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Economic growth and Manpower

by

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THE ECONOMIC RESEARCH INSTITUTE

THE ECONOMIC
RESEARCH INSTITUTE
MEMORANDUM SERIES
NO. 6

Restricted Circulation -
Not for Publication.

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It is the purpose of this note to examine briefly the implications of economic growth in Ireland on manpower requirements. As starting point of the analysis, an overall growth rate 3% p.a. as from 1961 will be assumed. The possibility of a higher growth rate will also be considered.

An overall growth rate in real (gross and net) national product may, of course, be brought about by different combinations of growth rates in the various sectors of the economy. A pattern which appears reasonable in the light of previous trends would be an annual growth rate of about 1 $\frac{1}{4}$ % in agriculture, 4 $\frac{1}{2}$ % in industry (including construction and public utilities) and 3% in the service trades. (including transport, distribution etc.) At current rates at which the sectors contribute to national income, this averages out at about 3%. The sectors will be discussed one by one.

By fitting a trend to the volume index of agricultural output, net output in agriculture is seen to have increased on the average by 1% per annum over the period 1946-61. As far as can be seen, in view of the large fluctuations in output obscuring the picture, the growth rate tended to be rather higher in recent years. Thus a future growth rate somewhat in excess of 1% seems plausible.

During the same period, the agricultural labour force fell by about 2.3% per annum. There appears to be little relationship between year-to-year changes in output and changes in manpower, suggesting that in present circumstances, the

labour supply is not the limiting factor to agricultural output. There must be, of course, some limit to the number of agricultural workers that can be spared without reducing output, and a continued decline of over 2% might be excessive. A decline in the agricultural labour force by about $1\frac{1}{2}\%$ per annum would appear a reasonable figure.

In industrial production, the five-year period 1946-51 showed a rapid increase in manpower and production, whilst since 1951 a more moderate increase in output has been achieved with a labour force that fluctuated over the years but showed no long-term changes. Manpower requirements are clearly related to output in this sector, and partial regression analysis* was therefore applied. The result suggests that a 1% increase in volume of production tends to be accompanied by a $\frac{1}{2}\%$ increase in employment and by a $\frac{1}{2}\%$ increase in labour productivity. In addition, there appears to be an annual gain of about $1\frac{1}{4}\%$ in labour productivity with constant output.

It follows that a $4\frac{1}{2}\%$ increase in industrial production - which is in keeping with recent trends - requires an increase in the industrial labour force by $2\frac{1}{4}\%$ less $1\frac{1}{4}\%$, that is to say, a 1% increase.

Growth in real output and labour productivity in the service trends is known to be hard to measure. It is assumed that with unchanged prices, the output of the service trends moves in step with that of the economy as a whole, though in current prices, the output of these trends may tend to become relatively more expensive. There is obviously less scope for gains in labour productivity here than elsewhere, but an log manpower on log output and time.

annual increase of 1% in real output per head will be assumed. Thus, the labour force of the service trends will expand by about 2%.

The implication for the labour force then, is an average annual decrease of $1\frac{1}{2}\%$ in agriculture, an annual increase of 1% in industry and of $1\frac{1}{2}\%$ in the service trends. This means a slight overall increase, by about $\frac{1}{2}\%$, in the total labour force.

There should be no difficulty in maintaining such a fractional increase in the labour force, even though total population may be stable or continue to decline. It is true that in the decade 1951-61, and particularly during the first half, both the number of gainfully occupied persons, including those out of work, and the labour force at work declined at a faster rate than total population - nearly 1% as against $\frac{1}{2}\%$ per annum. An examination of the age distribution of the population in 1956 shows that, as a consequence of emigration, the age structure of the population became less favourable for providing a supply of labour.

On the other hand, Ireland had more children under 15 years of age in 1956 than in 1951, and these are entering the labour force now and in the near future. There is also some indication that in some age-groups - or age/marital status groups in the case of women - work participation rates are showing a slight tendency to increase.

Whilst a full analysis of population and manpower prospect must await the results of the 1961 Population Census, nevertheless it seems safe to conclude that a 3%

growth rate in real output should not raise any real manpower problems.

A 5% growth rate would be another matter.

Obviously, this would either call for a reversal of population trends, in the sense that the net emigration rate would have to fall substantially below the rate of natural increase; or else for increases in labour productivity substantially above those observed in the past. Neither of these alternatives seem likely in the near future. Once a steady growth rate has been established, an increase in population might well become reality, with an increase in population and labour force at a rate of about 1%, a 5% economic growth rate would not be beyond the bounds of belief.