

**NATIONAL INSTITUTE OF
ECONOMIC AND SOCIAL RESEARCH**

**LANCASHIRE
TEXTILES
A CASE STUDY OF
INDUSTRIAL CHANGE**

**BY
CAROLINE MILES**

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XXIII

LANCASHIRE TEXTILES

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CONVENTIONS AND SYMBOLS

Cotton Board and Textile Council

On January 1st, 1967, after the bulk of this study was completed, the Textile Council for the Man-made Fibre, Cotton and Silk Industries of Great Britain was created in place of the Cotton Board, which was rather more limited in coverage of both fibres and processes. The older title, Cotton Board, is used throughout the text, and in references to source material, except where specific mention is made of the new Textile Council.

Symbols used in the tables

n.a. means 'not available'

— means 'nil'

AUTHOR'S PREFACE

This research began as part of a wider study of 'strategic factors in economic growth', initially under the direction of Mr. R. R. Neild, which the Institute undertook with the aid of a Ford Foundation grant. Mr. Neild took as a starting-point the question 'What influences the rate at which technical progress is exploited by industry?'. He decided to adopt a micro-economic approach, analyzing the different influences at work in a number of industries, and it was thought that the process of scrapping and replacement in the Lancashire textile industry, artificially stimulated as it was by the 1959 Cotton Industry Act, would make an interesting case study. For reasons explained in the Introduction, my research developed into a wider study of the industry, although the analysis of the impact of the 1959 Act remains a central feature.

Anyone outside an industry who attempts to analyze its problems in detail inevitably incurs a large number of debts. My first thanks must go to the people working in the cotton and related textile industries, in Lancashire and elsewhere, who gave of their time and their knowledge. As several of those I talked to preferred to remain anonymous, I am precluded from thanking any of them by name.

Among organizations I want to thank the Shirley Institute, the British Spinners' and Doublers' Association, the United Kingdom Textile Manufacturers' Association and, most particularly, the Cotton Board (now the Textile Council) for assistance at various stages of my research. I would like to convey a special word of thanks to the staff of the Textile Council's Statistical Department, as without their deep knowledge of the industry, and their readiness to apply it to the tedious work of analyzing the results of the 1959 Act in detail, it would not have been possible to compile the structural tables on which I have drawn extensively. In this context thanks are also due to Messrs. Binder, Hamlyn Ltd. for providing the basic information on payments of grants to firms that scrapped equipment.

Mr. E. G. W. Allen, Director of the Lancashire and Merseyside Industrial Development Association, helped to fill in the picture of what the contraction in textiles has meant to the economy of the North-Western region, and Mr. A. H. Parkinson, Industrial Development Officer of Bolton, kindly supplied me with detailed information relating to Bolton and the surrounding villages.

The Board of Trade gave much appreciated practical assistance in extracting data from microfilm records, and supplied detailed information on administrative questions.

Some of my findings have already been published in two articles in the District Bank Review: 'Contraction in Cotton: Some Comments on the 1959 Cotton Industry Act' (June 1965) and 'Should the Cotton Industry be Protected?' (June 1966). I would like to thank the editor for permission to use this material.

I am deeply grateful to Christopher Saunders and Robert Neild, then respectively Director and Deputy Director of the National Institute, for inviting me to join the staff in order to undertake this study and for their help in the early stages of my research. The Institute's present Director, David Worswick, made many helpful suggestions during the later stages of the work, and patiently read and commented on several drafts. Mrs. Anne Jackson, Secretary of the Institute, has sustained me throughout, as a professional critic of the work as it progressed, in dealing with various practical problems connected with my research and latterly in preparing the manuscript for the press.

Finally on a more personal note, I want to thank Derek and Elisabeth Russell for their warm hospitality on my many visits to Lancashire, Stephen Hyde for reading the manuscript with great care and saving me from many stupid mistakes (he is not, of course, responsible for those that remain) and my husband for his constant encouragement and support.

CAROLINE M. MILES

London, July 1967

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INTRODUCTION

The present study of recent changes in the Lancashire textile industry has grown out of a larger project, as explained in the preface. The aim of the larger project, a study of 'strategic factors in economic growth', was to identify factors determining the rate of growth and progress in a mature economy which might be influenced by public policy or by practicable changes in attitudes; a micro-economic approach was adopted and the process by which, and the conditions under which, obsolescent and inefficient units of production give way to new ones was taken to be of central interest.

The line of thought was this. On the one hand, the idea that the transfer of labour from old to new vintages of equipment is of key importance to growth in mature economies has been emphasized in recent theoretical work.¹ On the other hand, there appeared to be evidence that in the British economy there is some surplus of capital capacity in relation to labour, and that old and inefficient plant, which could be dispensed with, continues to operate, absorbing part of the labour force which might with benefit be transferred to newer and more productive plant. In the major study, three lines of investigation were pursued. The first was a direct inquiry into replacement policy addressed to a sample of firms in the metal goods industries.² The second was to examine the dispersion of 'efficiency' between plants and between industries with the aid of census data and to see if this dispersion seemed excessive.³ The third was to investigate in depth the relationship between technical progress and replacement policies in particular industries. The two selected were coal-fired electricity generation, an industry with a homogeneous product and one in which technical progress, age of plant, and productivity would be relatively easy to observe⁴; and Lancashire textiles, which offered a special opportunity to survey the conception, application and results of a recent government rationalization scheme intended to promote extensive scrapping and re-equipment.

The theoretical starting-point for these several industry studies has been the hypothesis that, given an existing stock of capital equipment of

¹ See, for example, *Productivity and Technical Change* by W. E. G. Salter (Cambridge, 1960).

² R. R. Neild, 'Replacement policy', *National Institute Economic Review*, No. 30, November 1964.

³ A paper on this part of the study is being revised for publication by Professor F. P. R. Brechling, formerly a member of the team at the National Institute.

⁴ One paper on the electricity generating industry has already been published: 'An international comparison of production techniques: the coal-fired electricity generating industry' by F. P. R. Brechling and A. J. Surrey, *National Institute Economic Review*, No. 36, May 1966.

varying ages and efficiencies, and assuming full employment, output will grow at a rate determined by the rate at which labour is shifted from less to more technically efficient and productive equipment. The least efficient plant is then 'knocked out' and retired from use. Growth of output in this way will automatically be accompanied by rising productivity of labour, given the full employment assumption, and the productivity of capital may also increase, though it will not necessarily do so.

One obvious defect of this hypothesis is that in the real world the assumption of full employment is most unlikely to hold completely for a firm or an industry, even if it does hold at the level of the economy. A firm or an industry may be able to grow without any change in its existing productive techniques, but simply by installing more of the same kind of plant and equipment, if it can recruit more workers from other firms in the industry or from other industries. Although the possibilities of obtaining additional labour are limited by several factors, including geographical immobility, the problem of technical training and union attitudes, it is clear that both firms and industries do expand in this way even in a fully employed economy.

An important assumption underlying the theoretical model is that total costs of production using 'new' equipment will be lower than costs using 'old' equipment, at the level of output that the firm or industry can expect to attain. Since much industrial research and development is concentrated on the search for cost-reducing techniques, it may seem surprising that this assumption needs emphasis. But if costs using 'new' equipment can only be minimized by doubling the firm's present level of output, for example, the firm may have no reason to re-equip unless it can see the possibility of rapidly increasing its level of sales. And where the total market for the products of the industry in which the firm is operating is stagnant or only growing slowly, this possibility may be remote unless the changes in the price and/or the quality of product produced with 'new' equipment are sufficiently great to give the firm a major competitive advantage, or the firm is able to buy out some or all of its main rivals.

This sort of technical barrier to modernization, arising from the indivisibility of units of capital equipment, is primarily a problem for the small firm, and the small firm is most unlikely to possess or be able to draw on the financial resources needed to alter the structure of the industry in which it is operating. But bigger firms may also find that they cannot achieve optimal cost levels with 'new' equipment unless they can expand sales, and if the difference in 'old' and 'new' costs is not very large, if the product is not homogeneous, and if the market is not easily controlled, firms with widely differing efficiencies, measured in terms of the productivities of various inputs, will co-exist. Considerable problems

thus arise in applying the kind of model outlined here to an analysis of growth and industrial change in an industry with a large number of firms of differing sizes and efficiencies.

Further difficulties crop up where the industry's output is not homogeneous, and its composition is continually changing. If the nature of an industry's output is changing over time, which is perhaps the case more often than not, productivity comparisons over time may have little meaning. And if an industry is defined in terms of the markets it is supplying rather than its productive techniques, major changes in the productivity of labour in the industry may occur as the result of the application of entirely new techniques to the production of substitutes rather than step-by-step improvements in existing techniques.

In analyzing the processes of change in the textile industry, there are major practical as well as conceptual problems. Although the range and quality of statistical information is a good deal better than for many other industries, mainly because of the authority given to the Cotton Board under the 1947 Development Councils Act to compel all firms in the industry to make regular statistical returns, some important series are lacking altogether. Thus, although there are statistics on the main types of machinery installed, there is nothing on dates of installation. And the labour statistics, although internally consistent, do not reveal the extent of short-time working or unemployment, and are so different in coverage from the Ministry of Labour statistics for the industry that official short-time and unemployment percentages cannot be applied with any confidence to Cotton Board data.

But the main shortcoming is the lack of information on output by size of firm. For the purposes of the present study it has been possible, with the assistance of the statistical department of the Cotton Board, to obtain a picture of the size distribution of firms in the industry, using employment as a measure of size, for the period immediately before the passage of the 1959 Act and for a recent period. There are, however, no available data on output by size of firm¹. It is thus impossible to determine the relationships, if any, between size and labour productivity, or between vintages and types of equipment and labour productivity.

As the textile study got under way it became increasingly clear that in order to understand the impact and results of the 1959 rationalization measures they had to be considered in a wide economic and historical context. For a start it was necessary to look at the concept of industrial change in a declining industry. In what sense is progress possible—or does it actually occur—when output is falling? Chapter 1 discusses this

¹ Even if such data were available, they would need to be interpreted with very great care, in view of the heterogeneous nature of the textile industry's output. See chapter 2.

question, and presents an analytical framework for the study. It also seemed necessary, in a study concerned with technical progress, to look at the actual processes of textile manufacture, the ways in which improvements in efficiency can be obtained, and at recent technological development. These matters are dealt with in Chapter 2. Chapter 3 describes the historical background to the situation that existed in 1959; and discusses previous official attempts, over the last 30 years, to assist the adaptation of the industry to its declining circumstances. The objectives, implementation and immediate results of the 1959 Cotton Industry Act are dealt with in Chapter 4, and some critical comments on it are offered in Chapter 5. The last chapter looks at what has been happening in the industry in the 1960's, and attempts to put recent developments, including major changes in structure and important shifts in the pattern of fibre consumption, into perspective. It concludes with a look at some of the problems the industry is facing now.

An Appendix to the study examines the effects of contraction in textiles on the economy of the region, and discusses some of the attempts made to diversify the industrial structure of the old cotton towns.

Finally, in this introduction, it seems appropriate to add a warning about some of the generalizations that are made in the study, and an apology to those who may, with reason, feel irritated by them. The performance and behaviour of the industry, and the nature of the Government's response to its difficulties, are open to criticism on many counts. Problems and external conditions have been misunderstood, and wrong decisions taken. But the author is aware that throughout the difficult period of stagnation and decline for the industry as a whole there have been individuals and enterprises making the effort to adjust to changing circumstances, and adopting clear-headed and rational attitudes towards management and technological problems. The author apologizes to these individuals and firms for not always explicitly exempting them from critical generalizations that do not in fact apply to them. And readers who assume that the industry has only itself to blame for all its difficulties should be warned that neither diagnosis nor cure is so simple.

CHAPTER I

THE FRAMEWORK OF THE STUDY

The purpose of this essay is to present and discuss the results of a case study of industrial change. Much of it, therefore, is factual and descriptive, concerned with the structure and organization of the industry at various points during the period of change, with the sequence of events and with the factors that seem to have been promoting or inhibiting change. But the study was begun with some specific questions about the nature of industrial change in mind, and the first part of the present chapter is devoted to an analysis of its framework. This analysis does not presume to develop a general model of industrial change, but rather sets out the thinking that has determined the collection and guided the interpretation of the factual material.

A great deal of attention is currently given to analysing change and growth at the level of the economy, and there has been some interesting theoretical work, though little empirical study in this country at any rate, on the ways in which firms grow. But there is practically nothing about industrial change. Works on individual industries tend to concentrate on describing changes in structure without trying to account for them in a very coherent way: various factors are identified, including international competition, the prevailing structure, and technical progress, but the inter-relatedness of these factors is not made clear. One important reason for this failure is the difficulty of arriving at a valid definition of an industry which will permit an analysis of the structural, organizational and technical changes that are taking place within the group of firms that are identified as belonging to this industry, a point to which we shall return.

For the present, leaving on one side the problem of defining an industry, we are concerned with the general concept of industrial change or industrial progress. Industries—or rather forms of industrial activity—do of course decline, but we shall be concerned not so much with the understanding of why certain activities decline as why new activities and techniques arise within the same industry. We shall start with a definition of the term industrial progress.

The term industrial progress has been chosen with care, to indicate the concept of an improvement in the method of production of the industry's output, or in other words an increase in the efficiency of the industry. It is thus not the same thing as industrial growth, or an expansion of output, which could theoretically be achieved by simply increasing the amounts of all inputs in the same proportions as they are employed at the present

time, with no change in techniques or methods of organization. If there was no technical progress, industrial growth could only be obtained this way. It seems, however, that in practice most industrial growth includes an element of industrial progress in the sense in which we are defining it. Nevertheless it is conceptually useful to distinguish between industrial growth and industrial progress, in order to emphasize the element of change in the latter. A second important aspect of the distinction is that it is perfectly possible to envisage industrial progress without growth of output.

This does not imply, however, that industrial progress can be simply equated with technical progress, if this term is given its usual meaning. Technical progress is commonly taken to refer to the absorption of scientific discoveries and technological developments into the actual productive process, resulting in a reduction of the quantities of inputs (labour, material, sometimes capital) per unit of output, and also, or alternatively, an improvement in the quality of output. In view of its physical nature it will be evident that such progress can only occur in an actual production unit. And it will only occur if the embodied technical improvements lead to cost advantages that the individual firm is equipped and prepared to exploit. No firm, for example, will, or perhaps one ought to say should, invest in labour-saving equipment unless it can reduce its total unit costs, not just its unit labour costs, thereby.

Technical progress takes place in individual plants and improvements in management and organization at the level of the firm. Industrial progress, on the other hand, is the sum of the technical and other changes in all the firms that make up an industry. While industrial progress may occur without expansion of total output, it cannot occur without technical progress, and its rate is affected by the rate of technical progress. But it is also affected by other factors, of which an important one is the rate of progress of the technically progressive firms compared with the rest of the industry.

This brings us to the need to examine the concept of an industry. There are three possible ways of defining an industry; in terms of its principal raw material inputs, in terms of its production processes, or in terms of its range of outputs. The first of these is the oldest, and despite its obvious limitations, it is still widely used. We have a tobacco industry, a food processing industry, and indeed some people would still say a cotton industry and a woollen industry. The second approach to definition, through the nature of the productive processes used, is the one most frequently adopted at the present time, by official statisticians and others. At first sight it seems peculiarly suited to the discussion of technical progress and related problems, as it is based precisely on the techniques of industrial production, the ways in which a group of similar