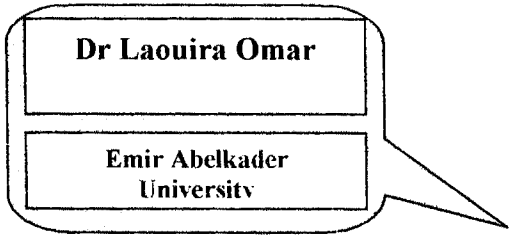
The methods and assumptions of manpower forecasting Used to forecast the demand for teachers .



ملخص

يقول فايزي إن المران و الخبرة والعمالة المدربة هي عوامل واضحة التأثير للنظام التربوي علي الأوضاع الاقتصادية للمجتمع. ولكي تتحكم الدولة في النمو الاقتصادي يجب عليها أن تربط مختلف الجوانب الاقتصادية باتجاهات التربية والتكوين وذلك لكي تحضر الإمكانيات المستقبلية للتوظيف. إن تخطيط احتياجات المجتمع من العمالة المؤهلة تعتبر أداة مناسبة لكي نقلل من عدم التوازن بين الطلب والعرض في العمالة المدربة.

من خلال هذا المقال سأتعرض إلي مسالة التخطيط لاحتياجات المجتمع من العمالة المدربة. و قمت في البداية بمناقشة الأفكار المسبقة التي استخدمت كأساس لتخطيط احتياجات العمالة في ابريطانيا والمشروعات الجهوية للبحر الأبيض المتوسط (M R P)

و ثانيا قمت باستعراض مختلف الطرق الاقتصادية المستخدمة في دراسة احتياجات العمالة وحدودها والصعوبات التي تعترض منفذيها. و أخيرا قمت بتوضيح تجربة ابريطانيا في ميدان التخطيط لاحتياجات العمالة و بشكل خاص دراسة الطلب والعرض لدى فئة المعلمين.

Introduction :

Vaizey (1972) argues that skills and manpower are the two obvious consequences of the education system that directely affect the economic system.(p106)(1)

In order to master the development of the economy, the government has to link the different economical aspects to the educational paterns by preparing projections of future employment levels.(O"Donoghue,1971,p 118)(2)

Manpower forcasting is assumed to be the appropriate tool for minimizing the imbalance between the demand and supply of manpower requirements.

In this essay which is tackling the question of "Manpower Forecasting Approach", I have the intention to discuss firstly, the assemptions that have been used as the basis for major farecasts in Britain

Definition and purpose of manpower forecasting:

Ahmed and Blaug (1971) in their introduction to " Practice for Manpower Forecasting" give an acceptable definition which says that :the point of making manpower forecasts, therfore ,is to ensure that new supplies of manpower become available at the same time that new demands materialize,in this way,manpower imbalance maybe eliminated or at least minimized." (p04)(3)

I understand from this definition that the aim of the manpower forecasting is to make a certain balance, as much as possible, between demand and supply of manpower in the society. Ahamed and Blaug (1973) argues that the growing interest in manpower forecasting in the1950 "s and 1960"s derived from three different factors :

1)The interest to link educational expansion to "manpower requirements" of a growing economy.

2) To entail a translation of target-setting of G N P to its individual components associated with different levels of output

3)Providing a rational basis of economical activities

They found that these three factors, even if they involve quite different considerations, they have discerned a common theme," namely, the belief that shortages and surplus of different types of manpower tend to persist side by side in all economy, whether planned or unplanned.Such imbalances are undesirable from the point of view of individuals. Since they suffer losses not only in earnings, but also in moral, status,wealth, and so on. These imbalances are also undesirable from the point of view of society since the growth of the economy may be restricted to shortages of particular kinds of manpower.Thus, the attempt

to eliminate imbalances by deliberate manpower planning can make a contribution both to individual and to social welfare"(Ahamed and Blaug,1973 p3)(4)

Paukert on his part argues that: the purpose of manpower forecasting is to facilitate the making of plans for matching the supply and demand for manpower.... If there had been accurate manpower forecasting in the past, the anomaly of "educated unemployed" in countries crying out for high-level manpower, with other qualifications might have been avoided ." (Paukert, quoted in O"Donoghue, 1971, p141) (5)

Assumptions of manpower forecasting:

It was reported in the Open University block II that " one of the most influencial advocates of manpower forecasting in the early 1960"s was Parnes, whose ideas were

put into practice by the O E C D in the Mediteranean Regional Project (M .R P).

Detailed forecasts were used as basis for estimating the number of additional places to be provided at each level of education, and the number of teachers,and the capital expenditure that would be necessary to produce the desired rate of increase in qualified manpower. I want to focus on the assumptions pointed out by Parnes :

1) the first asumption in manpower forecasting is the time-scale. Most of the advocates of manpower forecasting, including Parnes, recommend that for the purposes of educational planning, forecasts of manpower needs, should cover at least ten years, and if possible fifteen or twenty years. Such assumption was

M RP exercise, so they have covered fifteen years forecats.

Parnes recognizes that some accuratly and detail must be sacrificed when forecasts cover such a long periods, but he considers the sacrifice as inevitable, if we take in account the time needed to train high-level manpower.

The opponents of the "manpower-requirements approach" has questioned a lot the time- scale assamption. They point ont that forecasts become less reliable, the further ahead they try to look. There are a lot of problems of predicting technological change, therefore, the implications of errors are much more serious. If attempts are made to estimate the manpower structure in twenty years,rather than five.

The choice of time-scale assumption for manpower forecasts remains one of the most powerful sources of disagreement between advocates and opponents of the approach. (Open University block II P55)(6)

The second assumption concerned the stability of people's relative wages. Parnes realizes that to forecast, what he calls «future demand in the market sense », it would be necessary to analyse accupational wage-rates, and anticipate shifts in relative wage levels. This assumption, that relative wages can safely be ignored, is the one most often challenged by opponents of

manpower forecasting, who have more faith than Parnes, in the power of the market to eliminate shortages or surplus. Parnes believes that, « In no society is it believed that marked forces can be relied upon to govern the allocation of resources to education"(Open University, block II P 56)(7)

3- The third assumption is the relationship between the educational qualifications of workers and the output. All manpower forecasters, including Parnes, assume that there is a fixed relationship between the level of output in an industry, or a sector of the economy, and the input of qualified manpower. Parnes believes that the relation- ship between qualifications of workers and their level of output is stable, because,in turn, it is determined by two stable factors which are the labour productivity (or output per man) of workers doing different jobs, and the educational qualificaitons necessary for that job.

Considerable evidence exists, howerer, that the relationship between input of qualified manpower and the level of output is quite inconsistent. They have taken this assumption, either for an industry, or for the entire economy, as a postulate. If this were true, employers, could never substitute one type of labour for another or substitute machines for labour.

Blaug believes that the "pilot anology" is typical example for manpower forecasting because there is no room for substituting either capital nor labour.If there is no pilot the aircraft can not be flown. This analogy is frequently applied to scientific and technical manpower. Economists believe that a modern technically sophisticated economy "requires scientists or engineers just as the aircraft requires a pilot. This assumption has underlie the first long-term forecast for scientists ans engineers made by the Committee on Scientific Manpower in 1956. The assumption assert that the number of scientists and engineers employed in industry would increase at the same rate as the target growth of output (4 percent a year). In fact, output rose by 2.1 percent and employment of sceintists and engineers by 8.5 percent. This example shows clearly that the idea of a constant relationship between input of highly qualified manpower and output is not well founded. It suggests also that the substituability of different kinds of manpower is much greater than it is assumed in manpower forecasting. (Open University block II, P 61) (8)

4)The fourth assumption is dealing with the relationship between educational qualifications of workers and their jobs. Parnes points that there is no unique and rigid relationship between education and occupation, and gives a table showing the wide variations in length of schooling among people in the same occupational

category in different countries. Nevertheless, he assumes, for planning purposes, a close association between formal education and the skills used in a

particular occupation. Some evidence, however, reveal that the relationship between occupation and educaiton is much less rigid than most forecasts assume. Blaug discus

an interesting attempt in the USA, where the results of job analysis are available in the Department of Labour Publications, "estimate of workers trait requirements for 4.000 jobs ."Two attempts to translate these skills into years of formal education, and to compare them with the actual educational attainement of workers, revealed a fairly loose relationship between schooling and jobs skills.(Open University block II P 63)(9)

5)The significance of time-lags is refered by Blaug to the concept of" Cobweb-cycles" which is a device used by economists to describe the conditions in a market where time-lags are important. The time-lags in economy consist of the fact that when they are analysing the demand and supply of a commodity such as weath, or tea, where there is a year or more between a producer plants his crops, and the time of harvest. The gap means that although demand at any one time is determined by the current price of the commodity, the supply is determined by the price prevailing when the crop was planted. If a shortage pushes up the price, supplies may over- react and plant too much. In the following year the price will fall sharply because there is now an excess of supply. The same phenomena is happening in education. For some reason, equilibrium does not exit between demand for educated manpower and supply, at a particular wage or salary level.

The market for highly qualified manpower is subject to "cobweb-cycles"which implies that the time–lag between a decision to expand the supply of manpower and the tine when the new graduates are ready for employment is so long that changes in "price", or in earnings, may cause graduates or employers to over-react, so that shortages will turn out to be surpluses, and earnings will fluctuate without necessarily leading to equilibrium, or at any rate without doing so quickly.

Blaug cites an evidence from Arrow and Capron shows that in the USA in the 1950's a sharp rise in demand for scientists and engineers, combined with relative rigidity of supply, led in the short run to a shortage" which caused a rise in relative salaries. But time-lags and rigidities in the market were so significant that employers did not reduce demand sufficiently to eliminate the shortage. However, Arrow and Capron do not believe, and neither does Blaug, that this evidence invalidates their belief in the power of market forces. On the other hand, manpower forecasters argue that time-lags are so important that the market is powerless to eliminate shortages assisted by manpower planning and forecasts. Therefore, the basic disagreement is about whether forecasting is an

appropriate tool, and whether it is more efficient to try to restore equilibrium between supply and demand of manpower by forecasting, or by other means.

6) There is an assumption pointed out by Parnes which says that there is an interindependence of supply and demand. Parnes recognizes that « the number of workers employed at a given moment of time is a measure both of the supply and the demand ». (Quoted in Open University block II, P·61)(10)

However, by suggesting that the observed occupational and educational structure of the labour market can be used as a basis for forecasting, he implies that they reflect demand alone, in other words, he finds that supply and demand are independent of one another and the effect of supply can safely be ignored.

There is another similar assumption to the previous one which says that in the market for qualified manpower « supply creates its own demand ». Blaug desagree with both assumptions and refers them as a modern version of Say's Law. This « law of markets » is concerned with the fact that an increase in production will necessarily means an increase in payments to the factors of production (workers, capital, land). Say believes that in the long run, there can be no such thing as overproduction, since the level of demand is determined by purchasing power in the economy, which is it- self determined by the level of production (or supply). Say's Law refers to markets as a whole ; he did not deny that individual firms or industries could produce more than they could sell.

Blaug noted the logical inconsistency of asserting that :

- Supply and demand are interdependent and employers will react to an increase in supply by increasing their demand for qualified manpower.

-supply and demand are interdependent, and the existing manpower structure can be regarded as a true reflection of demand.

The attitude of Blaug is clearly summarized in the following quotation :"We may conclude, therefore, that the occupational or educational composition of the labour force in a country is always to some extent the outcome of both demand and supply forces. As a matter of fact, the tendency to up-grade the minimal hiring standards for particular jobs when the supply of labour becomes more favourable in one of the best-attested phenomena of the labour market and affords a typical instance of the interaction of supply and demand in creating a given skill mix. ". (Blaug, quoted in the Open University, block II P 61)(11)

METHODS OF MANPOWER FORECASTING:

In the Open University, they stated that there is no single method for estimating manpower demand or requirements, and the choice of method depends, on the answers to a number of questions such as does the forecast cover the whole range of qualified manpower, or specific occupations (doctors, teachers) and whether the forecast attempt to predict the future, or to analyse the implications of particular industries ?

We notice that there are many methods of manpower forecasting. The first to mention is the 'M R P' method for forecasting manpower requirements. This method was pioneered by Parnes in the OECD Mediterranean Regional Project. The aim of this method is to make simultaneous forecasts of manpower requirements in all occupations and then to translate these into educational requirements. Forecasts for the six countries of the MRP has been sammurizied by Blaug in four stages and O'Donoghue in five. Parnes describes the process in eight essential steps.

According to Open University block II the educational planning process of the MRP has involved eight stages after the targets for output per worker has been established.

1-Analysis of the current stock of manpower, classified by occupation and education.

2- Forecasts of the total labour force in the target year, and its sectoral and industrial distribution, based upon the target figures for output per worker.

3-Estimation of the occupational distribution of the labour force in each industry.

4-Convension of the required occupational structure into an estimates of the required educational structure, on the assumption of a fixed relationship between occupation and formal education.

5-Forecasts of additions to the stock of workers with each type of educational qualification, on the basis of data on the outflow from the education system, and retirements, death, migration ect;

6-Calculations of enrolement rates necessary to achieve the disired,increase in the stock of manpower.

7-Estimation of the necessary increase in teachers, buildings, equipments, etc.. implied by the enrolement targets.

8-Calcutation of the current and capital cast of the educational targets.(Open University Block II P 68/69) (12)

In the Open University, they argues that this outline is clear indication of what it needs to be done and not how it was actually done in the MRP countries. In this project, they have used different methods in making projections such as employer's estimates, extrapolation of trends, international comparisons (P 69).(13)

Hollister has emphasised the value of the MRP exercise, although his analysis suggests some fundamental weakness in the assumptions and methods of forecasting in particular the following points:

1)The concept of fixed input coefficients is shown to be misleading, and the analysis suggests that substitutability of manpower may be highly significant.

2)The idea that there is a regid relationship between occupation and education is "the weakest link" in the manpower requirements approach

3)Technological change is difficult to predict, but it is a very important variable, determining the occupational distribution of the labour force.

4)Single-valued forecasts which make no attempt to measure the effect of alternative assumptions may be misleading for educational policy which should be flexible to allow for uncertainties about the rate of technical progress and the link between formal education and skills of workers. (Open university Block II P 72)(14)

Ahamad and Blaug(1973) criticise the MRP method in their introduction of "Practice of Manpower Forecasting" in the following quotation: « The MRP method is also fairly expensive to apply because of the data requirements. Manpower data are required cross classified by occupation and by education and preferably for a number of time periods. Normally, such data are available only in census years at decennial intervals and hence are often quite out of date. In addition, the education, occupation and industry classification systems used have changed so much from one census to another that such data are not usually diretly comparable overtime. Data are also required for output and total employment by industry for a number of time periods. Input-output tables tend to provid more accurate projections of output and hence are preferable to simple estimates of real domestic product by industry. But input-output tables are expensive to compile and are usually available only for one time period, if at all. (Ahamad and Blaug ,1973, P16)(15)

The second method is the international comparisons. According to Ahamad and Blaug, this method consist of using data from a similar economy in a point in time when its stage of development was in some sense comparable to the current stage of the country concerned. The rational of this method is the notion that all economies will tend to follow a reasonably well definied development path, so that the experience of developed countries may provid useful planning indicators for developing countries. (P 19).(16)

Open University Block II stated that all international comparisons of the educational and occupational structure of the labour force, in relation to levels of out- put or output per worker in different countries, have shown very tittle correlation between occupational distribution and output. An OECD study of fifty-three countries found no clear relationship between the educational structure of the labour force and the level of economic development. (Open University Block II P 67/68).(17)

Ahamad and Blaug (1973) argues that it is possible to use the international comparison only in the case when we assume that at any point in time all countries are on the same aggregate production function, though, of course, they

are at different points on the function. They point out also that the comparison depends on some factors such as time lags in the application of the best practice techniques of production across countries, the age of the existing capital stock, intercountry differences in the composition of national output, capacity utilization and so on. (P19)(18)

Ahamed and Blaug (1973) draw attention also to the implicit assumption, within the international comparison approach, that the relationship between education and economic growth is uni-directional, that is education is a cause of economic growth.But, in fact, since education is also a result of economic growth, the resulting statistical estimates will tend to be biased. (P19)(19)

The third method concern the surveys of employer's opinions. In this method, the forecasts of manpower requirements may be obtained by simply asking existing employers what their manpower requirements will be at some time in the future. This method is sometimes used for obtaining forecasts of total employment, but more often it is limited to estimating requirements for employees with specific educational qualifications. It is worth noting that unless employers are asked to forecast their requirements at various wages, the forecasts cannot be interpreted as forecasts of man -power demand. (Ahamed and Blaug, 1973 P 19)(20)

Ahamed and Blaug (1973) pointed out the problems that faces this method. These problems include ensuring adequate coverage of all firms, minimizing non- response and biased responses, asking meaningful and properly worked questions, and so on. In the employer forecasting method, some of these become particularly important, for exemple, if employers are simply asked to predict their manpower « requirements », then we have no way of ensuring that they will make the same assumption about the future course of events, so their forecasts may be inconsistent. Even if we specified the asssumptions to be adopted about the growth rate in different industries, firms may nevertheless make inconsistent assumptions about their individuel shares in the market. Another problem is that we must decide how to weight the responses of the different firms in deriving the forecast of the total: some employers may base their forecasts on clearly specified development plans while others may base their forecasts on pure guess work. (Ahamad and Blaug, 1973, P 19/20).(21)

Open University block II reported the difficulty encountered when using the employer's forecast pointed out by Peacock in 1964 in a discussion of Scientific Manpower Forecasting. He gives an example of the problem of securing internal consistency of forecasts based on employer's estimates ; he said that one can easily imagine a forecast of output and employment in steel manufacture that does not correspond with the total input of steel assumed by the manufactures of cars, domestic appliances and other steel users (P66)(22)

It is mainly because of all these problems that the employer's forecasting method has not in fact proved to be a popular way of estimating future manpower requirements. We quote here the conclusion of the Chairman of the Scientific Commitee who told the Robbins Committee « one of the best least reliable ways for finding out what industry wants is to go and ask industry".(quoted in Open University Block II p 66)(23)

The last method to mention here is the forecasting manpower requirements for specialized occupations. Ahamad and Blaug(1973) argue that separate forecasts are often made for specialized occupations which are closely linked to specific types of education and training, because there is the difficulty of translating multi-occupation forecasts of occupational requirements into educational requirements. This method is usually used in the case for highy qualified manpower for which a university degree or a similar qualification is generally considered to be essential; scientists, teachers and doctors are among the occupations for which separate forecasts are often made.

Open University Block II stated the discussion by Blaug of this type of forecast while he calls the « density ratio ». This method is based on the ratio between a particular type of manpower (often scientists or engineers) and the labour force, or between one type of manpower and another (for example, engineers and technicians). They argue about this method that even if we assume that two categories of manpower will move in step, it does not make forecasting any easier, but it does prevent any consideration of a change in the salaries of one group in relation to the other, or the question of substitutability between the two groups. (P67)(24)

Open University Block II make a more general discription of this type of forecast particularly the one that focus on the ratio between one type of manpower and a particular population parameter. The parameter may be the total labour force, or it may be the entire population, or the school population. (P 67)(25)

This later method is considered as the variant of the « labour-output ratio » or « physical norms » method. It consist of using the basic fix-coefficients method in which separate projections are made for the manpower input per unit of output and the level of output. (Ahamad and Blaug, 1973 P 17)(26)

Ahamad and Blaug (1973) argue that the problem with this approach is to obtain a satisfactory measure of output.

In the case of scientists and engineers, output is measured in terms of value added, but in the case of doctors and teachers, this method can not be used, since medical and educational service are rarely sold on a purely commercial basis (P17)(27)

British experience in forecasting the demand for teachers:

Open university block II draws attention to the importance of forecasting the demand for teachers, even if the policy-makers abandoned other types of manpower forecasting. They argue that it would be beneficial to persevere in studying the area of demand and supply of teachers because the government and the L E A's are to- gether responsible for the demand (through their statutory obligation to provid educational facilities) and the supply (through control of the number of student places in higher education) and also price (through the administration of national scales for teachers)

It is assumed that the forecasting of school-teacher is much more simple than other categories of manpower because teachers forecasts do not depend on unknown factors such as the sectoral and industrial distribution of output, but it depends heavely on population projections and policy decisions about staffing norms or pupil-teacher ratios.

Moser and Layard affirm in 1964 when they were writing about problems of manpower forecasting that « apart from uncertainties about future birth rates, it is comparatively easy to forecast the number of school teachers needed to achieve certain targets for class sizes in the schools »(quoted in Open University block II P 80).(28) But, in fact when we look at the record of teacher forecasting in Britain and elsewhere, we found that there are a lot of problems within this area of forecasting.

In 1970, Ahamad has done a review of all the forecasts prepared by the National Advisory Council on the training and supply of teachers since 1956 that show them to be no more accurate and useful for policy purposes than anyother manpower forecasts. (Open University block II P 80).(29)

The experience of Britain in forecasting the demand for teachers was highlighted by the study of the National Advisory Council on the training and supply of teachers which was set up in the late 1940's by the Ministry of Education to advise him on the training, recruitement and distribution of teachers in England and Wales. Most of the work of the Council was concerned with forecasting the future demand and supply of teachers in mentained schools. They made separate projections of supply and defined as shortage as the gap between demand and supply. (Ahamad, 1973 P 81).(30) Ahamad(1973) reported that the demand for teachers was defined by the Council as the number of teachers required to achieve the aims of staffing policy and was expressed in terms of desired pupil-teacher ratio, rather than demand in the economic sense(P 218).(31)

Open University block II affirm that the main objective of policy of the Council was the elimination of over-size classes (defined as 40 for junior pupils, 30 for seniors). Then, they have chosen an average pupil-teacher ratio which was assumed would achieve their objective of eliminating the over-size

classes. The tacit assumption behind that was when the supply of teachers rose, the size of all classes (including over-size ones) would fall at the same rate as the average ones.

It was argued in the Open University Block II that this assumption did not take account of the problem of the distribution of teachers, and proved to be mistaken. Ahamad (1973) argues from his point of view that « a decrease in the pupil teacher ratio will not necessarily lead to a reduction in the average size of class or in the proportion of over-size calsses. If the pupil-teacher ratio falls, any extra teachers who become available may be used to increase the number of remedial classes, or to broaden the rang of subjects taught, or in pursuing educational objectives other than the elimination of over-size classes ». (P281/82).(32)

In 1969 the DES admitted that in primary schools the proportion of over-size classes had fallen more sharply than would be predicted on this assumption, but in secondary schools the reverse was true. The DES argues in recent publication that: « there is no exact relationship between pupil-teacher ratio and class size, as the latter is influenced by a number of factors other than the number of teachers available ». (Open University block II P 80)(33)

It was pointed out in the Open University block II the kind of problems which face the forecasting of teachers requirements. Among these problems the predictability of the size of the school population which was examined by Gordon and Williams. In order to minimize the errors of prediction. The Council has adopted the "best estimate" projection of the Government Actuary, although the use of alternative projections would have increased or lowered the projection demand for teachers in 1976 by 10.000.

The conclusion drawn up in the Open University block II is that errors in forecasting births, caused by mistaken assumptions about fertility and migration, were translated immediately into errors in forecasting demand for teachers.

There is also the underestimation of the proportion of the pupils staying at school after the school-leaving age which implies that by 1968 underestimation of the size of the school population alone would have caused a 15 pen cent error in the demand forecasts made in 1956. (Open University block II P 81)(34)

Ahamad (1973) draws attention to the problems found in forecasting supply of teachers. The forecasts were obtained by estimating annual changes in employment through recruitment and wastage (that is, loss through mortality, retirement and occupational mobility). The main difficulty lies in predicting wastage, and in practice wastage has proved to be consistently higher than the Council's assumptions. (Ahamad 1973 P 282 and Open University block II P 81).(35)

It was stated in the Open Universty block II that the Council has taken two recommendations. The first one is that teacher-training in colleges should be increased from two to three years in 1960. The change was intoduced at the very time when it was becoming apparent that the Council had underestimated the number of pupils. Therefore, the Council's recommendation resulted in a greater shortage of teachers.

The second recommendation of the Council was to increase the intake of students for teacher-training after 1966, because of its forecasts of a shortage. In practice the intake of the colleges of education exceeded these recommmendations, so that the supply forecasts proved very inaccurate.

It was agrued in the Open University block II that the Council's recommendations for policy were based on its own single-valued forecasts, and making no allowance for alternative assumptions.

Lastely, we come to the assessement of the forecasts. The effect of the Council's recommendations on supply of teachers illustrates one of the main problems of assessing the accuracy of teacher forecasts.

The assumptions about the recruitement and wastage taken by the Council as they will remain roughly constant, Ahamad argues that, in practice, they have turn out to be disastrously wrong, because recruitment has increased enormously maily after the later recommendations by the Council to expand the intake of the colleges of education.

It was argued in the Open University block II that in this latter example, the forecast of shortage was intended to be self-negating, in deduction, they argue that it is difficult to test accuracy of any forecast of a shortage if it is used as a basis for recommending a change in supply for illuminating that shortage. (Open University block II, P 81)(36)

Ahamad (1973) pointed out the sensitivity of the forecasts to changed assumptions. It was argued that the Council was well aware of the limitations of its forecasts but still choose them, and make its recommendatrons on their basis. In the Open University block II, they give a few cases to show how sensitive the forecasts are to slight changes in the assumptions. For example, a small change in the average pupil teacher-ratio in 1960 from 27.0 to 26.5 would increased the demand for teachers by 3.000. Allowance of a margin of error of 15 percent in the forecast for 1968 would have implied a shortage of up to 30.000 instead of the predicted balance between demand and supply. (Open University block II P 82). (37)

The Department of Educationd and Science, after taking the role of the Council, has introduced two alternative projections based on estimates of the school population and alternative assumptions about wastage. The purpose of that is to modify what Ahamad calls the « false impression » of high statistical

reliability and also the uncertainties and the need for flexibility in planning are much more explicitly recognized.

Open University block II draws attention to the effect of the forecasts on uncertainty. It was argued that is it worthwhile to do projections of teacher's demand when we know already the large errors involved in that forecast ?. In answring the question Ahamed (1973) compares the projections errors of one of the forecasts with the error that would have resulted if no forecast had been made at all, but it was assumed that population and therefore demand for teachers would remain constant. The result was that for the first eight years the forecast produced better estimates than this assumption, but thereafter the projection errors turn out to be similar in magnitude. Therefore, Ahamad (1973) draws up a deduction that « As the length of the projection period increased, the forecasting errors increased so much that the errors became as large as would have been obtained if no forecast had been made. (P 271)(38)

Conclusion:

I realize that the conclusion which we have to draw up from this essay is whether the «Approach of Manpower Forecasting » is a suitable method to use for the purpose of decision-making in educational policy. In fact, if we refer to the opinions of economists of education, we find that some of them (O'donoghue, Holister, Debeauvais) claiming that manpower projections are still in a stage of infancy. On the other hand, some of them believe in the usefulness of the manpower forecasting. For example, Vaizey (1971) said that "forecasting is necessary and must be done ; if growth is not to be held back by shortages of skill, yet to assume that the market must be ignored is to be uneconomic. » (Quoted in O'donoghue, P 42)(39)

Ahamad (1971) believes that it is utopain ideal to reduce the uncertainty of forecasting to zero. This means that forecasting is an extremely difficult task to tackle, therefore, it is useful to develop a butter method of forecasting that will help to minimise the effect of errors in the forecasts.

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