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Also by Banji Oyelaran-Oyeyinka and Padmashree Gehl Sampath
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The Gene Revolution and Global Food Security

Biotechnology Innovation in Latecomers

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and
Nisha

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Preface

This book is set against the backdrop of the debate about the persistent poverty of developing countries – those we have differentially labelled *latecomer countries* – as well as the widening divide in income per capita rather than the convergence of income that was predicted several decades ago. Equally germane to the debate about latecomer poverty and growing inequality between the rich and the poor countries is the ever-widening gap between the scientific and technological capabilities of latecomer countries and the ‘frontier’ advanced industrial nations. Underlying these debates is considerable confusion about what precisely the role of states may be in the economic advancement of those countries that have developed and the enduring poverty of those that remain at the bottom of the ladder. This book argues that those who advocate a neutral role for state industrial and innovation policy tend to engage in rhetoric that does not fit the facts of the history of Western societies and simply ignores the contemporary lessons of East Asia. The current triune global challenge, namely, the food crisis, fuel and climate concerns, and the housing crisis has renewed the discussion about the form, nature, and direction of participation in business and society.

This book benefits from our collective involvement in the field of industrial, scientific, and technological policy for more than three decades both as practitioners and as researchers. It is in fact our experiences in different countries in Africa and Asia working, researching, and interviewing all manner of actors such as large-scale farmers, industrialists, and small enterprise owners that prompted this book as well as other companion books in which we have been engaged. The research and outputs thereby suggested to us to seek – with others – that the most urgent issue for these times is to formulate some answers and possible prescriptions to the persistent latecomer economic backwardness.

Beginning with the concepts of the processes we call variously ‘technology transfer’, ‘technology capability acquisition’, and so forth, from the 1970s the notion of innovation entered the lexicon of the process of development now referred to as ‘catching-up’ by latecomers. In the six years we spent at the UNU-INTECH, we led several research projects (interviewing dozens of firms) in attempting to understand the root of technology-based and industry-based

underdevelopment. This endeavour led to several books and articles in academic journals, including one recently published and another forthcoming book.¹

These experiences led us to three sets of conclusion: first, rich countries built strong institutions as complements to productive systems (frontier as well as emerging), and in so doing, became rich through production and exporting of high quality goods and services; poor countries remain poor because they continue to produce raw materials for the relatively rich countries. Second, central to the production activities of all countries that became rich is a set of policies that we may classify as industrial or innovation policies even when the rhetoric of rich countries does not square with the reality as exemplified by the set of ideas embodied in the so-called Washington Consensus (WC). In other words, rich countries do precisely what benefits their industries at every historical turn and continue to advise poor countries to do what benefits rich countries. The 'strong' poor countries (India, China, and much of East Asia earlier on) deployed Industrial and Innovation Policies (IIP) for the benefit their economies while the 'weak' poor countries (much of sub-Saharan Africa (SSA) and the other Asian countries) listen to variants of advice embodied in the WC and subsequently remain poor. This variant of the WC was precisely what the Structural Adjustment Programme (SAP) was about in the 1980s. This set of 'one size fits all' policies replaced many of the (admittedly more complex) emerging industrial policies in SSA with a simplistic macro-economic framework that led to the de-industrialization of the embryonic economies of SSA. The third broad conclusion is that poor countries require industrial and innovation policies that shift productive attention from raw materials production to materials processing using the best technologies (in economic terms, structural transformation for turning out high-quality products) available. These technologies also result in a rise in labour productivity (rising output per worker). We have defined what we understand by these terms in the book and, more importantly, we believe the set of ideas guiding what we term innovation capacity should be linked to the traditional issues of development economics because solving the poverty problem engendered by the endemic low productivity regimes of production in very latecomers will have to reckon with building innovation capacity underpinned by context-specific institutions and policies.

We argue that latecomer countries need to build innovation capacity for three key reasons, namely: to promote strong interactive learning among productive and non-productive actors; to foster greater information and

knowledge flow, and, lastly, to enhance the coordination of policies and actors. Undertaking these three is a complex task and this has been the usual argument against industrial policy: that is, governments are unable to allocate resources through bureaucratic mechanisms and are in any case too corrupt and lack the incentive to work towards public purpose. In short, advocates of the alternative systems argue that IIP is too complicated and complex for latecomers in Asia and Africa to engage in. Two sets of issue raised by critics of IIP are: first, a lack of incentive for good bureaucratic behaviour, and second, the state in latecomer countries is unable to substitute for information coordination due to its highly decentralized nature. We consider this argument unconvincing because the same case can be made to support the establishment of mechanisms, organizations, and institutions for education, health, roads, and so on in the form of ministries and agencies.

The plethora of myths about markets as well as new and important evidence on the role of the state reinforce the need for a rethink of what the role of the government should be in creating dynamic innovation policies in a global system that has become more complex, knowledge-based, and innovation-driven. These are the ideas that we put forward in making a case for a redoubling of efforts in latecomer countries to deploy biotechnology in solving both the poverty problem and the food crisis in poor countries.

Acknowledgements

The idea of embarking on a research project to compare the biotechnology systems of innovation in African and Asian countries arose out of some of our earlier work on the topic, as well as the curiosity to find new data on issues so pertinent to sustainable development among latecomers. We are grateful to IDRC, Canada for funding the project which led to the research results contained in this book. Field surveys in latecomer countries on topics such as these are impossible and incomplete without the assistance of committed local researchers. We acknowledge and thank all our consultants in Vietnam, Malaysia, Nigeria, Tanzania, Ghana, and Kenya who helped conduct the empirical surveys. Our special thanks go to Wladimir Raymond, Erika Moran, Graciela van der Poel, Eveline in the Braek from UNU-MERIT, and Nelly Kangethe from UNHABITAT for research assistance at different stages of book production. Last but not least, we thank Rosemund and Dirk for their never-ending support and patience, especially in accommodating the hectic travel schedules that this book necessitated.