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Technology and Enterprise Development

Ghana under Structural Adjustment

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Preface

Technology is one of the primary determinants of the competitiveness of manufacturing firms. This is well understood in industrialised economies, where technological effort, generally in the form of developing new process or product know-how, is taken to be a vital basis of market success. In less industrialised countries, however, the significance of technological effort is generally less well appreciated. Since practically all the technologies in use are imported from the developed countries, and their application is known and understood, it is widely believed that developing country firms need to invest little on their own in technological effort. As passive recipients of technology, they only have to choose techniques that are appropriate to their factor endowments. It is assumed that thereafter they can use the technologies efficiently.

A body of recent research on technological capabilities in developing countries has shown that the process by which firms become technically proficient is far more complex and demanding. The selection, assimilation and effective deployment of technologies cannot be a passive process. The search for suitable technologies in imperfect markets for knowledge is difficult. The use of the technologies that are imported requires firms to seek new information, skills, material inputs and investment resources, the markets for which are prone to a range of imperfections in developing countries. Some firms are better equipped to undertake these efforts than others, and the degree of market failure varies by country and over time. Government policies and interventions may add to market failures or help remedy them. The nature of factor and product market imperfections and government interventions interact with the firm's own skills and entrepreneurship to determine how competitive it can become.

Research on technological capabilities has been confined to the relatively industrialised developing countries of Asia and Latin America. Practically no detailed research has been conducted on the process of technological development in the least industrialised countries of Sub-Saharan Africa. Yet the process of industrialisation there is just as complex and demanding as in other regions – perhaps even more so, because though the technologies used are simpler the market failures that confront firms can be greater. African countries have invested considerable resources in their industrial sectors, and have looked to manufacturing as the main vehicle of structural transformation and reduction of dependence on primary product exports. In general, these investments have produced far poorer results than in other developing regions.

Many African countries are now launching sweeping structural adjustment programmes. They are liberalising trade and exposing their industrial firms to the rigours of import competition. Are their firms technologically equipped to deal with such exposure? If not, can they incorporate and deploy new technologies at a rapid enough pace to expand industrial output and exports? If many protected activities are basically inefficient and die out, can new dynamic industrial firms emerge in the liberal setting to compete internationally? Are these countries, in sum, set to become 'newly industrialising economies' in the East Asian mould by structural adjustment and the removal of past interventions with market forces? These are questions of vital policy interest, to which existing knowledge on industry and technology in Africa offers scant answer.

This book is the first detailed attempt to assess technological capabilities in an African country. It is a study of a sample of manufacturing enterprises in Ghana, a country undergoing structural adjustment since the mid-1980s. It refines and applies the methodology used in past analyses of technological capabilities in developing countries. Its findings cast fresh light on the problems of industrial development in Africa and on the effects of rapid liberalisation programmes. The policy conclusions drawn are of relevance to other countries at early stages of industrial development.

This study was part of the World Bank's Regional Programme for Enterprise Development (RPED), which was intended to analyse the dynamics of enterprise growth in several countries in Sub-Saharan Africa. Ghana is the first country to be studied in this programme. Apart from this study of technology, there were several modules dealing with different aspects of enterprise development: finance, labour markets, business strategy and regulations. This study does not, therefore, attempt to address the issues covered by these other modules. Its focus is deliberately on technology, but there is no implication that technology is the only, or the main, determinant of enterprise development.

A large study like this one, which is part of an even larger project, accumulates many debts which are difficult to acknowledge properly. We are very grateful to the World Bank's RPED for asking us to conduct this research and allowing us to publish the findings. The interpretation and analysis is that of the authors alone and the Bank bears no responsibility for them. The constant support, advice and comments of Tyler Biggs, RPED's manager, were invaluable for the study. Melanie Mbuyi managed the difficult task of administering the project in the World Bank.

The study of Ghana was sponsored by the United Kingdom's Overseas Development Administration (ODA). In addition, a significant part of the financing of the technology module was provided by the Directorate General for Development Cooperation of the Italian Ministry of Foreign Affairs. We are very grateful to the ODA and the Italian Foreign Ministry for their backing.

Part of the study was based at the Oxford University Institute of Economics and Statistics, with administrative support from Gillian Coates. Part was based at the Centro Studi Luca d'Agliano in Turin, with statistical advice provided by Paolo Giudici and research assistance by Daniele Coen Pirani. Logistical support was also given by the Fondazione Eni Enrico Mattei in Milan.

The field work in Ghana was greatly facilitated by the help given by Seth Adoo and K. A. Nuhu of the Ministry of Industry, who advised us on which firms to see and arranged for our interviews. We shared some of the data collected for a larger panel study by a team from the Oxford Centre for the Study of African Economies and the University of Ghana (Legon), which conducted the panel survey and is in charge of its analysis for the RPED. To all the members of this team, and particularly Francis Teal and Tracy Jones, our thanks for their help and cooperation in the field and for making available the panel data in Oxford.

The enterprises in Ghana that gave generously of their time and information are too numerous to mention individually; and in any case the confidentiality we promised them precludes this. However, we are greatly in their debt.

Finally, to our families and friends who supported us in this work, and bore patiently with our absence and our distraction, warm thanks.

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