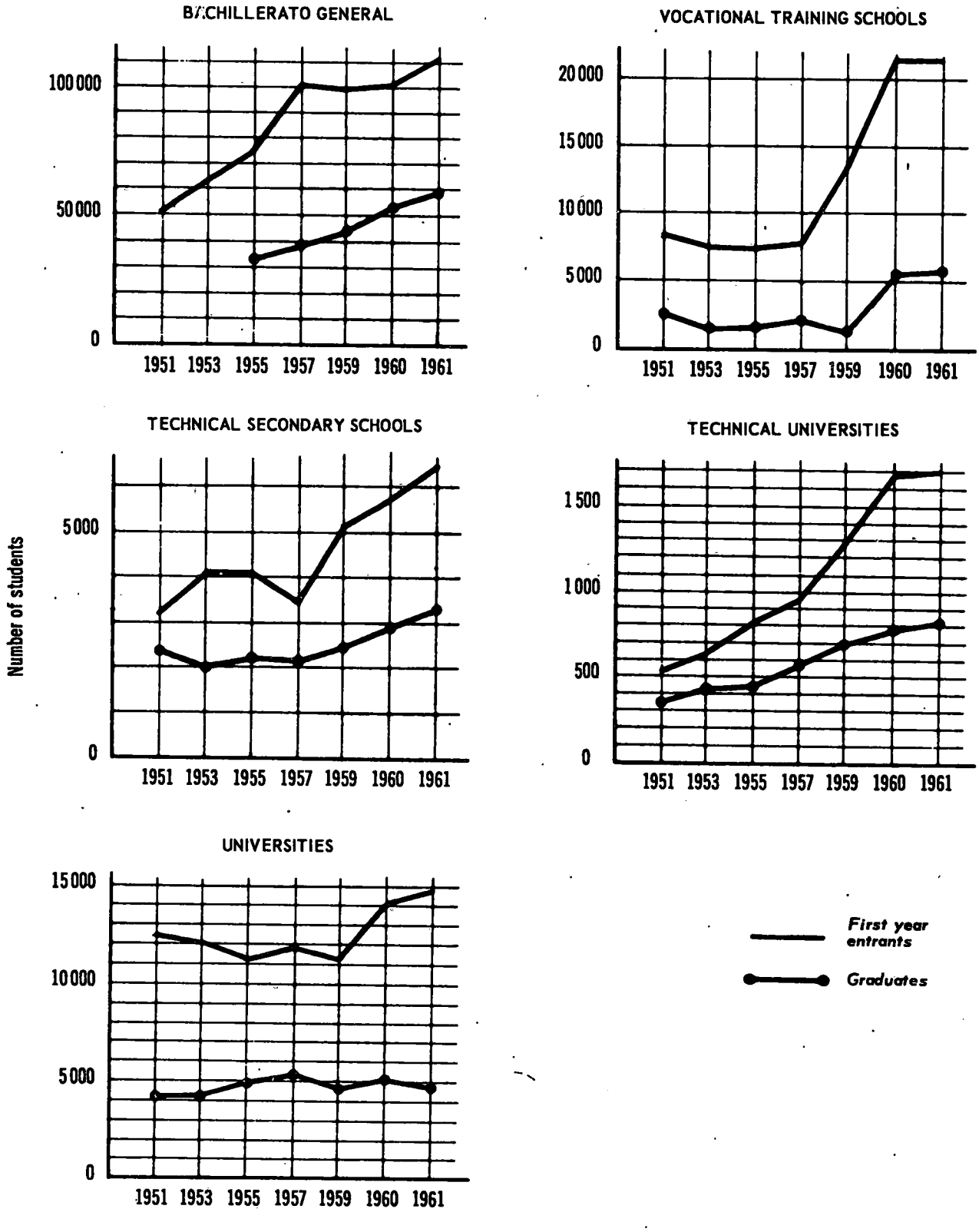
	1961	Percentage Change	
		1951-1965	1956-1961
Secondary education			
"Bachillerato general"			
"elemental"	59,371	-	46.4
"superior"	23,570		21.9
Commercial schools			
first cycle	2,362	7.7	-50.9
second cycle	797	-15.9	-56.2
Primary teacher training	8,771	31.4	62.0
"Bachillerato laboral"	2,167	-	166.9 (1)
Vocational training school	5,785	-23.1	192.8 (2)
Technical schools	3,269	- 6.2	50.2
Medical schools	1,084	-74.4	-31.7
Higher education	5,657	19.6	3.4
Technical colleges	814	34.5	72.5
Universities	4,843	18.3	- 3.1
Science faculties	1,148	14.3	-15.5
Medicine	1,456	21.8	13.3
Other faculties	2,239	18.9	- 4.9

(1) The 1956 catch was the second promoted.

(2) Graduates from non-State establishments are included for 1961, but not for 1956.

Sources: National Institute of Statistics: Estadistica de la Enseñanza en España". Data supplied by the Ministry of National Education (Dirección General de Enseñanza Laboral).

Graph III. NUMBER OF FIRST YEAR-ENTRANTS AND GRADUATES



The very small increase in university graduations is due to the decrease of students in the two largest faculties, medicine and law, which in 1932 had more than 70 per cent of all graduates, as against 48 per cent only in 1961. But the improvement that has recently taken place in the composition of the student population compensates partly for the smallness of the increase in the total number of graduates: if we exclude physicians and lawyers, for whom the demand is substantially satisfied, the remainder has increased by a factor of 2.3 since 1932. The supply of graduates today is thus much better suited to the requirements of the economy.

However, the graduation structure still leaves much to be desired: apart from the excessively high proportion of law graduates, we note too small a proportion in science, philosophy, and humanities, except for chemistry and history. This situation adversely affects general secondary education through a consequent shortage of adequately trained teachers and is the main obstacle in the way of the future development of the "bachillerato". In 1961, only 35 mathematics graduates and 88 physics graduates were produced by the universities.

A comparison with other countries clearly shows how small a number of university or equivalent graduates are annually produced in Spain: 19 per 100,000 inhabitants, compared with 47 in France and 42 in the United Kingdom and Italy (Table 20). On the other hand, their distribution compares rather favourably with that in the O.E.C.D. countries as a whole: in 1962, 30 per cent of graduates in Spain took science and technical subjects, against 29 per cent in Germany and 42 per cent in France and the United Kingdom in 1959.

At the secondary level, the situation has been much more favourable in recent years (the only ones for which statistics exist). The number of graduates from the "bachillerato superior" increased by more than 20 per cent between 1956 and 1961, and the same applies to the secondary technical schools, although the effects of the reform of this branch of education are still not fully apparent. By contrast, the "bachillerato laboral" does not appear to have developed beyond its initial phase; the future reform of this branch must be planned for, although created 14 years ago, it produces no more than 2,200 graduates yearly. The same applies to the "vocational training schools", where output is very small indeed, although the situation here is improving. The commercial schools are evidently undergoing a crisis owing to the creation of the political, economic and commercial science faculties.

II.4.2. Drop-out ratios

Considering the present number of students, annual graduations are far too small. This is due to the high proportion of students who "repeat" or who leave the system before completing their education.

TABLE 19: GRADUATES FROM HIGHER EDUCATION, BY FACULTY: 1932, 1951, 1956, 1961

	1932	1951	1956	1961
University faculties				
Sciences	161	466	540	562
of which:				
Chemistry	...	...	417	389
Physics	...	...	45	88
Mathematics	...	...	51	35
Biological Sciences	...	...	27	50
Pharmacy	316	346	367	445
Veterinary Surgery	216	376	451	141
Medicine	1,835(1)	1,055	1,285	1,456
Political, Economic and Commercial Science	-	92	74	119
Law	1,558	1,389	1,551	1,303
Philosophy and Humanities	250	500	730	817
Higher technical colleges				
Architecture	61	48	61	93
Engineering	250	303	473	721
Total	4,647	4,575	5,532	5,657

(1) Students graduating in dentistry are included. In the existing plan, this subject is treated as postgraduate education, whereas prior to the 1943 "Ley de Ordenación Universitaria" Act it could be taken as from the third year of "career" studies.

Sources: National Institute of Statistics: "Estadistica de la Enseñanza en España". "Spanish Statistical Yearbook XVIII - 1932".

Ministry of National Education: Statistical Department.

TABLE 20: GRADUATES FROM HIGHER EDUCATION IN RELATION TO TOTAL POPULATION, IN VARIOUS COUNTRIES

(Per 100,000 inhabitants)

	Year	Total Graduates	Graduates in scientific and technical subjects
SPAIN	1961	19	6
United States	1959	215	47
United Kingdom	1959	42	18
France	1959	47	20
Germany (F.R.)	1959	34	10
Italy	1959	42	11

Sources: For Spain: Ministry of National Education (Statistical Department).

For other countries: O.E.C.D. : "Resources of Scientific and Technical Personnel in the O.E.C.D. Area".

Short of direct investigation, it is not possible to know the exact magnitude of these two factors. The only figures available are those of admissions and departures which can furnish only an idea of the combined effects of the two factors. For this, we had to calculate two indexes approximately indicating admissions and corresponding completed studies. The first index results from the division of the total number of graduates during the 1951 - 1960 period by the number of admissions in the same years, and multiplication of the result by a corrective factor for the number of those who were not in the system long enough to complete the stipulated programmes (see Table 21). The second index resulted from a comparison of the number of graduates in 1958, 1959 and 1960 with admissions at the beginning of the corresponding minimum programmes. Both indexes were calculated for higher education, technical, secondary schools, "bachillerato general", and primary teacher training.

Both indexes produce substantially the same results, which may be an indication of their validity. In interpreting results, it must be borne in mind that they represent essentially drop-outs, and only to a very small extent the "repetitions", which are, however, just as important a factor, but which would require more detailed investigation for a quantitative estimate.

The figures are alarming. Except in medicine, where the number of successful students is slightly higher, less than 40 per cent of university students complete the programmes. In political, economic and commercial science the percentage of successful students is ridiculously low. The same applies to the "bachillerato" taken as a whole, although percentages here, if taken separately, are much larger for the "bachillerato elemental" and "superior", especially for the latter. However, only half of those terminating the "bachillerato elemental" enter for the "bachillerato superior". The percentage for the primary teacher training schools is also high, although not as high as that of the higher technical colleges, which indicates successful completion for practically all entries. This is due to the fact that before 1958 all students had to sit for entrance examinations which already eliminated a substantial proportion of the candidates. Since 1958, selection takes place during the first two years ("selective" and "preparatory" years) and if these were taken into account in calculating successful completion it is evident that the percentages would be much lower. But the data available are not difficult for this purpose.

Many reasons account for these high percentages of drop-outs and repeats. Regarding higher education, where the situation is the most serious, five main reasons may be given.

1) Many students completing the preparatory year for university are not in fact prepared for higher education. To reduce the drop-out ratio, it would thus be necessary to improve the quality of the "bachillerato".

TABLE 21: GRADUATES AS A PROPORTION OF NEW ENTRANTS IN SECONDARY AND HIGHER EDUCATION

	Method (1)	Method (2)
Higher technical colleges	0.96	0.82
University faculties:		
Science	0.37	0.32
Medicine	0.41	0.53
Pharmacy	0.35	0.38
Law	0.35	0.38
Political, economic and commercial science	0.21	0.11
Philosophy and humanities	0.38	0.45
"Bachillerato general" total	0.36	0.31
Elemental	0.70	0.63
Superior	0.90	0.87
Primary teacher training	0.84	0.63
Technical secondary schools total	0.64	0.72
Industrial technicians	0.55	0.54

(1) Proportion of successes equals :

$$\frac{\sum_{1951}^{1960} T}{\sum_{1951}^{1960} I} \times \frac{\sum_{1956}^{1960} I}{\sum_{1951}^{1955} I}$$

where I is the number of students starting the course and T those completing it.

(2) Proportion of successes equals :

$$\frac{\sum_{1959}^{1961} T}{\sum_{1959 - c}^{1961 - c} I}$$

where c is the legal duration of studies.
For technical colleges, this has been taken as the five years of the course proper, while at the technical secondary level the selection course and the three years of the course proper have been taken. At the "bachillerato general" level six years only have been taken, that is to say, excluding the preparatory year for university.

Source: National Institute of Statistics: "Estadistica de la Enseñanza en España".

2) The shortage of teachers makes learning more difficult, so that many students are obliged to repeat, finally giving up entirely.

3) A high proportion of females leave the system before completion.

4) The 5-year minimum programme for the lowest degree is too long.

5) Lastly, the inadequate assistance to those in straitened circumstances must be a significant cause of this low performance.

Regarding the "bachillerato elemental", the high wastage ratio may be attributed largely to the low social value attached to primary education. Many of the children entering secondary education do not intend to study for more than a year or two beyond the compulsory school age, but prefer this education to be secondary rather than primary.

II.5. QUALITY OF EDUCATION

As already pointed out, the very low output of the system is largely attributable to insufficient educational resources. A complete analysis of this aspect would involve the study of pedagogical problems which are beyond our competence. There are, however, certain indicators of the quality of education: one of these is the selection and training of teachers, another is the pupil/teacher ratio, yet another the availability of accommodation and facilities. The quality of education is unlikely to be high if these indicators are below certain standards.

II.5.1. The teaching staff

Teachers in primary education are required to spend three years at the teacher training school upon graduating from the "bachillerato elemental". The extension of the teacher training programme by one further year is being considered.

For permanent appointment in State schools, the teacher must also pass a competitive entrance examination. As there are more candidates than vacancies in State schools, minimum qualifications in teaching staff can be ensured. However, the isolation and paucity of means which are often characteristic of the teacher's working conditions cannot but lower the quality of his work. Further, an improvement of his social status will be necessary to prevent a deterioration in the quality of candidates for the profession. One essential requisite for this - although not sufficient in itself - is remuneration at levels

comparable to those obtainable elsewhere for the same degree of training. It must be recognised that efforts have been made in recent years towards improving the salary situation of the teachers.

Secondary education

At the "bachillerato general" level, the qualifications of teachers vary considerably, according to whether they are employed in private or State schools.

State schools accommodate an average of about 700 pupils, and employ a staff of 12 senior (catedráticos) and 12 assistant (profesores adjuntos) teachers, all recruited through the competitive examination of humanities or science graduates, with the exception of the drawing master. Complementary subjects (religion, civics and physical training) are taught by special teachers, not selected by any hard and fast method. The senior and assistant teachers are helped by auxiliary teachers, also university graduates.

Both the senior and assistant teachers are required to take classes for at least 15 hours per week, which undoubtedly is too little. 24 hours per week should be the minimum, particularly in view of the actual shortage of teachers. What happens, in fact, is that some of the teachers teach at other schools. This makes for waste and inadequate use of resources. The aim should be a rapid attainment of full-time decently paid teaching. Extension of compulsory teaching hours and salary improvements are now being considered.

The method of selection - at both secondary and higher levels - produces an excessively graded organisation and demands, in addition to a degree, a number of qualifications which make it very difficult to fill vacant posts. The teaching profession is discarded by many potential candidates because of these two features of the method of selection. The present competitive examination system would be justified only if the teacher supply were plentiful - which is not the case at present and will be even less the case in the future. About 30 per cent of the existing posts are vacant.

Normally, the graduate entering the teaching profession should expect to advance on his merits, as is the case in other professions. It should not be impossible to establish sufficiently objective criteria for assessment of merit, thus avoiding the evil of promotion by arbitrary decision of the administration. Removal of the barrier between secondary and higher education to permit the passage from the one to the other, as in other countries, should also be considered. This would attract towards secondary education many teachers with the ambition of passing from it into higher education, thus greatly improving the quality of the teaching staff.

Private secondary schools are classified as "recognised" and "unrecognised". In the former, the State requires a minimum number of science and humanities graduates to be employed in proportion to the number of pupils. In fact, however, the situation varies considerably from one school to another, and the qualifications of the teaching staff are not always adequate.

Apart from the fact that the statutory proportion of teachers holding university degrees is very small, some of them only teach for one or two hours a day in any given school. The inadequate training of the teaching staff at this level is undoubtedly a major defect of the Spanish educational system. The State should study the matter and stipulate much more severe requirements. The two main obstacles that would have to be overcome are again the question of salaries and the shortage of teachers with degrees.

No minimum qualified staff requirements for unrecognised schools are laid down by legislation. It may be assumed that the number of teachers holding degrees is even less than in other schools, and non-compliance with minimum legal standards as to staff - apart from unsuitable premises - is precisely the reason for non-recognition of these schools by the State. The students attending these unrecognised schools form the majority of the so-called "free" category, and are required to pass examinations once yearly in a State school. The authorities should take the necessary steps for the rapid disappearance of these schools as soon as the capacity of State education has been sufficiently increased.

The selection system off teachers in the teacher training colleges and commercial schools is similar to that in general secondary schools: the higher categories of teachers are reached by competitive examination of candidates holding degrees. Neither the senior teachers nor the others can be considered as full-time teachers; the time spent in the class varies enormously (1).

A new system has been tried in "bachillerato laboral" and vocational training schools. Appointments of staff are by competitive examination and applicants must hold degrees or qualifications in engineering, architecture, or other subjects according to the post offered. First appointment is for five years only, but may be extended for a further five years. Candidates

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(1) In the case of primary teachers' schools, segregated by sex, the tendency is for teachers to teach at both schools, for better employment of the available teaching potential.

passing the recruitment examination take a course and sit for a second competitive examination, after five years practical teaching, for final confirmation of the appointment.

The disadvantages of the method of teacher recruitment in general secondary education appear to a varying degree throughout all branches at this level. Although possibly justified when first instituted, recruitment methods are no longer suited to the requirements of the educational system. Full-time teaching, which demands adequate salary scales and security of employment, should not be limited to the higher categories only. Further, staff organisation should be much more flexible, so as to eliminate the existing disparities: on the one hand, a small group of privileged professors and, on the other, a mass of teachers uncertain of their jobs and obliged to undergo competitive examinations if they wish to advance in the profession. This method is quite senseless in an educational system scheduled for enormous development in the near future, in which Malthusian attitudes have no place.

Higher education

The problem is even more acute in higher education. The highest level of the teaching staff consists of senior professors ("catedráticos") recruited by competitive examination amongst holders of doctorate degrees with at least two years of lecturing. Appointments are permanent. Assistant professors ("profesores adjuntos") and lecturers ("encargados de curso") are also recruited by competitive examination after having completed three or four years of practical teaching. Lastly, the "auxiliary professors" ("profesores auxiliares") are recommended by senior professors for appointment by the rector.

The number of hours taught by the titular professors (the only teaching activity of most of them), who are not required to teach on a full-time basis, varies between 3 and 6 per week according to faculty and programme. Those working full-time have to teach 36 hours per week, though only part of this time is actually spent in the class. At the moment, 30 per cent of the titular professors are employed on a full-time basis and 70 per cent on a part-time basis, but it would be more normal if the situation was reversed. Only a small number of professors should have occupations other than teaching or research.

The present method of selection and the structure of the professorial body in general have serious faults. The first of these is the very sharp distinction between senior professors and all other teachers. A system permitting greater mobility in promotion would be much more efficient. The second fault is selection by competitive examination, which forces senior professorship candidates to concentrate on acquiring encyclopaedic knowledge which does not appear to be the most suitable. The third fault is the

contradiction between the fact that appointment to professorship presupposes, in principle, that the applicant is completely trained, and the necessity for assistant professors and lecturers acting as senior professors to dedicate part of their time to parallel occupations, at the expense of teaching and their own studies.

Considering the enormous increase in the number of teachers needed by the universities, such a training process is totally unsuitable; those wishing to dedicate themselves to teaching, and in possession of the necessary qualities, should be placed in a position where they can dedicate themselves entirely to their profession upon completing their studies.

When determining the qualifications required for a professorship, permanent or otherwise, it should be borne in mind that the setting of excessively strict requirements may result in many posts remaining vacant during a period when the need for teachers is greatest. It may then be necessary to appoint temporary teachers, whose qualifications might be lower still. There need be no fear that a more accessible system may preclude the later recruitment of more qualified candidates, as the need for teachers will continue to rise rapidly for some time yet.

In higher technical colleges the teacher recruitment system is the same as that in the universities.

II.5.2. Growth of teaching staff

Data available on the size of the teaching staff are virtually non-existent. All that is known is the number of teachers taking classes in each school. As it is frequent practice for the teacher to work in several schools, the figures available include a high proportion of double counting. Further, effective teaching hours vary considerably, so that pupil/teacher ratios are not very significative. But if we assume that the number of teaching hours is uniform, we may use pupil/teacher ratios to obtain an idea of the development of teacher supply.

Primary education

The number of teachers in private and State education followed somewhat diverging tendencies between 1951 and 1960 (see Table 22). In State schools, it increased by about 30 per cent, whereas in private schools it remained practically stationary. Yet the increase in State schools was not sufficient to maintain the pupil/teacher ratio, which also increased - though less than in the private schools. As a result, the relative positions of these sectors changed, the ratio in the private educational sector being larger than that of the State sector at the end of the ten-year period. This may, of course, be due to the concentration of private schools in large urban centres.

TABLE 22: NUMBER OF TEACHERS AND PUPIL/TEACHER RATIOS IN STATE AND PRIVATE PRIMARY EDUCATION: 1951, 1956, 1960.

Year	Number of teachers		Pupil/teacher ratio	
	State schools	Private schools	State schools	Private schools
1951	59,917	20,009	34.4	33.5
1956	66,186	22,343	40.0	36.1
1960	78,082	21,366	36.7	41.3

Source: National Institute of Statistics: "Estadística de la Enseñanza en España".

In State education the pupil/teacher ratio is the lowest in girls' schools. With ratios as low as 25:1, we may have here a case of unused capacity. This is related to the mixed schools problem. According to current legislation, mixed classes are not permitted in agglomerations counting more than 30 boys and girls, which in practice is extended to about 50. This segregation according to sex is certainly an enormous obstacle in the way of multi-grade schools (escuelas graduadas), that is to say, primary schools in which the children are divided into classes according to an ascending scale of knowledge.

Considering the necessity of improving primary education, and therefore of developing multi-grade schools to the greatest possible degree, a much more flexible policy would appear to be desirable.

Secondary education

A considerable increase in the number of teachers was recorded at the "bachillerato general" level, particularly in State education. But the still greater increase in the number of students resulted in a progressive deterioration of the pupil/teacher ratio.

In State education (Table 23) this ratio was fairly satisfactory in 1961. However, the number of teaching hours put in by each teacher is very small. In recognised private schools, the "theoretical" ratio is even more favourable: 14 pupils per teacher. But there is a great deal of duplication when calculating the number of teachers, especially graduate teachers. Furthermore, the latter represent only a little over half the total number. Lastly, it may be added that the majority of "free" students (not included in the calculations) also study under teachers in State schools and recognised private schools. It may therefore be concluded that, contrary to what the statistics seem to convey, the number and quality of teachers are inadequate, although no accurate information is available.

In secondary technical education, the number of teachers practically doubled during the period in question, but owing to the large increase of pupils, the pupil/teacher ratio continued to deteriorate, particularly as from 1960 (see Table 24).

Higher education

In higher education the number of effective teaching hours varies considerably according to the category of teacher, the faculty (or technical college) and the programme. As teacher categories cover very different effective situations, the only ratios that can be considered significant - at this level more than at any other - are those which take into account solely

TABLE 23: NUMBER OF TEACHERS AND PUPIL/TEACHER RATIOS IN STATE AND PRIVATE GENERAL SECONDARY EDUCATION, 1951, 1956, 1960 AND 1961

A. State Education

Year	Number of teachers		Pupil/teacher ratio	
	Total	Of which senior teachers asst. teachers and lecturers, and auxiliary teachers	(2)	(3)
1951	3,353	2,345	10.7	15.2
1956	3,975	2,636	13.3	20.0
1960	4,714	3,595	16.1	21.1
1961	5,104	3,934 (1)	16.0	20.8

(1) 1,007 senior teachers, 2,386 assistant teachers and lecturers; 541 auxiliary teachers.
(2) All teachers.
(3) Senior teachers, assistant teachers and lecturers, and auxiliary teachers only.

B: Private education

Year	Number of teachers			Pupil/teacher ratio	
	Total	"Licenciados"(1)	Others	Pupils per teacher	Pupils per "licenciado" teacher
1951	13,065	6,469	6,595	10.4	21.1
1956	14,828	7,664	7,164	11.6	22.5
1960	15,789	8,460	7,329	14.4	27.0
1961	16,519	8,932	7,587	14.4	26.7

(1) Teachers with a university qualification.

Source: National Institute of Statistics: "Estadística de la Enseñanza en España".

TABLE 24: NUMBER OF TEACHERS AND PUPIL/TEACHER RATIOS IN TECHNICAL SECONDARY EDUCATION: 1951, 1956, 1960

Year	Number of teachers (1)		Pupil/teacher ratio (2)	
	Total	Of which senior and assistant teachers and lecturers	(3)	(4)
1951	1,006	547	15.1	27.8
1956	1,323	546	13.1	33.7
1960	1,861	613	18.1	58.7

(1) Insufficient data are available regarding senior and assistant teachers and lecturers in schools for experts in agriculture, woods and forests, and fisheries. Figures are based on the composition of the teaching staff in other schools.

(2) Including both regular and "free" students.

(3) All teachers.

(4) Senior and assistant teachers and lecturers only.

Source: National Institute of Statistics: "Estadística de la Enseñanza en España".

senior professors, assistant professors and lecturers. A slight improvement was noted in the universities during the first half of the ten-year period, but it did not continue into the second half, owing to the great increase of enrolments. In the higher technical colleges, on the contrary, there was a constant deterioration of the pupil/teacher ratios which were initially very low (see Table 25).

Quite apart from the figures which are of relative significance only in as far as secondary and higher education are concerned, there can be no doubt that the number of teaching hours per pupil put in by adequately qualified teachers is very low, particularly in private secondary and in higher education. This is undoubtedly one of the reasons for the extremely high proportion of wastage and also for the poor quality of teaching at all levels.

Regional differences

Comparison of the pupil/teacher ratios in various regions confirms the concentration of the teaching body in the North: pupil/teacher ratios at the primary and "bachillerato general" level are better than the national average. The metropolitan area, in which the student population has enormously increased in recent years, shows a poor ratio, particularly at the secondary level.

Proportion of female teachers

At the primary level, women are in the majority: 62 per cent of the total (See Table 26). This percentage is certainly less than in the more advanced countries, in which primary education is usually an exclusively feminine profession. The proportion of female teachers goes down considerably at the secondary level, and is insignificant in higher education.

II.5.3. School attendance

Primary education

A high enrolment ratio may mask the true problem if class attendance is low. But we note a continuous improvement in average attendance, especially in State schools. The fact that attendance has also improved in private schools may perhaps be interpreted as symptomatic of the improvement in the social prestige of primary education. Average attendance by provinces shows higher figures for the North of the country, although it is here that minimums occur in areas with scattered populations and severe climate. Attendance is smaller in large urban agglomerations, which may be explained either by the persistence of child labour or by the fact that mothers are at work. It

TABLE 25: TEACHERS IN HIGHER EDUCATION : 1951, 1956, 1960

A - NUMBER OF TEACHERS

	1951		1956		1960	
	Total	Of which senior professors, assistant professors and lecturers	Total	Of which senior professors, assistant professors and lecturers	Total	Of which senior professors, assistant professors and lecturers
Higher technical colleges	472	254	538	310	1,128	510
Universities	3,439	1,505	4,116	1,832	5,185	1,933
- Scientific faculties	1,100	470	1,231	614	1,462	657
- Medicine	913	390	1,049	457	1,468	481
- Other faculties	1,426	645	1,836	761	2,255	795
Higher education total	3,911	1,759	4,654	2,142	6,313	2,443

B - STUDENT/TEACHER RATIOS (1) (2)

	1951	1956	1960
Higher technical colleges	11.8	14.2	23.1
Universities	32.8	31.1	33.0
- Scientific faculties	33.8	26.2	29.5
- Medicine	32.6	34.8	33.2
- Other faculties	34.1	32.9	35.1
All higher education	30.5	28.7	30.9

(1) Regular and "free" students

(2) Senior and assistant professors and lecturers only

Source : National Institute of Statistics: "Estadística de la Enseñanza en España".

TABLE 26: FEMALE TEACHERS AS PERCENTAGE OF TOTAL TEACHER FORCE IN PRIMARY AND SECONDARY EDUCATION IN VARIOUS COUNTRIES

	Year	Primary	Secondary
SPAIN	1960	62	31 (1)
United States	1957	88	50
England	1958	74	47
Germany	1959	44	37
Italy	1958	73	56

(1) 41 per cent in the "bachillerato general", primary teacher training and commercial schools.

Sources: For Spain: National Institute of Statistics: "Estadística de la Enseñanza en España".

Other countries: UNESCO, "Basic Facts and Figures", 1961 .

has been observed that the shortage of kindergartens or infant schools, particularly in industrial areas, affects the school attendance of children of between 6 and 11, because they must frequently stay at home to look after their younger brothers and sisters, while the mother is at work.

Secondary and higher education: the problem of "free" education

School attendance at the secondary and particularly at the higher level is of less importance than at the primary level. A particular aspect of the problem of school attendance at these levels is the so-called "free education". "Free" pupils are under no obligation other than to sit for final examinations. Despite this, they cannot all be considered as beyond the influence of the educational system. At the secondary level, many of these pupils attend unrecognised colleges, while others take correspondence courses or follow educational radio programmes. Yet the presumably poor quality of the teachers in the first case and the total absence of personal contact in the others result in most of these pupils being practically self-taught. The number of strictly "free" pupils (attending no educational establishment) must be quite appreciable. At the higher level, there are many private academies for these "free" students, though few of them are in the large university centres. There are, moreover, a number of semi-official academies in certain faculties, with time-tables suitable for working students.

"Free education" at the "bachillerato general" level has increased (see Table 7), the percentage of "free" pupils being larger in the South. Their number in primary teacher schools is also quite substantial. The spread of private education to this branch of teaching does not appear to have substantially modified the situation. It is in the secondary technical schools that really desirable developments may be noted in this context: "free" education is at its minimum in technical colleges. By contrast, the situation is alarming in the universities, though rather less so in the scientific faculties (including medicine) where attendance is practically essential, thuspreventing further growth in the number of "free" students.

About half of all the students in other faculties are "free". However, in considering the numbers of "free" students it must be borne in mind that they include not only those who are in fact "free" and do not attend classes, but also those who are not eligible for normal enrolment, because they have not passed a sufficient number of examinations in the preceding year. Lack of attendance remains nonetheless a serious problem at the university level.

The large number of "free" students is due to various causes. At the secondary level, one of the main causes is the incapacity of State schools to cater for an increasing pupil

population. The shortage of scholarships also prevents many pupils from moving to centres containing schools. Lastly, the sheer necessity of having to work while studying obliges many students to register as "free".

An increase in the number of scholarships and the proper siting of new establishments could produce immediate results. It would, of course, also be essential to build student homes for those who are away from home.

At the higher level, in addition to the causes mentioned for secondary education, an important factor is also the poor opinion the students have of the classes. The university is frequently considered as a place where examinations are held, rather than as a centre of learning. The increase of attendance will thus have to be achieved not only by improving the quality of teaching, but also through scholarships, and by building student homes, as well as extending existing buildings where required.

It cannot be assumed that all students will follow normal courses: there will always be those who have to combine schooling with some form of paid work, and a system of evening classes of a reasonable standard of efficiency should be organised for them. Something has already been done along these lines, but the quality of such teaching needs improving to prevent its degenerating into a sort of second-rate education.

(See Graph IV)

II.5.4. Literacy as an indication of the quality of primary education

Individuals normally become literate in the course of primary education, and before they are 10 years old. A comparison of the 1960 census with that for 1950 shows an improved output from primary education as measured by this standard. This is the logical result of a higher enrolment ratio, although there is no relationship between the total number of illiterates and the un-enrolled population. It may therefore be assumed that a relatively large number of children receive primary education but do not appear in statistics.

Comparison of the population pyramids for 1950 and 1960 reveals that part of the progress made in literacy was achieved, elsewhere than in primary education, by means such as adult education, schooling in the Armed Forces, etc. The 10 - 14 age group in 1950 contained 14.5 per cent illiterates. The same age group appears in the 1960 census as the 20 - 24 group, with

de su soberanía y protectorado, según el empadronamiento realizado el 31 diciembre de 1950".
For 1960 : National Institute of Statistics - "Censo de la población y de las viviendas 1960".
Provisional results obtained on the basis of a one percent-sample.

an illiteracy of 6.7 per cent. Hence, literacy was acquired elsewhere than in primary education. Further, it will be observed that the age at which literacy is most often acquired is indeed very high, which evidently reflects the effects of the means mentioned above.

In certain population groups, some lapse into illiteracy seems to have occurred with the passage of time. Thus, for example, illiteracy in the age group 25 - 35 in 1950 increased in the following ten years.

The growth of the educational system in recent years is reflected in more "regular" illiteracy rates, which have begun to form an inverted pyramid within the age group pyramid. The effects of the civil war are still visible in the 1950 census, in which the smallest rate is found in the 25 - 34 age group, worsening downwards through the groups most affected by the hostilities. The importance of means other than primary education is confirmed by the fact that the lowest illiteracy (males only) in the 1960 census was that of the 20 - 24 age group, and may have been the result of schooling in the Armed Forces.

From the regional standpoint, the North is again favoured. In all northern provinces illiteracy is below the average, the highest rate being encountered in the South: in 1950, illiteracy at Badajoz, Cádiz, Granada, Jaén and Málaga reached a figure of almost one in five (males). Although the situation improved, in 1960 more than one out of every ten recruits in the Armed Forces from the provinces of Badajoz, Cádiz, Jaén, Málaga, Huelva, Sevilla, and the Canary Islands was illiterate.

II.5.5. Capacity of the system

Primary education

In analysing the availability of primary schooling facilities, we must relate schools to sufficiently "uniform" areas from the standpoints of income and population density.

Considering them jointly, we have thus defined four zones:
1. high income/high density; 2. high income/low density;
3. low income/high density; 4. low income/low density (1).

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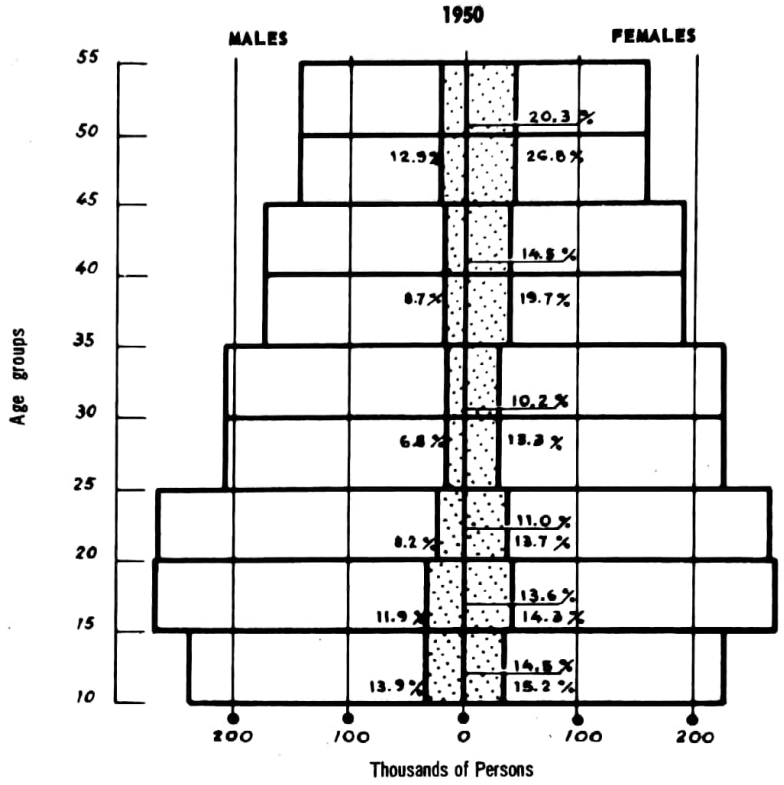
(1) Zone 1: Barcelona, Baleares, Gerona, Guipúzcoa, Madrid, Oviado, Santander, Tarragona, Valencia and Vizcaya;

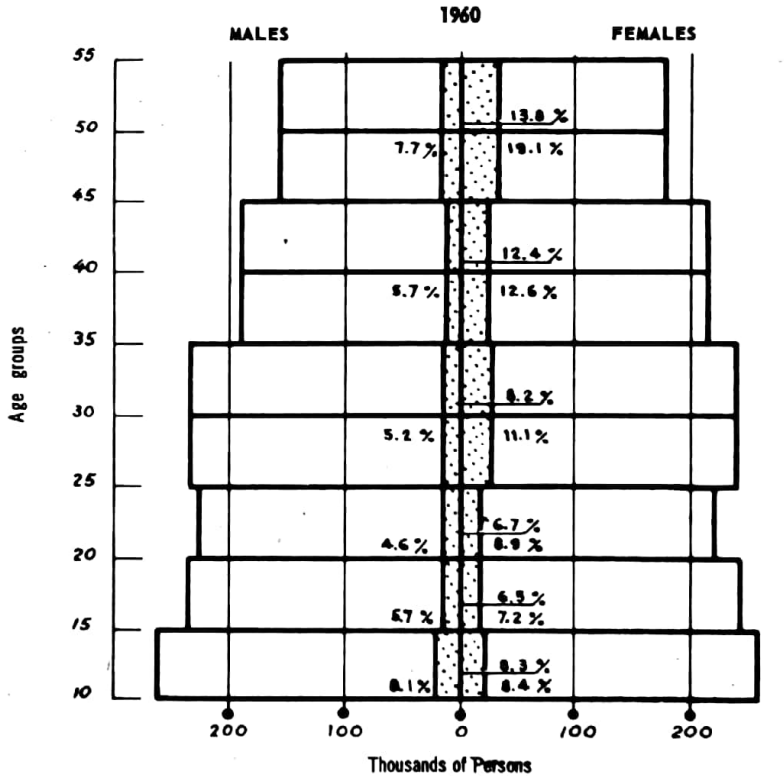
Zone 2: Alava, Logrono, Navarra, Palencia, Segovia, Valladolid, and Zaragoza;

Zone 3: Alicante, Cádiz, Coruna, Córdoba, Granada, Jaén, Málaga, Murcia, Orense, Las Palmas, Pontevedra, Santa Cruz de Tenerife and Sevilla;

Zone 4: Avila, Albacete, Almería, Badajoz, Burgos, Cáceres, Castellón, Cuenca, Ciudad Real, Guadalajera, Huelva, Huesca, León, Lérida, Lugo, Salamanca, Soria, Teruel, Toledo and Zamora.

Graph IV. ILLITERACY RATES BY AGE GROUPS





Total population Illiterates

Source : For 1950 : National Institute of Statistics - "Censo de la población de España y territorios de su soberanía y protectorado, según el empadronamiento realizado el 31 diciembre de 1950".
For 1960 : National Institute of Statistics - "Censo de la población y de las viviendas 1960".
Provisional results obtained on the basis of a one percent-sample.

In view of the substantial differences in the size of schools, an analysis of capacity can only be reasonably expressed in terms of numbers of classrooms, as the existence of one teacher schools is one of the major obstacles to the development of primary education.

Based on the number of classes, there are three types of school:

1) "group" schools of 6 or more classes ("grupo escolar")
2) "graduated" schools of 2 to 5 classes ("escuela graduada")
3) single class schools ("escuela unitaria").

As a rule, schools of several classes are in urban areas; more than half of the "group" schools and a third of the "graduated" schools are situated in provincial capitals (See Table 27).

Capacity increased enormously in the ten-year period, during which about a quarter of existing facilities were built. State schools account for about 80 per cent of accommodation by classrooms and about 90 per cent by buildings (see Table 27). Private schools are mainly of the multi-class type, being concentrated in urban areas. Responsibility for the less favoured zones, where "single class" schools are the general rule, falls on the State. Such schools represent half the total classrooms in Spain, the average size of schools being 1.5 classrooms in all zones except zone 1, where it is 2.1.

The pupil/class ratio has recently increased, despite a substantial building effort. This is due to higher enrolment ratios. The increase is most marked in zone 1. In an attempt to estimate the utilisation of capacity in rural areas, we have determined the pupil/class ratio of the single class schools predominant in the country. The result in the first and second zones is well below the 40 pupils accepted as normal in single class schools, and still less when average attendance is taken into account. It would thus be wise to continue closing these schools - as the authorities intend - bringing their pupils into larger rural schools by school buses. The teaching in a single class of children of various ages and degrees of advancement lowers not only the teaching output but also the effective learning hours per pupil. In 1956, the location of rural schooling facilities was studied, and it was found that in the case of about half the single class schools, such schools were situated at distances of no more than 3 km from two other schools. Thus, quite apart from any consideration of improved quality in education, school buses are in many cases a more economic proposition than the building or re-siting of single class schools.

TABLE 27: DISTRIBUTION OF SCHOOLS AND CLASSROOMS IN STATE AND PRIVATE PRIMARY EDUCATION, BY ECONOMIC ZONES (1), 1960

Zones	Schools							Classrooms				
	State education			Private education			Absolute totals	State education		Private education		Absolute totals
	1 Classrooms	2-5 Classrooms	6-13 Classrooms	1 Classrooms	2-5 Classrooms	6-13 Classrooms		Single-class schools	Other schools	Single-class schools	Other schools	
	(Percentages)							(Percentages)				
First	63.7	11.8	4.2	5.4	11.0	3.9	14,408	29.9	35.7	2.5	31.9	30,713
Second	83.4	7.5	2.3	1.1	4.2	1.5	5,996	54.1	28.4	0.7	16.7	9,237
Third	81.8	7.4	2.2	3.0	4.1	1.5	17,183	53.1	28.4	2.0	16.5	26,480
Fourth	87.9	6.7	1.3	1.2	2.2	0.6	22,410	65.7	24.4	0.9	9.0	29,989
Total	79.9	8.2	2.4	2.7	5.1	1.7	59,997	49.7	29.5	1.7	19.1	96,419

(1) For explanation, see preceding text.

Source : National Institute of Statistics: "Estadística de la Enseñanza en España"

TABLE 28: PUPIL/CLASSROOM RATIOS IN STATE PRIMARY EDUCATION, BY ECONOMIC ZONES: 1956, 1960

Zones	All Schools		Single Class Schools
	1956	1960	1960
First	36.7	40.0	28
Second	36.3	35.5	28
Third	40.4	42.5	41
Fourth	34.8	35.0	34

Source : National Institute of Statistics: "Estadística de la Enseñanza en España".

Notwithstanding the first National School Building Plan (which concentrated particularly on the building of classrooms to remedy the shortage), 19,283 classrooms out of a total of 80,000 in State schools need re-conditioning. No information is available for private schools, but the situation is probably still worse. There are relatively wide differences between different zones: whereas in the high income/high density zone 65 per cent of the State schools are in good condition, in the low income/low density zone a little less than half are satisfactory.

Secondary education

School capacity in the "bachillerato general" is by all accounts inadequate. There are only 135 State schools with an average theoretical capacity of about 700 students, i.e., an average of 2.7 schools per province. One favourable factor is the very high rate of utilisation of the schools. The increase in the number of "free" students is clear proof of inadequate capacity, from both the absolute and the siting standpoints. The condition of and crowding in the private secondary schools are unknown factors, but it may be assumed that the utilization coefficient is also very high in this sector.

Yet the capacity of the primary teacher training schools is not fully used, partly because of segregation by sex in separate buildings. In certain cases, the pupil/class ratio in primary teacher schools for males is very low indeed. The surplus capacity in these establishments could well be used for other educational purposes. Surplus capacity is even greater in the commercial schools, because of the decrease in the number of pupils, whereas technical schools are in most cases overcrowded.

Little information is available concerning the condition of educational facilities; about one third of the secondary schools need renovation, and the same is true of about 40 per cent of secondary technical schools, whereas the primary teacher training, vocational training, and "bachillerato laboral" schools, having been recently built or renovated, are generally in satisfactory condition.

Higher education

The situation in the universities differs according to faculty: there are over-crowded faculties, and there are others with margins of capacity. In all cases, utilization coefficients are difficult to determine; it would be necessary to know the number of students actually attending classes, the number of hours per day that lecture rooms, laboratories, etc. are occupied, and so forth. The utilization coefficient is high in the higher technical colleges, owing to the recent increase in the number of students.

TABLE 29: STRUCTURAL CONDITION OF STATE PRIMARY SCHOOLS, BY ECONOMIC ZONES, 1960

Zones	Percentage distribution	
	Classrooms in good structural condition	Others
First	65.5	34.5
Second	60.0	40.0
Third	50.3	49.7
Fourth	48.9	51.1
Total	54.1	45.9

Sources: National Institute of Statistics: "Estadística de la Enseñanza en España".

Ministry of National Education (Provincial Primary Education Inspectorate for the National School Construction Plan).

Regarding the condition of facilities, a detailed examination in the faculties is at present taking place. The shortage of modern facilities and equipment is general. The higher technical colleges are in good condition, although in some cases short of the necessary equipment.

II.6. COST OF EDUCATION

II.6.1. Cost of education and sources of finance

The data available in this field are very limited. Practically nothing is known concerning private education, despite its size. In the State sector, plenty of information is available concerning budget expenditure, but the form in which it is presented makes it sometimes difficult to know in terms of functional criteria to what purposes credits are allocated. Further, some of the public expenditure is financed out of non-budgetary sources, mainly fees charged to pupils, and the information concerning the use of this money is very scanty. As a consequence, most of the figures given below should be considered as a rough estimate with substantial margins of error in some cases.

TABLE 30: EXPENDITURE ON EDUCATION AS PERCENTAGE OF G.N.P.(1), O.E.C.D. COUNTRIES

SPAIN - 1958	1.6
SPAIN - 1962	1.8
O.E.C.D. area	4.0
O.E.C.D. European countries(2)	3.2
O.E.C.D. Mediterranean countries(3)	2.9
Italy	3.4
United States	4.5

(1) Year 1962 for Spain (percentage of GDP), and 1958 or nearest year for which data were available for other countries (percentage of GNP) and Spain 1958.

(2) Austria, Belgium, Denmark, France, Germany (F.R.) Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Switzerland, Sweden, Turkey, United Kingdom, Yugoslavia.

(3) Greece, Italy, Portugal, Turkey and Yugoslavia.

Sources: Ministry of Finance, "Contabilidad Nacional de España" (National Accounts); O.E.C.D., "Targets for Education in Europe in 1970".

Public and private expenditure on education in 1961 was about 14,000,000,000 pesetas, or 1.8 per cent of GNP. The investment in education was thus well below the average for the O.E.C.D. countries, and even below that of the other Mediterranean Member countries (see Table 30). Yet, expenditure on education must have grown more rapidly than GNP during the last few years: in as far as public expenditure is concerned, the increase of the education budget is proof of this tendency. The credits budgeted for the Ministry of National Education (including the "Patronato de Igualdad de Oportunidades" funds) more than tripled at constant prices between 1952 and 1962, reaching in this latter year 9.3 per cent of the State budget, against 7.8 per cent in 1951 (see Table 31); related to GDP, these credits rose from 0.6 per cent in 1951 to 1.1 per cent in 1962. The increase of expenditure per capita tripled at constant prices in ten years, is another indication of the growing importance of investment in education.

This budget expenditure increased mainly after 1956. There is no doubt, however, that other expenditure on education, whether public or private, has not grown at the same rate.

In 1962, public expenditure on education (including the proportion financed from fees) was 12,000,000,000 pesetas, or 1.6 per cent of GDP. As can be seen from Table 32, about 75 per cent of it was budgeted by the State, 9 per cent only being derived from fees charged in schools coming under the Ministry of National Education. The balance was derived from the following sources:

- the "vocational training quota" paid by enterprises;
- "universidad laboral" funds (financed through the social pension funds);
- the funds of the trade unions' organisation;
- local authorities.

The latter contribute very little to education. At the moment, local authorities contribute no more than 6 per cent of their revenues. This is partly due to their financial weakness, and the resulting tendency to discharge their obligations in this field on to the shoulders of the central administration. The effects on primary education are particularly bad, as this is a branch in which local authorities should logically play a greater part, for it is far too scattered for efficient central administration.

TABLE 31: BUDGETED PUBLIC EXPENDITURE ON EDUCATION, 1951 - 1962

Year	in 1,000 million pesetas(1)	Index at constant prices	% of budget	% of GDP	Index per capita at constant prices	Index per pupils at constant prices
1951	1.5	100	7.8	0.6	100	100
1956	2.9	168	7.9	0.7	164	154
1959	4.3	203	7.2	0.7	190	183
1960	5.6	243	9.0	1.0	228	186
1962	8.3	332	9.3	1.1	307	183

(1) Ministry of National Education and as from 1961 "Patronato de Igualdad de Oportunidades".

Source: General State Budget and National Accounts, made available by Ministry of Finance.

TABLE 32: SOURCES OF FINANCE FOR PUBLIC EXPENDITURE ON EDUCATION, 1961, 1962

	1961		1962(1)	
	in million pesetas	% distribution	in million pesetas	% distribution
General State Budget	7,475	71.1	9,147	76.5
- Ministry of National Education	6,105	58.0	7,177	60.0
- "Patronato de Igualdad de Oportunidades"	600	5.7	1,200	10.0
- Other Ministries(2)	770	7.3	(770)	6.4
Budgets of independent institutions coming under the Ministry of National Education	1,020	9.7	(1,020)	8.5
Vocational training quota	627(3)	6.0	827	6.9
- through the Ministry of Education	207	2.0	(207)	1.7
"Universidad laboral" budgets	162	1.5	(162)	1.4
Trade Unions Organisation's budgets	295	2.8	350	2.9
Local authorities' budgets	885	8.4	(885)	7.4
Errors and omissions	56	0.5	- 438	- 3.6
T o t a l	10,520	100.0	11,953	100.0

(1) Some of these figures are estimates. In cases where reasonable estimates were not possible, e.g. "Independent Institutions", "Other Ministries", "Universidades Laborales", Local authorities, the figures for the previous year have been used.

(2) Including the "Fondo de Interés Social".

(3) Part of this quota (making up its total to 795 million pesetas) appears under other headings.

Until recently, practically all budget credits for education were included in the budget of the Ministry of National Education. The situation changed somewhat with the appearance of the "Patronato de Igualdad de Oportunidades" (P.I.O.), and it is possible that a more radical change will occur in the future. As the P.I.O. is financed entirely by proceeds from income tax, the increased revenue from the latter has considerably raised its funds: 600 million in 1961, 1,200 million in 1962, and 2,000 million in 1963. These are used to assist pupils, provide scholarships, buy school equipment, etc., and are administered by the Ministry of National Education.

In addition to its budget credits, the Ministry obtains funds from fees of all kinds charged in its schools for various services. This revenue is administered independently according to Ministry of National Education rulings: part of receipts is used directly by the collecting schools, and the rest is paid into a special Ministry fund. In both cases, the money provides additional income for teaching staff. The "vocational training quotas" paid by enterprises also go to a centrally administered fund.

Table 33 gives the breakdown of public expenditure by type of education and source of funds. The breakdown by type of education should be treated with great caution as the allocation of nearly 15 per cent of the funds could not be determined, which robs the rest of the figures of a large part of their significance. For example, expenditure on general and commercial secondary education, and primary teacher training represents only 9 per cent of the total, which is very little, even allowing for the very important contribution made by private schools, especially to general secondary education. Over 40 per cent of public expenditure is devoted to primary education, whereas higher education receives 8 per cent only. If it were possible to account for expenditure in private education, the disproportion between higher education and other levels would be even greater, while the relative weight of general secondary education would increase.

Primary education in State schools is free, as is also State "laboral" and vocational training. In general secondary education almost half the cost is paid by the pupils: if scholarship funds and other assistance furnished by the State are left out of account, the public share decreases to about 44 per cent. In higher education the fees paid by the students cover 22 per cent of costs, and in the case of the technical colleges 18 per cent.

The available information on the breakdown of public expenditure into current and capital expenditure is incomplete and highly unreliable. In 1962 current expenditure must have represented over 80 per cent of the expenditure of the Ministry of National Education, including the "Patronato de Igualdad de Oportunidades" and the Ministry's own independent services. To

break down current expenditure into separate items would involve an exhaustive study of the economic classification of each item; it would, in fact, require the adoption of a system of cost accounting by the Ministry of National Education and the State schools. A few rough figures can, however, be given as examples. Over 90 per cent of the current expenditure on State primary schools went on teachers' salaries; however, this percentage has probably decreased somewhat recently. In State secondary education, staff costs probably represent around 70 per cent of current expenditure.

The capital expenditure of the Ministry of National Education has increased substantially since 1955. The first large increase occurred in 1956, and was followed by a second large increase in 1958. This is mainly attributable to the 5-year National School Building Plan for primary education: put into effect in 1957, it entailed an expenditure of 7,000 million pesetas, of which about half furnished by the State and half by local authorities and private citizens.

The growth of technical education, both secondary and higher, also greatly influenced the increase of expenditure for building projects. In 1962, the reduction in the number of primary schools built made it possible to pay greater attention to general secondary schools and universities, whose credits for construction programmes had increased very little in the past.

Local authorities and the trade unions organisation spent an average of 22 and 37 million respectively per year in the ten years from 1953 to 1962 for school buildings. Local authorities invested mainly in the construction of schools, whereas the trade unions invested in occupational training establishments.

II.6.2. Teacher salaries

Some information concerning salaries is available for State education only. The present salary system is enormously complicated: it does not follow any general plan, but is simply the result of a series of corrective measures to make up for the inadequacy of budget allocations. Teacher salaries are basically derived from the budget and the fees charged in the schools. Without going into details, it may be stated that most of the fees are received by those giving the teaching for which the fees are charged, although a certain part is distributed in accordance with other criteria. Teachers are thus dependent for their salaries on the fees charged at the educational level to which they belong.

It is thus difficult to determine the salaries paid to each category of teachers at the various levels. The figures given in Table 35 are therefore approximate, and some may be

TABLE 33: SOURCES OF FINANCE FOR PUBLIC EXPENDITURE ON EDUCATION AND ITS DISTRIBUTION BY TYPE OF EDUCATION - 1961

(million pesetas)

Distribution of expenditure by type of education / Source of finance	Ministry of National Education	Other Ministries	P.I.O.	Independent Institutions	Vocational training quota (1)	"Universidades laborales"	Trade Unions Organisation	Local authorities	Errors and omissions	Total
General expenditure	206.2	-	-	-	30.0	-	-	-	-	236.2
Primary education	3,856.9	-	180.0	-	4.5	-	-	506.2	-	4,547.6
General secondary and similar (2)	387.9	-	111.3	376.2	18.5	-	-	-	-	893.9
Technical, elementary (3)	112.7	70.0	275.9	199.0	432.0	162.3	291.9	69.4	-	1,613.2
Technical, secondary (4)	200.0	-	12.8	36.5	20.8	-	-	-	-	270.1
Technical, higher	189.3	-	5.0	44.5	19.7	-	-	-	-	258.5
Universities	380.9	-	15.0	144.2	55.0	-	-	-	-	595.1
Others	269.6	-	-	64.8	18.5	-	2.6	209.0	-	564.5
Unclassifiable	501.4	700.0	-	154.7	28.0	-	-	100.4	56.5	1,541.0
T o t a l	6,104.9	770.0	600.0	1,019.9	627.0	162.3	294.5	885.0	56.5	10,520.1

(1) Part of the vocational training quota appears in other items.
(2) "Bachillerato general", commercial schools and primary teacher training.
(3) Vocational training schools and "bachillerato laboral".
(4) Technical secondary schools.

TABLE 34: CAPITAL EXPENDITURE INCLUDED IN THE BUDGET OF THE MINISTRY OF NATIONAL EDUCATION, BY LEVEL OF EDUCATION, 1953 - 1962

(million pesetas)

Level	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
Primary (1)	75	100	92	206.3	255	598	598	699	981	500.4
General secondary	85	26	30	36	47	27	61	118	110	230
"Institutos laborales" and vocaticnal training schools	90	100	87	80	85	95	110	90	115	125
Higher technical colleges and secondary technical schools (2)	8	23	32	46	59.4	136	181	252	265	281
Universities	112	127	150	160	170	180	180	185	185	280
Others	16.5	31.3	50	72	131	104	89	82	80	85
Total	386.5	407.3	441	600.3	747.4	1,140	1,219	1,426	1,736	1,501.4

NOTE: (1) Including primary teacher training.
(2) Including commercial schools.

rather low, as they do not include all the income received under a whole range of headings. In any event, inclusion of such additional income would not change the main conclusions. First and foremost, one notices the enormous differences in salary levels, in many cases not justified by differences in functions. Regarding teachers in the same category, one is struck by the enormous differences in the first group, senior teachers at the secondary school level. It is of course true that teachers in primary teacher training schools frequently collect two salaries (through teaching in both the male and female teacher training schools), and that effective teaching hours are not always identical in the various types of secondary schools. Although it is normal that there should be differences, the present gradation seems rather too steep.

In any event, all the salaries are too low. The GDP (at factor cost) per employed worker in 1961 was about 47,000 pesetas; in the case of industry and services, it was 54,000 pesetas. The relation between the salary of a senior teacher in a State school (145,000 pesetas) and the GDP per worker in industry or services is thus 2.7. In a country where income is low and where differences in earned income are rather large owing to the shortage of highly qualified manpower, this ratio is too small, and in any case much less favourable than that applying to equivalent professions. In the case of primary school teachers the salary is approximately equal to the average income of workers in industry and services. A good standard for estimating salary levels in teaching is the fact that a semi-skilled worker in industry earns about 84,000 pesetas per year, or nearly 50 per cent more than a primary school teacher, and almost 60 per cent of the salary of a general secondary school teacher. A certain margin of differences may be justified by the specially favourable conditions in teaching - easier working hours, much longer holidays, etc. - but not such striking disparities as those which actually exist in Spain.

This substantial difference in remuneration renders the teaching profession unattractive for university graduates, as demonstrated by the enormous number of vacancies for teachers in secondary education. It is also the reason for the excessively high proportion of teachers following a parallel occupation, a situation very frequently encountered at the higher education and secondary technical levels, but very rare at the primary level. The result is a paradox: remuneration per hour of effective teaching is frequently high, so that, although salaries are low, the actual cost to the State per teacher/hour is relatively heavy.

In view of the very special circumstances encountered in the teaching profession, it would not be wise to stipulate full-time teaching for all its members. Nevertheless the parallel occupations permitted should in most cases be limited to

TABLE 35: TEACHER SALARIES, BY TYPE OF TEACHER IN EACH LEVEL OF EDUCATION

(thousand pesetas per year)

	Senior teachers (1)	Lecturers and assistant teachers	Auxiliary teachers	Laboratory teachers
Primary education	56.4	-	-	-
Secondary education				
General	145.0	85.0(2)	-	-
Commercial	63.5	21.4	16.8	-
Primary teacher training	60.0	-	-	-
"Bachillerato laboral"	60.0	24.0	21.5	-
Technical	131.8	22.7	22.7	-
Higher education				
Higher technical colleges	194.5(3)	30.0	30.0	132.0(4)
University	235.0(3)	18.0	6.0	72.0(4)

(1) Including (according to branch): "maestros, catedráticos, profesores titulares, profesores numerarios".

(2) Temporary assistant teachers receive 55,000 pesetas per annum.

(3) Paid for full-time teaching; otherwise reduced to 150,000.

(4) Highly variable according to faculty: in some cases attaining 12,000, but generally much less.

activities connected with teaching, such as research. The practice of following an extra-pedagogical occupation, almost always prejudicial to teaching, is the more to be condemned in Spain as the greatest problem faced by the education system is the shortage of teachers. Full-time teaching evidently implies the payment of salaries comparable with those obtained in other professions.

Policy in State education has recently developed in this direction. At the moment senior university professors teaching full-time receive additional payment to bring their annual salary up to about 235,000 pesetas. Although this is still not sufficient, it is a substantial improvement. 30 per cent of the senior university professors receive such additional payments.

The salary question is much more serious for the lower teaching categories (lecturers, assistant professors, auxiliary teachers) occasionally replacing or working with senior professors. The salaries paid to these numerous categories of teachers are frequently purely nominal, particularly at the higher educational level. The result is that these teachers follow parallel occupations to an even greater extent than the titular professors, seeking their livelihood either in outside teaching altogether, or in taking classes at other schools. The latter solution may be justified in certain cases, but generally involves loss of time and energy which adversely affects the quality of education.

Practically nothing is known concerning the situation in private education. As this branch is very heterogeneous, it is likely that situations will differ widely. It may however be said that, with the possible exception of science teachers (who are in short supply), pay per teaching hour must be substantially lower than in State schools.

II.6.3. Educational assistance

Assisted education received great impetus by the creation of the P.I.O. Fund (Equal Opportunity Fund). Until 1962, the number of scholarships - and assistance in general - were at a minimum. Despite increases in foregoing years, the number of scholarships in 1961 was no more than 13,000, though assistance in the form of free matriculation should also be taken into account. The credits made available by the Fund have risen from 600 million in the first year (1961) to 1,200 million in 1962, and to 2,000 million in 1963. They are used during the school year which starts during the budget year, i.e., the 2,000 million will be used during 1963/64 (72 per cent for scholarships, the balance being allocated to various types of assistance for students). At this rate, considerable funds will be available in the near future, particularly when compared with the remainder of the educational budget.

TABLE 36: DISTRIBUTION BY LEVEL OF EDUCATION OF THE FUNDS OF THE "COUNCIL OF EQUAL OPPORTUNITIES": 1961, 1962, 1963

Level	1961		1962		1963	
	Appropriations (thousand pesetas)	Number of scholarships	Appropriations (thousand pesetas)	Number of scholarships	Appropriations (thousand pesetas)	Number of scholarships
Primary (1)	180,000		438,000		702,800	
Secondary	398,420		587,000		1,008,100	
of which						
Scholarships	398,420	69,180	504,130	73,073	948,976	121,525
Higher	21,580		175,000		289,100	
of which:						
Scholarships	21,580	6,630	40,820	4,366	183,100	9,410
Total	600,000		1,200,000		2,000,000	

(1) In 1962 and 1963 these funds were mainly spent on clothing, teaching equipment, refectories, holiday camps and school transport; in 1964, 319 million pesetas will be devoted to paying the teachers for giving extra classes.

Scholarship holders represented only 5 per cent of the pupils in "bachillerato general" in 1963 and 6 per cent in higher education. In 1964, the number of scholarships for secondary and higher education will be increased by some 70 per cent. Rapid development of assisted education, if adequately used, may substantially change the situation of the educational system. Firstly, the access to education may be enormously increased, thus changing the social origin pattern of the school population. But there should be no undue illusions in this respect: the experience of other countries in which assisted education has been an important factor for many years - and in which income levels are much higher - shows that improvement of the social composition of the school population demands a great effort. It is nevertheless true that in Great Britain, for example, 25 per cent of the school population (1) are drawn from the working class. Further, educational assistance may be decisive in adapting the system to the requirements of society. Lastly, it may be used to combat many of the present defects of the system, such as the very high ratio of "drop-outs". Rendering scholarships dependent on specified academic results cannot but provide incentive to greater effort on the part of pupils.

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(1) In secondary and higher education.

CHAPTER III

FUTURE EDUCATIONAL NEEDS

III.1. INTRODUCTION

The future needs for education will be determined by a series of factors which can be divided into two main groups: social and economic. This division is partly artificial, since there is a close relationship between social and economic development, but it is useful as an instrument of analysis.

Economic development implies not only an increase in physical assets, but also an improvement in human capital, i.e., in manpower resources. The return on the former will largely depend on the quality of the latter. If we look for the ultimate cause of success of the countries which have achieved a high standard of development, we shall find that they possessed human resources superior in quality to those of other countries. We shall reach the opposite conclusion if we examine the ultimate cause of under-development.

There is no better example of this interdependence between education and economic growth than the case of Spain. If we look for the ultimate cause of the obstacles we must overcome and of the difficulties in surmounting them, we shall find that it lies in the inadequate training of our human resources. The elaboration and implementation of an effective economic policy requires a highly trained body of civil servants. The integration of Spanish economy into European economy implies competence and efficiency in industry and agriculture, which in turn require well trained management, technical personnel and skilled workers. The return on investment depends to a large extent on human skill, and a country with scarce resources must use this skill to extract the highest possible yield from whatever investment it can make in physical capital.

But, unlike capital goods, qualified manpower cannot be imported in any significant quantity; and to produce qualified manpower is a task which cannot be improvised. If in any domain long-term planning is indispensable, it is in education.

Quite apart from purely economic considerations, social progress also demands certain standards of education. The most typical instance of this is to be found in compulsory primary education, which is based on the principle that all the members of a modern society need a certain minimum of intellectual training to participate effectively in the life of the community. There are also cultural needs that have to be satisfied.

However, it is very difficult to assess the social and cultural needs for education. In fact, it may be said that these needs are unlimited and bear no relation to the financial possibilities of satisfying them. This does not mean, however, that it is impossible to fix certain limited objectives in accordance with certain social criteria, such as, for instance, compulsory primary education for a specific age group. The social need could also be assessed by the "market" demand, taking into account all the factors which will prompt the individual to acquire various "amounts" of education. This method can be useful when applied to a period of a few years, but if we try to assess demand over a long period, we shall find that it will be strongly influenced by the development of education itself. All this makes it practically impossible to assess social demand for education in an underdeveloped country, though the problem may be different in more advanced communities.

In a country in Spain's position, priority must be given to the necessities imposed by economic development. In the last resort, economic progress is an indispensable condition of social progress in general. Nor can any important cultural objectives be achieved until a certain level of economic well-being has been attained. For these reasons, the present report has aimed exclusively at assessing the needs for education in terms of economic requirements.

This choice does not imply, however, that the methodology in this field is sufficiently developed to achieve such an objective. It will be some time before planning techniques in the field of education are as advanced as they are in other fields of economic planning. This does not prevent educational planning from being an essential basis for a coherent educational policy. Planning does not pretend to eliminate uncertainty, but to reduce it as much as possible; and an educational policy based on forecasts that are as accurate as the present state of knowledge allows will always be more effective than a policy relying on improvisation.

A plan for education must, by its very nature, be a long-term plan, and as such it cannot be operational; before it is put into effect, more detailed short-term studies of sectors have to be undertaken. Yet the advantage of a long-term plan is precisely that it allows this second task to be performed with greater efficiency in that incompatible or uncoordinated projects can be eliminated.

Our method of assessing the needs for education in relation to economic growth has been, first, to make an estimate of gross national product for 1975, and to adopt a hypothesis on the evolution of productivity in the different sectors, as a result of which it is possible to assess the increase in the

labour force up to 1975. The second step has been to determine the distribution of labour by occupational groups in 1975 in such a way that it should correspond to the level of economic development expected in 1975. The next step has consisted in estimating the educational content of each of the occupational groups, which varies according to economic growth. There is, of course, a difference between an occupational group, which corresponds to the post held by each individual in the production process, and the educational content of an occupation, which gives for each occupation the internal distribution of its members according to the education received. Thus among directors and company managers, some will have higher education, others secondary education.

Once this process is completed, we shall know the volume of labour required at each educational level in 1975. If the rate of growth set for GNP is to become a reality, this stock of labour must be our goal. By comparing this stock with that in 1960 similarly divided into educational levels, we get the net increase required in labour at each educational level. However, one part of those who made up the activity population in 1960 will no longer do so in 1975. If we add this to the net increase, we obtain the gross increase required. Once these calculations are completed, we must analyse the changes in the educational system necessary to produce by 1975 a sufficient number of graduates at various levels to attain the goal for that year. This will be the subject of Chapter IV. Chapter III deals with forecasts relating to Gross Domestic Product and labour, and Chapter V with the probable cost of the educational development required.

III.2. FUTURE ECONOMIC GROWTH

III.2.1. Rate of growth.

We have assumed that the annual rate of growth of Gross Domestic Product at constant prices for the period 1961-75 will be 6 per cent. This objective coincides with that of the Development Plan for 1964-67. As is logical, the rate for the next plans may be slightly less. Now the countries of the O.E.C.D., including Spain, have fixed, for the period 1960-70, an overall growth of 50 per cent, distributed amongst the Member countries in such a way that the difference between them are reduced, or in other words, that the most backward should advance the most rapidly. Therefore an acceptable rate for Spain should exceed that for more advanced countries. In this case, 6 per cent would be a minimum rate in view of the rate of growth fixed for Italy and France. If we consider the recent experience of other countries which have abundant labour resources, this hypothesis does not appear excessive, provided that economic policy creates the necessary conditions for its realisation.

An annual rate of 6 per cent for fifteen years will far exceed that realised in the past.. However, conditions are now much more favourable than in the past, when the very acute problems of the balance of payments and insufficient use of investment, together with an almost continual inflation, made the expansion of Spanish economy extremely difficult. This rate represents a possible objective based on the assumption that our economy will be integrated into the European economy and that our economic policy will be adapted to the needs of accelerated development.

III.2.2. Evolution by sectors

Accelerated growth will bring about a considerable change in the composition of the domestic product in consequence of the rapid growth of industry. To attain the rate of 6 per cent, the Spanish economy will have to develop considerably the capital goods industry and construction. Although progressive integration into Europe will bring greater facilities for importing capital equipment, these imports can only represent a part of total needs. Moreover, a good proportion of the investments will have to be devoted to the improvement of the infrastructure. On the other hand, with the rise in living standards, changes in the composition of consumption, which have already begun, will extend to the majority of the population, implying an increase in expenditure on consumer durables and on certain services, and a relative drop in expenditure on food. For all this, we have anticipated an annual growth of industrial product of 8.2 per cent (see Table 37). The evolution of the main industrial sectors is shown in Table 38. It underlines the rapid growth of construction, justified by the ambitious plans for public works and housing so as to make up the present deficit in both sectors.

Agricultural development will have to begin by increasing productivity even more than production. There are two big exceptions, however: agricultural products for export and cattle-breeding. The latter, especially, will have to make enormous progress in order to satisfy internal demand. In any case, this increase will be balanced to a certain extent by reductions in other branches of agriculture. In short, agriculture is not likely to grow in the long run at a rate of more than 3 per cent annually. The surface of cultivated land has already been extended too much, and competition from foreign agricultural products is bound to have an effect during the period under study.

For services four groups have been considered: trade, banking, transport and communications, and "others". Except for the latter, we have assumed that the increase will be slightly inferior to that of the Gross Domestic Product (Table 38), and have given the highest index of growth to

TABLE 37 : FORECASTS OF GROSS DOMESTIC PRODUCT AND EMPLOYMENT BY MAJOR ECONOMIC SECTOR: 1960-1975

(At 1960 prices)

	Gross Domestic Product				Employment				Output per person employed in 10^3 pesetas		Annual % rate of increase 1961 - 1975		
	in 10^9 pesetas		in per cent		in millions		in per cent						
	I960	I975	I960	I975	I960	I975	I960	I975	I960	I975	Output	Employed	Output per person employed
Agriculture	142.8	213.7	26.5	I6.5	4.8	3.7	41.3	27.4	29.7	57.5	2.7	-1.7	4.5
Industry	174.2	565.4	32.3	43.7	3.7	5.1	31.4	37.4	47.7	111.3	8.2	2.3	5.8
Services	222,7	514.2	41.3	39.8	3.2	4.8	27.3	35.2	70.1	107.7	5.7	2.7	2.9
TOTAL(1)	539.7	1,293.3	100.0	100.0	11.6	13.6	100.0	100.0	46.4	95.3	6.0	1.0	4.9

(1) The new estimate, as yet unpublished, of National accounts shows a slight change for the I960 figures: new gross domestic product is increased to 574,000,000,000 pesetas.

Sources : Spanish National Accounts : Ministry of Finance ; Provisional figures established at the beginning of I963. National Institute of Statistics, I960 census.

transport and the smallest to trade. As far as the latter is concerned, it is hoped that modernization of distribution channels will diminish the cost of commercialisation, thus limiting its growth in terms of value added. In the same way, modernization of banking services, which has already begun, should lead to a reduction of costs.

In the group of "others" is included a series of very heterogeneous services: real estate, public administration, national defence, health, hotels and entertainment, other industrial and private services and, lastly, education itself. We have not attempted to calculate the evolution of each of these components since this would be impossible with the information available. Nevertheless, it is reasonable to assume an increase similar to that of the Domestic Product, allowing for the fact that some services, such as public administration, health, hotels and education, will increase rapidly, while industrial and private services - a great part of which is made up by domestic service - will increase much more slowly.

As far as education is concerned, we are now faced with the problem of arguing in a circle. In fact, education is a part of the Gross Domestic Product, an assessment of which is precisely our basis for calculating the requirements and expenses in the educational sector. Our way of overcoming this difficulty has been to adopt at the beginning of our study a provisional hypothesis on the growth of GNP, and then compare this with the cost calculated for the development of education (1). We have assumed, as a result, an increase of 6 per cent per annum for the whole of the group of "others". This hypothesis differs only slightly from the one we adopted previously, since it has only been necessary to make slight changes in the remaining sectors, in order to adjust them to the general hypothesis on the growth of the Gross Domestic Product.

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(1) For reasons exposed in Chapter V, the cost of the development of education allows for a gradual increase in teacher salaries in order to take into account the increase in income per capita which will occur during the period under consideration. Now from the point of view of national accounts, the calculation of the product of education at constant prices must not reflect this increase, that is to say, the pay rise must not imply an increase in the product of education in real terms. Therefore the figures of Chapter V are not directly comparable unless deflated by the amount of the increase in salary anticipated. It would be difficult to calculate satisfactorily the real product and productivity of education within the general methodology of national accounts.

TABLE 38: FORECASTS OF OUTPUT BY DIVISION OF ECONOMIC ACTIVITY

(At 1960 prices)

	in 10^9 pesetas		% distribution		annual % rate of increase
	1960	1975	1960	1975	1961 - 1975
Agriculture	142.8	213.7	26.5	16.5	2.7
Industry	174.2	565.4	32.3	43.7	8.2
Mining	11.1	22.6	2.1	1.7	4.9
Manufacturing	124.4	392.9	23.1	30.4	8.0
Construction	25.1	101.8	4.6	7.9	9.8
Electricity, gas and water	13.6	48.1	2.5	3.7	8.8
Services	222.7	514.2	41.3	39.8	5.7
Trade	53.2	115.1	9.9	8.9	5.3
Banking	22.7	51.0	4.2	3.9	5.5
Transport and communications	36.8	84.5	6.8	6.5	5.7
Others	110.0	263.6	20.4	20.4	6.0
Gross Domestic Product (1)	539.7	1.293.3	100.0	100.0	6.0

(1) At factor cost

Source: Spanish National Accounts, Ministry of Finance. Provisional figures established early in 1963.

The most important change which can be deduced from our forecasts is the loss in importance of agriculture, which in 1975 will represent only 16.5 per cent of the Gross Domestic Product, against slightly more than a quarter in 1960. Industry will attain almost 44 per cent, thus surpassing services which will represent 40 per cent. This slight drop in services can be explained partly by the fact that these calculations are made at constant prices. As the prices of services tend to increase more rapidly, their share of Gross Domestic Product at current prices in 1975 will be slightly greater than 40 per cent, provided the actual growth follows the forecast.

III.2.3. Productivity and employment

The natural increase of the population of working age (15 to 64) will be 0.75 per cent per annum, which represents an increase of 2.5 million people between 1960 and 1975 (Table 41). The increase in the resident population will be slightly less owing to emigration. If we assume, as is probable, a strong demand for foreign labour from European countries, and more especially from the European Economic Community (E.E.C.), the enormous differences between foreign salaries and salaries at home will tend to keep emigration figures high. Moreover, emigration from Italy, which represented until recently the most important source of immigration into the more advanced countries of Europe, will continue to decrease as a result of the development of the Italian economy. Spain will thus most probably replace Italy as the principal source of supply of foreign labour to Europe.

The increase in emigration to Europe in the last few years has been partly counterbalanced by the decrease in emigration overseas and by an increase in the number of those returning from overseas. It is probable that emigration overseas will continue to decline. As for emigration to Europe, it cannot possibly continue at the same rhythm as in the last three or four years, during which it exceeded perhaps 150,000 workers per annum (1). An annual emigration of this size would maintain the active population at its present level. The cost of training these future emigrants would take too heavy a toll of the national economy, especially if education is to expand rapidly in the next few years. There would also be an undesirable concentration of older men in the working population. It should be remembered, however, that the Spanish economy has experienced very special conditions in the last few years: the deflation of 1959 and 1960 has contributed a great deal to the increase in emigration of

(1) As part of the emigration is not channelled through the National Institute of Emigration, the official information is not reliable. Estimates vary considerably and the figure of 150,000 must be considered as approximative.

workers. When full employment has been established and the standard of living raised, there will doubtless be less need to emigrate, especially if economic policy succeeds in creating an acceptable standard of living for the groups most likely to emigrate. In short, net emigration of Spaniards of working age should not exceed 80,000 a year. This figure implies that the increase in the resident population of working age will be reduced by half, to reach a total of 1.3 million people.

The growth and the distribution of employment will depend essentially on the rise of productivity in the different sectors. The evolution of agricultural productivity will be decisively influenced by the possibilities for the rural population to work outside agriculture. Since these possibilities will be considerable, owing to the creation of new jobs in industry and services and the demand from abroad, the growth of productivity in agriculture can attain an annual rate of 4.5 per cent. Although high, this increase is not excessive (1) in view of the overpopulation of the Spanish countryside, which is characterised by seasonal unemployment in the big latifundia zones and the cultivation for mere subsistence in the smallholding zones. Between 1950 and 1960 there was already a decrease in the active agricultural population of almost half a million, but the problem of overpopulation remains. Emigration from the countryside will have to be accompanied by an increase in agricultural investment. The latter can be very effective if adequately distributed, so that it does not need to absorb an excessive part of the total investment (1).

The rapid increase of productivity in agriculture is a necessary condition for accelerated growth. At present the revenue of those engaged in agriculture is less than a quarter of the average income in industry and services. There will thus be strong pressure from the rural population to improve its relative position. If this pressure is not followed by a determined effort to raise productivity, it will lead to excessive price increases in agricultural products, which would have an adverse effect on industrial costs, on the competitiveness of Spanish exports, and thus on the possibilities of development.

In the case of industrial productivity, the necessity of lowering costs so as to make them competitive, the very rapid growth of production, and, lastly, emigration, will all tend to maintain a high rate of growth. The experience of other countries shows that, even with cheap labour, a continual increase in

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(1) See the Spanish report for the Regional Mediterranean Project of the Food and Agricultural Organisation (F.A.O.).

demand and the opening up of foreign markets create favourable conditions for raising productivity. Moreover, in view of the conditions in which Spanish industry has developed, there are enormous possibilities in this direction, in many cases without the need for big investments. In fact, considerable progress has been made in the last three years.

In services, too, productivity is at present too low. In some cases, such as transport and banking, modernization and reorganisation already under way or under consideration will produce considerable improvements. For all these reasons we have assumed an annual growth of productivity of 5.8 and 2.9 per cent in industry and services respectively. The evolution of productivity by sub-sectors or branches of activity is shown in Table 39.

In accordance with the assumed evolution of production and productivity, total employment will pass from 11.6 million in 1960 to 13.6 million in 1975. Both figures include the regular members of the Armed Forces and Security Forces. In accordance with the system adopted in national accounts, army and police expenses are included in services, in the group of public administration. Therefore, in order to calculate the global figures of productivity we have had to take into account employment in the Armed Forces and Security Forces, which amounted to 150,000 men according to the census of 1960. We have arbitrarily assumed that this figure would not vary between 1960 and 1975. From now on, when we refer to employment we shall mean civilian employment only.

The increase in the latter will be of 1.9 million, a figure which results from the reduction of employment in agriculture of 1.1 million and an increase of 3.0 million in industry and services (Table 40). In 1975 the agricultural population will represent only 27 per cent of total employment, as against 41 per cent in 1960. Of the new jobs outside agriculture, 1.4 million will be in industry and 1.6 million in services.

For the distribution of employment in industry and all further calculations we have used 12 industrial sectors derived from the International Standard Industrial Classification of all Economic Activities (1) which in Table 40 are grouped into four main branches: mining; manufacturing; construction; electricity, water and gas.

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(1) Mining; food; textiles; chemicals; building materials; metals; machinery; transport equipment; wood; other manufactures; construction; electricity, water and gas.

TABLE 39: FORECASTS OF OUTPUT PER EMPLOYED PERSON, BY DIVISION OF ECONOMIC ACTIVITY, 1960 - 1975

(At 1960 prices)

	Output per employed person per year (In thousand pesetas)		Annual % rate of increase 1961 - 1975
	1960	1975	
Agriculture	29.7	57.5	4.5
Industry	47.7	111.3	5.8
Mining	54.6	102.6	4.3
Manufacturing	48.9	112.6	5.7
Construction	30.5	81.8	6.8
Electricity, gas and water	167.8	391.1	5.8
Services	70.1	107.7	2.9
Trade	64.8	88.8	2.1
Banking	181.8	244.7	2.0
Transport and communications	68.6	104.3	2.8
Others	64.8	107.1	3.4
Gross Domestic Product per employed person	46.4	95.3	4.9

Sources: Spanish National Accounts; Ministry of Finance. Provisional Figures established at the beginning of 1963.
National Institute of Statistics, 1960 Census.

TABLE 40: FORECASTS OF EMPLOYMENT BY DIVISION OF ECONOMIC ACTIVITY: 1960 - 1975

	in thousands		% distribution		Annual % rate of increase 1961-1975
	1960	1975	1960	1975	
Agriculture	4,803.3	3,713.4	41.3	27.4	- 1.7
Industry	3,652.4	5,077.8	31.4	37.4	2.3
Mining	203.5	220.3	1.7	1.6	0.5
Manufacturing	2,545.9	3,489.4	21.9	25.7	2.1
Construction	822.1	1,244.9	7.1	9.2	2.8
Electricity, gas and water	80.8	123.0	0.7	0.9	2.8
Services	3,178.5	4,773.1	27.3	35.2	2.7
Trade	820.1	1,294.5	7.0	9.5	3.1
Banking	125.1	208.0	1.1	1.5	3.4
Transport and communications	536.5	809.0	4.6	6.0	2.8
Others	1,696.7	2,461.6	14.6	18.1	2.5
Total employed	11,634.2	13,564.3	100.0	100.0	1.0

Source: National Institute of Statistics, 1960 Census.

For the increase of employment in services, we have taken into account the increase in teaching staff following a method similar to the one adopted when calculating the product of services. Since the increase of the population of working age when the number of emigrants has been subtracted is only 1.3 million, there must be greater participation in the actual labour force of the country, as shown in Table 41. In 1960 the rate of participation (the relationship between employment and the population of working age) was only 58.5 per cent, while in the European Economic Community, for example, it was 66.1 per cent in 1959. For 1975 we have assumed a global rate of participation of 64.1 per cent, which we have obtained by reducing the rate of men's participation from 98.8 per cent in 1960 to 95 per cent and by increasing that of women from 20.8 per cent to 36 per cent. The increase in the enrolment ratios will delay male participation in the working force, but it is hoped that the number of women working will increase considerably in the next few years. In any case, this must be one of the objectives of our employment policy within a general policy for accelerated growth.

However, the increase in the labour participation rate of women can be explained, for the most part, by a purely statistical phenomenon. The number of women working in agriculture does not include women working on family cultivations whose number is considerable. When these women leave the agricultural sector for other work, they will be included in employment statistics. But the number of women working will have to increase in all social groups.

III.3. OCCUPATIONAL STRUCTURE OF THE LABOUR FORCE

We shall now proceed to analyse the improvements in the standard of education of the working force which are necessary to attain the specified rate of economic growth. We shall begin by studying the necessary changes in the occupational structure of the labour force, and then consider the corresponding changes in the level of education within each profession.

The analysis of the occupational structure and the level of education of the labour force in 1960 are based on information supplied by the National Institute of Statistics. The occupational breakdown of labour conforms to the International Standard Classification of Occupations (I.S.C.O.) used for the Census of 1960 in conjunction with the "International Standard Industrial Classification of all Economic Activities" (I.S.I.C.). We have only nine different occupational categories (Table 42), since the information has been obtained from a sample of 1 per cent of the census, which does not allow greater detail. In any case, it would be futile to work with a more detailed classification in view of the length of the planning period.

TABLE 41: ACTIVE CIVILIAN POPULATION IN 1960 AND FORECASTS FOR 1975

(in thousands)

	1960	1960 - 1975		1975
		Natural increase	Emigration	
Men and Women				
Population of working age (15 - 64 years).	19,641	2,492	1,200	20,933
Active civilian population	11,484	..	..	13,414
Participation rate	58.5%	..	..	64.1%
Men				
Population of working age (15 - 64 years)	9,484	1,379	900	9,963
Active civilian population	9,370	..	..	9,465
Participation rate	98.8%	..	..	95%
Women				
Population of working age (1r - 64 years)	10,157	1,113	300	10,970
Active civilian population	2,114	..	..	3,949
Participation rate	20.8%	..	..	36%

Source: National Institute of Statistics, 1960 Census.

The first three categories - scientific and technical professional workers, "other" professional workers, technical and related workers - correspond precisely to the major group "0" of occupations of the I.S.C.O. The other six categories are: administrative, executive and managerial workers; clerical and sales workers; farmers, cattle-breeders and fishermen; and manual workers grouped into skilled, semi-skilled and unskilled.

Before undertaking an analysis of the situation in 1960, we must make a few observations about the criteria used by the I.S.C.O. to break down occupations into different categories or groups. In the second category, i.e., non-scientific and non-technical professional workers, are included all the teaching profession and some of the members of religious orders. Now some members of the teaching profession obviously received scientific or technical training, which detracts somewhat from the meaning of these two professional categories. However, this only affects the teaching profession, i.e., the sector of education; there is no ambiguity of this kind in the remaining sectors of the economy. As for members of religious orders, we have included in the second category only priests or those whose functions are closely linked with religious observance. Those who belong to religious orders and whose essential occupation consists in teaching or looking after sick people etc., are classified in their respective categories. Physicians and nurses are included in the first and third categories respectively.

The category which is most likely to cause confusion is the fourth: "Administrative, executive and managerial workers". As its title indicates, it includes not only heads of enterprises, but also professional men in administrative and managing positions such as branch managers, managers of purchasing and publicity departments, etc. Some people who by training belong to the first three categories (professional and technical workers), but whose essential task is that of directing an administrative department or an enterprise, are classified in this latter category. Such is the case of an engineer, for example, who manages an enterprise. We have not included in the fourth category owners of wholesale or retail businesses which they manage themselves. They belong to the fifth category.

In agriculture a distinction must be made between: 1. landowners who let their land to others without cultivating any of it themselves and are not regarded as engaged in agriculture; 2. managers of agricultural enterprises whose functions are purely administrative and who do not inspect the agricultural work on the land (these are included in category 4); 3. landowners who cultivate their land (these are included in category 4); 4. landowners who cultivate their land themselves and belong to category 6 (farmers, cattle-breeders and fishermen). Lastly, we should add that the I.S.C.O. makes no distinction between manual workers. For their distribution into skilled, semi-skilled and unskilled we have used an enquiry made by the Ministry of Labour ("Structure of Occupations in Industry and Trade classified by Economic Activities").

TABLE 42: DISTRIBUTION OF THE ACTIVE CIVILIAN POPULATION BY OCCUPATIONAL CATEGORIES AND DIVISIONS OF ECONOMIC ACTIVITY, 1960

	1. Agriculture	2. Industry (3+4+5+6)	3. Mining	4. Manufacturing	5. Construction	6. Electricity Water and Gas	7. Services (8+9+10+13)	8. Trade	9. Banking and Insurance	10. Transport Warehousing & communications	11. Other Services (excl. education) (7-8-9-10-12)	12. Education	13. Other Services including Education (11 + 12)
Active civilian population (in thousands)	4,803.3	3,652.4	203.5	2,545.9	822.1	80.8	3,028.6	820.1	125.1	536.5	1,386.8	160.0	1,546.8
Percentage Distribution													
Scientific and technical professional workers (1)	.	0.8	0.8	0.75	0.85	3.6	2.9	0.3	0.9	0.45	5.5	3.5	5.4
Other professional workers (2)	.	0.5	0.5	0.6	0.1	0.2	8.6	0.1	0.3	0.2	8.7	86.0	16.7
Technical workers	.	0.6	0.7	0.55	0.5	1.6	1.9	0.7	0.4	0.3	3.5	1.4	3.3
	0.1	1.9	2.0	1.9	1.45	5.4	13.4	1.1	1.6	1.0	17.7	90.9	25.4
Administrative, Executive and Managerial workers	.	1.6	0.6	1.9	0.85	0.8	2.1	2.6	4.2	0.9	2.2	0.7	2.1
Clerical and Sales workers	0.2	8.4	4.2	9.5	5.0	19.0	35.4	(4) 7.4) 77.3) 84.7	85.7	9.5	15.2	5.1	14.1
Farmers, Cattle-breeders and fishermen	99.7(3)												
Workers :													
" skilled		25.7	28.0	25.0	26.9	31.4							
" semi-skilled		26.3	21.0	31.4	13.0	13.1	49.1	11.6	8.5	88.6	64.9	3.3	58.4
" unskilled		36.1	44.2	30.3	52.8	30.3							

(.) Less than 0.05 %
(1) Includes : architects, engineers, land-surveyors ; chemists, physicists, biologists, veterinary surgeons, agricultural engineers and similar ; physicians, surgeons and dentists.
(2) Includes : schoolmasters, teachers and research-workers ; priests and comparable members of religious orders ; lawyers, artists, writers and similar workers ; professional + similar workers (accountants, social workers, library workers, archivists, economists, registrars and statisticians). For further details, see "Nomenclatura y claves de codificación para las clasificaciones del censo de población de 1960" (I.N.E.)
(3) Of whom 2,400,000 are independent farmers not employing paid labour and 2 million agricultural labourers ; the rest are mostly small farmers who employ a few workers.
(4) Employed.

Source : Table of distribution of the active population by occupations and sectors of economic activity, drawn up by the National Institute of Statistics for the Regional Mediterranean Project from a sample of 1 % of the Population Census of 1960. Enquiry by Ministry of Labour "Structure of occupation in industry and trade classified by economic activities". Dirección general de Empleo 1958. This enquiry has enabled us to estimate, for the industrial sectors of manufacturing, construction, electricity, gas and water, the distribution between skilled, semi-skilled and unskilled workers.

III.3.1. The present situation

The professional or occupational distribution of labour in 1960 varies considerably from one sector to another. The proportion of highly qualified staff (the first two categories) is 0.1 per cent in agriculture and 13.4 per cent in services. The lack of highly-qualified staff and technicians in agriculture is nevertheless exaggerated in Table 42, since the agricultural engineers and technicians working in State organisations are included in services. Yet the number of agricultural engineers who are in direct contact with farming is very small. For instance, 40 per cent of the total number of agricultural engineers live in Madrid (1).

In industry the low proportion of professional and technical workers is partly due to the great number of small industrial enterprises, many of which are run by their owners only. The relatively high number of professional and technical workers in services is largely due to the "other services": public administration, the professions and education account for the majority of these professional workers. In trade, banking, insurance, transport and communications, the proportion of professional and technical workers is similar to that in industry.

The homogeneity of the professional groups included in the first two categories (see Notes (1) and (2) to Table 42) varies considerably from one sector to another. In industry it is quite strong. The first category - scientific and technical professional workers - is essentially composed of engineers (excluding agricultural engineers), since medical practitioners and agricultural engineers (also included in the first category by the I.S.C.O.) cannot be very numerous in industry. The second and third categories must also be relatively homogeneous in industry. In services the heterogeneity is enormous. The first professional category includes doctors, the second members of religious orders, artists and writers. Such inclusion explains the high percentage of highly-qualified personnel in services.

The relative number of administrative, executive and managerial workers (the fourth category) is also greater in services than in industry. In the latter, it is much greater in manufacturing than in the other sectors for the reason described above, i.e., the great dispersion of small enterprises. As is logical, services also have the highest percentage of clerical and sales workers. Lastly, manual workers represent 88 per cent of industrial employment, and of these less than a third are skilled. Although in agriculture the census does not

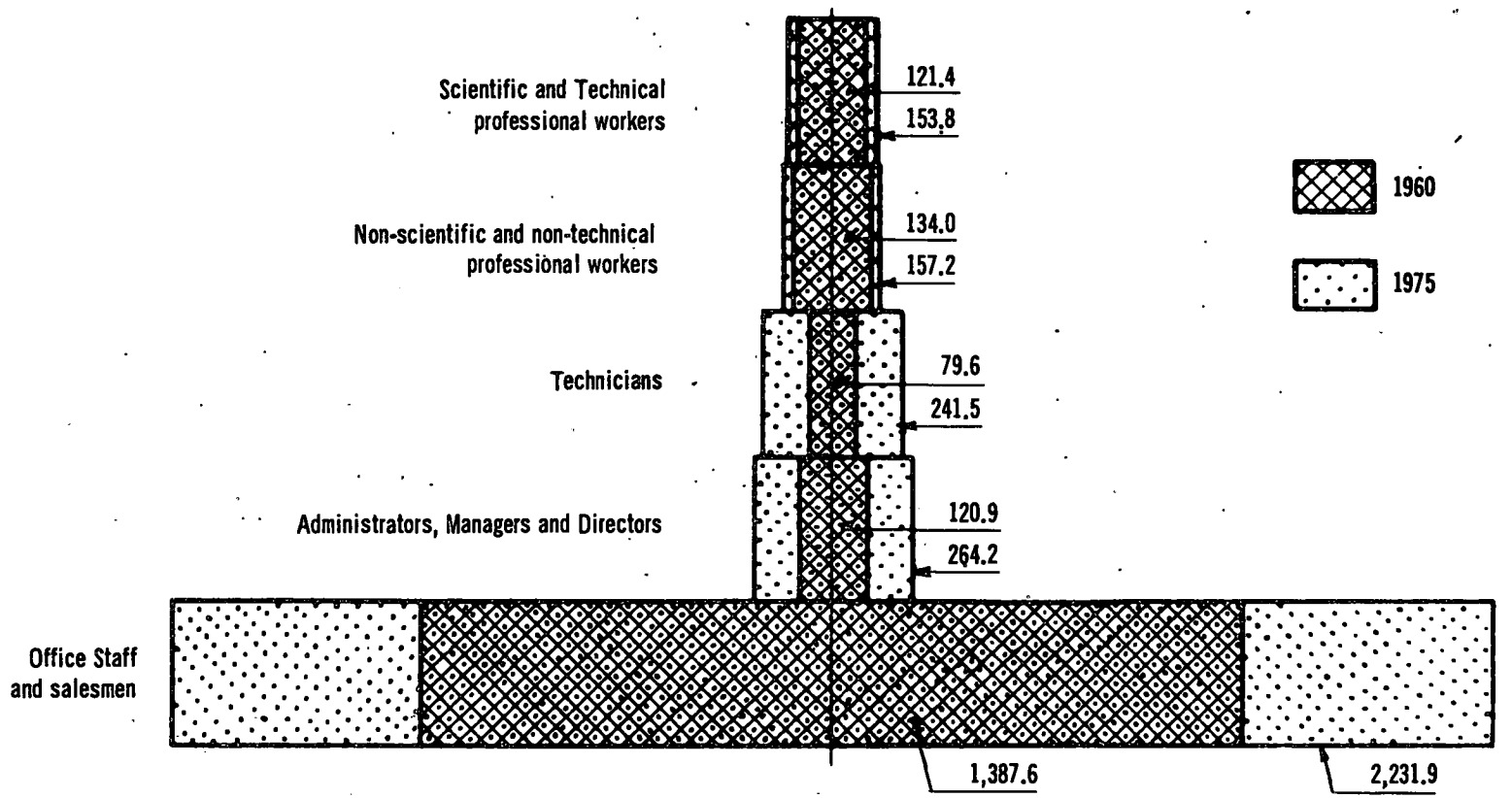
(1) Until five or six years ago the percentage of agricultural engineers in government service was almost 80 per cent. With the reform of technical education this situation has begun to change.

TABLE 43: DISTRIBUTION OF THE ACTIVE CIVILIAN POPULATION BY OCCUPATIONAL CATEGORIES AND DIVISIONS OF ECONOMIC ACTIVITY, 1975

	1. Agriculture	2. Industry (3+4+5+6)	3. Mining	4. Manufacturing	5. Construction	6. Electricity Water and Gas	7. Services (8+9+10+13)	8. Trade	9. Banking and Insurance	10. Transport, Warehousing and communications	11. Other Services (excluding education) (7-8-9-10-12)	12. Education	13. Other Services (including education) (11 + 12)
Active civilian Population (in thousands)	3,713.2	5,077.6	220.3	3,489.4	1,244.9	123.0	4,623.0	1,294.5	208.0	809.0	1,961.5	350.0	2,311.5
	Percentage Distribution												
1. Scientific and technical professional workers	0.2	1.1	0.9	1.1	0.8	3.0		0.5	1.0	0.5	4.2		
2. Other professional workers	.	0.4	0.4	0.4	0.2	0.4		0.2	1.3	0.5	6.5		
3. Technical workers	0.3	1.9	1.7	2.1	1.2	4.3		1.1	0.7	1.0	5.6		
1 + 2 + 3	0.5	3.4	3.0	3.6	2.2	7.7		1.8	3.0	2.0	16.3		
4. Administrative, executive and managerial workers	0.1	2.5	1.1	2.8	2.0	1.1		3.0	7.0	1.0	3.7		
5. Clerical and sales workers	0.5	10.2	4.9	12.0	5.0	22.0		85.0	85.9	13.0	15.9		
6. Farmers, cattle-breeders and fishermen	98.9												
7. Workers skilled		30.5	34.0	28.4	35.0	40.0							
8. " semi-skilled		26.5	20.0	33.8	9.0	10.0		10.2	4.1	84.0	64.1		
9. " unskilled		26.9	37.0	19.4	46.8	19.2							

(.) Less than 0.05 %

Graph V. DISTRIBUTION OF THE CIVILIAN ACTIVE POPULATION BY OCCUPATIONAL CATEGORIES
(Thousands of persons)



allow a breakdown into skilled and unskilled labour, the immense majority of the rural population have had no occupational training.

III.3.2. Future trends

The occupational structure of manpower will undergo very important changes due, first, to the transfer of the agricultural population to other sectors and, second, to changes within each sector as a result of economic development. In quantitative terms the first element will play the more important part. Manpower in agriculture will drop by 1,100,000 between 1960 and 1975. By reason of the differences in the composition of manpower in industry and services, on the one hand, and in agriculture, on the other, the final result will be a radical transformation in the occupational composition of manpower as a whole. Moreover within each sector economic development will necessitate changes in occupational structure.

It is interesting to examine some of the changes which have taken place since the beginning of the century in labour in the United States, and compare its present situation with that of Spain. This is the "white collar workers", i.e. the professional and technical workers, senior administrative and managerial workers, clerical and sales workers, who made up 18 per cent of the active population in 1900 in the U.S.A., represented 42 per cent in 1959, while the present figure for Spain is 15 per cent.

Although we know the general pattern of the future occupation structure, it would be very difficult to determine it exactly for one particular year. It is really impossible, in the present state of knowledge, to establish a definite relationship between the level of development and the occupational structure of manpower within each branch of activity. Such relationships of which we have some knowledge, derived from past experience in other countries, were influenced by a series of circumstances peculiar to each country at the time. Therefore it is not possible to say exactly what will be, or rather what should be, the occupational structure of manpower for a certain level of economic development. The best we can do is establish the most reasonable hypotheses in the light of the information available. These hypotheses, although they may be subject to error, will show approximately the extent of future changes. In any case, educational policy will be much more effective if based on such hypotheses than with no basis at all.

The following methods are most commonly used to determine the future composition of manpower.

Extrapolation from past tendencies. This method has not been used for several reasons. In the first place, it implies

that the tendency is simply a function of time, regardless of the level of growth attained. Second, there is a danger of confusing demand and supply relationships. For example, the shortage of highly qualified personnel can be explained, not by the real or potential demand for it, but by the lack of supply due to the inadequacy of the educational system. If we extrapolate this situation, we shall in fact be extrapolating scarcity. This danger, which is always present, is perhaps even greater in the case of Spain, because of the defects of the educational system.

Comparison between enterprises. This method involves the assumption that the occupational structure will tend to follow the pattern already existing in the most modern enterprises, but it does not allow to determine the point in time when such alignment will occur.

International comparisons. The basic idea is the same as in the last method: as economic growth attains certain levels, the structure of employment tends to become equated with that at present existing in more developed countries. This method has the advantage of allowing us, by analysis of the existing structure in countries which now have the income per capita which we hope to reach, to determine approximately the time by which a certain occupational structure will be attained. It has nevertheless the strong disadvantage of making no allowance for economic and social characteristics peculiar to each country, quite apart from the difficulties which arise in determining whether two countries have reached the same level of development. Even assuming that the problem of comparison of real income per capita between two given countries has been solved, it is certain that the Spanish economy will not be organised in the same way as was that of the United States forty or fifty years ago (when at the same level of income), because of the advance of technological knowledge. Moreover, this method also can cause the same confusion, already mentioned, between supply and demand relationships.

In view of the disadvantages of the last two methods when used separately, we have arrived at the occupational distribution of employment in 1975, by taking into account both the situation in the most modern of our national enterprises and that in more developed countries. This method has been followed for industry and to some extent for transport. In the first case we have completed a survey of a group of enterprises considered as representative of the most up-to-date. From the results of these surveys, and from the information available about other more advanced countries, we have determined the occupational structure of industrial employment for 1975 as it appears in Table 43. In so doing we have taken into account the fact that the general hypothesis of accelerated growth supposes a rapid increase in revenue from investment. This is only possible if the working

force is sufficiently trained. For services, excepting education, we have based our study essentially on international comparisons. For medical services, we have compared the number of inhabitants per doctor in Spain with that in other countries. For agriculture, because of lack of information about the present situation and because of the particular complexity of this sector, it has only been possible to establish very general objectives. We shall now analyse the principal changes in the occupational structure which will take place during the period 1961-1975, but the qualification structure of the working force will be the subject of a separate analysis.

Agriculture

The growth of agricultural productivity at the assumed rate would demand an enormous increase in professional and technical workers. Improvement of cultivation methods (which would demand a reinforcement and extension of the system of agricultural training, as yet very limited), intensification of mechanisation, the reorganisation of farms (so as to create profitable entities and eliminate the latifundia) are essential conditions for agricultural development. But they demand a better supply of human resources. We have therefore anticipated that the percentage of agricultural manpower represented by professional men and technical workers will rise from 0.1 per cent in 1960 to 0.5 per cent in 1975, i.e. by 13,800. This figure, however, allows for part only of the agricultural professional and technical workers. Owing to the system of classification used, some of these, essentially those working in State agricultural services, are included in services. In the same way, an engineer in charge of an estate is normally included in the category of farmers, which also embraces, at the other extreme, unskilled agricultural labourers. Therefore the improvements which will take place in this category do not all appear in Table 45. They will be seen more clearly when we analyse the educational level of the agricultural labour force in 1975. The fourth and fifth categories should also increase with the modernization of agriculture.

Industry

The most important change expected is the increase of professional and technical workers, who should represent in 1975, according to our hypothesis, 3.4 per cent of industrial manpower. In view of the enormous increase of the latter, this means an absolute increase of more than 100,000, though the goal in relative terms cannot be considered as too ambitious. The greatest increase will take place in the category of technicians. Indeed, the present proportion of 2.2 professional workers for each technician is excessive: it implies a bad use of highly qualified personnel. In a country where there is a shortage of such personnel, it appears logical to use them only for management and planning. The link between planning and performance should be assured by technicians and not by highly-qualified personnel,

as is often the case at present. We have therefore assumed that the proportion between professional workers and technicians will be 0.8:1, and that between scientific and technical professional workers and technicians 0.6:1, instead of 1.3:1 in 1960. In the professional group, we expect an important change in favour of scientists and technologists: the relation between them and the other professional workers will pass from 1.6:1 in 1960 to 2.8:1 in 1975. Only in the electricity, water and gas sector do we expect a decrease in the percentage of scientific and technical professional workers.

The fourth category, administrative, executive and managerial workers, and the fifth, clerical and sales workers, will also increase, especially the former which will rise from 1.6 per cent of manpower in 1960 to 2.5 per cent in 1975.

On the contrary, manual workers will decline in importance because of industrial modernization: in 1975 they will represent 84 per cent of labour in industry, compared with 88 per cent in 1960. At the same time, skilled workers will pass from 25.7 per cent to 30.5 per cent and unskilled workers will drop from 36.1 per cent to 26.9 per cent. The greatest decrease of unskilled workers will take place in manufacturing and electricity, water and gas, which accounted for a very high percentage of these workers in 1960. In spite of the improvement expected, unskilled labour will continue to represent a considerable proportion in construction, because of the technical characteristics of this industry.

Services

In public administration the proportion of professional and technical workers in relation to total employment was 18.9 per cent in 1960, compared with 7.9 per cent in England and Wales (1951), 8.9 per cent in Canada (1951) and 14.3 per cent in the United States (1950). It was noticed in Italy (1) that in all the services, but especially in public administration, the proportion of highly qualified personnel was greater in the south than in the north. This seems to indicate that in underdeveloped regions public administration absorbs an excessive proportion of such staff without any apparent justification.

It is possible that this high percentage of professional and technical workers in the public administration of Spain is caused by the great number of civil servants who have two jobs; in fact, public administration does not have so many highly-qualified professionals and technicians in terms of actual

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(1) See "Progresso economico e strutture formative nell'Italia del 1975", SVIMEZ, Roma 1963.

working time. Calculating on a basis of full-time work, we expect these to be only 9 per cent in 1975. In trade, transport and banking, we expect an important increase in the first three categories, especially technicians. In the other services (excluding education) we expect, on the contrary, a decrease. In the case of the medical services, the number of doctors per thousand inhabitants is not too unsatisfactory compared to that of other countries, regardless of their geographical distribution. The problem is completely different with regard to auxiliary medical workers: in 1960 these were outnumbered by doctors, whereas in the majority of other European countries the proportion is 2:1. We therefore expect an important increase in medical auxiliaries.

In education we have not calculated the distribution of occupations according to the categories of Table 43 , because it constitutes precisely the result we are trying to obtain from hypotheses on the distribution of occupations. Moreover, the classification followed in this case has the disadvantage already mentioned of defining all secondary and higher-grade teachers (profesores) as non-scientific and non-technical professional workers. We have therefore confined ourselves to the assumption that total employment in education will be 350,000 in 1975. In the next section we shall explain how we arrived at this figure and how this total is distributed according to educational categories.

In Table 44 are shown the changes in the stock of manpower in the first five categories which would occur if the objectives just described were attained. The highest increase - 200 per cent - would take place among technicians. Administrative, executive and managerial workers will have to double in numbers. The number of scientific and technical professional workers will increase by a third, while that of other professional workers will increase by 17 per cent only. The exceptional increase of technicians is due to the present deficit, especially when compared with the number of professional scientific and technical workers.

After having analysed the changes in the occupational structure of manpower, we shall now determine the educational content of each occupation. This will enable us to distribute manpower in 1975 into levels of education.

III.4. EDUCATIONAL LEVEL

III.4.1. Initial situation.

The level of education of manpower in 1960 was extremely low (Table 45). Only 1.7 per cent had reached university level, while 85 per cent had only completed primary school or received occupational training; 9 per cent had no schooling of any kind.

TABLE 44: CHANGES IN THE STOCK OF THE FIVE PRIMARY OCCUPATIONAL CATEGORIES (EXCLUDING EDUCATION) BETWEEN 1960 AND 1975 (1)

	In thousands		Index 1960 = 100	Annual % rate of increase
	Stock 1960	Stock 1975		
Scientific and technical professional workers (excluding physicians)	85,3	111,7	131	1,8
Physicians	36,1	42,2	117	1,0
Non-scientific and non-technical professional workers	134,0	157,2	117	1,1
Technical workers	79,6	241,5	303	7,7
Administrative, executive and managerial workers	120,9	264,2	219	5,4
Clerical and sales workers	1.387,6	2.231,9	161	3,2

(1) Excludes all personnel in education.

TABLE 45 : DISTRIBUTION OF THE ACTIVE CIVILIAN POPULATION BY OCCUPATIONAL CATEGORIES AND EDUCATIONAL LEVELS

	Total (in thousands)	Percentage Distribution					
		Higher Level	Secondary Level			Primary Level	Illiterate
			General	Technical	Vocational		
1. Scientific and technical professional workers	121.4	78.4	2.4	11.3	4.9	3.0	-
Architects, engineers, surveyors, physicists, chemists	75.9	68.7	3.6	16.7	6.3	4.6	
2. Other professional workers(1)	134.0	22.8	5.0	3.1	9.0	60.0	
3. Technical workers	79.7	13.4	10.3	12.5	16.8	47.0	-
4. Administrative, executive and managerial workers	120.9	13.8	18.3	2.0	4.7	61.2	-
5. Clerical and Sales workers	1,387.6	1.5	7.2	1.3	2.7	86.8	0.6
6. Farmers, Cattle-breeders and fishermen	4,630.5	0.1	0.2	.	.	84.3	15.4
7. Workers - skilled, semi-skilled, unskilled.	4,865.3	.	0.5	0.2	0.2	92.7	6.4
8. Total active civilian population (2)	11,484.4	1.7	1.7	0.5	1.6	85.5	9.0

(1) Excluding the 145,000 teachers

(2) Including the 145,000 teachers

Source: Sample of 1% of the 1960 census, supplied by the National Institute of Statistics

It should be remembered, however, that the questionnaire for the 1960 Census was somewhat ambiguous and may have confused some people.

According to the information supplied by the National Institute of Statistics, the heading "primary studies" includes those who have begun primary school, while that of "secondary school studies" comprises only those who have completed them; practically all those included in the higher education group are also graduates from universities or higher technical colleges. However, some answers may not have been given according to these criteria, so that the figures should only be considered as approximate. In the primary level group, we have included those who have received occupational training. Although it is impossible to define exactly the concept of occupational training for the census figures, in many cases it could only have been a short course.

As was to be expected, the highest educational level is among scientific and technical professional workers, of whom almost 80 per cent have higher education. Allowing for the fact that we have included physicians and dentists (all of whom are supposed to have a degree), the percentage of engineers and scientists with a university education must be slightly less than 70 per cent. This relatively low figure is due, to some extent, to the fact that there has been a certain amount of internal promotion, that is, some men with a lower standard of education now occupy posts as engineers. But it is due mainly to those who have a diploma from what are now known as technical schools of secondary level: middle-grade technicians, overseers, public works assistants, etc. Although the level demanded for each of these diplomas varied somewhat before the Technical Education Act, there are today 20,000 graduates from these schools who, in practice, can be considered to have had higher education according to criteria commonly accepted in other countries. If we consider them as such, and not as secondary level graduates as we have done so far, the percentage of scientific and technical professional workers with higher education rises to 95 per cent, and the stock of manpower with higher education would be 1.9 per cent of total manpower, instead of 1.7 per cent. The hypotheses made earlier with regard to the composition of manpower in 1975 according to educational levels are thus more favourable than appears at first sight.

We have excluded teachers from the second category (non-scientific and non-technical professional workers) in Table 45 since many of them have scientific or technical training. But they are included in the total active civilian population which is given in the same table. In this second category, thus defined, the number of people with a university or similar degree represents 23 per cent only. What is even stranger is

that 60 per cent have only a primary school education. This may be due to the fact that this category includes artists, writers, members of religious orders etc., many of whom have a very low level of formal education in terms of degrees held.

The third category, technicians, is extremely heteregeneous; those with primary school education (47 per cent) are more numerous than those with secondary school education (40 per cent), while those with higher education are only 13 per cent. But they have a higher level than the non-scientific and non-technical professional workers: the educational level of administrative, executive and managerial workers is extraordinarily low, with 61 per cent having only primary education.

In the three remaining categories which represent 95 per cent of the active population the immense majority have only primary education and amongst these only a very small minority have received vocational training. The situation as far as farmers are concerned is very unsatisfactory: 15 per cent have no schooling of any kind, while practically all the rest have only been to primary school, a very great number for a very short time. Many of those included in the primary school level have not completed any course of study. Among manual workers 93 per cent have been to primary school only, and less than 1 per cent have received some kind of secondary education.

The distribution of the active population by educational levels and branches of activity shows great inequalities (Table 46). The differences between agriculture and the other sectors are considerable. Only 2.8 per cent of manpower with higher and 2.6 per cent with secondary education is in agriculture; on the other hand, 84.6 per cent of the active agricultural population have only primary school education and 15 per cent have no education at all (Graph V).

A phenomenon which is generally less well-known is the inequality between industry and services. The latter absorb 73 per cent of the active population with a higher education, the former only 24 per cent. There is approximately the same difference with regard to secondary studies. This great disproportion is due, for the most part, to the large number of people with higher or secondary studies in public administration and the professions. Moreover, the division of industry into small enterprises greatly reduces the demand for such persons. These differences in the level of education are not always justified by the kind of work performed.

We may thus conclude that the level of education of manpower is very low, and that the distribution of the active population by level of education is very unequal and certainly not always in accordance with the needs of the different occupations. This last factor will only be corrected by economic

TABLE 46: DISTRIBUTION OF THE ACTIVE CIVILIAN POPULATION BY ECONOMIC SECTORS AND BY EDUCATIONAL LEVEL 1960

A.

Economic sector	Total in thousands	Percentage distribution			
		Higher	Secondary	Primary (1)	Illiterate
Total	11,484.4	1.7	3.8	85.5	9.0
Agriculture	4,803.3	0.15	0.25	84.6	15.0
Industry	3,652.4	1.3	3.2	90.0	5.5
Services	3,028.7	4.7	10.3	81.5	3.5

(1) Including the occupational qualification which represents 0.05 per cent in agriculture, 1.6 per cent in industry and 2.1 per cent in services, in each case of the total labour force in that sector.

B.

Educational level	Total in thousands	Percentage distribution		
		Agriculture	Industry	Services
Total	11,484.4	41.8	31.8	26.4
Higher	193.8	2.8	24.4	72.8
Secondary	441.8	2.6	26.8	70.6
Primary	9,817.6	41.4	33.5	25.1
Illiterate	1,031.1	70.0	19.5	10.5

Source: Sample of 1 per cent taken from the 1960 Census, issued by the National Institute of Statistics.

development itself, which will increase industry's demand for highly qualified personnel. Until then, many people with higher education will continue to seek posts in public administration. It seems, however, that a certain change has already begun to take place in this direction: the number of candidates for posts in public administration has been tending to diminish in the last few years.

III.4.2. Future evolution

It now remains to determine the educational level to be attained by each of the occupational categories. This is a difficult task. In fact it is impossible to fix a quantitative relationship between a desired rate of economic growth and the corresponding improvement in the level of education, for the simple reason that the necessary information is lacking. Nevertheless, the occupational structure of the active population for 1975 constitutes a solid basis for assessing the necessary changes in the level of education, since occupation is the most important factor in determining what the proper level of education should be. This does not mean that changes in occupational structures can be directly translated into changes in the level of education, if only because the level of education in the immense majority of occupations was too low in 1960. We must provide for a considerable improvement in this respect. Nor should the level of education in 1975 be necessarily the same throughout a given occupation. Some jobs in the same occupational category require greater knowledge than others. These differences are especially marked amongst administrative, executive and managerial workers, and clerical and sales workers. The qualifications needed by the manager of a small enterprise have very little or nothing in common with those of the manager of a big industrial complex. Moreover, we must not forget promotion, either from one category of occupation to another, or within the same category.

We cannot therefore expect a fixed relationship between occupation and level of education. This would mean a society in which everybody after leaving school would remain forever in the same occupation. It is a quite different thing to assume that normally a certain standard of education is necessary for certain posts, leaving a margin for those who obtain similar training through the work itself.

We have thus determined the levels of education required in the first five categories, while the last two, farmers and other manual workers, have been included in the next section under occupational training. It is certain, however, that some of those included in the agricultural category will have to have a higher level of training. It is impossible assess how many should have a certain level of educational qualification, according to the work they have to perform. They have therefore not been taken into account. It should be remembered that the category

of agricultural workers does not include those who work in private or official services that are auxiliary to agriculture.

For each of the first five occupational categories, we have distinguished between higher scientific and technical education, other higher education, secondary general, and secondary technical, the latter sub-divided into higher and lower levels. General secondary education corresponds to "bachillerato general" and secondary commercial studies. As it will not be possible to ensure for all future technicians a level of training similar to that given at present in secondary technical schools, we have distinguished a lower grade which should correspond approximately to the present "bachillerato laboral superior", and a higher grade which should correspond to the present secondary technical schools.

Table 47 gives the level of education which should be reached by 1975, but without showing the number of teachers then required; we shall later explain the method we have used to calculate the latter. Although in principle nearly all scientific and technical professional workers ought to have higher education, we must not forget, on the one hand, those who in 1960 did not have it and will still be in activity in 1975 and, on the other hand, the system of internal promotion. For these reasons we have assumed that 84 per cent will have higher education and 16 per cent secondary education.

Among other professional workers, the requisite proportion of those with higher education is much smaller; at the same time, the other two factors (promotion and the remainder of the 1960 stock) play a much greater part; this explains why we have anticipated that 16 per cent will have education below the lower secondary level and only 41 per cent will have higher education; the most marked improvement takes place at secondary level, where the proportion will pass from 17 per cent in 1960 to 42 per cent in 1975. In the category of technicians, 91 per cent will have secondary level education and only 2.6 per cent higher education. This last figure is much less than in 1960. Indeed, workers with higher education, who are in short supply, ought not to be used in this category, except in marginal cases.

Because of the diversity of functions and internal promotion in the categories of administrative staff and of clerical workers, we have adopted a procedure of determining sector by sector the level of education required for those who will enter these two categories during the fifteen years. In the category of administrative, executive and managerial workers, we have calculated that 34 per cent of those entering will have higher education, 55 per cent secondary and 11 per cent primary education only. Of the new clerical and sales workers, 1.5 per cent will have a university education, 40 per cent secondary and 55 per cent primary education. Thus in 1975, 26 per cent of the

TABLE 47: ESTIMATED EDUCATIONAL ATTAINMENT OF THE 5 PRIMARY OCCUPATIONAL CATEGORIES IN 1975(1)

Categories	Total in (thousands)	Percentage distribution of personnel					
		Higher scientific and technical education	Other higher education	General secondary (2)	Higher secondary technical	Lower secondary technical	Below secondary
Scientific and technical professional workers (3)	153.8	83.7			13.6	2.7	
Other professional workers	157.2		41.3	42.2			16.5
Technical workers	241.5	2.6			58.7	32.8	5.9
Administrative executive and managerial workers	264.2	8.7	17.2	30.9	4.6	11.7	26.9
Clerical and sales workers	2,231.9		1.4	24.7		3.8	70.1

(1) Excluding teachers

(2) Including secondary commercial studies

(3) Including physicians

fourth category will have higher education and 47 per cent secondary education. Amongst clerical and sales workers, 70 per cent will have primary education, completed or not by occupational training courses, and 28 per cent will have secondary education.

By applying these percentages to the absolute figures of the first five categories of occupations, we obtain the distribution of manpower as illustrated in Table 48. These objectives require a considerable development in education, and consequently an increase in the number of teachers. To determine the latter, it is necessary to analyse the development of education. Therefore we have once more the problem of arguing in a circle. To solve it, we have roughly calculated the number of teachers required using a model from Tinbergen. As the figures obtained scarcely differed from those obtained after calculating the flows of pupils and the pupil/teacher ratios (see Chapter IV), it was not necessary to do all the calculations again (1).

Table 48 shows the total stock of graduates needed in 1975, including education, and the increase this would entail in relation to the stock in 1960. The greatest increase takes place amongst technicians at secondary level, whose stock would have to be multiplied more than four times. The whole stock with a secondary school education would be trebled. This would mean a better utilisation of graduates from higher education who, owing to the shortage of personnel with secondary education, now often occupy posts for which secondary education only would be required. At the same time, the gap which at present exists between the higher and primary levels would be closed.

The increases in the stock of graduates from higher education are 128 per cent for scientists and technologists (excluding physicians) and 72 per cent for the others. As a whole, the stock of graduates from higher education would increase by 80 per cent. This increase is not very ambitious if we consider the position in other countries of the O.E.C.D. The annual increase of 5.7 per cent for scientists and technologists is approximately the same as that in the European countries of O.E.C.D. in the last few years, although much lower than that in Italy and Yugoslavia. On the other hand, the forecasts for the O.E.C.D. countries are in many cases considerably higher (2).

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(1) Otherwise we should clearly have had to include our figures for teachers, calculated in Chapter IV, in those for the stock of manpower and re-calculate the flow of students and graduates until both figures were equal or very similar.

(2) O.E.C.D. "Third International Survey on the Demand for and Supply of Scientific and Technical Personnel".

TABLE 48: CHANGES IN THE ACTIVE CIVILIAN POPULATION BY EDUCATIONAL LEVELS BETWEEN 1960 - 1975

(in thousands)

	1. Stock in 1960 (including teachers)	2. Stock in 1975 (excluding teachers)	3. Stock of teachers in 1975	4. Stock in 1975 (2 + 3)	5. Index (1960=100) (including teachers)	6. Annual % rate of increase
Total number with higher education	194.0	299.6	49.1	348.7	180	4.0
With scientific and technical higher education (excluding physicians)	59.6	115.9	20.1	136.0	228	5.7
Physicians	36.1	42.2	1.0	43.2	120	1.2
With non-scientific and non-technical higher education	98.3	141.5	28.0	169.5	172	3.7
Total number with secondary education	414.7	1,072.7	161.4	1,234.1	298	7.5
With general and commercial secondary education	224.7	698.9	-	698.9	311	7.9
With technical secondary education	30.0	144.6	3.5	148.1	494	11.2
With vocational secondary education	50.0	199.2	-	199.2	398	9.6
Medical training	10.0	30.0	-	30.0	300	7.6
Primary teacher training	100.0	-	157.9	157.9	158	3.1

A part of the stock of 1960 will have disappeared from the active population in 1975 through retirement or death. In Table 49 we have calculated the survivors of the stock of 1960 and, by subtracting it from the stock anticipated for 1975, obtained the number of graduates who must enter the active population between 1960 and 1975. The rates of survival are estimated approximately, because we do not have any information on the age of retirement, mortality and distribution by age of the active population of 1960 in accordance with category of occupation and level of education. We have assumed that 70% of the stock of 1960 (1) will continue to be active, except in the case of physicians and teachers of whom only 60% and 50% respectively will remain active. The reason for this difference is that the age of physicians is higher than the average, mainly because they begin to work at a later age; teachers, too, retire earlier because a good number of them are women.

Between 1960 and 1975 the active population will lose 63,000 higher level and 152,000 secondary level graduates. If we allow for these losses and for the anticipated increase in the stock of higher and secondary level graduates, we find that during the fifteen years 218,000 of the former and almost 1,000,000 of the latter would have to enter the active population. 43 per cent of the new graduates from higher education would have to be scientists or technologists and 10 per cent would have to have medical degrees. The fact that the increase of scientists and technologists is slightly lower in absolute terms than that of other graduates from higher education is due to the enormous need for teachers in secondary schools. The increase of scientists and technologists is much greater in relative terms: during the fifteen years, 1961-75, more than three graduates with scientific or technical higher education for every two active in 1960 would have to enter the labour force. For other graduates from higher education, including those in medicine, the cumulative entrances would be roughly equal to the stock in 1960.

III.4.3. Vocational training

In view of the special nature of occupational training, and the lack of information in this field, we think it simpler to analyse this aspect of manpower separately. In this context it will be noted that there is no information in the earlier tables about the degree of skill of manual workers, except in industry where data are more plentiful. If the only distinction is between skilled and unskilled workers, the information in Table 50 can be used. Although this information can only be a first approximation, it shows the size of the problem. In agriculture

(1) This implies an annual departure of 1.75 per cent of the active population, which is certainly a low rate.

TABLE 49 : INCREASE IN THE STOCK OF UNIVERSITY AND SECONDARY SCHOOL GRADUATES BETWEEN 1960 - 1975

(in thousands)

	Stock 1960	Stock 1975	"Survivors" of the 1960 stock	New requirements 1960 - 1975
Total number with higher education	194.0	348.7	130.7	218.0
With scientific and technical higher education (excluding physicians)	59.6	136.0	41.7	94.3
Physicians	36.1	43.2	20.2	23.0
With non-scientific and non-technical higher education	98.3	169.5	68.8	100.7
Total number with secondary education	414.7	1,234.1	263.3	970.8
With general and commercial secondary education	224.7	698.9	157.3	541.6
With technical secondary education	30.0	148.1	21.0	127.1
With vocational secondary education	50.0	199.2	35.0	164.2
Medical training	10.0	30.0	-	30.0
Primary teacher training	100.0	157.9	50.0	107.9

TABLE 50: SKILLED AND OTHER[1] MANUAL WORKERS AS A PERCENTAGE OF TOTAL MANPOWER IN EACH SECTOR, 1960 AND 1975

	1960		1975	
	Skilled	Others	Skilled	Others
Agriculture	19.9	79.8	50.0	48.9
Industry	25.7	62.4	30.5	53.4
Trade	1.7	9.9	4.0	6.2
Banking	0.1	8.4	1.5	2.6
Transport	27.5	61.1	50.0	34.0
Other services (excluding education)	2.9	62.0	6.3	57.8

(1) Includes semi-skilled and unskilled workers.

TABLE 51: ESTIMATED INCREASE IN THE STOCK OF SKILLED WORKERS BY ECONOMIC SECTOR BETWEEN 1960 AND 1975

(in thousands)

	1. Stock in 1960	2. Stock in 1975	3 "Survivors" of 1960 stock in 1975	4. Emigration 1961 - 75	5. New requirements 1961-75 (2-3+4)
Agriculture	957.8	1,856.5	718.3	100.0	1,238.2
Industry	953.4	1,549.8	667.4	130.0	1,012.4
Services (excluding education)	201.8	583.4	141.2	100.0	442.2

for instance, 80 per cent of the active population have received no kind of vocational training. In the case of transport workers, we must allow for the greater facilities for on-the-job training, which is not the case for agricultural workers. Because of isolation and a crushing routine, the technical knowledge of the majority of the workers, who have not taken training courses is very rudimentary and not at all in accordance with modern methods of cultivation. In principle the great majority of workers should receive some kind of vocational training. It is, however, impossible to reach this goal in a period of 15 years. As an indication, we give some figures in Table 51. According to these, vocational training would be needed by one-and-a-half million workers in industry and services and 1.2 million in agriculture. This figure allows for the 330,000 who will emigrate. Although ambitious, the goal set for vocational training can be reached, provided the system of training is based on more realistic assumptions, particularly as far as its duration is concerned.

CHAPTER IV

FUTURE DEVELOPMENT OF EDUCATION

The analyses contained in the preceding chapters have been made with a view to assessing the necessary future development of education. The results obtained must now be expressed in terms of educational objectives to be reached by 1975. Let us repeat once more that we are not attempting to determine the exact evolution of the educational system in the next ten years, but rather to trace the main lines educational policy should follow - which is the object of the first stage of the Mediterranean Regional Project.

A simple method to determine the future development of education could have been to transplant the present educational system into the future and to increase the number of pupils so as to obtain the number of graduates required. Such an increase, however, would imply not only a truly fantastic effort, in terms of both human and economic resources, but also a bad use of these resources. As was shown in Chapter II, the low output of the present system is due to its enormous rate of wastage. But a reduction of this wastage would not be enough: the present arrangement of study cycles would not allow the system to produce a sufficient number of graduates even if the number of those giving up studies or repeating courses were reduced. In the next few years the educational system will have to assume two enormous tasks: satisfying the requirements entailed by economic development and making up for time lost in the last decades. To achieve this, it is necessary to transform the educational cycles so as to adapt them to present requirements.

We have therefore introduced some changes both in the system as such and in its working. The first are essentially concerned with the length of studies, the second with the rates of drop-out. Although we have tried to avoid as much as possible any pedagogical criteria, we had sometimes to advance hypotheses which would need to be analysed more fully. They must be taken as provisional recommendations which should attract the attention not only of pedagogues and economists, but of all sectors of Spanish society. Any deep modification of the educational system affects the whole social and economic life of the country and should therefore be accomplished in the full light of public opinion.

IV.1. EDUCATIONAL POLICY

IV. 1.1. Improvement in the quality of education

Although varying somewhat between different levels and branches, the present quality of education cannot be considered satisfactory. It would be of little use to increase the

"production" of the system, if this should lower the quality or, indeed, not improve it. Modern society needs not only a great number of qualified people, but also more and more people with very high qualifications.

The quality of education must be considered from the point of view of the educational system as a whole. Higher education will not yield satisfactory results if the pupils entering it have not obtained a good education at "bachillerato" level. The same thing could be said of the latter in relation to primary education. Even if we eliminate the weaker pupils, the quality will continue to suffer from the inadequate education acquired at a lower level. Proof of this is to be found at present in higher education: in spite of the great number of unsuccessful students, the educational level of graduates continues to be unsatisfactory.

Higher scientific and technical education merits particularly careful attention in view of its great influence on economic progress. Here, as in other sectors of education, there can be the problem of choice between quality and quantity. In our opinion this can be solved, provided the necessary distinction is made between the kind of education needed by various scientists and technologists. In the case of graduate engineers, for instance, it is necessary to distinguish two kinds, in accordance with the demands of the economy: on the one hand, those with excellent theoretical knowledge and, on the other, those trained in specific techniques.

This distinction can have some undesirable consequences, both from the point of view of education and from the general social point of view. Indeed, social and economic motives might prompt the great majority to belong to the first category, when only a minority of such engineers are needed. This is what actually happened until the reform of technical higher education in 1957. The old system tended to keep down the number of graduate engineers; moreover, as the number of candidates was far greater than the number of places available, there was also a tendency to prolong excessively the time candidates had to spend in preparation for the entrance examination. The best solution for the future would be perhaps for the two kinds of engineers to study in the same schools and to follow jointly the greatest possible number of courses, so that they could pass from one category to the other if they satisfied certain conditions. The practical form of this distinction between the two types of engineers can vary considerably, but the distinction itself is necessary, as is shown by the experience of certain scientifically advanced countries (1).

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(1) Two excellent examples are France with its "grandes écoles" and the United States with its Massachusetts Institute of Technology or California Institute of Technology.

IV.1.2. Reduction of wastage

The present yield of the educational system is very low: the number of pupils completing their studies is small compared with that which originally begun them. It is much more profitable, from both the economic and pedagogical standpoint, to reduce the wastage than to increase the number of pupils. We have therefore assumed in our calculations a considerable decrease in the rate of wastage. If this is to be accomplished without a lowering in the quality of education, the number of teachers will have to be increased and their training improved; this is a factor of great importance with regard both to the number of pupils who give up their studies and to the number of pupils who repeat courses. There is, however, the problem of women who are generally less inclined than men to complete rapidly, or even to complete at all, their studies, and it is not easy to find a solution to this problem.

Another measure which would greatly contribute to a reduction of wastage is the shortening of the duration of studies. But the main reason for pupils giving up their studies, or repeating courses, is probably the lack of financial means. That is why an appropriate system of scholarships and financial assistance, combined with incentives and penalties, could produce a rapid improvement, particularly in the field of higher education. Incentives should be provided to induce pupils to complete their studies rapidly, while those who fail to keep up with courses should be penalised in some way.

There are several factors which are responsible for wastage, but we do not know the respective weight of them, and this information is essential if we are to gauge the probable effect of any possible remedies. The remedies should be such as to oblige pupils to make an adequate effort or risk having to give up their studies. One possible way would be to increase fees, especially for university education, while at the same time increasing the number of scholarships, which would be conditional on the students obtaining satisfactory academic results. University studies would thus be restricted to those who could and would make the necessary effort; they should be denied to those who, even though prepared to assume the costs of their education, are not capable of achieving acceptable results. Apart from such measures, it would also be necessary for teachers to give more guidance to students than they do at present.

IV.1.3. Better use of teaching staff

At present teachers are not only in short supply, but they are also insufficiently used. Since it takes time to train teachers, it is essential to make the best use of the existing stock, especially at those levels where the shortage is most acute. This implied, first, that teachers in State education

should have a working day equal to that of other professions and, second, that the number of teachers who divide their activities between different schools, whether State or private, should be drastically reduced. If we allow for research, which concerns a very small number of teachers only, there is no reason why the working day for teachers should be shorter than that in other professions. This naturally implies a corresponding remuneration. It is certain that the work of the teaching profession would be more efficacious if it were more concentrated than it is at present.

IV. 1.4. Raising the status of primary education and lengthening compulsory education

Primary education is implicitly considered as being second-rate; it has been made as short as possible for those who want to continue their studies, and no final certificate from primary school is needed to begin secondary studies. Apart from pedagogical disadvantages, this state of affairs clearly implies a waste of resources: it increases the cost per pupil at the secondary level, and it also increases the need for secondary school teachers with degrees, as they have to teach pupils who should be at primary schools. It would be much more normal if the quality of primary education were improved, especially in the last grades, and if pupils began secondary education at the age of 11 or 12. Secondary studies would then be much improved, and pupils starting higher education would be much better prepared than they are at present. Of all the Member countries of the O.E.C.D., Spain is the one whose average age for completing secondary studies is the lowest: 17 years, against 18 in England, and 19 in France and Germany. This means that the age for starting higher education is also the lowest, and this may perhaps account to some extent for the unsatisfactory state of higher education, which prevents the normal dovetailing of the other levels of education.

At the same time, it would be desirable to extend compulsory education by two years to the age of 13 inclusive, and there should be a leaving certificate for those who complete it. All the advanced countries have more than six years of compulsory education: the United States have 12 years and the Soviet Union 10 years. If compulsory school attendance was extended to the age of 13, it would dovetail with labour laws which at present fix the minimum age for starting work at 14.

IV. 1.5. Reduction of study cycles

The length of some cycles of study is excessive, but it does not result in a high intellectual level of graduates. The present situation of education could be summed up by saying that it is characterised by scanty resources spread over too long a period.

The consequences are an enormous wastage and mediocre quality. The experience of other countries has shown that pupils can be well trained in a period of time which is much shorter than that in Spain but put to better use. Excessive prolongation of studies weakens the effort of pupils and increases the burden on the economy. In our opinion, higher education, technical secondary education and vocational training, all take too long.

The minimum period of university studies is five years, except for medicine and pharmacy which take six years. Except for medicine, the duration of studies seems excessive and is certainly longer than in many European countries: three to four years in England, four years in France and Italy, four years in Germany for law and economics and six for science. In these countries students enter university at a later age than in Spain, but they complete their studies at approximately the same age. The great advantage lies in that the shorter cycle is better adapted to the psychological condition of students. Those who wish to study at a more advanced level could take the Doctorate Degree, which would represent the culmination of education.

As far as higher engineering studies are concerned, great progress has already been made in reducing the length of study by the Technical Education Act of 1957. But more will have to be done in this direction, for these studies should not exceed six years. In fact, six years should be the duration of studies for the highly qualified engineers with theoretical training which were mentioned earlier, while the others, trained in specific techniques, would complete their studies after a four-year course. The same considerations apply to scientists: a first degree after four years of study, followed by the Doctorate Degree after two more years.

As for technical secondary schools, they would have to reduce the study cycle from five years at present to three or four years according to the branch. Industrial vocational training would also have to be reduced to two years, while the pre-apprenticeship should be absorbed into primary education, as already provided by legislation.

IV. 1.6. Pattern of the educational system

Let us now recapitulate the recommendations on the length and interconnection of the different study cycles.

Primary compulsory education should be extended to the age of 13 inclusive, with a three-year initial course followed by a five-year ordinary course.

Transfer to "bachillerato" level should take place at the age of 11, i.e., one year later than at present. It may even be that for these pupils primary education should be prolonged for

one more year, especially if the quality of primary education were to improve.

Vocational training would begin after the eight-year compulsory education period. Industrial training would last two years. Agricultural training would in some cases also last two years, but there is need here for much more flexibility so as to take account of the differing needs and conditions of rural education.

According to this scheme, the secondary level would be limited to the "bachillerato", technical education, primary teacher training and medical technicians' training. The first would remain as at present: a preliminary cycle of 4 years, another cycle at a higher level of 2 years, and the one-year pre-university course. Pupils would enter technical secondary schools after having completed the "bachillerato elemental". These schools correspond to the present schools and, to a certain degree, to the "bachillerato laboral superior". But in view of the enormous scarcity of technicians, the length of studies in these schools should be reduced to 3 or 4 years only, according to specialisation and the degree of proficiency. Primary teacher training should take 4 years.

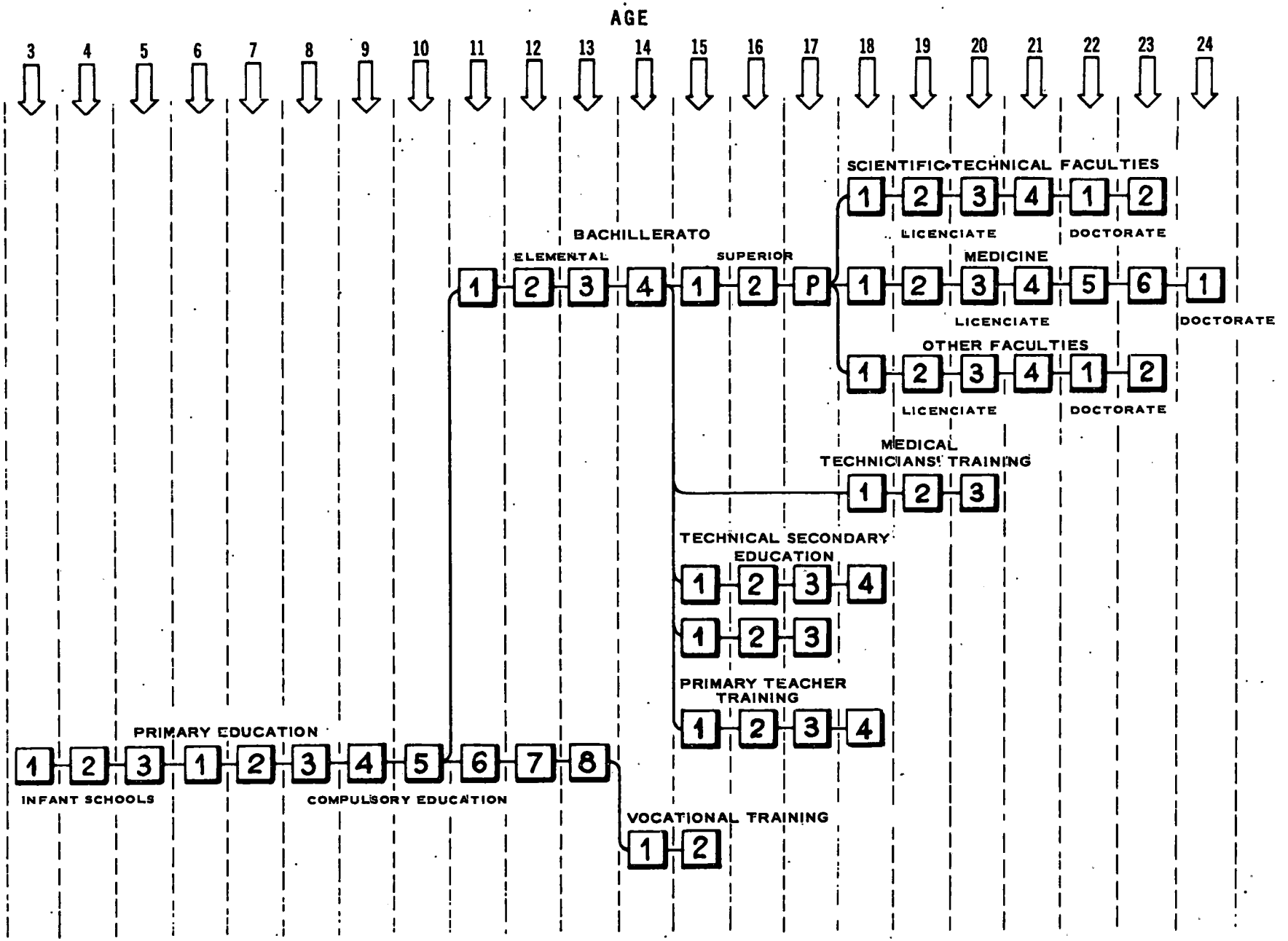
We have not allowed for the commercial schools, or the "bachillerato laboral". In the first case, we have noted the provisional situation which has in fact lasted for some years, and considered it advisable to integrate the first cycle of commercial education into the "bachillerato general", or at least to make fundamental reforms in it. In our forecasts the figures given for the "bachillerato general" also include students in the commercial schools. As for the "bachillerato laboral", we think that it too should be modified. Students in this sector should transfer to the "bachillerato elemental" or to the technical secondary schools, according to their cycle of studies.

Higher education would consist of a four-year degree course an and a two-year doctorate and, in engineering, of a four-year and six-year course respectively.

IV. 2. THE NUMBER OF GRADUATES REQUIRED

In the preceding chapter we have estimated the improvements in the educational level of manpower which would be required during the period 1961-1975. These improvements must now be expressed in terms of the number of graduates who will have to complete their studies before 1975 and the number of pupils this implies. Table 52 gives the number of new graduates from higher and secondary education according to the calculations in Table 49.

Graph VI. OUTLINE OF THE PROPOSED EDUCATION SYSTEM



Not all those who complete their studies become part of the active population: for different reasons, a certain proportion is always lost to it, especially in the case of women. Owing to the lack of information on this subject, it is very difficult to assess the rate of future participation of the different types of graduates in the active population. The rates given in Table 52 should be taken as objectives rather than informed anticipations. We have generally fixed a high participation rate, because we believed that if the State were to make a great educational effort, it would be inadmissible for a large part of the product of this effort to be lost to society. The highest rate is that for higher scientific and technical personnel. The rate for physicians and teachers is slightly lower, allowing for the fact that an increasing number of these will be women. For other graduates from higher education the rate is still lower, also allowing for a greater number of women and for a larger number of those who will not make any professional use of their studies. The rate for the "bachillerato" is particularly high by present standards.

If we divide the number of graduates required to join the active population between 1961 and 1975 by their rate of participation, we obtain the total number of graduates required from the educational system during that period. This amounts to 243,000 in the case of higher education and to well over a million in the case of secondary education. Of the first, 41 per cent will have to be scientists and technicians, 10 per cent physicians and the remainder will come from the other faculties. In fact, the latter outnumber the scientists and technologists, whereas it was calculated previously (see Table 48) that there should be an increase of 76,000 in the stock of scientists and technologists, against one of 71,000 in the stock of graduates from the other faculties. However, as the rate of participation in the active population is higher for the former than for the latter, the relationship between these two categories will be reversed in terms of the number of graduates to be produced by the educational system. It will also be necessary to introduce certain changes within the different categories of higher personnel themselves, but this is outside the scope of our work, which aims essentially at giving a global long-term survey.

In secondary education, the two most numerous groups are the "bachilleres" and the middle-grade technicians. Of the latter, 300,000 will be needed before 1973 to cover the present deficit and future needs.

According to Table 51, the increase in the stock of skilled workers should amount to over 1,200,000 in agriculture and over 1,500,000 in industry and services. We have not calculated the necessary flow of pupils for agricultural training, first, because

TABLE 52: ESTIMATED REQUIREMENTS OF GRADUATES FROM HIGHER AND SECONDARY EDUCATION 1961-1975

(In thousands)

	A Number required to join the active population during 1961-1975	B Labour force participation rate (%)	C Graduates required $\frac{A}{B}$
Higher education	218.0	-	243.4
Scientific and technical	94.3	95	99.3
Medical	23.0	90	25.6
Others	100.7	85	118.5
Secondary education	970.8	-	1.153.5
"Bachillerato general"	541.7	80	677.1
Secondary technical	291.2	95	306.5
4-year curriculum	127.0		133.7
3-year curriculum	164.2		172.8
Medical technicians' training	30.0	60	50.0
Primary teacher training	107.9	90	119.9

TABLE 53: HYPOTHESES USED TO CALCULATE THE FLOWS OF PUPILS AND GRADUATES

Branches of education	Theoretical length of Studies				Theoretical ages of		Rate of wastage (1)	Expected duration of studies for given percentages of pupils beginning these (2)
					Entrance	Departure		
Primary education								
Infant schools-Kindergarten	4 Years				2	5		
Compulsory primary (3)	8 "				6	13		
Vocational training (Industry and services)	2 "				14	15	20	80 % in 2 years
General secondary education								
Elemental	4 "				11	14	20	80 % in 4 years (4)
Superior	2 "				15	16	4	96 % in 2 years
Pre-university course	1 "				17	17	5	95 % in 1 year
Primary teacher training	4 "				15	18	20	80 % in 4 years
Secondary technical education								
Lower	3 "				15	17	20	60 % in 3 years 20 % in 4 years
Higher	4 "				15	18	30	50 % in 4 years 20 % in 5 years
Medical	3 "				15	17	30	70 % in 3 years
Higher education								
Higher technical colleges and science faculties (5)	First degree	4 "	Doctorate 2 years	Degree	18	21	27	40 % in 4 years 18 % in 5 years
				Doctorate	22	23		15 % in 6 years (doctorate)
Faculties of medicine	First degree		Doctorate 1 year	Degree	18	23	40	35 % in 6 years
				Doctorate	24	24		25 % in 7 years (doctorate)
Other faculties (6)	First degree	"	Doctorate 2 years	Degree	18	21	30	45 % in 4 years 13 % in 5 years
				Doctorate	22	23		12 % in 6 years (doctorate)

(1) In per cent of pupils starting the course.
(2) For example, according to these hypotheses, 80 % of pupils beginning the "bachillerato elemental" complete it in 4 years. As for higher technical colleges and faculties of science, 40 % of those beginning complete it in 4 years, 18 % in 5 years and 15 % do the doctorate, without any of them repeating a year during higher education.
(3) For those who do not take the "bachillerato" course.
(4) We assume that 62 % of graduates from "bachillerato elemental" go on to the "superior".
(5) Faculties of science, pharmacy and veterinary surgery.
(6) Faculties of law, philosophy and humanities, and political, economic and commercial science.

agricultural training can vary to a much greater extent than other forms of vocational training, and, second, because this is the concern of shorter-term plans covering rural education as a whole. As for vocational training in industry and services, we have assumed a rate of participation of 95 per cent, which corresponds to a flow of 1,636,000 pupils.

In order to calculate the flow of pupils in general, it is necessary to lay down certain premises with regard to the organisation and functioning of the educational system. We have already dealt with the necessary changes in organisation; and in Table 53 we have set forth certain hypotheses on the functioning of the system. These hypotheses are not extrapolations of past tendencies, but objectives to be attained if the educational system is to function properly. The table is self-explanatory and does not need any comments. As for the classification of graduates, pupils who do not complete their studies at a given level are classified at the level below. Thus a student who fails to complete his higher degree course is considered as a "bachiller superior".

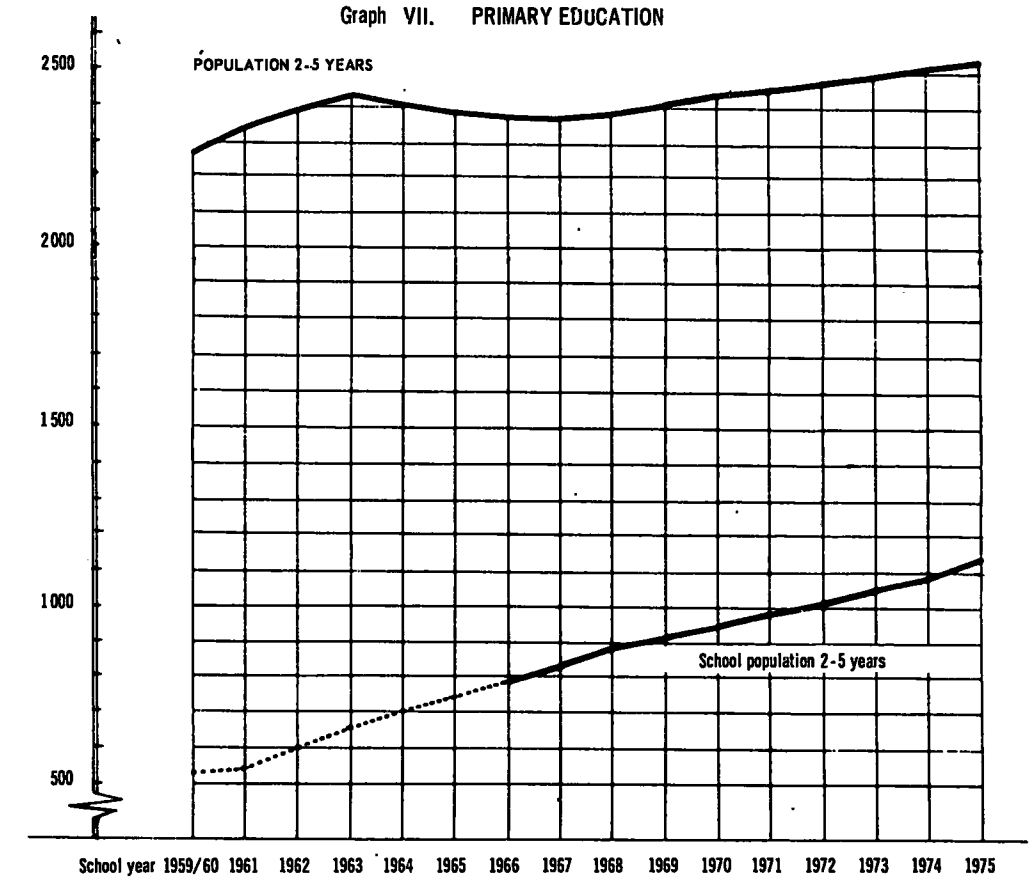
IV.3. FLOWS OF PUPILS AND GRADUATES

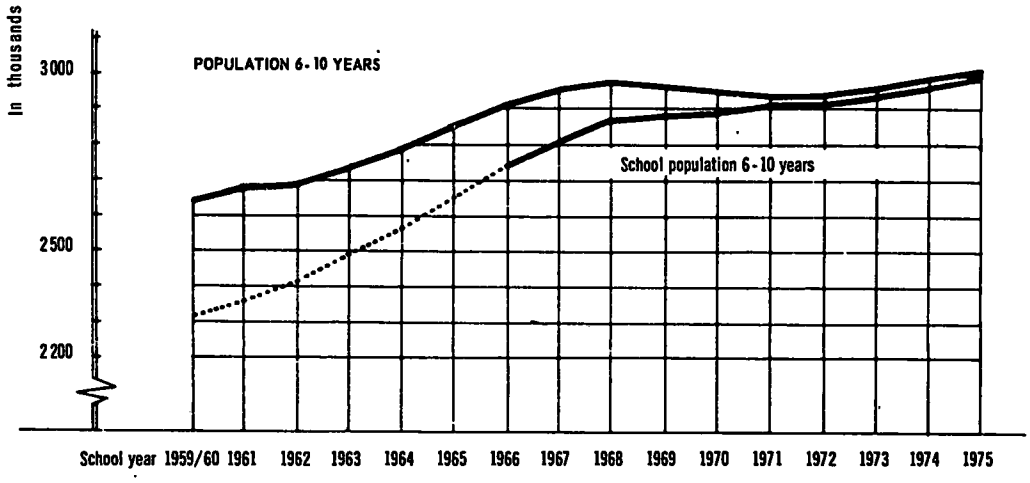
IV.3.1. Primary education (See Graph VII)

A rapid increase in the enrolment ratio is urgently required in the age group below six. The present demand is much greater than the capacity to satisfy it, and it can only rise with the growth of urban population. It would be difficult to increase the rate of participation of women in the active population if there were not enough facilities for women to send their small children to nursery or infant schools. But the enrolment ratio of 45 per cent fixed as a goal for infant schools will only be achieved in 1975.

The extension of compulsory education to the age of 13 inclusive should be accomplished rapidly. The Bill for the extension of compulsory education is now well advanced. This extension is necessary not only for social and economic reasons, but also for the further development of the higher educational levels, especially of occupational training: if the latter is to give better results, it must be fed with youngsters who have received good primary education. The enrolment ratio of the age group 6-13 should thus reach 99 per cent by 1971. However, a part of these pupils will be no longer at primary schools, but will have begun the "bachillerato elemental" (see Graph VII and Table 65). Primary school pupils will thus increase from 3.8 million in 1961 to 4.9 million in 1975, a rise which is not enormous. This is due mainly to the fact that the increase in the lower age groups will be small in the next few years; in fact, the 6-10 age group will decrease during the three years from 1970 onwards, and at the end of the period, in 1975, it

Graph VII. PRIMARY EDUCATION





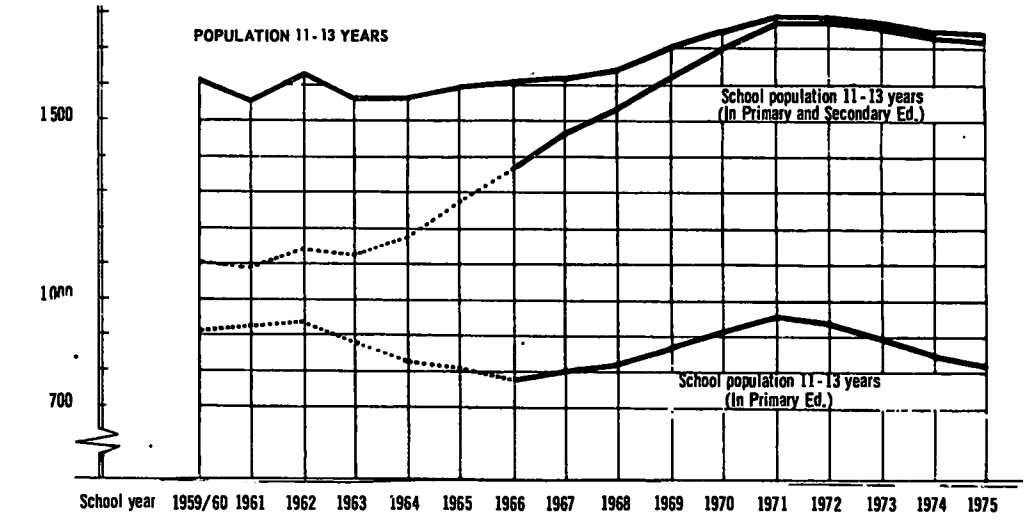


TABLE 54 : NUMBER OF PUPILS IN PRIMARY EDUCATION BY AGE GROUPS, 1961 AND ESTIMATES 1966-1975

(In thousands)

Age Groups	1961	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
2 - 5 years	538.4	784.2	830.8	883.7	915.3	947.3	979.8	1,012.8	1,046.3	1,080.2	1,140.0
6 - 10 years	2,365.7	2,746.2	2,815.7	2,864.8	2,879.7	2,893.7	2,914.1	2,916.3	2,935.9	2,960.7	2,985.8
11 - 13 years	925.9	773.4	798.3	817.6	868.2	917.4	959.7	929.9	891.9	845.8	820.6
TOTAL	3,830.0	4,303.8	4,444.8	4,566.1	4,663.2	4,758.4	4,853.6	4,859.0	4,874.1	4,886.7	4,946.4

TABLE 55: ENTRANTS, PUPILS AND GRADUATES IN VOCATIONAL TRAINING COURSES, 1961 AND ESTIMATES 1965-1977

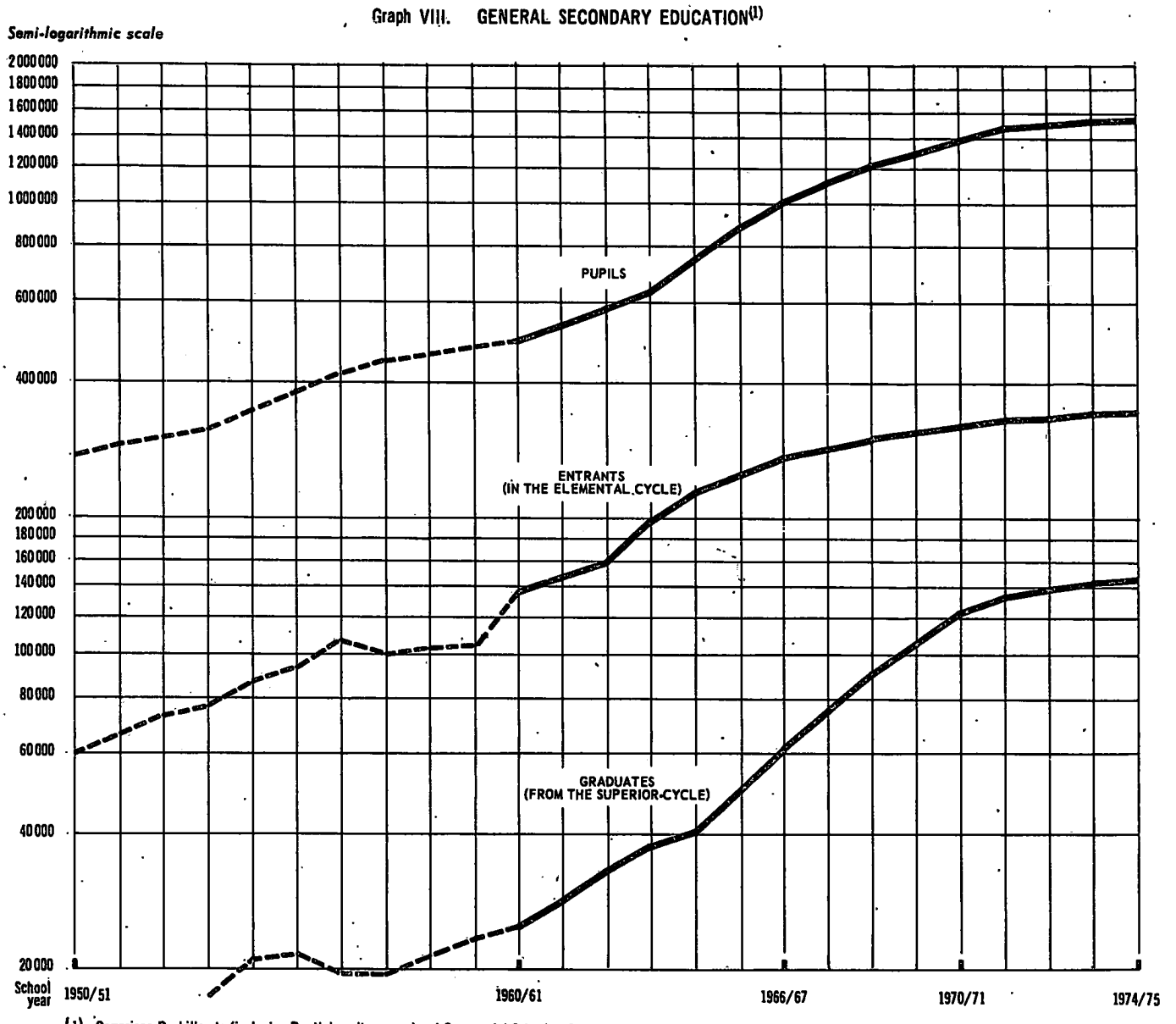
(for Industry and Services only)

(In thousands)

Years:	1961	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Entrants	...	35.0	42.5	50.0	60.0	70.0	80.0	92.5	105.0	120.0	135.0	150.0
Pupils	45.6(1)	66.0	72.3	86.1	102.5	121.0	139.5	160.5	182.6	209.3	235.2	264.8
Graduates	5.8	20.0	28.0	34.0	40.0	48.0	56.0	64.0	74.0	84.0	96.0	108.0

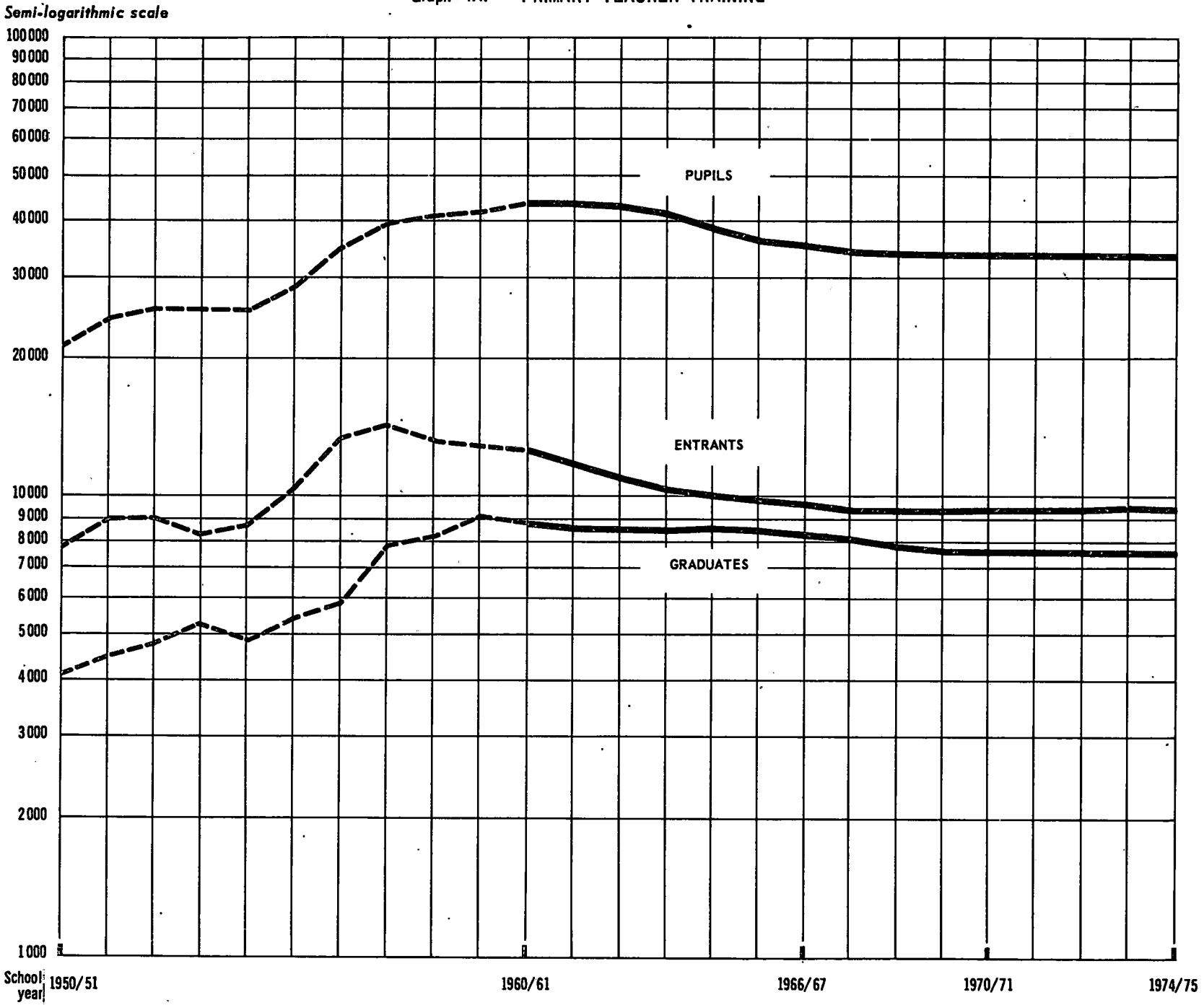
(1) This figure does not include the 17,800 pre-apprenticeship pupils, i.e., those of less than 14 years who will have to remain in primary education later on.

Graph VIII. GENERAL SECONDARY EDUCATION(1)



(1) Comprises Bachillerato (inclusive Pre-University course) and Commercial Schools. Bachillerato Laboral Elemental has been excluded for the past years.

Graph. IX. PRIMARY TEACHER TRAINING



will only be 12 per cent higher than in 1960. Also, an increasing number of pupils will take the "bachillerato elemental" course.

IV.3.2. Secondary education

Vocational training

Although vocational training can grow much more rapidly than other forms of education, the training of the great mass of workers mentioned earlier cannot be achieved through normal channels. Vocational training will have to take charge almost exclusively of the new contingents who enter the labour force after primary education. The training of workmen already in the labour force is a matter for accelerated vocational training which can be given in special institutes or on the job itself. The minimum indispensable vocational training varies considerably, even for those entering the labour force for the first time. The training required for certain industrial jobs cannot be compared with that needed for a rural occupation. In agriculture, less intensive training together with periodic information courses in agriculture would suffice in many cases. We have confined our estimate of the population in vocational training schools to pupils who, after leaving primary school, will have to be trained for work in industry and services (Table 55). Agricultural training has special characteristics which cannot be treated in a general study.

As may be seen in Table 55, the development anticipated for vocational training is very great: more than 100,000 pupils completed their studies in 1975, against less than 6,000 in 1960. There would also be 265,000 pupils undergoing vocational training for industry and services in 1975. This increase can be justified both by the low level at the beginning of the period and by the present lack of skilled workers. (Graph VIII).

General secondary education

We have calculated the number of pupils and graduates in "bachillerato elemental" on the basis of educational needs at levels immediately above. Although not all of those who complete this cycle will continue their studies, we have assumed that measures will be taken to ensure that a very high proportion do so. In a period of very rapid expansion of education, the principal object of the "bachillerato elemental" ought to be to supply pupils for further education. This is in contradiction with the idea that the "bachillerato elemental" ought to give a general education to the greatest possible number. But even if its principal function be limited to supplying students for further education, it will have to increase at a very rapid rate.

For the "bachillerato superior", on the contrary, we have assumed that, with the passage of time, an increasing number of graduates will not continue their studies, but enter the labour force. As for the pre-university course, all those who complete it ought to continue in higher education.

TABLE 56: ENTRANTS, PUPILS AND GRADUATES IN GENERAL SECONDARY EDUCATION: 1961; 1962, AND ESTIMATES 1965 - 1975

(In thousands)

Years :	I96I(1)	I962(1)	I965	I966	I967	I968	I969	I970	I97I	I972	I973	I974	I975
Entrants													
in elemental	114.1	...	225.8	251.6	266.2	281.3	295.0	306.3	316.3	325.0	333.0	340.0	345.0
superior	30.6	...	51.0	64.0	76.8	92.6	108.9	126.9	137.9	143.7	148.2	150.8	153.5
Pre-university course	...	...	25.0	27.9	35.9	42.5	48.4	54.0	58.7	62.0	65.1	68.3	72.5
Pupils													
in elemental	413.3	429.5		727.4	810.6	883.3	947.0	999.3	1,042.6	1,080.8	1,113.0	1,142.5	1,167.0
superior	63.4	75.5		113.0	138.3	166.4	197.9	231.6	259.4	275.8	286.5	293.3	298.5
Pre-university course	19.1	20.1		27.9	35.9	42.5	48.4	54.0	58.7	62.0	65.1	68.3	72.5
TOTAL	495.8	525.1		868.3	984.8	1,092.2	1,193.3	1,284.9	1,360.7	1,418.6	1,464.6	1,504.1	1,538.0
Graduates													
from elemental	61.7	63.7		130.0	150.0	175.0	195.0	213.0	225.0	236.0	245.0	253.0	260.0
superior	24.4	26.5		49.0	61.5	73.8	89.0	104.7	122.0	132.1	138.3	142.5	145.0
Pre-university course	13.5	...		27.2	35.0	41.4	47.2	52.7	57.2	60.5	63.5	66.6	70.7

(1) Provisional figures, including commercial schools.

TABLE 57: ENTRANTS, PUPILS AND GRADUATES IN PRIMARY TEACHER TRAINING: 1961, AND ESTIMATES 1965-1975

(In thousands)

Years:	1961	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Entrants	15.2	10.0	9.7	9.5	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Pupils	43.2	38.0	36.0	35.1	34.3	33.8	33.6	33.5	33.5	33.5	33.5	33.5
Graduates	8.8	8.5	8.4	8.3	8.0	7.8	7.6	7.5	7.5	7.5	7.5	7.5

TABLE 58: ENTRANTS, PUPILS AND GRADUATES IN TECHNICAL SECONDARY EDUCATION(1) 1961 AND ESTIMATES 1965-1975

(In thousands)

Years:	1961	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Entrants												
3 - year curriculum	...	10.9	12.2	15.9	18.9	22.7	26.4	29.5	32.7	34.9	37.5	39.9
4 - year curriculum	6.5	11.8	12.3	14.1	16.4	18.5	21.1	22.9	23.6	26.6	29.4	31.3
Total		22.7	24.5	30.0	35.3	41.2	47.5	52.4	56.3	61.5	66.9	71.2
Pupils												
3 - year curriculum	(2) (0.9)	•	31.9	38.2	45.7	55.7	66.1	76.4	86.2	94.7	102.6	109.9
4-year curriculum	39.8		50.6	52.1	53.6	55.2	62.9	70.7	77.0	84.4	92.2	99.8
Total	40.7		82.5	90.3	99.3	110.9	129.0	147.1	163.2	179.1	194.8	209.7
Graduates												
3 - year curriculum	...			7.0	9.5	12.0	14.5	17.4	20.4	23.0	25.5	27.5
4 - year curriculum	3.3			7.0	7.8	8.5	9.5	11.0	12.5	14.3	16.0	18.0
Total				14.0	17.3	20.5	24.0	28.4	32.9	37.3	41.5	45.5

(1) Excluding medical technicians' training.

(2) Estimating there are 900 pupils in "bachillerato laboral superior"

Graph X. TECHNICAL SECONDARY EDUCATION
(4-year cycle only)

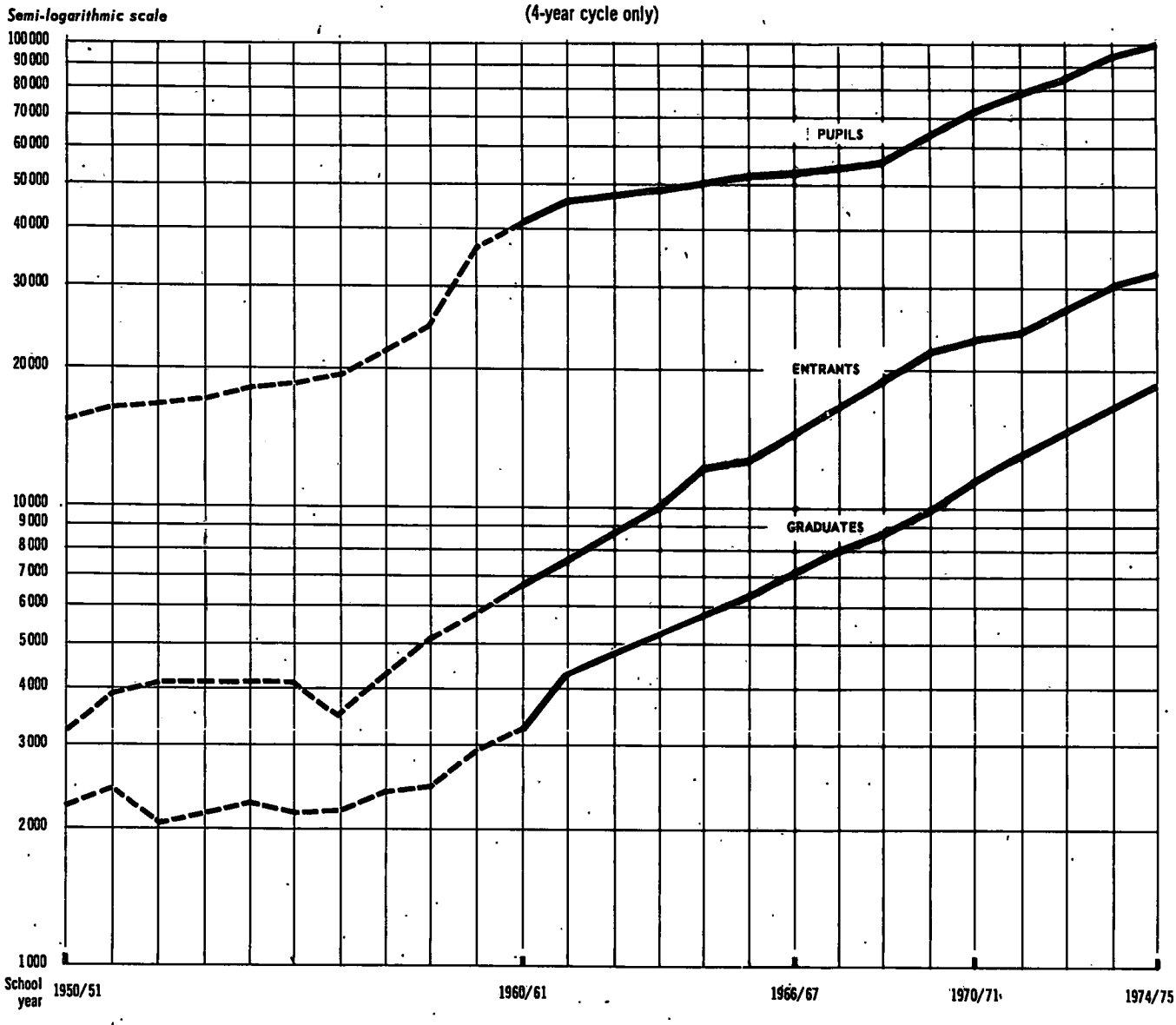


TABLE 59: ENTRANTS, PUPILS AND GRADUATES IN MEDICAL TECHNICIANS' TRAINING, 1961 AND ESTIMATES, 1965-1975

(In thousands)

Years:	1961	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Entrants	1.5	2.4	2.6	3.6	5.0	6.5	7.9	9.3	10.7	12.1	13.6	15.0
Pupils	3.1	6.5	7.0	7.6	10.0	13.5	17.2	20.9	24.5	28.2	31.9	35.6
Graduates	1.1	1.5	1.6	1.7	1.9	2.5	3.5	4.6	5.5	6.5	7.5	8.5

The number of students in "bachillerato general" (including pre-university course) will have to treble between 1962 and 1975 (Table 56). Allowing for the expected reduction of drop-outs, the increase in the number of those completing the different cycles will be much greater: the number of those completing the "bachillerato superior" will be multiplied by 6.

Primary school teacher training (Graph IX).

Even if we allow for the extension of the present three years of primary teacher training to four, and the prolongation of primary education, the number of pupils in these training schools can be reduced, provided, of course, that the yield of graduates is increased. 33,000 pupils as from the end of the present decade ought to produce each year the 7,500 teachers needed.

Technical secondary education (Graph X)

Table 58 shows the number of pupils and graduates in technical secondary education. The distribution between the three-year and four-year courses is only an indication and does not in any way pretend to be final. As already said the length of study should be reduced to a minimum; this criterion, however, will have to be completed by a detailed analysis with regard to the necessary studies for each of the specialisations and their minimum duration. In its present form, it would be difficult for technical secondary education to supply the number of technicians required for accelerated economic growth. Even with the expected reduction in the duration of study and in wastage, there would have to be 200,000 pupils in 1975, as compared with about 40,000 in the medium-grade technical schools and the "bachillerato laboral superior" in 1961.

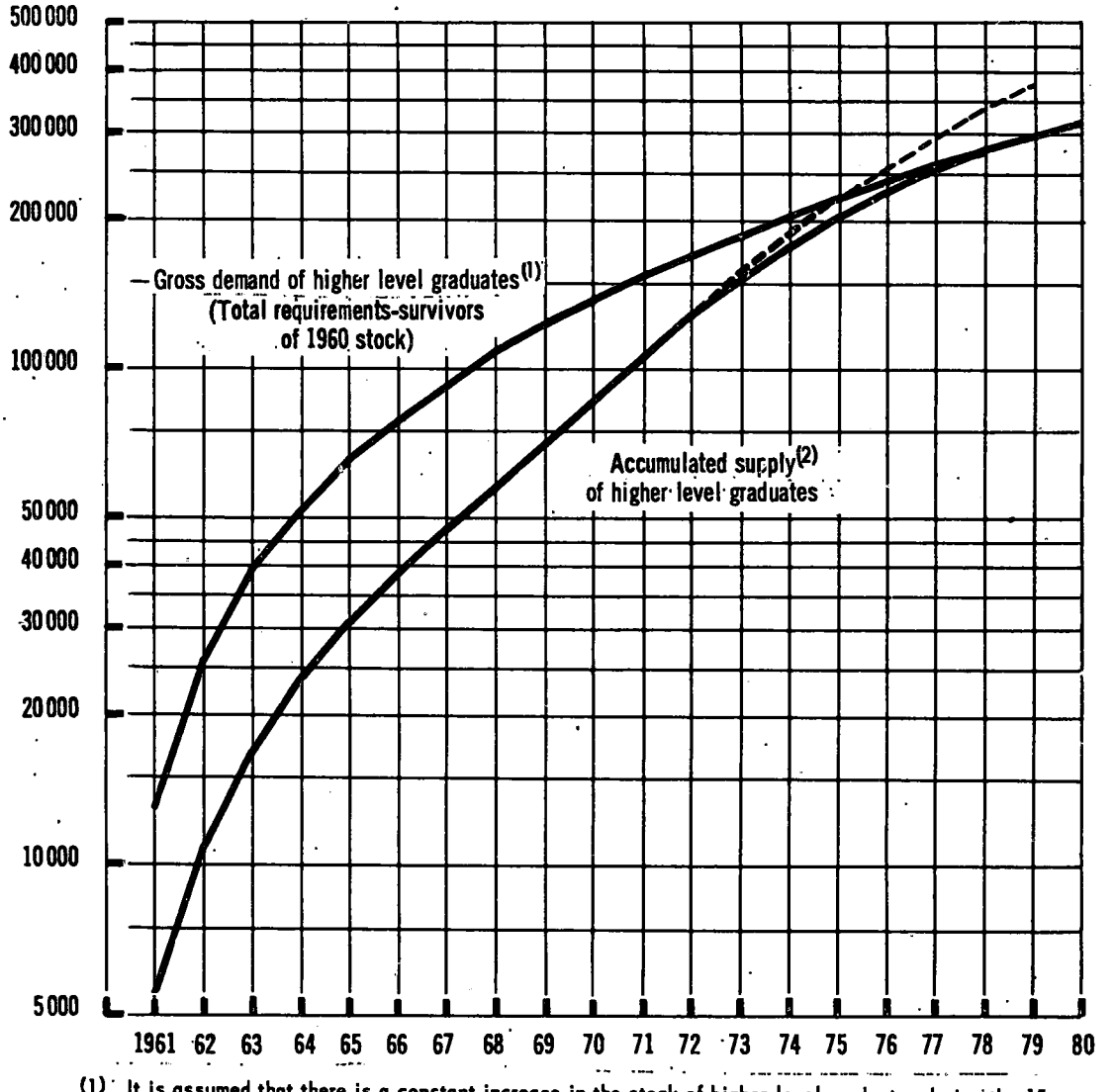
Medical technicians' training is among those that need to increase most in relative terms. As we saw in the previous chapter, in 1960 there was an enormous shortage of medical technicians in relation to the number of physicians. Table 59 gives the relevant figures for the next few years.

IV. 3.3. Higher education

The calculations of the number of students and graduates in higher education have been made on the basis of three subdivisions only: technologists and scientists, physicians and surgeons and others. With our present information it would be hasardous to enter into further detail. In any case, the three groups suffice for a long-term analysis, while their distribution into branches belongs to the realm of short-term analysis. What is needed is the major outlines of higher education, so that, firstly, the lower levels may evolve correspondingly and,

Graph XI. DEMAND AND SUPPLY OF HIGHER LEVEL GRADUATES

Semi-logarithmic scale



(1) It is assumed that there is a constant increase in the stock of higher level graduates during the 15-year period, as projected in Chapter III. Thus the differences between the figures for two consecutive years will be equal to the annual increase in the stock plus that part of the 1960-stock that has to be replaced. It is assumed that all those entering the labour force after 1960 will still be active in 1975.

(2) Accumulated number of higher level graduates entering the labour force after 1960/61.

secondly, the necessary number of teachers may be trained.

According to Table 52 the educational system would have to produce 243,000 graduates between 1960 and 1975. Now the time remaining to obtain such a result is very short. Many of the measures, even if applied immediately, will have no effect until 1968 or 1969 at the earliest. Thus only six or seven years remain to obtain a notable increase in the output of higher education. To balance demand and supply in 1975, the annual number of graduates would have to exceed 35,000 in the last years of the Plan. This figure is obviously very high. Apart from the number of students and the amount of expenditure involved, it would imply too great an increase in the stock for certain years. This would be justified to make up past shortages, but once the balance were reached in 1975, there would be two alternatives: either to accept now that the increase in the stock after this date and for the next few years would need to be much greater than in earlier years, or to admit implicitly that there will be a surplus.

Graph XI represents the total demand for and supply of higher level graduates from 1960 onwards. The total demand is equal to the required stock of graduates for each year minus the survivors of the 1960 stock (we have assumed that all higher graduates who joined the active population from 1961 onwards would still remain in it in 1975). This curve represents for each year the accumulated needs for higher level graduates taking account of, firstly retirements and deaths and, secondly, the required net increase in the stock of the active population with higher education. The accumulated supply of graduates represents the total number of graduates completing higher education from 1961 onwards. The difference between the two shows us the actual deficit each year. If both curves are to coincide in 1975, the curve representing the supply of graduates would have to increase at the end of the period at a much faster rate than that of total demand. This would mean that in the years following 1975 there will be a surplus of graduates, unless we accept that annual increases in the stock should be far greater than those anticipated for the previous period.

In fact, this problem is present in any programme of plan which attempts to make up a deficit in a short space of time. In the case of education, however, there is not the possibility, which exists in other cases, to reduce the effort after the deficit has been made up; indeed, this would mean going into reverse as far as the number of pupils is concerned.

We have adopted the following solution: we assume that supply will not balance demand until 1978, although the deficit in 1975 will be negligible. We could thus reduce the number of students required in 1975 to about 28,000. Although this is 20 per cent lower than the original figure, it is still very high. Indeed, it means quintupling the number of graduates in

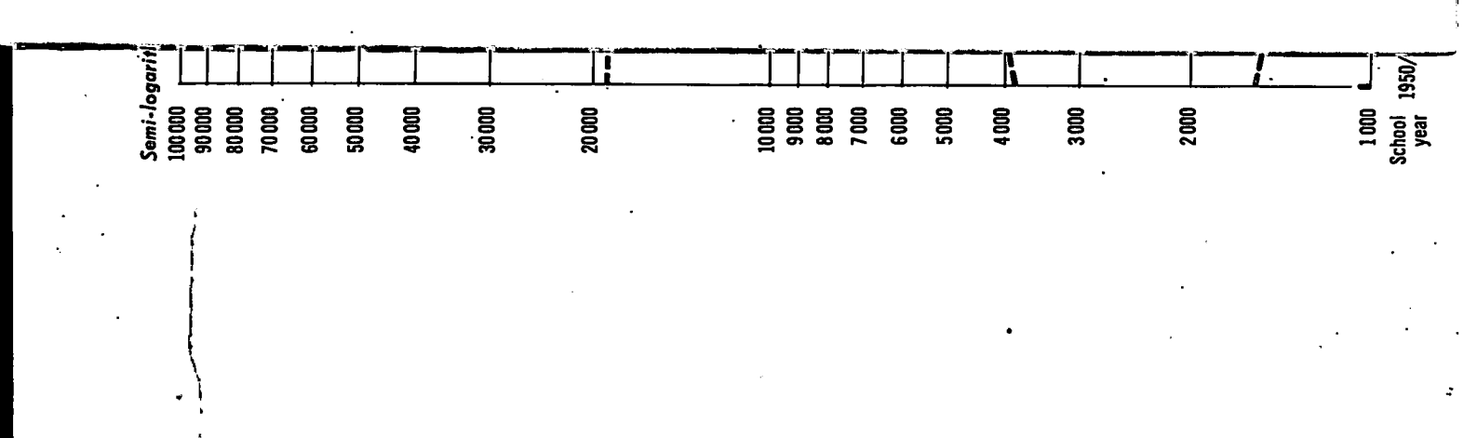


TABLE 60: ENTRANTS, STUDENTS AND GRADUATES IN HIGHER EDUCATION: 1961, AND ESTIMATES 1966 - 1975

A - Faculties of Science[1] and Higher Technical Colleges

(in thousands)

	I961	I966	I967	I968	I969	I970	I971	I972	I973	I974	I975
Entrants	7.5	9.8	11.0	13.5	15.0	16.5	18.0	19.5	20.5	21.5	22.5
Students	33.3	38.0	40.0	43.0	48.0	53.0	59.5	65.6	71.1	76.1	80.6
Graduates	2.0	3.6	4.1	4.6	5.4	7.3	9.0	10.8	11.1	11.2	11.3

B - Faculties of Medicine

Entrants	2.8	3.1	3.1	3.2	3.3	3.3	3.4	3.4	3.4	3.5	3.5
Students	14.6	14.3	14.3	14.6	15.0	15.2	15.5	15.7	16.0	16.3	16.4
Graduates	1.5	1.7	1.7	1.7	1.8	1.8	1.9	1.9	1.9	2.0	2.0

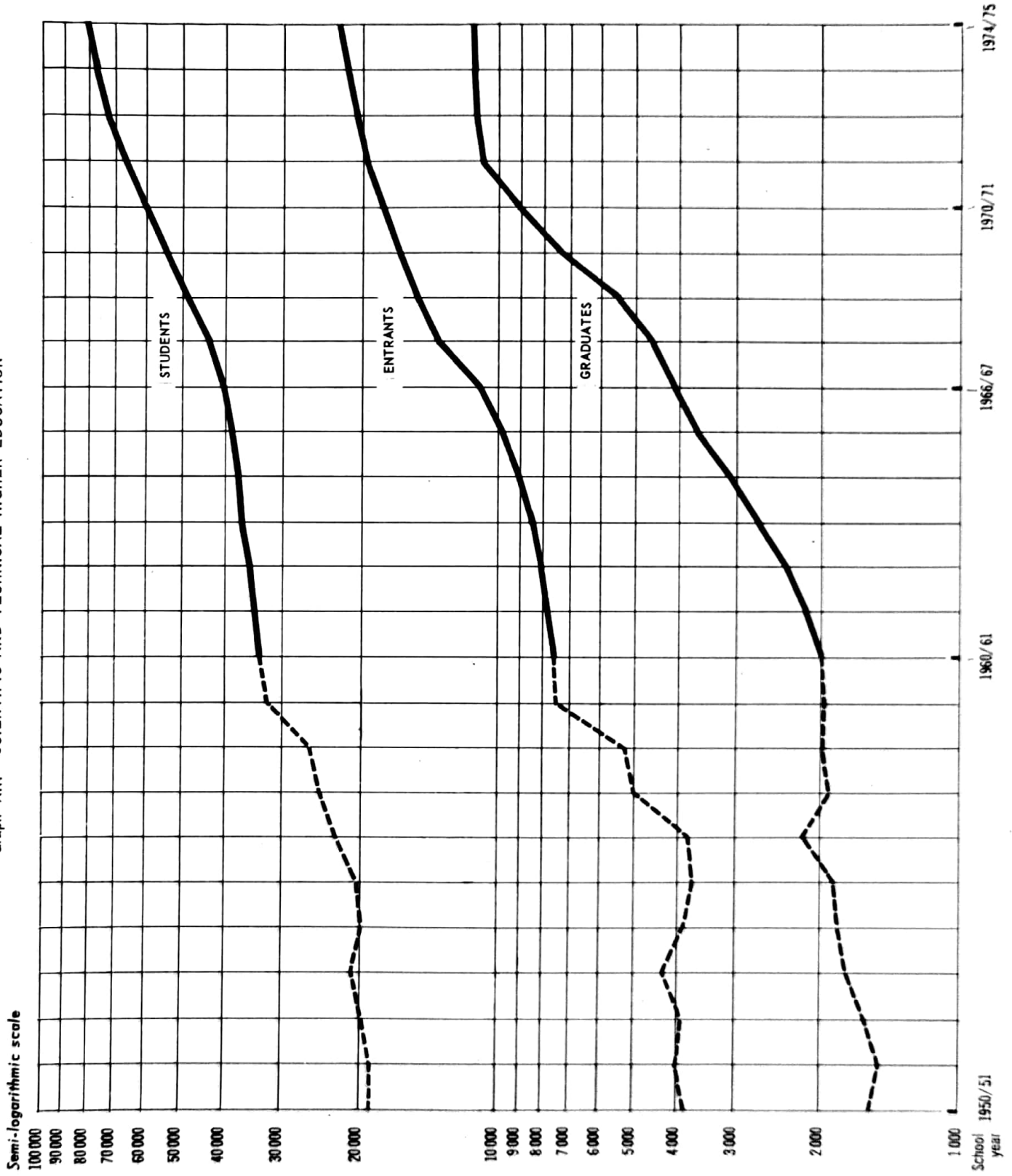
C - Other[2] Faculties

Entrants	6.3	10.0	12.5	17.0	20.0	22.5	24.0	25.5	27.0	28.5	30.0
Students	28.7	40.0	45.0	50.0	55.0	64.2	75.3	83.6	90.6	96.6	102.3
Graduates	2.2	3.6	4.0	4.9	6.2	8.1	10.5	12.8	13.2	13.6	14.6

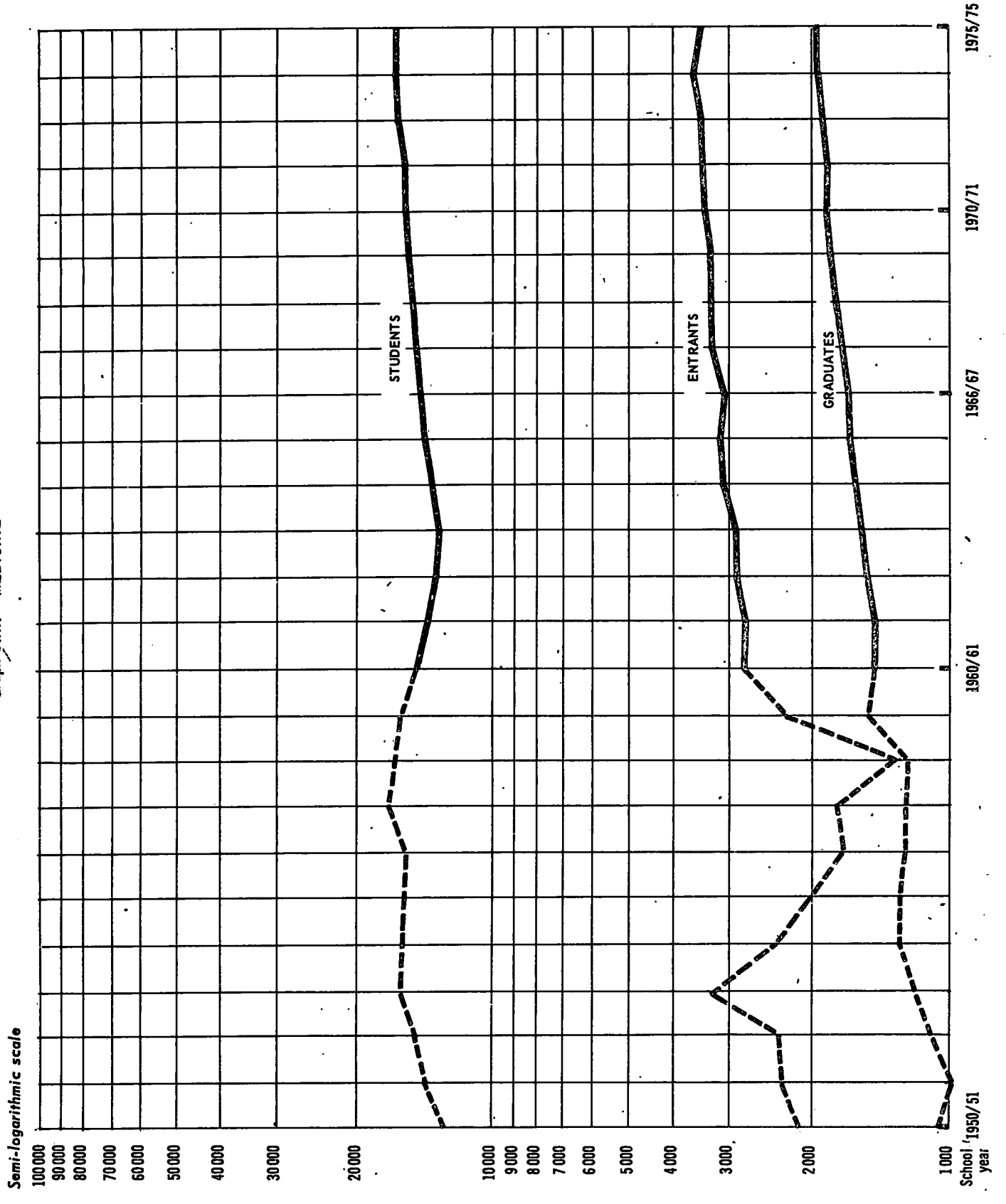
(1) Including the faculties of pharmacy and veterinary surgery.

(2) Law, philosophy, humanities, and political, economic and commercial science.

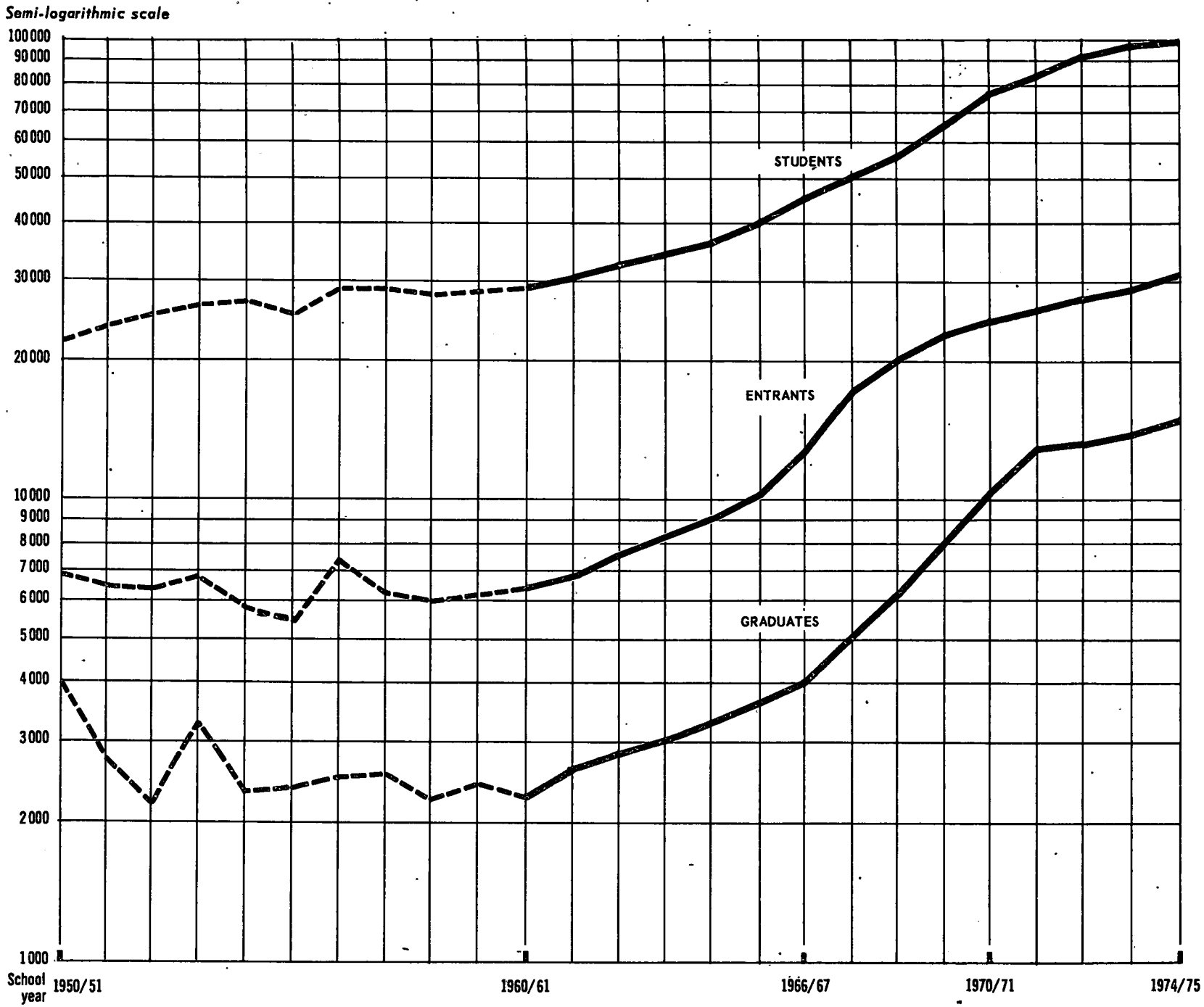
Graph XII. SCIENTIFIC AND TECHNICAL HIGHER EDUCATION



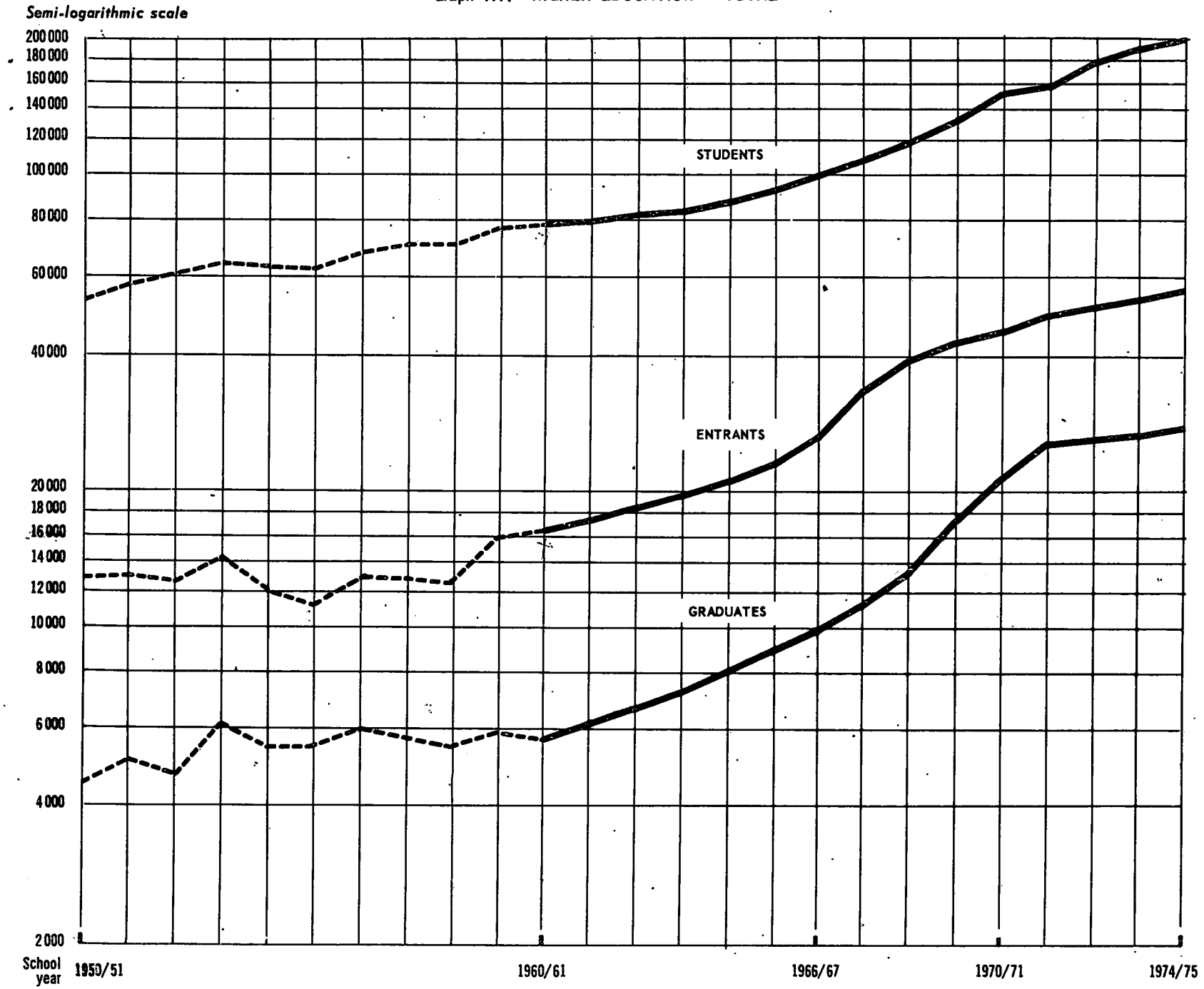
Graph XIII. MEDICINE



Graph XIV. HUMANITIES AND SOCIAL SCIENCES



Graph XV. HIGHER EDUCATION - TOTAL



fifteen years. As for the practical possibility of creating new posts at this rate, we must not forget that an important part of these graduates will re-enter the educational system as teachers. However, such a rapid increase in the number of graduates can, in some cases, disturb the balance between supply and demand, since the "market" does not always reflect the needs of the economy. It can cause underemployment of educated people, which must be avoided at all costs.

In order to calculate the number of students required, we have used the hypotheses illustrated in Table 53. Apart from the reduction in the length of the degree course and the creation of a doctorate of two years, we have assumed an important increase in the output of the system: in the faculties of science and technical colleges only 27 per cent of those beginning will not complete their studies, and in the non-scientific faculties and the faculties of medicine the proportions will be 30 and 40 per cent respectively. We have also assumed that 35 to 45 per cent, according to the branch of study, will complete the degree course within the required time. The differences in the rates of drop-out are due to the fact that science and technical students usually have a greater vocation and a better training at the start than other students, so that a greater proportion of them is likely to complete their studies. Lastly, it is expected that approximately 20 per cent of science and technical students and 17 per cent of other students will take the doctorate course.

Accordingly, in 1975 the number of students in the faculties of science and technical colleges will be 80,000, i.e., two and a half times the number in 1961. The increase will be greatest after 1968, but it will slow down after 1972. In the faculties of medicine the increase will be very small, since the need for doctors is reasonably satisfied. The greatest increase will take place in the other faculties, since at the end of the period these will have three and a half times as many students as they had in 1961. This rise is due partly to the great need for secondary school teachers who come from the faculties of philosophy and humanities. The total number of students in higher education will increase by some 160 per cent, which is not an excessive rise.

The composition of the student population will vary slightly. Science and technology students will decrease from 44 per cent of the total in 1961 to 41 per cent in 1975, while students of social sciences and humanities will make up approximately half, compared with 37 per cent in 1961. This relative decrease in science and technology students may appear paradoxical in view of the present need for scientists and technologists. The explanation is that, owing to the expansion of the last few years, there is already a very great number of science and technology students; as could be seen in Chapter II, a comparison with other countries in this respect was very favourable to Spain. Moreover, the

TABLE 61 : FORECAST OF ENTRANTS INTO SECONDARY AND HIGHER EDUCATION: 1961, 1967, 1971 AND 1975

(in thousands)

	1961	1967	1971	1975
Vocational Training (1)		50.0	92.5	150.0
General secondary education(2)				
elemental	114.1	266.2	316.3	345.0
superior	30.6	76.8	137.9	153.5
Pre-university course	...	35.9	58.7	72.5
Primary teacher training	15.2	9.5	9.4	9.4
Technical secondary	6.5(3)	30.0	52.4	71.2
Medical technicians' training	1.5	3.6	9.3	15.0
Faculties of science and higher technical colleges(4)	7.5	11.0	18.0	22.5
Faculties of medicine	2.8	3.1	3.4	3.5
Non-scientific faculties(5)	6.3	12.5	24.0	30.0

(1) For industry and services
(2) "Bachillerato general", pre-university course and commercial schools.
(3) For lack of information, we have not included the "bachillerato laboral superior".
(4) Faculties of science, pharmacy, veterinary surgery and higher technical colleges (including architecture).
(5) Faculties of law, philosophy, humanities, and political economic and commercial science.

Graph XVI. EDUCATION IN 1974/75
(Absolute figures in thousands)

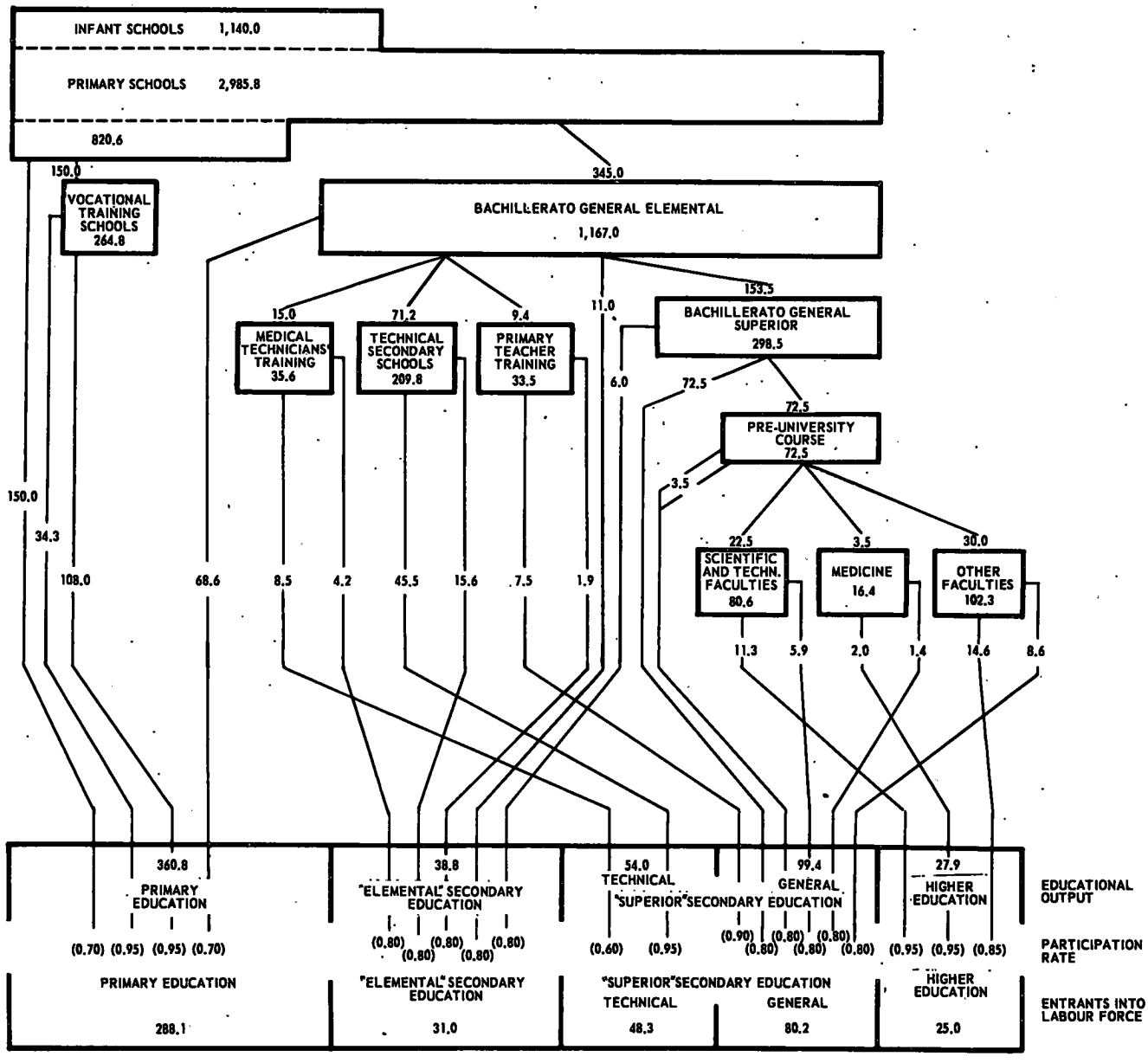


TABLE 62 : TOTAL ENROLMENTS BY LEVEL AND TYPE OF EDUCATION: 1961, 1967, 1971 AND 1975

(in thousands)

	1961	1967	1971	1975
Primary education:	3,830.0	4,444.8	4,853.6	4,946.4
Infant schools (2 - 5 years)	538.4	830.8	979.8	1,140.0
Elementary schooling (6 - 10)	2,365.7	2,815.7	2,914.1	2,985.8
"Perfeccionamiento"(11 - 13)	925.9	798.3	959.7	820.6
Secondary education:	628.4	1,203.9	1,722.7	2,018.6
Vocational training (1)	45.6	86.1	160.5	264.8
General secondary education(2)				
Elemental	413.3	810.6	1,042.6	1,167.0
Superior	63.4	138.3	259.4	298.5
Pre-university course	19.1	35.9	58.7	72.5
Primary teacher training	43.2	35.1	33.5	33.5
Technical secondary education	40.7(3)	90.3	147.1	209.7
Medical technicians' training	3.1	7.6	20.9	35.6
Higher education:	76.7	99.3	150.3	199.3
Faculties of science and higher technical colleges(4)	33.3	40.0	59.5	80.6
Faculties of medicine	14.6	14.3	15.5	16.4
Non-scientific faculties(5)	28.7	45.0	75.3	102.3
Total	4,535.1	5,748.0	6,726.6	7,227.3

(1) For industry and services only
(2) "Bachillerato general", pre-university course and commercial schools.
(3) "Bachillerato laboral superior" included.
(4) Faculties of science, pharmacy, veterinary surgery, and higher technical colleges.
(5) Faculties of law, philosophy and humanities, political, economic and commercial science.

TABLE 63 : FORECAST OF PUPILS WHO WILL COMPLETE THEIR STUDIES, BY LEVEL AND TYPE OF EDUCATION: 1961, 1967, 1971, 1975

(in thousands)

	1961	1967	1971	1975
Vocational training (1)	5.8	34.0	64.0	108.0
General secondary education (2)				
Elemental	61.7	150.0	225.0	260.0
Superior	24.4	61.5	122.0	145.0
Pre-university course(3)	13.5	35.0	57.2	70.7
Primary teacher training	8.8	8.3	7.5	7.5
Technical secondary education	3.3(4)	14.0	28.4	45.5
Medical technicians' training	1.1	1.7	4.6	8.5
Faculties of science and higher technical colleges(5)	2.0	4.1	9.0	11.3
Faculties of medicine	1.5	1.7	1.9	2.0
Non-scientific faculties(6)	2.2	4.0	10.5	14.6

(1) For industry and services only.
(2) "Bachillerato general", pre-university course and commercial schools.
(3) Assuming that in future 97.5% of pre-university pupils will graduate (drop-outs in relation to entrants = 2.5%).
(4) Technical secondary schools only; "bachillerato laboral superior" was not included for lack of information.
(5) Faculties of science, pharmacy and veterinary surgery, and higher technical colleges (including architecture).
(6) Faculties of law, philosophy and humanities, political, economic and commercial science.

TABLE 64: DISTRIBUTION OF THE SCHOOL POPULATION (IN THOUSANDS) AND ENROLMENT RATIOS (PER 1000) BY AGE GROUPS - 1960

	2 - 5	6 - 10	11 - 13	14 - 17	18 - 24	above 24	Total	% Distribution	
Primary education	527.0	2,316.9	840.9	66.7	.	.	3,751.5	84.1	
General secondary education(1)	-	44.8	237.5	169.0	21.4	1.3	474.0	10.6	
Primary teacher training	-	-	.	18.7	20.8	2.1	41.6	0.9	14.2
Vocational training and "bachillerato laboral"	-	-	20.6	39.5	15.4	3.2	78.7	1.8	
Technical secondary education(2)	-	-	.	6.2	25.7	7.0	38.9	0.9	
Higher education	-	-	.	4.6	48.6	22.4	75.6	1.7	
School population	527.0	2,361.7	1,099.0	304.7	131.9	36.0	4,460.3	100.0	
Total population(3)	2,267.4	2,656.8	1,608.8	2,021.8	3,105.7		11.660.5(4)		
Enrolment ratio (per 1000)	232	889	683	151	42		383		

(1) Including "bachillerato general", pre-university course and commercial schools
(2) Includes medical technicians' training
(3) End-year population
(4) Population from 2 - 24 years inclusive

TABLE 65: DISTRIBUTION OF THE SCHOOL POPULATION (IN THOUSANDS) AND ENROLMENT RATIOS (PER 1000) BY AGE GROUPS - 1975

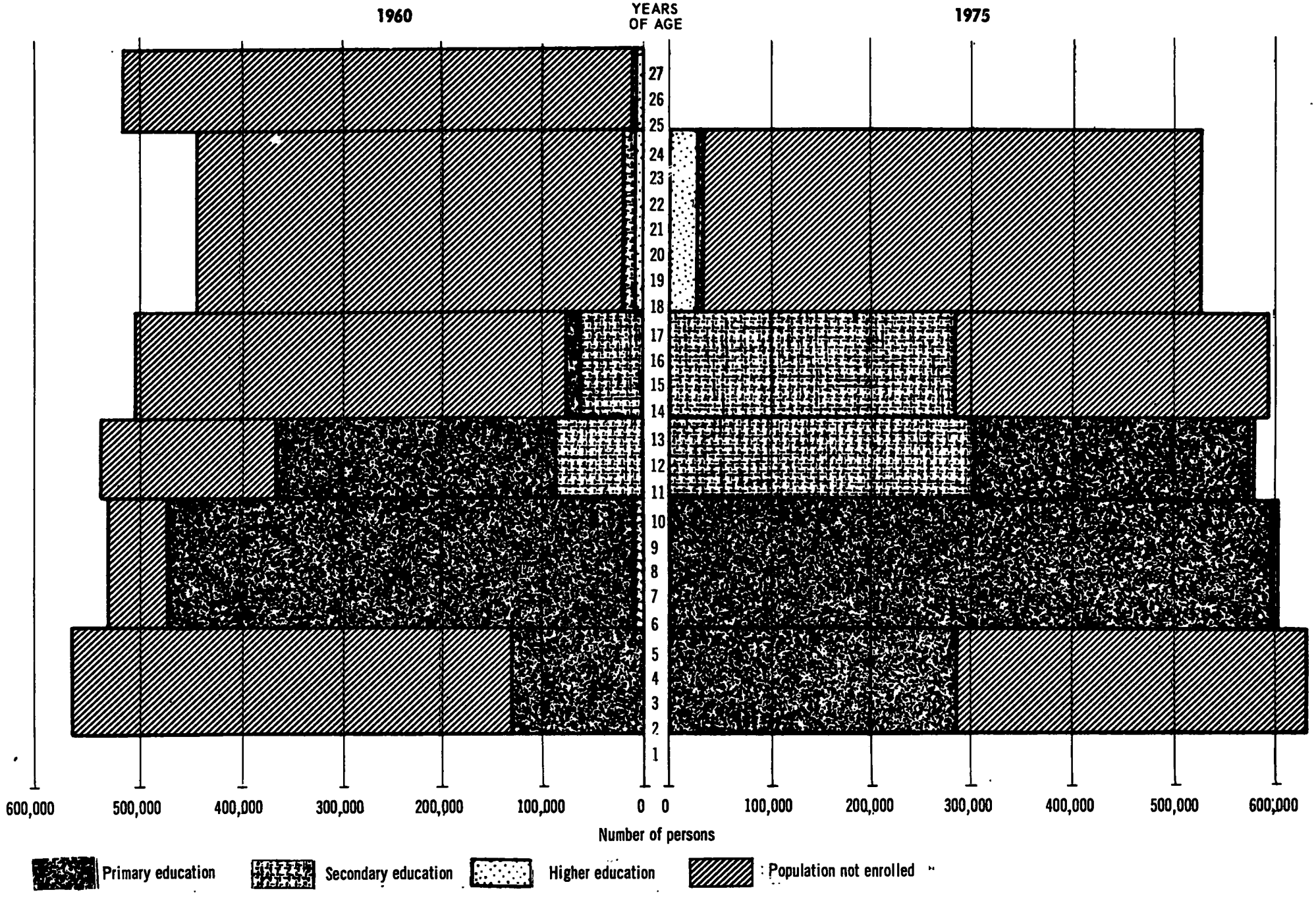
	2 - 5	6 - 10	11 - 13	14 - 17	18 - 24	Total	Distribution	
Primary education	1,140.0	2,985.8	820.6	.	.	4,946.4	68.4	
Vocational training(1)	-	-	.	264.8	.	264.8	3.7	28.8
General secondary education			907.0	630.9		1,537.9	21.3	
Primary teacher training	-	-	-	26.0	7.5	33.5	0.5	
Technical secondary education(2)				216.5	28.9	245.4	3.4	
Higher education	-	-	-		199.3	199.3	2.8	
School population	1,140.0	2,985.8	1,727.6	1,138.2	235.7	7,227.3	100.0	
Total population(3)	2,533.3	3,015.8	1,745.1	2,376.6	3,683.0	13,354.8		
Enrolment ratio (per 1000)	450	990	990	479	64	541		

(1) Industry and services only

(2) Including the 2 curricula of 3 and 4 years and medical technicians' training

(3) End-year population

Graph XVII. ENROLMENT RATIOS



rate of drop-out is lower for science and technology students than for other students, and the participation rate in the working force is higher for scientists and technologists than for other categories of professional personnel.

IV. 4. ENROLMENT RATIO AND DISTRIBUTION OF THE SCHOOL POPULATION

If all the goals previously defined were reached there would be a very substantial improvement in enrolment ratios. Apart from the 6-13 age group, all of whom will attend school, the ratios for all other age groups will increase considerably. The most important change will take place in the 14-17 age group, for which the ratio will rise from 15 per cent in 1960 to 48 per cent in 1975. In the oldest group, 18-24 years of age, the ratio would rise from 4 per cent to 6 per cent. It should be remembered that in 1960 the number of students over 24 was considerable, while we have assumed that by 1975 all students in higher education will be under 25.

These ratios compare favourably with those in developed European countries. The situation in Spain in 1975 will practically be the same as it was in France in 1958, more satisfactory in the second age group than in England (1957) and in Germany (1958), and similar to that of England and Germany in the third age group. (Graph XVII).

As for the distribution of the student population by educational levels, the importance of secondary and higher education will increase considerably. Excluding pupils less than six years old, primary education will represent 63 per cent of the school population in 1975, compared with 82 per cent in 1960, while secondary and higher education will pass from 16 per cent and 1.9 per cent to 34 per cent and 3.3 per cent respectively. This last percentage is slightly higher than the present one in Germany (3 per cent), France (2.8 per cent) and Italy (2.5 per cent).

Lastly, we note the enormous increase in graduates from higher education. In 1975 there will be 81 graduates per 100,000 inhabitants, compared with 19 in 1961. This figure - although much lower than in the United States where there are 251 - is higher than in France or Germany at present, though these countries anticipate a very important increase in the future (France intends almost to treble her present number in 1970). But this high figure is necessary to make up rapidly for lost time and past shortages.

IV. 5. NEED FOR TEACHERS

The lack of qualified teachers will be the greatest obstacle which education will have to overcome in the next few years. The increasing number of pupils and the measures envisaged for

TABLE 66 : ESTIMATED REQUIREMENTS OF TEACHERS IN EACH LEVEL AND TYPE OF EDUCATION: 1967, 1971, 1975

	Pupils per Teacher	Number of Teachers		
		1967	1971	1975
Primary education	35	126,994	138,674	141,326
Vocational training	30	2,871	5,350	8,827
General secondary education	30	32,827	45,354	51,267
Primary teacher training	30	1,170	1,117	1,117
Technical secondary education				
3-year curriculum	25	1,528	3,055	4,396
4-year curriculum	25	2,082	2,827	3,992
Medical technicians' training	25	306	834	1,424
Higher education:				
Scientific and technical	20	2,000	2,975	4,025
Medicine	20	715	775	825
Others	25	1,800	3,012	4,100

improving the quality of education demand a tremendous increase in teachers. As this demand cannot be met before several years, there will be a period of great scarcity during which emergency measures will have to be taken. Nevertheless these difficulties can be overcome if the necessary measures are speedily put into effect. Above all, it is necessary to have more detailed information about the present possibilities in each sector of education. No valid educational policy can be evolved, let alone put into effect, without a precise knowledge of the present number of teachers and of the possibilities of increasing it in the immediate future. The branch about which least is known is the "bachillerato general", because it includes a large private sector. Owing to this lack of information, our analysis of the need for teachers could only be very brief and incomplete. It would have to be completed by a study based on much more detailed information.

The pupil-teacher ratios which served as a basis for calculating the need for teachers are shown in Table 66. They are expressed in terms of full-time teachers and cannot therefore be compared to the present ratios, except in the case of primary education. In the case of secondary and higher education, the ratios would give a completely different picture if they were calculated in terms of pupils per teacher hour. There is also the problem of duplication: a teacher who gives classes in two different schools is counted twice.

The ratios anticipated for the future are quite satisfactory for a rapidly expanding system. Indeed, they do not differ very much from those of other educational systems which are already at an advanced stage of development. In primary education there will be no teacher problem. The anticipated contingents from primary teacher training schools will be sufficient for filling the 40,000 new posts and the 24,000 posts which will have to be replaced.

The situation will be completely different in general secondary education, where serious difficulties are likely to arise. On the basis of a ratio of 30 pupils per teacher, the number of teachers would have to increase to 33,000 in 1967, 45,000 in 1971 and 51,000 in 1975 (see Table 67). In 1961 there were 5,000 teachers in State schools, of whom only 4,000 taught main subjects, while the rest taught auxiliary subjects (religion, physical training, civics). In recognised private schools there were 9,000 teachers with degrees and 7,600 without degrees. If we allow for the absorption of commercial schools by the "bachillerato general", we could count on 600 additional teachers from these schools. There are also the teachers who teach in centres which are not recognised ("free education"). As, however, we have no knowledge at all of their qualifications and their numbers, it is impossible to take them into account,

TABLE 67: ESTIMATED REQUIREMENTS OF TEACHERS IN GENERAL SECONDARY EDUCATION; 1961, 1967, 1971, 1975

	1961	1967	1971	1975
Number of teachers required		32,827	45,354	51,267
Of which:				
for 1st and 2nd grade of "bachillerato general"		16,000	19,220	21,133
Teachers already engaged in teaching	22,226(1)	18,759	30,876	43,606
Of which:				
holding degrees	13,469	11,368	17,186	26,127
without degrees	8,757	7,391	13,690	17,479
New teachers required	14,068	14,478	7,661	
Of which:				
holding degrees	7,000	10,000	12,000	
without degrees	7,068	4,478	-4,339	
Composition of the teaching profession				
Holding degrees	61%	56%	60%	74%
Without degrees	39%	44%	40%	26%
Pupil/teacher ratio	22.2	30	30	30
Pupil/graduate teacher ratio	36.6	53.6	50.1	40.3

(1) In 1961, in State schools, there were: 3,934 senior teachers, assistant and auxiliary teachers, and 1,170 special teachers and others; in private schools 16,519 teachers, including 8,932 holding a university degree; in commercial schools 603 senior and assistant teachers (not including the 817 special teachers, and other teaching assistants. The rate of replacement of the 1961 "stock" has been taken as 2.6% per annum.

although we may assume that part of the future increase of teachers without degrees will in fact occur in this category.

In 1961, therefore, there were theoretically 22,200 teachers, although this figure includes a certain number of duplications for the reasons already mentioned. Allowing for losses through retirement and death and for the necessary increase, 14,000 more teachers would be needed in 1967. To think that these posts could be occupied by university graduates would be completely unrealistic when the present number completing studies in science and humanities is 560 and 820 per year respectively. It will therefore be necessary to use for the lower levels teachers without degrees, at least for a few years. Assuming that the length of degree study and the rates of drop-outs are rapidly reduced, we could count on having 7,000 new graduates for 1967 which, together with the existing stock, would be sufficient for the last five years of the "bachillerato", including the pre-university course. The 16,000 teachers required for the first and second year of the "bachillerato" would have to be made up essentially of the 7,400 teachers without degrees from the 1961 stock and of 7,000 new teachers, the number of teachers with degrees amounting to 1,500 only.

In practice the distribution could change somewhat, especially if closed-circuit television were intensively used in the main urban centres, thus saving graduate teachers at the secondary level.

For non-graduate teaching posts, we should use for the most part students with higher education and primary school teachers who have followed a special training course. As far as the former are concerned, a possible solution would be to entrust teaching to students who have completed the first three years of higher education, and give them special facilities to complete their studies. This solution doubtless has its disadvantages, but these would be much greater if the number of "free" students were allowed to increase. When all is said, these teachers will have more than sufficient training to teach pupils in the first years of the "bachillerato" and will be guided by experienced teachers. Similar considerations apply in the case of primary school teachers although their greater teaching experience is offset by less theoretic knowledge. We must not forget that the choice is not between teachers with degrees or without degrees; the choice is whether to let teachers without degrees enter State schools, or leave them to continue to teach a growing mass of "free" students without any control or guidance from qualified teachers.

In the years 1968-71 the need for teachers without degrees will be slightly less owing to the arrival of 10,000 graduates; from then onwards the expansion of higher education will allow a rapid decrease in teachers without degrees who, in 1975, will only represent 26 per cent of the teaching profession.

Let us repeat that a comparison with the present situation has very little significance, especially as regards teachers with degrees. It is very probable that the least satisfactory pupil/graduate teacher ratio which we have anticipated - 54 for 1967 - is probably equal, in working hours, to 37 in 1961. If we consider that the quality of non-graduate teachers will be much better than at present, we may speak of an appreciable increase in the quality of education.

The need for teachers at other levels is shown in Table 66. The number of teachers required in primary teacher training schools is somewhat lower than at present, because we have considered mixed schools for men and women, and because of the slight decrease in the number of pupils in primary schools. By contrast, the demand for teachers for technical secondary schools will increase considerably. As in these schools the employment of part-time teachers can be better justified than in general secondary or higher education, there is much greater elasticity in supply. Providing the salaries are sufficient, there would certainly be no major problem in obtaining the necessary number of teachers.

In higher education the difficulty will be mainly of a financial character. Assuming the salaries to be sufficient, there will certainly be no lack of candidates. It is possible, of course, that many of these will not have adequate training. But with an ambitious scholarship policy and the possibility of sending future teachers abroad, rapid progress can be made in this field. The experience of other countries has shown that the latter measure can be decisive in obtaining a substantial improvement in the quality of teachers in a very short time.

The calculations also show that the recruitment process for teachers in State schools will undergo a complete change. Until now the number of candidates was much greater than the number of posts; in future this difference will be much less. It will then only be a question of eliminating the least competent, which indicates that the system of selection will be organised on a completely different basis, and in general a much more effective one. The increasing demand need not necessarily lower the average standard of proficiency of teachers, provided they are in a position to devote themselves fully to their post-university training.

CHAPTER V

EXPENDITURE ON EDUCATION

V.1. INTRODUCTION

The main object in calculating future expenditure on education is to gauge the economic effort which the country will have to make in this field and to judge whether or not such an effort is feasible in view of the country's limited resources. The calculations which follow do not therefore represent an operational budget for education in the next dozen years: such a task would have meant entering into details that are outside the scope of a long-term analysis of educational development. Moreover, the analysis of the cost of education in Spain is not yet sufficiently advanced, especially with regard to teachers' salaries which constitute by far the most important part of current expenditure. No doubt, we have given some estimates of teachers' salaries in the future, because an adequate remuneration of teachers is a prerequisite for the improvement of education, but our figures are rough estimates indicating an order of magnitude, and not preliminary estimates of the future educational budget.

Nor is there any reliable information on the cost of school buildings and installations. Except in the case of primary schools, there has been no analysis of the reduction in costs that might be achieved by standardised building, nor a study of possible economies of scale, particularly in the construction of secondary schools (1). Until such studies have been carried out, all estimates of the future cost of education are bound to be unreliable, quite apart from the fact that vast plans for school building, such as those envisaged in the Development Plan, could hardly materialise in the absence of such knowledge.

In analysing expenditure on education, no distinction will be made between public and private expenditure, since the distribution between them is largely a question of policy. It can be said, however, that the greater part of the increase in expenditure will have to be provided by the State; expenses assumed by pupils' families will represent a small part only.

V.2. CURRENT EXPENDITURE

Teachers' salaries constitute an essential part of current expenditure and, as stated on several occasions, present salaries are inadequate if the necessary improvements, qualitative and quantitative, in the teaching force are to be achieved. One of

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(1) A team has been set up to study this question in collaboration with the O.E.C.D.

TABLE 68: AVERAGE ANNUAL SALARIES OF TEACHERS IN EACH LEVEL OF EDUCATION: 1963, 1964 1967, 1975

(In thousand pesetas)

	1963 (1)	1964	1967	1975
Primary education	56.4	83.5	91.3	129.9
Vocational training	...	156.8	171.3	243.6
General secondary education	145.0	209.0	228.4	324.8
Primary teacher training	60.0	177.7	194.2	276.1
Technical secondary education	71.9	195.7	213.9	299.3
Medical technicians' training	...	209.0	228.4	324.8
Higher education	235.0	250.6	274.0	389.8

(1) These figures correspond to the information given in Chapter II, Table 35, for the salaries of higher grade teachers, whilst for future years they give the average salaries for all teachers.

the first measures must therefore be to fix new salaries corresponding to those of other sectors and linked with the obligation for teachers to work on a full-time basis.

The new salaries must be high enough to produce a rapid increase in the supply of teachers. Although no detailed study could be made on this question, we think that the salary scale given in Table 68 satisfies this condition. The figures should, of course, be taken only as an indication of the relative amounts judged necessary. The salaries vary between 83,500 pesetas for primary school teachers and 251,000 pesetas for university professors, all these figures representing average salaries. As far as universities are concerned, teachers in higher categories will obtain salaries appreciably higher than the average. In general secondary education also, the majority of teachers with degrees will have salaries higher than the average, since there will continue to be non-graduate teachers for a long time. In any case, these average salaries must be considered as a minimum which will perhaps have to be exceeded in some cases. We do not think, however, that they can be substantially lower without the risk of affecting the quality and number of teachers.

Comparison with 1963 salaries is very difficult. Table 35 gives the salaries of the main classes of teachers but, as already mentioned, it is practically impossible to know how many working hours these salaries represent. Moreover, in some cases it is a question of average salaries and in others of salaries for certain categories of teachers. With these reserves, we can compare some of the salaries in 1963 with those fixed for 1964. The salaries of primary school teachers (which are very homogeneous increase by almost 50 per cent. In view of the size of primary education, such an increase implies a very great economic effort(1). In our opinion, however, this is essential in order to restore the social position of the primary school teacher In general secondary education, the average salary will be 209,000 pesetas, while senior secondary teachers only received 145,000 pesetas in 1963. Supposing the latter receive 20 per cent more than the average in the future, the increase in regard to the 1963 salary would be approximately 70 per cent.

In higher education, allowing also for a similar difference between the earnings of senior professors and average earnings, the former would be 28 per cent above the 1963 level.

It is possible that, in view of the complicated system of remuneration, we have underestimated the 1963 salaries. Even so, the increases provided for are appreciable enough to attract an important number of graduates, new or otherwise, to the teaching profession.

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(1) In the last two years primary school teachers' salaries have been increased by 73 per cent.

These salaries should increase with average income, so as not to be again out of step with other salaries. As our calculations are made at constant prices, they do not allow for a rise in salaries due to rising prices. And since an increase in the productivity of education cannot be expressed in terms of national accounts, there is no possibility either of justifying an increase in teachers' salaries by a rise in productivity, as is the case in industry, for instance. To allow for an increase in teachers' salaries in harmony with the increase in real income per head, the only solution is to assume an increase in the "price" of education. For the three years 1965-1967 we have assumed an increase in salaries of 3 per cent per annum, for the remainder of the period until 1975 a rate of 4.5 per cent per annum. The reason for the increase being smaller in the first three years is the great initial rise in teachers' salaries expected in 1964 and intended to change rapidly the relative position of teachers in the general salary scale. For the eleven years 1965-1975, the annual increase would therefore be 4.1 per cent, as against an annual increase of 4.9 per cent in income per capita during the period 1961-1975 (see Chapter III). In a period of rapid expansion, however, the rise in certain personal incomes is usually somewhat slower than that of average income per capita.

Table 69 gives the total amount of teachers' salaries. Through lack of information we have calculated other current costs on the basis of expenditure on teachers. We have assumed that the latter represent 90 per cent of total current costs in primary education, 80 per cent in general secondary education, primary teacher training schools and faculties other than those of science and medicine, 75 per cent for technical, medical and vocational training, and 70 per cent for the rest of higher education. Since teachers' salaries will increase considerably, these percentages imply an important increase of current expenditure, which will cover both traditional expenses and those incurred by new teaching methods. We refer especially to audio-visual methods which will be indispensable to make up for the scarcity of teachers.

The resulting current expenditure rises from 26,000 million pesetas in 1967 to 53,000 million in 1975. These figures do not allow for general administrative costs, expenditure incurred in accelerated vocational training, agricultural training and some other items of less importance, such as adult education. Nor do they allow for scholarships. The part of these allotted to pay for registration fees and meet other expenses in education itself does not have to be included, since this is only a transfer from State to pupil who, in his turn, pays the fees for State or private education. Grants allotted for the upkeep of students are a different matter; they represent additional expenditure for the State. To meet all such expenditure a lump

TABLE 69: CURRENT EXPENDITURE ON EDUCATION, BY LEVEL AND TYPE OF EDUCATION, 1967, 1971, 1975

(In million pesetas)

	Teachers' salaries			Coef-ficient (1)	Total current expenditure		
	1967	1971	1975		1967	1971	1975
Primary education	11,595	15,102	18,358	90	12,883	16,780	20,398
Vocational training	492	1,093	2,150	75	656	1,457	2,867
General secondary education	7,498	12,350	16,651	80	9,372	15,437	20,814
Primary teacher training	227	259	308	80	284	323	386
Technical secondary education	773	1,478	2,510	75	1,028	1,965	3,347
Medical technicians' training	69	228	462	75	92	303	616
Science faculties and higher technical colleges	548	972	1,569	70	784	1,390	2,244
Medicine	196	253	322	70	280	362	460
Other faculties	493	984	1,598	80	618	1,230	1,998
Total	21,891	32,719	43,928	...	25,996	39,247	53,130
Other current expenditure	-	-	-	-	4,163	5,869	7,934
Total current expenditure on education	21,891	32,719	43,928	...	30,159	45,116	61,064

(1) The coefficient represents the estimated percentage of the total current expenditure devoted to teachers' salaries.

sum has been provided under the heading "other current expenditure"

Thus we arrive at the figure of 30,000 million pesetas in total current costs for 1967, which will rise to 61,000 million in 1975. In the first years, primary education will absorb by far the largest share of current expenditure, but in 1975 it will take slightly less than general secondary education, which will account for as much as 34 per cent of this expenditure. Secondary education as a whole will absorb 41 per cent of current expenditure in 1975, while higher education will take 8 per cent.

In earlier calculations it was assumed that the costs for "free" pupils were the same as for others. In fact, teachers' salaries in secondary education will be lower, since in many cases the pupils are practically self taught. It is particularly at the "bachillerato" level that this system of calculation tends to inflate costs, since the number of "free" pupils is very great and will only be absorbed very gradually into regular schools. In any case, this only affects the calculations for the first years, since "free" pupils are expected to disappear by about 1971.

Current costs per pupil for the next few years are shown in Table 70. When comparing them with those for 1962 in State education, it should be remembered that they are only rough estimates, in some cases with a big margin of error. The increase in current costs per pupil is considerable, especially in primary, technical secondary, and higher education.

V.3. CAPITAL EXPENDITURE

School capacity will have to be increased to take in not only the growing number of registered pupils, but also the "free" pupils who are deemed to disappear in 1971. This absorption of "free" pupils, however, will take some time in general secondary education, where they represent a considerable proportion of the total. In higher education the absorption of "free" pupils who can strictly be considered as such (that is, who do not attend classes) can be effected very quickly. As well as increasing the number of school places, it will be necessary to renovate some of the present establishments. The information available on the state of buildings and installations is, however, so scarce, that we have had to rely on very general estimates to calculate the expenditure of renovation.

The capacity of State centres of education is not fully exploited, although in some cases there is an overflow of pupils. O.E.C.D. school building experts (1) have recently pointed to

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(1) "Development and Economy in Educational Building in the Countries of Southern Europe (Educational building in Spain)", O.E.C.D., 1963. Restricted.

TABLE 67: ESTIMATED REQUIREMENTS OF TEACHERS IN GENERAL SECONDARY EDUCATION; 1961, 1967, 1971, 1975

	1961	1967	1971	1975
Number of teachers required		32,827	45,354	51,267
Of which:				
for 1st and 2nd grade of "bachillerato general"		16,000	19,220	21,133
Teachers already engaged in teaching	22,226(1)	18,759	30,876	43,606
Of which:				
holding degrees	13,469	11,368	17,186	26,127
without degrees	8,757	7,391	13,690	17,479
New teachers required	14,068	14,478	7,661	
Of which:				
holding degrees	7,000	10,000	12,000	
without degrees	7,068	4,478	-4,339	
Composition of the teaching profession				
Holding degrees	61%	56%	60%	74%
Without degrees	39%	44%	40%	26%
Pupil/teacher ratio	22.2	30	30	30
Pupil/graduate teacher ratio	36.6	53.6	50.1	40.3

(1) In 1961, in State schools, there were: 3,934 senior teachers, assistant and auxiliary teachers, and 1,170 special teachers and others; in private schools 16,519 teachers, including 8,932 holding a university degree; in commercial schools 603 senior and assistant teachers (not including the 817 special teachers, and other teaching assistants. The rate of replacement of the 1961 "stock" has been taken as 2.6% per annum.

TABLE 70: CURRENT EXPENDITURE PER PUPIL, 1962 - 1975

(In thousand pesetas)

	1962 (1)	1964 (2)	1967	1971	1975
Primary education	1.0	2.6	2.9	3.5	4.1
Vocational training	5.5	7.0	7.6	9.1	10.8
General secondary education	6.5	8.7	9.5	11.3	13.5
Primary teacher training	5.2	7.4	8.1	9.7	11.5
Technical secondary education	4.0	10.4	11.4	13.4	16.0
Medical technicians' training	...	11.1	12.1	14.5	17.3
Science faculties and higher technical colleges	10.0	17.9	19.6	23.4	27.9
Medicine	10.0	17.9	19.6	23.4	27.9
Other faculties	7.0	12.5	13.7	16.3	19.5

(1) State schools: in higher education we have included both "free" pupils and registered pupils, while in secondary schools we have only allowed for registered pupils. Our reason for including "free" pupils is that often the difference between them and registered pupils is purely a legal one; also, the majority of "free" pupils do not attend other (private) educational establishments.

(2) The above table assumes that in 1964 the proportion of teachers to pupils will be the same as that anticipated in 1967.

this fact. Besides faculties and higher technical colleges which are overflowing, there are others whose facilities are only used for a few hours a week. Conference or ceremonial rooms are used exceptionally, while other premises, such as dining rooms, are only used for a very short period of time; outside certain hours they could be made into classrooms. In higher education, as in some secondary establishments, the premises could be used much more intensively than they are at present. When the circumstances demand it, there is nothing to prevent higher education centres from being used more than twelve hours a day, providing timetables can be arranged accordingly. The inconvenience which such an arrangement would doubtless cause would be more than justified by the benefits obtained from it. Many premises are not used on an average for more than sixteen hours a week. In primary schools this bad use of capacity is linked to the problem of "single class" schools.

A detailed study of the present capacity of State schools is urgently needed in order to know what the programme of school building is to be. In the absence of such a study, our only solution was to make assumptions of a general nature on the maximum capacity of present centres. Firstly, we calculated the "minimum capacity", i.e., the total number of places in State schools and in recognised private schools (Table 71). For the former we used the information supplied by the Ministry of National Education, which is based on estimates. As there is no information on recognised private schools, we assumed that their minimum capacity was equal to their present number of pupils. The "minimum capacity" therefore represents the present capacity if school premises are not put to better use. We have applied certain coefficients to this capacity in order to calculate the maximum capacity. In primary schools the coefficient used was 1.0, that is, the "minimum capacity" was not changed. In primary teachers training schools we have also taken a coefficient of 1.0, because the "minimum capacity" is sufficient to take in the number of students expected in the future. Doubtless these schools could be used partly for other purposes, since they are the least used of all and have room for thousands of pupils. If we allowed for this, it would be possible to reduce more speedily than expected the number of "free" pupils at the "bachillerato general" level. We have not made any correction either in the figures for vocational training, nor for the faculties of medicine. In the former case, the premises could nevertheless be used, out of ordinary class time, for apprentice training of workers who are already in employment. The faculties of medicine present special conditions which would make a correction of the capacity figures very hazardous without a detailed study. In any case, we have assumed that they had 3,000 places for medical technicians' training. In general secondary education, faculties of science and higher technical colleges we believe that the maximum capacity is at least 20 per cent higher than the "minimum". If we apply the coefficient of 1.2 to all secondary State and recognised private schools, we

TABLE 71 : CAPACITY OF EDUCATIONAL ESTABLISHMENTS

(In thousands of pupils)

	Minimum capacity 1963	of which private	Coefficient for adjustment	Maximum capacity 1963	Increase of capacity 1964-67	1968-71	1972-75	1964-75
Primary education	3,920	940	1.0	3,920	646	293	87	1,026
Vocational training	80	59(1)	1.0	80	22	81	82	185
General secondary education	370	247	1.2	444	498(2)	477	119	1,094
Primary teacher training	43	6	1.0	43	-	-	-	-
Technical secondary education	43(3)	8	1.2	52	47	64	47	158
Medical technicians' training	3		1.4	4	3(5)	14	12	29
Science faculties and higher technical colleges	35(4)		1.2	42	1	23	15	39
Medicine	16		1.0	16	-	-	-	-
Other faculties	27		1.4	38	12	34	18	64

(1) Including Trade-unions Federation
(2) Assuming that in 1967 there will still be 150,000 "free" students who will have become registered by 1972.
(3) Including the 30,000 places in workers' universities of which 8,000 are private
(4) Assuming that there will be 1,000 places in the Faculty of veterinary science in Madrid.
(5) Assuming that 3,000 places in the faculties of medicine and private centres will be used.

perhaps overestimate the actual capacity of the latter, but this could surely be compensated by non-recognised private schools which we have not allowed for when calculating the "minimum capacity". In technical secondary schools the coefficient is 1.4. Lastly in faculties other than science the "maximum capacity" could exceed the number of official places by 30 per cent.

As all coefficients for correction are moderate, they could be made higher in some cases to allow for regional differences. In any case, full use of this capacity implies an adequate distribution of pupils. One practical measure would be to check the stream of students in higher education converging on Madrid, since they would be more easily accommodated in other universities whose capacities are not fully used.

The maximum capacity at different levels has served as a basis for obtaining the required increase of capacity. This increase is equal, for each period of time, to the number of students due for enrolment minus the existing maximum capacity. Then we subtract the possible regional differences. The increase in capacity in each case must be available for the school year which begins in the final year of the corresponding period. Thus the 646,000 new places in primary education which have to be provided between 1964-1967 ought to be ready before October 1967.

As may be deduced from Table 71, one million school places will have to be built for primary education, a million and a half for secondary education, and a hundred thousand for higher education before 1975. The construction of new primary schools will have to take place during the first years, as will that of general secondary schools, while that of higher educational institutions can be delayed until the last years of the period.

The school building experts in the O.E.C.D. have also indicated that, except in the case of primary schools, calculations on the standard cost per school place were not available, and that in the case of primary schools, the present costs could be reduced in some cases. The data normally used are, in fact, the costs as shown by the last constructions completed. These costs vary considerably, depending upon the architect, the building site, etc., We have therefore used costs per school place which in some cases assume an appreciable reduction of the unit costs supplied by the Ministry of Education. We have made considerable reductions for buildings in general secondary education and in higher education, and used costs similar to those supplied to us for the other buildings, although we think that here also savings could be made.

The cost per place in secondary schools could be reduced to 12,700 pesetas, which is in fact almost the actual cost if we omit the additional installations - ceremonial rooms, libraries, chapel etc. This does not mean that these installations should be omitted; but they should not be used for one purpose only, and thus be used very rarely. In higher education we have established a cost of 65,000 pesetas per place for scientific and technical branches and 23,000 pesetas for the rest, on the assumption that capacity will be used to the maximum; the average cost for higher technical colleges, used as a reference by the services of the Ministry of National Education is 100,000 pesetas per place.

The resulting annual investment (Table 72) is 3,500 million in 1964-1967, 4,200 million in 1968-1971 and 3,000 million in 1972-1975. In the first few years primary and general secondary education will demand the greatest effort in construction, while at the end of the period vocational training, technical secondary education and higher education will require it. As in our earlier figures we did not allow for some educational centres mentioned in connection with current expenditure, nor for student homes, we have fixed a global amount to take in these two factors. Student homes will have to be built early if the desired enrolment ratios are to be attained.

The renovation expenses have been estimated at 20 per cent of the expenditure on new buildings. This rate is very high in view of the very considerable anticipated increase in investment, but it will make it possible to renovate buildings and installations in a relatively short time. We arrive thus at an annual volume of gross expenditure on buildings and installations of 5,200 million pesetas for the years 1964-1975.

V.4. TOTAL EXPENDITURE

If all the objectives mentioned in this report were attained, expenditure on education should rise from 14,000 million pesetas in 1962 to 35,000 million in 1967 and 66,000 million in 1975. (Table 73). Until 1967, annual expenditure on education would need to increase by 20 per cent, between 1967-1971 by 10 per cent and between 1971-1975 by 7 per cent. This would doubtless mean an immense financial effort by the State which would have to meet the major part of the additional expenditure.

Now if we compare the anticipated expenditure on education with G.N.P., and provided of course that the rate of growth of 6 per cent per annum is achieved, we find that it represents 3.3 per cent of GNP in 1967 and 4 per cent in 1975. These percentages cannot be considered as exaggerated: in 1958, the advanced countries of Europe were devoting about 3.5 per cent of G.N.P. to education, and many of them are now in the middle of a vast educational expansion. Moreover, for Spain it is question of making up for lost time in a relatively short period.

TABLE 72 : CAPITAL EXPENDITURE ON EDUCATION BY LEVEL AND TYPE OF EDUCATION: 1964-1974

	Cost per place (thousand pesetas)	Investments in million pesetas					
		Totals			Yearly Average		
		1964-67	1968-71	1972-75	1964-67	1968-71	1972-75
Primary education	6.5	4,199	1,904	565	1,050	476	188
Vocational training	33.6	739	2,722	2,755	185	680	918
General secondary education	12.7	6,325	6,058	1,511	1,581	1,515	504
Primary teacher training	12.7	-	-	-	-	-	-
Technical secondary education	55.0	2,585	3,520	2,585	646	880	862
Medical technicians' training	20.0	60	280	240	15	70	80
Science faculties and higher technical colleges	65.0	65	1,495	975	16	374	325
Medicine	65.0	-	-	-	-	-	-
Other faculties	23.0	276	782	414	69	195	138
Total	...	14,249	16,761	9,045	3,562	4,190	3,015
Other new investments	...	2,137	2,514	3,000	534	628	1,000
Replacement expenditure	...	3,277	3,855	2,409	819	964	803
Total capital expenditure on education	...	19,663	23,130	14,454	4,915	5,782	4,818

TABLE 73: TOTAL EXPENDITURE ON EDUCATION

(In thousands of millions of pesetas)

	Current Expend-iture	Capital expend-iture (1)	Total Expend-iture	% of Gross National Product (2)	Annual % rate of increase in total expend-iture
1962	12.5	1.5	14.0	1.8	20.2
1967	30.2	4.9	35.1	3.3	9.7
1971	45.1	5.8	50.9	3.9	6.7
1975	61.1	4.8	65.9	4.0	

(1) For 1962 only the investments included in the budget of the Ministry of National Education are shown. For subsequent years the yearly average which corresponds to the period in which the year in question is included is shown. For 1975 the average has been taken from the period 1972-1975.

(2) The figure for GNP on which these percentages are based has been taken from the Economic Development Plan 1964-1967 which became available at the end of the work on the present report. According to the Plan, GNP in 1962 amounted to 775,800 millions of pesetas (see Plan de Desarollo economico anos 1964 a 1967, Commissaria del Plan de Desarollo Economico, Madrid, 1963, page 35). For the other years a growth-rate of 6 per cent has been assumed throughout this report.

The amounts set aside for education in the Development Plan prove that the State is conscious of the necessity of giving priority to education. We must point out once more, however, that first-class buildings and installations will be of no use if there is not a sufficient number of qualified teachers. Therefore an increase in current expenditure per student is indispensable. If the financial possibilities did not fully allow this expenditure, we should favour current expenditure rather than investment, trying to make the best use of present and future capacity to avoid wasting scarce resources.