

A Review of Book

Perspectives on Innovations and Development

Manjinder Kaur

Singh, Lakhwinder, K. J. Joseph, and Daniel K. N. Johnson (eds.) (2015).
*Technology, Innovations and Economic Development: Essays in
Honour of Robert E. Evenson*. New Delhi: Sage Publications.

I. Introduction

In the rapidly changing global scenario, with the emergence of innovations and technological progress, the direction of the economic development of the countries are now being determined by nature of these technological innovations and institutional arrangements. Earlier this direction of the economic development was directed by innovation policies framed by the government keeping in view the objectives of economic development of nations. Now, globalization has brought a substantial change in the nature and scope of interactive learning carried out under various institutional arrangement and as well as in the rules of game. This changing context mostly favors the developed world. The adoption of strong intellectual property rights (IPRs), adherence to fiscal prudence by state government and viability towards the

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environmental sustainability has created a considerable obstacle for developing economies to further spur their innovations or imitate the developed economies in the process of catch up.

The relationship among the three aspects of innovations, technological progress and economic development has been studied by Classical economists, Schumpeterian Paradigm, Arrovian legacy and endogenous growth theories. Thus, many new issues have arisen overtime because of the changes in the context in which technological progress and innovations are occurring, these issues are efficiently covered in this book. Moreover, this book is a tribute to Robert E. Evenson, who was a leading academic in the areas of innovations and technological progress. Evenson also influenced many scholars worldwide and inspired them for conducting research in this field. The book under review includes nine research contributions that cover extensive theoretical and empirical canvas, viz. the impact of innovations and technological progress on economic development.

The book begins with a formidable introduction from the editors namely Lakhwinder Singh, K. J. Joseph, and Daniel K. N. Johnson. Although, this book is a collaboration of different authors, it is well organized and has good flow, therefore presenting an impressive achievement of the editors. This book comprises three sections. The first section addresses the core issues of innovations and economic development. The second section analyses the effects of technological progress in agriculture. Finally, the third section covers the effect of technology transfer and national innovation systems which are rapidly emerging under the present global scenario of industrial development of developing economies.

II. Innovation and Economic Development

Leonardo A. Lanzona, Jr has studied the core issues of innovations and economic development and assessed the effects of education reforms that were undertaken to comply with various sectoral shifts, which have arisen as an outcome of globalization, on the economic development of developing countries. On the one hand, the success of these education reforms depends on the increasing focus on the expansion of education programs that enhance human capital and productivity, as well as foster technological progress and on the other hand, these reforms must be supplemented by the corresponding demand of the people to acquire substantial skills and education accompanied by the appropriate edu-

cation, trade, and labor policies that co-occur with technological change and a set of strong institutions. The empirical section established the positive effects of these educational reforms on economic development and highlighted the role of international agencies, particularly the United Nations, to augment these educational reforms, thereby reducing poverty by introducing new processes and innovations.

Furthermore, although the technological changes and innovations that emerged under the new global world have ameliorated the growth of economies, such growth is accompanied by major concerns about the sustainability and inclusiveness of these innovations. These two emerging issues have been covered effectively in the next two chapters on eco-innovations and social inclusion.

After elucidating the meaning and significance of eco-innovations in their study, Daniel K. N. Johnson and Kristina M. Lybecker extensively reviewed the challenges and issues in the development of eco-innovations, that is, intellectual property rights (IPR), economies of scale, market incentives, and system complexity. These researchers have recommended policies to address these issues, such as strengthening IPR to avoid any adverse effect on sequential innovation, implementing market incentives, encouraging economies of scale by immediately moving along the technological learning curve, enforcing environmental regulations, and building the network of industries, academicians, and government institutions. Thus, to ensure the success of these policies, they must be complemented by flexibility and vigilance on the part of the policy makers.

In the third chapter, M. A. Oommen moved toward the second major issue of social inclusiveness and stated that the economic growth of India has accelerated because of economic reforms; however, this economic growth alone cannot address social inclusion. In such a scenario, the people themselves should act as agents of or participants in economic change to expand their freedom and capabilities. The 73rd and 74th amendments in the constitution provide wider participation in the governance at the local level. The most radical improvement in Local Government has been noticed in Kerala. Further, to ensure the transparent participation and accountability in public works programs ensuring low poverty, government of Kerala has made some new institutional innovations like constituting beneficiary committee (BC), Kudumbashree (KDS) and community-based organizations (CBO). Thus, after the deprived sectors of society are ascertained by valid criteria, these people can be assisted by local democracy.

III. Technological Progress and Agricultural Development

The second section of this book covers the roles of technological progress in the form of public agricultural research and improved institutional conditions in enhancing the productivity and efficiency of agriculture. These roles are further facilitated by the efficient functioning of agricultural commodity and market factors.

The unprecedented increase in world population has resulted in several challenges or problems. One such consequence is food shortage caused by limited arable land, thereby resulting in a shift to non-food crops, as well as in climate change. To address this problem, technical change as a source of productivity growth is necessary, particularly in the form of public agriculture research. Wallace E. Huffman has provided a significant contribution in this field by enhancing a methodology to measure public agricultural research (PAR) in the US from 1970 to 2004 and assess the effects on total factor productivity (TFP). During this period, agriculture research, spill-in agriculture research, and their interaction terms exhibited positive effects on TFP. The other notable outcome of this study is that TFP of the US agricultural sector increased from 1970 to 2004. However, after peaking in 2004, TFP continued to decline because of the decline in PAR. Thus, the shortage of PAR can have considerably adverse global consequences.

In the fifth chapter, Sanjay Desilva studied the effects of improved market access on enhancing the productivity of agriculture, as well as analyzed the changes in this relationship from 1983 to 2003. Based on the Schultz hypothesis, this study has also initially observed an inverse relationship between distance from the market and productivity and efficiency in the field. However, this relationship has been altered over time because of the numerous significant initiatives that have been undertaken in the field of public investment in irrigation, roads, and extension services to develop market institutions and assist remote villages to overcome these locational disadvantages. Thus, the physical isolation of a remote area, such as the rice farms in Bicol (in the Philippines), is no longer a determinant to achieve high efficiency and productivity.

IV. Technology Transfer, National Innovation System, and Industrial Development

After ascertaining the significance of technological progress toward agricultural development, the last section of this book covers the dynamism that is induced by technological progress in industrial development since the Industrial Revolution. This section comprises four chapters that cover the issues of technology transfer, innovation system, and industrial development.

First, K. J. Joseph and Vinoj Abraham discussed the emergence of global innovation networks (GINs) and industry-university interaction as an outcome of competitive strategies that were adopted by MNCs because of heightened competition amidst globalization. The authors also covered the implications of these GINs and public research institutions (PRIs) — Industry interaction for developing countries. The formation of GINs is highest in multinational corporations (MNCs) headquarters, followed by MNC subsidiaries and stand-alone firms; modern knowledge-intensive sectors are also favored. Although various GINs are emerging in India, these networks have failed to be firmly established because of the insufficient initiatives induced by state policies and institutions to appreciate the benefits from these GINs, as well as to support the internationalization of a firm's innovative activities. Furthermore, the Indian ICT sector, which has the highest percentage of GINs, does not emphasize the promotion of innovative capabilities. Rather, India is being used as a source of skilled labor and a market for the products of these MNCs.

Binay Kumar Pattnaik articulated the effects of globalization of science and technology (S&T) from the perspective of developing countries. After explaining globalization as an amalgamation of internationalization and multinationalization, the author has further explained the following features of the globalization of industrial research and development (R&D) technology in developing economies. These features include the new international division of labor, flat technological world regime, increasing multinationalization of domestic firms, globalization of local R&D, and increasing off shoring industrial R&D services by firms from developing economies. A change has also been observed in the form of new center-peripheral relationships, in which peripheral economies have benefited from S&T activities that are pursued at the center. Thus, these economies also attain the form of semi-peripheries. However, this

phenomenon has remained confined to only a few economies, such as China, Brazil, and Singapore. In the case of India, this phenomenon is justified on the basis of significant technological developments in information and communication technology (ICT), pharmaceuticals, biotechnology, and export of industrial products and services, thereby underscoring the need for basic institutional and technological capabilities of industries in the developing economies to be benefitted by the globalization of R&D.

Furthermore, Lakhwinder Singh and Baldev Singh Shergill considered jobless growth as another outcome of globalization and attempted to resolve this dilemma by using the case of the Indian manufacturing sector and classifying it into four technological categories. Thus, employment has declined in the low-and high-tech industries. By contrast, consistency was observed in employment generation in medium-tech industries. The reason for this decelerating employment is the considerable dependence on imported and generally labor-displacing technological expertise from developed economies. Furthermore, attaching considerable significance to process innovations instead of product innovations is also depressing the prospects of job creation in developing economies. Thus, developing countries must adopt the path of technology that suits their resource endowments, local conditions, and stage of industrial development.

The last chapter of this book was contributed by Dinesh Abrol. He analyzed the effect of strong IPRs that were enacted under the post-Trade-Related-Aspects of Intellectual Property Rights (TRIPS) agreement period on the innovations in the Indian pharmaceutical sector. The analysis of various studies on the post-TRIPS experience of innovations has remained against the interests of developing economies because a strong IPR in medicine can substantially affect public health. Moreover, the quantity and quality of foreign direct investment (FDI) in this period has not been determined to be capability-enhancing because no such promotion of the provision of development and discovery of drugs fulfill the local needs of India. Thus, these MNCs are using India only as a cheap source of S&T and they are unlikely to use this country as a location for the development of system integrated capacity. Such an initiative implies the need for other policy instruments, such as Public-private partnerships (PPP), healthy measures of competition, and achievements for the domestic firms as a means of competitiveness in the case of local pharmaceutical industries.

V. Concluding Remarks

In the last few decades, substantial changes have occurred in the global economy because of innovations and technological changes in nearly all sectors. However, these changes have extensively favored the success of developed economies; developing economies have failed to reap the full benefits of these changes because of weak institutional and technological capabilities. Thus, this book is a refreshing account of addressing all the challenges and problems from the changing global context that are triggered by technological progress and innovations, as well as their resultant effect on the economic development of developing countries. Furthermore, this book offers valuable recommendations for policy makers to overcome the challenges faced by developing countries. This book can generate ample academic and policy debate for new departures on the broad developmental challenges that developing countries face. Thus, this book is recommended to policy makers, academics, and students of innovation studies in particular and those of development economics in general.