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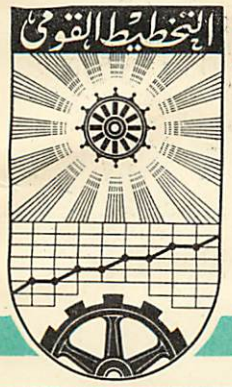

معهد التخطيط القومى

Memo. No. 575

ASSESSING THE EDUCATIONAL NEEDS

by

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3. June 1965

القاهرة
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ASSESSING THE EDUCATIONAL NEEDS*

The concept "need" has no meaning except in relation to goals or objectives, and this is no less true of education than of any other category of needs. Neither for an individual nor for a society is it possible to specify what amounts and kinds of education are "desirable" or "necessary" until the relevant individual or social objectives are identified. Once the goals with respect to which education is relevant are specified, it becomes meaningful to inquire to what extent they can be achieved through education, and a basis is provided for judging the magnitude and character of the educational effort necessary for their attainment. Even assuming that the goals can be precisely set forth, however, they frequently cannot be translated into unambiguous educational requirements, for the relation between means and ends is often not clear, or, even it clear, not quantifiable.

While all this is fairly obvious, it nevertheless needs to be said, for it should dispel much of the controversy that discussions of educational planning have generated. For instance, since both the individual and social goals to which education may contribute are diverse, it follows that no single set of criteria for ascertaining educational needs is adequate. If an individual wishes to become a physician, the amount and the kinds of education he must acquire are, in most countries, reasonably clear. But if he should also wish to be a successful spouse and parent, a knowledgeable and responsible citizen, and a psychologically self sufficient person who has developed to their fullest potential his uniquely human faculties, his educational needs are both greater than and different from those that are dictated solely by his vocational aspirations.

What is true of an individual is equally true of a society. One dimension of a society's need for education is vocational, using that term in its broadest sense: providing the work force with the knowledge and the skills necessary to man the productive processes of the economy. Another is political: assuring the level of enlightenment required for effective and responsible citizenship. (Note here the role of values and of the political character of the society. What were the "educational needs" of Nazi Germany, as contrasted with those of the United Kingdom or of Sweden?) Still another is the sociological dimension: promoting internal stability and harmony within and among the various socio-economic groups of the society.

It is tempting, but I think erroneous, to regard educational needs that stem from vocational considerations as being the only ones that are relevant to the economic objectives of the society, e.g., economic development or economic growth. The error lies in ignoring the ways in which education can contribute to economic growth that have no direct bearing on the technical productive capabilities of the work force. For example, in the case of many

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*From: Edicational Planning by Herbert S. Parnes and edited by Don Adams, 1964.

underdeveloped economies, the barriers to industrialization that are created by pre-scientific attitudes and ideologies suggest that education (of the proper kind) can contribute to development merely by introducing the mass of the population to the age of science. Nor is it necessary to focus on underdeveloped societies to support the point. It is no less true in economically advanced countries that education can stimulate economic growth in ways other that by making the labor force more proficient. In a democratic society, education may be necessary to allow the electorate to understand and to support policy measures conducive to economic growth.

For instance, it seems clear to me that one of the factors that has inhibited a more rapid rate of economic growth in the United States in recent years has been the tenacity with which a large segment of the American electorate clings to 19th century notions of government fiscal responsibility. If the educational system at the secondary and university levels were more effective in introducing the American public to the essentials of the Keynesian revolution, who is to say what the consequences might be for promoting economic stability and for affording larger measures of economic growth? Or again, considering the race problem in the United States, who is to say what contribution to economic growth might result from an educational program that would operate to eliminate or reduce attitudes of racial discrimination and thus to unlock the manpower potential that exists in the American Negro?

Thus, it is impossible to differentiate sharply between the economic and the "cultural" implications of education, for the two are intertwined in such subtle ways that they cannot logically be separated. Moreover, even if this were not true, it would be sterile to debate whether educational needs are to be ascertained on the basis of the manpower requirements of the economy or on the basis of broader social and cultural objectives. Like man, societies do not live by bread alone. But this admission need not blind us to the fact that bread is nonetheless essential to survival. Educational needs cannot be evaluated except in the light of all the individual and social purposes which education does, or may, serve.

The foregoing discussion also serves to emphasize that educational needs cannot be ascertained with precision, regardless of the methods and even where there is perfect agreement on the relevant goals. This is true when the "needs" are expressed as "outputs" of the educational system, (i.e., a certain number of graduates of each level and branch of the educational system), and the more so when they are expressed as "inputs" (i.e., numbers of teachers and classrooms; amounts of equipment, etc.). In the first case, the reason is that there is frequently no way of identifying and quantifying the education that will be necessary to the achievement of an indicated goal, in the second case, there is the additional difficulty that different educational technologies may produce equivalent educational results with quite different inputs and costs. "Needed" investment in education, therefore, depends upon what technology is assumed (e.g. closed circuit television versus traditional instruction, etc.)

Some Basic Axioms:

Before embarking on an examination of several approaches to assessing a society's educational requirements, I should like to set forth several propositions which appear to me to be axiomatic and which underlie any rational system of educational planning:

1. There is some sense, as the foregoing discussion has indicated, in which it is meaningful to talk about a society's needs for education as distinct from the needs or wishes or desires of the particular individuals who comprise that society.

2. To say that education is essential for the achievement of certain individual and social goals is by no means equivalent to stating that education in and of itself automatically produces the desired ends. Education may by a necessary condition without being a sufficient condition for the desired objectives. While this is true with respect to all of the purposes that education serves, it is especially so with respect to economic development and growth. The notion that scientists, engineers, and skilled construction workers can alone cause steel mills to spring into existence is no less naive than the notion that a steel industry can be developed and operated without such personnel.

3. Educational needs are relative not only to goals, but also to costs. To the extent that, for economic, social, or political reasons a country is committed to the elimination of illiteracy in the shortest possible time, a quantifiable "need" for education can be established. Or, if economic plans call for a stock of manpower with specified educational qualifications, again there is a basis for ascertaining a "need" for education. But in either case, once this "need" is quantified and its cost implications are assessed, it may be decided that the initial goals were unrealistic and that sights must be adjusted downward. In other words, the only meaningful sense in which a country can ascertain its educational requirements is to establish certain targets for social and economic development and to see what these necessitate in the way of education. Whether the resulting plan will be implemented is purely a policy decision; but the policy decision cannot intelligently be made in the absence of such an analysis.

4. Educational needs cannot be ascertained in quantitative terms alone. Irrespective of the objectives, it is clearly meaningless to attempt to analyze their educational requirements solely in terms of the number of years of education that they imply without considering both the content of the education and the methods by which and circumstances under which it is imparted. This is so for two reasons. In the first place, the real inputs, and consequently the financial costs, obviously depend upon such factors as classroom-pupil ratios, teacher-pupil ratios, level of teacher preparation, amount and quality of laboratory equipment, libraries, teaching aids, etc. But secondly, and even more important, the desired

"output" of the system is not merely a certain number of bodies who have spent various periods of time in schools, but numbers of persons with specified attitudes and levels and kinds of skills and knowledge. Whatever the goal for which the educational requirements are being assessed, it is almost certain that education can either promote or inhibit its attainment, depending on the character and the quality of the education.

5. The formal educational system is only one of the media of education in the sense in which that term is used here; hence, if educational planning is conceived to refer only to the formal system of primary, secondary, and university education, it must be recognized that some of the "needs" can and will be met by other institutions or processes. This is most obvious in the case of requirements for vocational preparation, where military training, apprenticeship arrangements, on-the-job training, correspondence courses, and simple work experience may substitute in varying degrees for formal education. But it is no less true in the case of education for non-vocational purposes, in which case education in the home and in the church, as well as "self education" are always a part of the total educational process.

APPROACHES TO THE ASSESSMENT OF EDUCATIONAL NEEDS

If one were charged with the responsibility of developing a national educational plan to be recommended to policy makers for implementation, how should he go about drawing up his proposals? What kinds of criteria are to be used for ascertaining the educational "needs" of the society, and how are these criteria to be translated into specific recommendations for the level and structure of expenditure on the educational system? This section of the paper will examine a number of approaches to this question that have either been used or suggested for purposes of educational planning. Special attention will be focused on two of these: the "manpower approach" and the "cultural approach".

Social Demand

Perhaps the simplest basis for decisions with respect to what is "needed" in the way of educational personnel and plant and equipment is to anticipate the "demand" for education - i.e. the number of students who will wish to enroll in the various levels and branches of the educational system. For the period of schooling which is compulsory, this involves only demographic projections, by age. For the non-compulsory component of the system, it involves, in addition, estimates of the proportions of the several age groups that are likely to choose to attend the various levels and branches of the educational system, based on past trends, anticipated economic and cultural changes, the income elasticity of demand for education, etc.

While much of current educational planning, particularly in advanced countries, is doubtless of this kind, it clearly does not provide a basis

for ascertaining the social "need" for education as that concept has been developed above. Rather, it equates forecasts of the aggregate of individually perceived private "needs" with the social requirements. That there is no necessary equivalence between these two measures is demonstrated by the widespread prescription of compulsory periods of education.

Moreover, this approach fails to recognize that the "demand" for education is not autonomous, but depends on government's educational policies. Thus, the "social demand" approach provides no basis for deciding what the minimum school-leaving-age should be. Moreover, the number of youngsters who will "choose" to continue beyond the compulsory stage is obviously not independent of the costs of (or inducements to) doing so. The "demand" for places in universities, for example, will depend upon tuition fees, availability of scholarships, subsistence allowances, etc., all of which are, or at least can be matters of government policy. There is, in other words, a fatal circularity in this approach: demand for places is used to calculate "needs" for education; but society's "needs" for education determine policy which conditions demand for places.

But, while they cannot qualify as measures of a society's educational requirements, estimates of social demand are by no means irrelevant to sound educational planning. For one thing, there is, at least in a democracy, a political dimension of "need," and elected representatives may not dare to resist strong pressures for various kinds of education even if they regard such pressures to be ill-advised. Secondly, estimates of "social demand" are indispensable for ascertaining whether the society's needs, ascertained on other grounds, can be fulfilled within the existing context of inducements and private costs. The mere provision of educational personnel and facilities does not automatically guarantee that they will be used. Thus, if it is decided that the society's goals require enrollments of x thousand students in the physical sciences at the university level, while "social demand" for places in these curricula amounts to only x-n thousand, policies must be developed (reduced tuition, scholarships, subsistence allowances, etc.) that will raise social demand by n thousand.

Returns to Education

One method of ascertaining whether a society is making the "proper" investment in education is by calculating the rate of return to this type of investment and comparing it with the returns on other types. By a line of reasoning that is familiar to economists, a higher return on educational than on alternative types of investment is an indication of underinvestment in education. The optimum situation is one in which rates of return, at the margin, are equalized for all types of investment.

The technique used for measuring the return to education generally involves comparison of the lifetime earnings of persons with various educational attainments (e.g., high school graduates versus college graduates) and expressing the difference as an annual percentage rate of return on the costs

involved in obtaining the additional education (e.g., costs of college education). This type of calculation can be used to ascertain whether the education in question is financially worthwhile to an individual or, if all relevant costs are considered, whether it is (or more accurately, has been) a "sound" investment from the standpoint of the total economy. Most studies for the United States, incidentally, have answered this question affirmatively, by indicating impressively high rates of return.

Although the "returns to education" approach has a certain elemental appeal - perhaps because it appears to measure the social yield of education in terms of a single figure - it suffers from a number of conceptual and practical difficulties that severely limit its usefulness as a guide to policy. While space does not permit an examination of all of these, some of the more important ones may be mentioned.

In the first place, this approach does not (and, indeed, does not purport to) measure the non-economic benefits of education to society. Secondly, it does not even measure the economic benefits that are not reflected in differential earnings between the "less-well" and the "more-well" educated. For instance, any contribution that education may have made toward better popular understanding of the causes of depression and willingness to support policies that prevent depression - thus raising real income - is not measured. Third, the approach assumes that average differences in income among groups with different amounts of education are attributable solely to the differences in education, ignoring the intercorrelations between education and other factors (e.g., social class, intelligence, ambition, etc.) that may be expexted to have independent effects on income. And finally, the whole rationale of the approach rests on the assumption, which is at least questionable, that differentials in earnings reflect differences in contributions to the social product. Aside from these conceptual and theoretical problems, the "returns to education" approach, at least to the extent that it has thus far been developed, provides no guides to the kinds of education (as distinguished from the levels) on which expenditure would be most productive.

Econometric Models

Attempts have been made to express in terms of mathematical models the relationship between target rates of economic growth and educational requirements. Professor Jan Tinbergen and his associates at the Netherlands Economic Institute developed a model of the input-output type designed to shed light on "what structure of the educational system is needed for the economy to grow at a given rate, and how does it change with that growth rate?" The model used coefficients derived from United States experience and postulated proportional relationships between the volume of production on the one hand and the number of persons in the labor force with secondary and higher educations on the other. The original Correa-Tinbergen model has been refined, and experimental applications have been made to data for Spain, Turkey, and Greece. Also, it has been subjected to critical evaluation by a group of experts in the Study Group in the Economics of Education, sponsored by the Directorate for Scientific Affairs of the OECD.

In my opinion, the chief limitation of the model is its basic assumption that the correlation between the educational structure of the labor force in the United States and the volume of output means that the former is a necessary condition for the latter. It may well be that the casual relationship, at least in part, is the reverse of the one postulated. Moreover, aside from differentiating levels of education, the model says nothing about the appropriate structure in terms of types of education. Finally, the Correa-Tinbergen approach does not concern itself -and, of course, does not purport to) with any of the non-economic criteria for assessing educational needs.

On the other hand, one of the most attractive features of the approach is that it automatically takes into account the time lags necessary to build up graduations from a given level of the educational system (e.g., it links a an expansion of university enrollments with the necessary antecedent build-up in enrollments at the secondary level). Also, it permits the requirements for teachers to be calculated simultaneously with enrollments at the various levels, and thus avoids the circularity problem encountered in other approaches (e.g., "required" enrollments determine required number of teachers, which in turn affects required enrollments of the preceding period, etc). Whatever reservations one has about the general usefulness of the model, these particular features seem to me to be valuable regardless what approach is taken to calculating educational needs.

Manpower Requirements

The manpower approach to ascertaining needs for education simply recognizes that a nation with plans or aspirations for economic development cannot afford to slight the preparation of its human agents of production. The establishment of a new, large scale chemical industry, for example, is meaningless unless provision is also made for the scientists, engineers, managers, technicians, skilled workers, clerical staff, etc., necessary to operate it. Since one of the functions of an educational system is to provide the society's work force with the skills and "know how" required for productive activity, it follows that that system must be reasonably well geared to the production requirements of the economy. Moreover, because of the exceptionally long "lead time" involved in producing qualified manpower, it is the prospective requirement for manpower a decade or two in the future that must underlie current educational decisions.

The essence of this approach to educational planning, therefore, involves estimating the required additions to the labor force during the planning period (e.g., 15 years) of personnel with various occupational qualifications, and deciding, for each occupational category, what the appropriate educational qualifications are. This provides the basis for indicating the required "output" (graduations) during the planning period from the several levels and branches of the educational system, which in turn permit the calculation of required enrollments, teacher requirements, and needed educational plant and equipment.

All this, of course, is easier said than done. There is no neat set of formulae for making the required estimates, and at each step there is a variety of techniques that may be used, which space does not permit to be detailed here. Nevertheless, the several elements that are involved can be outlined as follows:

1. Prepare an inventory of manpower for the current year, differentiating between the employed and the unemployed, and cross-classifying the labor force by occupation and industry, by occupation and education, and by educational attainment and age. These data are important in that they provide the bases for the forecasts of both future requirements and future supplies of manpower by educational qualification.

2. Estimate the size of the labor force for the forecast year. This constitutes the total supply of manpower, i.e., sets the upper limit for the summation of specific manpower requirements. Estimates of "needs" in the various occupational categories cannot, in total, exceed the estimate of the total labour force; nor can they be substantially below this figure without implying large-scale unemployment.

3. Estimate total employment in each sector and branch of the economy for the forecast year, e.g., agriculture, mining, textile manufactureing, metal products, trade, transportation, etc. This requires, for each brach, a projected or target output level for the forecast year and an assumption concerning the rate of increase in productivity during the forecast period. Within each sector and branch of the economy. Allocate total employment for the forecast year among the various occupational categories, taking into account the effect of anticipated technological developments on occupational structure. Aggregating the requirements for each occupational category in all sectors and branches gives the total stock of manpower required for the forecast year classified by occupational category.

4. Convert the data on requirements by occupational category into data on requirements by educational qualifications, using as categories the several levels and branches of the educational system. This is necessary even if the occupational classification system has been prepared with a view to relating occupation to educational sualification, for very few occupational categories can be expected to be homogenous with respect to required educational qualification.

5. Compare the projected structure of the labor force by educational qualification with the existing structure. This gives the net increase in each of the educational qualification categories that must occur during the planning period.

6. Calculate replacement needs in each educational category resulting from deaths, retirements, net emigration, withdrawal from the labor force, etc. These, added to the required net increases ascertained above, indicate the total required output (number of graduates) from each level and branch of the educational system during the planning period.

7. Taking into consideration attrition rates, calculate the enrollments required in each level and branch of the educational system to produce the required number of graduates, phasing the enrollments realistically among the individual years of the planning period.

8. On the basis of required enrollments, calculate needs for additional teachers and educational facilities, thus providing the basis for estimating required current and capital expenditures on education.

The manpower approach to educational planning has encountered rather strenuous objections of two general types: one ideological and the other quite practical. Some persons have such a profound feeling that the "true" purpose of education is to contribute to an individual's personal development that they regard as almost immoral an approach to educational planning that is essentially economic in its orientation and that seems to use "society's need" for "human capital" as a basic criterion of how much and what kinds of education ought to be provided. On the other hand, there are those who profess no philosophical objection to the manpower approach, but who argue that the impossibility of making valid long term forecasts of manpower needs makes this approach dangerous; the more so because individual careers can be wrecked if yougsters and their families pay too much attention to faulty official forecasts.

With respect to the philosophical question, the first part of this paper should have made clear my own bias, which is that decisions with respect to how much and what kinds of education a society should have, should not - indeed must not - be made in terms of economic considerations alone. At the same time, however, it is clear that one of the functions of education is to adapt the human resources of a society to the requirements of its productive processes, and that, even from the point of view of the individual, the question of what the educated are to do when they complete their formal schooling cannot be neglected. Manpower considerations are thus only one basis, albeit an important one, for planning an educational system, and at least shed light on the appropriate structure of whatever educational effort may, on other grounds, be decided upon.

Granting the importance of manpower forecasts for the purpose of ascertaining needs for education, the more difficult question is whether such forecasts can be made with sufficient confidence that we are justified in basing educational plans upon them. The sceptics call attention to the large margins of error that are likely at virtually every stage of the forecasting process: the estimate of gross national product fifteen years in advance; the distribution thereof among the various sectors and branches of the economy; the estimation of future manpower structure within each of the branches; and the equation of occupations with required educational qualifications. Isn't it a dangerous declusion, they are inclined to ask, to pretend that we can answer questions like these with confidence? While it would be foolish to deny the difficulties and the risks involved in making long-term forecasts of manpower structure, there are nevertheless several considerations that, in my view, indicate that the effort is justifiable.

In the first place, so long as one grants that manpower considerations ought to influence educational decisions, then all such decisions, if they purport to be rational, involve manpower forecasts whether or not they are made explicit. That is to say, a decision to expand enrollments in the pure and applied sciences at the university level implies the belief that employment opportunities for science graduates are going to be expanding more rapidly than for the graduates of, say, colleges of law; or at least that the additional scientists are going to be somehow more useful to the economy than the alternative expansion that could have been planned in the output of lawyers. Otherwise, the decision does not make much sense. Thus, the question is not whether forecasts are to be made, but the extent to which they are going to be as systematic as possible and are going to be based on all of the evidence that can be marshalled.

The second point to be made concerning the manpower forecasts that underlie educational planning is that they do not, or at least should not, purport to be unconditional forecasts. That is, they are not so much predictions of what will happen in the manpower field as indications of what must happen if certain targets for economic growth are to be realized. In the context of educational planning, in other words, "manpower requirements" are not at all the same as the "demand for labor" as that concept is used by economists. Rather the idea of manpower requirements as used here relates to the functional (occupational) composition of employment that will be necessary if certain social and/or economic targets are to be achieved. The concept, in other words, is more a technological than an economic one.

With respect to some categories of manpower this concept is both easy to illustrate and to defend. In the case of medical personnel, for example, it is perfectly meaningful to ask how many doctors will be required if given standards of medical care are to be achieved. In education, the number of teachers required to teach a given number of students is also a meaningful question. Other examples relating to protective service occupations, government service personnel, etc., readily suggest themselves. Even in these cases, however, "requirements" cannot be quantified except in terms of certain assumptions about the organizational structure and about the technology that will be employed in the particular industry. For example, the number of teachers required will be affected by the extend to which educational television is used, the degree to which subprofessional clerical assistants are provided, etc. In the case of physicians, required numbers will be a function not only of the standard of medical care that is aimed for, but also of the particular division of duties between physicians on the one hand and supporting medical personnel (nurses, medical technicians, etc.) on the other.

In the case of those activities accounting for the large majority of jobs in an economy, targets for future production establish the criteria for assessing the volume and pattern of manpower requirements. There is, of course, no unique relation between output in an industry and either the total labor force or its occupational composition. The substitutability of

factors of production means that a given quantity of textiles can be produced either by utilizing a large number of workers operating hand looms in their homes or a smaller number of workers on power-driven looms in a factory. In the latter case, not only is the output per worker higher than in the former, but the functional composition of the worker force is also quite different. Loom-fixer, engineer, timekeeper, and personnel director are examples of new occupations that would probably not exist in the simpler organization of the productive process.

Thus, within limits, a given level of labor productivity in a branch of activity (output per man-hour), dictates the required technology and the manpower structure (at least in terms of broad categories). This seems to be the only meaningful sense in which one can speak about the shifts in manpower structure necessary to produce given rates of economic growth. Increases in output per worker (which are the principal source of improvement in per capita income) occur primarily as the result of changes in production techniques, and it is the latter that dictate the functional composition of the work force. It must be admitted that the foregoing can be regarded only as an hypothesis, but the similarities in broad occupational composition trends among countries as productivity rises lend it considerable support.

The final point that needs to be kept in mind in considering the possibility of making manpower forecasts is that such forecasts do not need to be extremely detailed in order to be useful for purposes of educational planning. It is doubtful that even the most confident of manpower forecasters would advocate an attempt to blueprint fifteen or twenty years in advance the number of persons required to be trained in every specific occupation. Even if the pattern of requirements could be predicted with that degree of precision, we simply do not know enough about the mobility of workers from occupation to occupation to permit the requisite supply forecasts. Fortunately, however, this degree of precision is not really necessary. At the lower end of the occupational hierarchy - in the semi-skilled, unskilled, and many of the service occupations - there is almost complete transferability among jobs, at least so far as educational qualification is concerned. These do not need to be differentiated at all. At higher levels, it is true that carpenters and electricians are not interchangeable, and even less so are chemists and economists. But merely differentiating among occupations requiring different amounts of education, and between those requiring general and those requiring scientific-technical preparations, would be of great value in guiding the allotment of educational expenditures among the several levels and branches of the educational system.

I do not mean to deny the importance of estimating future supplies and requirements in specific occupations when such estimates can be made with confidence. Clearly the greater detail in the forecasts, the more detailed can the educational planning be. Morever, in the case of some occupations, notably teachers, detailed estimates are indis pensable. The point is merely that the usefulness of the manpower approach does not depend upon the feasibility of making reliable detailed forecasts of occupational structure.

To summarize all of the foregoing, manpower forecasts of the kind that have been described are both necessary and possible for sound educational planning. They are only one guide, to be sure, but they are essential if the proper structuring of educational expenditure is to be achieved. Even admitting that the future distribution of manpower in an economy cannot be predicted with precision, it is nevertheless true that any action with respect to education implies that at least some guesses have been made as to the effect of economic development on the distribution of employment opportunities. Since this is so, it is clearly desirable that these guesses be made as systematically as possible, and in the light of all the relevant data.

"Cultural" Requirements

As has been seen, the manpower approach to assessing educational needs focuses exclusively on education's role in vocational preparation. How does one go about setting targets for educational development on the basis of all of the other social goals to which education is relevant? Although the term suffers from some ambiguity, I have used "cultural" requirements for education to refer to all of those requirements other than for vocational preparation.

The chief difficulty in the "cultural" approach lies in specifying the criteria in terms of which educational needs are to be defined and in deciding upon the amount and type of education "appropriate" or "necessary" for the achievement of each. In the manpower approach, one postulates a given rate and character of economic growth and asks what investment in education is necessary to achieve that growth objective. The cultural approach, on the other hand, stresses education as a social "investment" to which returns cannot be calculated in money terms - an investment in values that are either indispensable or highly desirable to the society, e.g., an informed citizenry, equality of opportunity, etc.

It follows, therefore, that short of educating everyone up to his capabilities (and even this is a far less objective standard than it appears to be), there is no way of specifying educational needs in any absolute sense. Society needs as much education as it is able and willing to pay for. The decision is inexorably a political one, and the best the planners can do is to indicate the cost implications of alternative policy choices: e.g., eight years of compulsory education, increasing enrollment rates from x to y percent in the 15 to 19 year age group, from a to b percent in the 20-24 year old age group, etc.

It may be that these comments overstate the differences in the extent to which manpower and cultural objectives can yield unique estimates of educational needs. It may be, for example, that the amount and type of education necessary to produce a "qualified" citizen is just as ascertainable as the amount and type of education necessary to produce a qualified engineer. But if this is so, there is certainly not the same concensus in the former case as in the latter. In any event, I confess that I am unable to conceive a set of operations in the cultural approach analagous to those that have been set forth above for the manpower approach.

None of this, of course, is meant to disparage the importance of the cul- al approach. And there are a number of types of analysis that can be use- in preparing an educational plan from this point of view. For instance, country can compare its own enrollment ratios with those of other countries for one reason or another it decides are acceptable models. A case might be made for the view that a given country "needs" no less education than the amount provided by the nation with comparable per capita income that provides the most. The average of a group of comparable nations also suggests itself as a possible target, particularly for a country that is currently well below that average. Or, in planning future needs, a country might wish to use as "model" a country (or group of countries) that currently enjoys a level of capital income equal to that which the planning country hopes or expects to achieve by the "target" date. In a country where there are significant regional differences in enrollment ratios and in quality of education, standards in the most advanced region may be taken as the target for the entire country.

It should be clear from what has been said that the manpower approach and the cultural approach are not alternative approaches for arriving at the same measurement, for the basic criteria of the two approaches are quite different. They are necessary complements in any attempt to define a country's needs for education. Nor does it make much sense to inquire what relative weights are to be attached to the results of the two approaches, for, as has been indicated, the cultural approach does not yield a single result that can be "mixed" in some proportion with the results of the manpower approach. Rather, it permits only the suggestion of a series of possibilities with their price tags attached, and recognizes that the selection among them must be a political one.

THE QUALITATIVE DIMENSION OF EDUCATIONAL NEEDS

Up to this point, educational needs have been discussed in purely quantitative terms - numbers of students to be educated and numbers of teachers to give instruction - without any reference to the quality of either the transmitters or the receivers, or, indeed, to the content of the education itself. It goes without saying that there is no need at all for education in the abstract, divorced from consideration of content.

Unfortunately, it is easier to accept this fairly obvious point in principle than it is to specify how it is to be made operational. The controversies that rage in all countries over educational policy, among laymen as well as educators, are testimony to the fact that men of good will can and do disagree the criteria of a good education. But the fact that there will inevitably differences of opinion ought not to discourage intensive evaluations from many different points of view as possible. Studies of educational systems other countries, evaluations of the domestic system by foreign observers, opinions and experiences of graduates of the various types of educational institutions, and the opinions of employers, teachers, and the trainers of teachers are all useful methods for arriving at judgments about the qualitative adequacy of existing educational programs.