

Chapter VII

COMPARISON OF LABOUR SUPPLY AND DEMAND

Supply and demand projections have hitherto been considered separately. This treatment was unavoidable because the techniques used in each case are very different. The resulting projections do, however, make it possible to compare supply and demand. This process is essential in order to determine whether the country will have full employment, a labour shortage or a serious unemployment crisis in future years. The aims of national economic policy may therefore be called into question if the estimates of future labour supply and demand indicate an adverse trend in the employment situation. If the comparison can be made in such a detailed fashion as to permit confrontation of, for example, requirements and available resources for the major occupational groups, it may form the basis for the formulation of employment and education policies which are in keeping with the country's economic development needs.

The comparison of labour supply and demand projections is, indeed, the principal purpose of projecting employment, but it raises complex technical problems. The difficulties arise from three sources:

1. The concept of labour supply relates to the economically active population, i.e. all persons already in employment or wishing to be employed; the labour demand projection relates to the number of job opportunities offered by the economy;

2. The methods used to project the two concepts are very different, as has been explained in Parts One and Two of the manual. Moreover, for both supply and demand, several methods may be used. The results are not necessarily consistent: labour supply, for example, may be calculated by extrapolation, whereas labour demand may have been estimated normatively;

3. As demonstrated earlier, in the present state of our statistical knowledge and our methods, much uncertainty prevails as to the quality of the projections. Comparison of anticipated supply and demand means dealing with two uncertain quantities.

The comparisons must therefore be made very carefully. A detailed account is given below of this process; it must be applied at two levels: aggregate employment and employment by occupation.

A. COMPARISON OF PROJECTIONS OF AGGREGATE SUPPLY AND DEMAND

The comparisons can take two forms, depending on the method of estimation chosen:

- (a) The figure for the economically active population, as estimated for the final year of the projection, is compared with the figure for the employment opportunities to be offered by the economy on that same date. The difference between the two data provides a theoretical estimate of unemployment prospects;

- (b) A more refined method, which is explained in chapters III and VI, projects supply by estimating entries into the economically active population between the base year and the final year of the projection. The movement of demand, in this case, is expressed by the evolution of the labour recruitment requirements of the economy between those two dates. These recruitment requirements are the mathematical sum of requirements due to economic growth and those associated with replacements of the economically active population by reason of deaths, retirements and all other forms of separation from the labour force during the period in question. In this method, the difference between supply and demand measures unemployment changes in relation to the observed figure for the number of unemployed in the base year.

The choice between these two methods of presentation depends on the statistics available, particularly those on the age distribution of employed workers at the time when the projections are made. If no accurate data exist, the second method cannot be used.

Whichever form of presentation is adopted, the same problems arise in comparing the results. In theory, the interpretation of the supply-demand difference should be a simple matter: if supply is higher than demand, the remainder represents anticipated unemployment. This estimate of unemployment is a very vulnerable one, however, given the uncertainty inherent in the projections of both supply and demand. In estimates obtained by subtraction, errors occurring in the two quantities may well be cumulative, and this procedure can therefore not yield an exact figure for future unemployment. For such an arithmetical remainder to be interpreted, it must be a large one, and the margin

to be regarded as significant will vary according to the quality of the estimation of future trends in supply and demand.

The difference, or remainder, once it has been calculated, must be subjected to detailed analysis. If it indicates excess labour demand, it means that the development projects contemplated are over-ambitious and cannot be implemented — at any rate with only the country's own economically active population. If the difference represents excess supply, it may be a warning of considerable unemployment in future years. Generally speaking, if the labour supply does not exceed demand by more than 3 per cent, the situation in most countries is one of frictional unemployment, which is commonly regarded as normal. If the difference is a larger one, there are real prospects of serious unemployment in future years. When the estimates involve both supply and demand changes and changes in unemployment, the interpretation of the remainder becomes even more difficult.

The analysis of the difference between projected labour supply and demand cannot be confined to a simple comparison of results. More detailed study is required of the methods by which supply and demand were calculated before the difference can be interpreted.

The first step is to check that the estimates are consistent with each other from the point of view of the approach adopted. A figure for labour supply calculated on the assumption that the activity rates of the population will be very high, because the country intends to make rapid economic progress, cannot be collated with a demand estimate based solely on an extrapolation of past trends, if the past economic development of the country has been slow. The basic assumptions must be the same in the two calculations. In particular, both projections must either be a simple extrapolation of trends, or be of a normative character.

The second phase of the detailed analysis concerns migration. Interpretation of the gap between supply and demand necessarily implies consideration of the possible existence of migratory movements whether desirable or unwelcome. Regardless of whether immigration or emigration seems probable, or is planned with a view to solving the problem of balanced employment, a quantified estimate of migration movements must be made and the figure added to the economically active population, in the case of immigration, or subtracted from it, in the case of emigration.

Lastly, there is yet another point to be studied: changes in the labour supply and in the employed labour force do not occur in isolation. A rapid rise in labour demand usually brings about higher activity rates among the marginal segments of the economically active population, particularly women. Economic crisis, on the other hand, is reflected not only in rising unemployment but in a fall in the activity rates of the same marginal groups of the economically active population. These phenomena have been observed frequently in developed countries. If the difference between projected supply and projected demand is a large one, the way in which the sex-age specific activity rates were estimated

will have to be re-examined. If demand exceeds supply, for example, it may well be that the labour supply projections are in fact too low because future female activity rates have been set at too low a level. The reverse can also be true. The required correction is difficult to make, because little exact statistical information is available on the subject.¹

In developing countries, the traditional sector of the economy, and subsistence agriculture in particular, is still very large; even greater caution must be exercised in comparing supply and demand projections. A comparison of total labour supply with the economy's total labour demand is virtually meaningless. A very clear distinction must be made between agricultural employment and non-agricultural employment. Genuine unemployment phenomena occur only among those of the population seeking non-agricultural jobs. In agriculture there is no unemployment in the usual sense, only seasonal or permanent underemployment of varying degrees of intensity.

Accordingly, an estimate must be made of demand and supply for non-agricultural occupations. This is a simple process in the case of labour demand, where the distinction is easy to make. For supply, however, a new concept has to be introduced: that of members of the economically active population seeking non-agricultural employment. This segment of population has itself two components: survivors of the present urban population of these countries who are assumed to be economically active in the final year of the projection, and migrants at present living in agricultural areas but expected to leave them during the projection period in order to seek non-agricultural employment in either a town or a rural commune. This estimate, which amounts to allowing for future rural-urban migration, is very difficult to compute.²

In some countries these estimates may reveal that the growth prospects for non-agricultural employment fall below the expected increase in the non-agricultural labour force, as defined above. This situation may occur even in countries which anticipate very high rates of economic growth, but in which the rises in urban population and in rural-urban migration are very sharp. This type of distortion is the cause of, for example, the unemployment which is at present a feature of the capitals of several African countries, despite the fact that their economic development has been relatively rapid in recent years.

¹ Thomas Dernberg, Kenneth Strand and Judith Duckler, "A parametric approach to labour force projections", *Industrial Relations* 6:1, 1966, pp. 46-48; Alfred J. Tella, "Labour force sensitivity to employment by age, sex", *Industrial Relations*, 4, 1965, pp. 69-83; Jacob Mincer, "Labour force participation and unemployment: a review of recent evidence" in Robert A. and Margaret S. Gordon, *Prosperity and unemployment* (New York, Wiley, 1966), pp. 73-112; and Denis F. Johnston, "The integration of supply and demand projections of labour force", 37th session of the International Statistical Institute, London, 1969.

² See chapter II, section A, which deals with estimations of rural-urban drift in developing countries.

If the detailed analysis appears to confirm the anticipation of unemployment or labour shortage, the original projections of labour demand and supply will have to be revised in order to find a point of equilibrium.

If unemployment was projected, the sectoral employment projections must be reviewed in order to ascertain whether supply figures can be increased in some sectors. Since, as a matter of principle, there can be no question of appreciably reducing the productivity of a sector without jeopardizing the country's economic development, serious consideration must be given to the possibility of increasing the output of some sectors, or perhaps, in some cases, adjusting the economy in such a way as to expand the sectors employing large numbers. In developing countries the anticipated rate of rural-urban migration may be revised, possibly necessitating changes in the country's agricultural policy and in the intensity of its efforts to modernize agriculture. The mode of income formation and distribution, including the wage structure, may have to be revised.³

When the projections point in the opposite direction, a further study will have to be made of the activity rates of the marginal groups of the economically active population — young people, adult women, old people — in order to see whether an increase in the rates can be stimulated; this will probably require policy measures to promote the employment of these workers. On the demand side, the sectoral productivity projections must be reviewed and possibly increased. If none of these contingencies seems likely, the only feasible assumption remaining is the reduction of the economy's growth targets.

B. COMPARISON OF LABOUR SUPPLY AND DEMAND PROJECTIONS BY OCCUPATION, AND BY LEVEL AND TYPE OF TRAINING

In countries in which projections by occupation and by level and type of training were prepared, these can be compared with the anticipated output of schools and universities in order to identify any potential shortage or surplus in major occupational groups and in individual levels and types of training, and, on that basis, to formulate detailed policy for vocational training and education. Such comparisons are possible, however, only if certain kinds of statistical data are available.

Not only must occupational projections have been prepared, but they must have been expressed in terms

³ See on this point, the observations of Robinson Hollister in "Manpower problems and policies in sub-Saharan Africa", *International Labour Review*, vol. 99, No. 5, May 1969, pp. 515-532.

of levels and types of training, through the use of the methods explained in chapter VI. There are, in fact, no exact parallels between a break-down of demand by occupation and a distribution by educational attainment — degree or certificate. For almost all occupations several types of training and several levels are accepted. Occupational demand, therefore, has to be translated into levels and types of training by means of a cross-tabulation which takes account of the distribution of the probable requirements of enterprises.

The total recruitment requirements by occupation must be estimated for the projection period; account has to be taken, not only of requirements arising from economic growth, but also of replacement requirements.

It should be possible to compare the resulting distribution of recruitment requirements by level and type of training with the anticipated output of graduates and certificate-holders for future years, distributed in the same manner. This kind of projection exercise presupposes a very full statistical picture of the school and university system, which is at present available in very few countries. If the comparison can be made, however, a detailed training and education policy can be worked out on the basis of the surplus and shortage situations identified by the comparison. What the comparison in fact does is to assess the probable output of qualified workers which will result from the present educational pattern followed by young people in the country's school and university system. If there appear to be unduly severe distortions as between the requirements of the economy and the objectives of the educational system, corrective measures may be proposed to restore the balance of demand and supply for each type of qualification.

Such detailed comparisons are not always feasible. Nevertheless, the information obtained on the future occupational structure of employment, even in the absence of some of the detailed calculations, may be such as to justify changes in the objectives of the educational system. Even crude comparisons between the occupational distribution of the economy's future labour demand and the distribution of pupils and students in schools and universities may highlight distortions, especially if they are substantial. For this reason projections of employment by occupation are useful, even without projections by level and type of training, as are projections of the requirements arising from economic growth alone, even without a study of the labour replacement movement. This applies even more strongly to the developing countries, in which replacement requirements are minimal in the case of highly-qualified personnel, since the absolute numbers employed at that level are small.