“STRUCTURAL TRANSFORMATION 2.0 IN THE GLOBAL ECONOMY”

Piya Mahtaney

FORUM
OF FREE ENTERPRISE

"Free Enterprise was born with man and shall survive as long as man survives".

- A. D. Shroff
Founder-President
Forum of Free Enterprise

SHAILESH KAPADIA

(24-12-1949 – 19-10-1988)

Late Mr. Shailesh Kapadia, FCA, was a Chartered Accountant by profession and was a partner of M/s G.M. Kapadia & Co. and M/s Kapadia Associates, Chartered Accountants, Mumbai.

Shailesh qualified as a Chartered Accountant in 1974 after completing his Articles with M/s Dalal & Shah and M/s G.M. Kapadia & Co., Chartered Accountants, Mumbai. Shailesh had done his schooling at Scindia School, Gwalior and he graduated in Commerce from the Sydenham College of Commerce & Economics, Mumbai, in 1970.

Shailesh enjoyed the confidence of clients, colleagues and friends. He had a charming personality and was able to achieve almost every task allotted to him. In his short but dynamic professional career, spanning over fourteen years, Shailesh held important positions in various professional and public institutions.

Shailesh's leadership qualities came to the fore when he was the President of the Bombay Chartered Accountants' Society in the year 1982-83. During his tenure he successfully organized the Third Regional Conference at Mumbai.

Shailesh was member, Institute of Fiscal Studies, U.K.; member of the Law Committee and Vice-Chairman of the Direct Taxation Committee, Indian Merchants' Chamber. He was also a Director of several public companies in India and Trustee of various public Charitable Trusts.

He regularly contributed papers on diverse subjects of professional interest at refresher courses, seminars and conferences organised by professional bodies.

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Introduction

In this well-written article, Piya Mahtaney offers her reflections on current apprehensions that are looming large about the world economic prospects, and what needs to be done by way of the next phase of structural transformation to overcome the prevailing mood of pessimism. To provide the contextual framework to the theme of her article, the author has sought to look at "constructive insights from the extensive empirical literature" about the underpinnings of economic progress over the precedent two decades. This forms the focus of Part I of her exercise, while Part II presents an exposition about the factors that are likely to drive structural transformation during the next phase.

Piya Mahtaney points out that "transforming the nature of growth, globalization and liberalization is essential for most nations in this world; these include those who have successful and vibrant economies, those that are struggling to step up progress and those who can barely manage to keep their financial systems afloat". After pointing out some of the major pitfalls of the preceding era of globalization with its "rapid pace of financial and trade liberalization", she argues that the erstwhile globalization process per se was incomplete "because it was not accompanied by a globalized expansion in the purchasing power (per capita) of individuals and nations".

Therefore, she highlights that, going forward, resolving the current challenges confronting the world, would call for "the long overdue reform of the international financial architecture, fostering an expansive process of development co-operation between nations, mitigating environmental degradation and climate change". Further, she very rightly says: "structural transformation is not a quick fix strategy". Underlying her contention are inherent limitations of [a] 'One size fits all' formula; [b] focusing merely on achieving a double-digit growth rate; [c] overarching emphasis on rapid technological advancement alone; and [d] expansion of trade in the absence of other supporting and complementary mechanisms.

Dealing with the current scenario despondency, in Part II of her article, she raises a critical question whether it is suggestive of world having reached its "natural limits to economic growth". This could be manifesting in terms of "secular stagnation and diminishing returns", which have been "frequently used to describe the situation that the world is headed towards". In the words of the author such concerns are based on "changing demographics – an aging population and consequently a shrinking size of the work force, extreme disparities of income, declining levels of productivity, unemployment and other such 'drag down' features." The author also refers to how the effects of IT, while having been profound, the productivity gains flowing therefrom

petered out after a much shorter duration than the preceding industrial revolutions, the benefits of which lasted over a fairly long span from 1891-1972.

Against this backdrop, Piya Mahtaney refers to multi-pronged policy prescriptions essentially comprising of: first, to address the vast terrain of unmet requirements in the ambit of social and physical infrastructure and building and expanding transportation networks, warehousing and storage, health care, education, skill development; second, to promote innovation and invention; and third, to create the role of institution integral for effective governance and efficient public administration.

All in all, FORUM is very delighted to publish this booklet for wider circulation, and especially to provoke students of economics, researchers and public policy making to engage in further debate and to undertake more intense research and policy papers on various interesting issues analyzed and raised by the author.

"STRUCTURAL TRANSFORMATION 2.0 IN THE GLOBAL ECONOMY"

Piya Mahtaney*

An epoch of change has begun. The world finds itself in the throes of a tectonic shift across economic, geopolitical, strategic and institutional dimensions. For every country the impact of what is currently happening would be determined by their respective endowment and constraints but the imperative of sustainable development and national security is common to all. An exhaustive analysis of the nature of structural change that the global economy needs to achieve for enabling development led transformation is presented by my recent book, Structural Transformation Understanding the new drivers of Investment Innovation and Institutions (Palgrave Macmillan,

* *The author is an Economist and a member of Forum's Council of Management. This text is an excerpt of her recent book entitled* ***"Structural Transformation: Understanding the New Drivers of Investment, Innovation and Institutions"****.*

Singapore) 2021. The fundamental objective of this work was help better understanding about the implications, the opportunities and challenges that the ensuing future would bring with it. This exposition does not attempt to make quick fix generalizations about economic strategies, what it does endeavour is to shed more insight about the critical drivers of positive economic transformation. Notably the empirical evidence used for the analysis pertains to over 100 countries and stretches over a timeline of over 6 decades. In essence thus the book analyses the fundamental aspects of structural change in the ambit of investment, innovation and institutions as these are the key spearheads of any transformative development process. Technological progress is an integral aspect of innovation and in as much as it has been a game changer in the past it would perhaps even more pronouncedly be one going forward. A nuanced approach that examines the factors and considerations that will shape the trajectory of technological progress in developing and less developed nations has been elucidated in Chapter 8 of the book. An excerpt follows.

Technological Progress in Developing Nations: An Exposition of the Techno- Economic Paradigm

Juxtapose the increasing utilization of labour displacing technology with the exigency of job creation in the developing nations most of which are labour abundant and the challenge of working out an effective counterbalance expediently and effectively

becomes evident. In Asia alone which has the largest regional labour force of almost 2 billion workers with India and China accounting for 70 per cent of the same the importance of utilizing technology in a manner that complements job creation is inextricably linked to public policy and the nature of innovation. According to ADB (2018) estimates the labour force in Asia is projected to grow 0.5 per cent annually from 1.9 billion in 2015 to 2.1 billion in 2030 and 2.2 billion in 2050, notably India will account for 30 per cent of Asia's labour force by 2030, with the PRC share declining to 37 per cent. As elucidated in chapter 7 the compelling challenge thus is the emerging trade-off between productivity and job security addressing which requires the utilization of technology in a manner and by an extent that will boost within sector productivity and positive structural changes. By what extent the displacement effects of new technology will be offset depends on a number of factors which relate to the income elasticity of demand, the complementarity of technology and labour and the availability of skills. The utilization of labour-saving technology by firms is generally perceived as a route of cost minimization, observably though if a larger number of firms substitute labour by technology it would over a period of time impact income and demand. This would certainly limit any offsetting effects that results from an expansion in demand. Taking therefore a view of cost minimization that extends beyond the short term requires viewing

decisions to adopt technology from the point of view of longer-term viability.

For a moment even if we were to accept that the job losses will be offset by the creation of new jobs the challenges do not disappear because firstly the question arises how long would it take for the offsetting gains of job displacement to fructify. Secondly, what proportion of the work force is endowed with the skills required to take advantage of the new opportunities. Thirdly even if a higher number of jobs would be created concurrently it still does not take away the imperative of reducing the vulnerability of workers most susceptible to the downside of automation and increasing the extent and pace of job creation across sectors. It is true that technological achievement has been the basic reason underlying the productivity differentials between developed and developing countries over the preceding two centuries. However, to use this empirical fact as the basis for assuming that the expedient implementation of newer technologies will be sufficient to drive technological progress is an erroneous and rather damaging presumption. One of the reasons for this misconception is the lack of empirical work about technology and innovation in the context of developing and less developed countries. For developing and less developed nations there are two integral aspects of counterbalancing the negative effects of technology – firstly increasing the productivity of agriculture, in particular small-scale farming and

an expansion of labour-intensive manufacturing both of which are critical for raising incomes and expanding livelihood options. Secondly harnessing the potential for skill development and addressing thereby the present skill shortages that prevent even existent employment opportunities from being tapped. Agriculture continues to be among the most important employment providers in developing and less developed nations given that it provides (on an average) about one third of employment. In most developing and less developed nations the impact that technological advancement would have on development cannot be disassociated from the imperative to evolve an innovation policy that is aligned with the constraints of the primary sector in developing nations, particularly those confronting the small holder farmer a segment that has so far been on the periphery of agricultural policy. Thus, an integral aspect of innovation in developing nations is the evolution of a sustainable agri-ecosystem and the fact that this is lacking represents a blatant omission of innovative endeavour.

Drawing from existent empirical evidence the main objective of this chapter would be to substantiate 3 fundamental points which are as follows:

1) The trajectory of technological learning and innovation differs across countries and as economic experience has shown having a one size fits all or a narrow-based approach that

implicitly or otherwise equates technological advancement to a transplant of the technologies utilized in advanced countries as has been the case across a number of instances does not augur well for development.

2) One of the most important and relevant insights in the context of the role of technology in economic development is that although the availability and access to newer technologies is an important constituent of technological progress it is by no means enough to create the mechanisms required to either ensure a faster pace of technological progress or the what I term as the creation of a techno-economic paradigm.

3) Presently it is not a deficit of 'technological inventions' that impedes development across a wide range of developing and less developing countries rather it is the deficiency of absorptive capacity that constraints of a faster pace of technological progress.

This chapter will view various facets of the link between technology and economic development. The main focus of Part 1would be the elucidation of the Techno-economic Paradigm which would demonstrate that technological progress is not the outcome of a single constituent because it results from the dynamic interactions and interrelationships between technology and an entire gamut of variables such as education, innovation in non-technological dimensions, public policy and governance. It is the

structural framework which constitutes the techno-economic paradigm that largely determines the adoption, diffusion and assimilation of existent and new technology. Part Two will provide an overview of the role that the GVC plays in technological progress.

Part 1

An aspect that is integral to understanding the dynamics of development is the knowledge divide between the developed and developing countries. Although knowledge in its broadest sense encompasses much more than innovation, it is the extent and pace of innovation that occurs within a nation that comprises the pragmatic dimension of its knowledge accumulation. What drives innovation, what catalyzes it, how does one differentiate those systems which encourage and stimulate innovation from those which stifle it. In a partial sense the answers to these questions are given to us by the empirical evidence which relates to innovation, however, in the context of developed and developing countries there is a substantive amount that we need to understand about innovation. As Jeffrey Sachs in an article (2003) about innovation says, ‘‘The right starting point for research is the incredible divide in the world between the technology innovators and the non-innovators, a division which is considerably starker than the global divisions of income.’’

One among many indicators of commercial innovation is the number of patents issued in any

country and according to Sachs the bottom or poorest 128 countries which have 63 per cent of the world's population issued only 1174 patents in the year 2000 comprising only 0.75 per cent of the total patents issued. In stark contrast the top ten innovating countries accounted for 94 per cent of the patents issued in the U.S in the same year. Arguably there are other indicators of innovation that need to be used to evaluate the extent of innovation in poorer nations but this still does not take away the basic point which is that a larger proportion of nations are not innovating enough and that plausibly is one of the reasons that most of the present metrics used to assess and measure innovative activity in developing nations need to be supplemented by those which are more accurate.

Highlighting this knowledge divide Sachs thus cites that it's roughly a 96-fold higher ratio of patents per capita in the top ten countries than in the rest of the world. Sachs makes a broad classification of countries on the basis of innovative activity wherein 1 billion people live in countries with the maximum innovative activity which are termed as core economies, another 3 and a half billion live in countries that can be described termed as the technology diffusers which over a span of 5-20 years assimilate technology acquired through the import of high tech capital goods, the FDI and technology transfer route and through the adaptation of imported technology for local requirements. The third group which comprises mainly of the poorest

nations marginalized as these have a population of 1 and half billion that have been largely excluded from the benefits of technological advance.

On the basis of the broad classification that Sachs makes it wouldn't be incorrect to say that not only are a larger proportion of nations a fair distance away from exhausting their potential for innovation but also there exists considerable scope for the assimilation and absorption of existent technological knowledge. This disparity is startling but hardly surprising and it is indicator that poorer countries need to evolve a techno-economic paradigm which as will be elucidated in the following is inextricably linked with the progress of any nation and its conspicuous lack one of the major deterrents to progress.

The Techno Economic Paradigm

The techno-economic paradigm is basically a construct of the dynamic and active linkages between technology and economic development. This entails investments in education, training and skills development and physical infrastructure in addition to other measures by public policy that would reduce the costs of not just investing in newer technology but also of the innovations required for the adaptation and assimilation of existent technology. This is clearly a sphere of considerable scope for most developing nations. The techno-economic paradigm thus is closely linked to innovations in the financial sector and to management practices which is a collective term for an entire range of organizational

innovations that have not been undertaken so far across developing countries. The main constituents of the techno-economic paradigm are Adoption, Appropriate technology and Absorptive capacity. (Each of these constituents of the techno-economic paradigm represents a set of variables) The relative importance of each constituent varies in accordance with the stage of development that a country finds itself at. This in turn determines how expediently a country adopts a particular set of technologies (be these older or new to market technologies) and how appropriate a particular technology is given a country's absorptive capacity.

At this point a concise description of each of the constituents would be useful, this is as follows:

Adoption

Understanding the obstacles that delay the adoption of technologies and increase the costs of doing so is an important aspect of underlying cross-country dynamics of technological change and economic growth. Income differentials between the developed countries and the rest of the world widened considerably ever since the industrial revolution which occurred two centuries ago. It is interesting to note that the reduction in adoption lags and the utilization of those technologies that were introduced at the time of the industrial revolution did result in a gradual increase in the growth rates of developing nations however it was not until the end of the nineteenth century that this increase

began. Furthermore, it was not until the second half of the twentieth century that the acceleration of economic growth rates began, and in any case the period between the end of the 19th century and the second half of the twentieth century has also been a phase of considerable change leading to increasing levels of progress in the developing nations. More recently through the FDI and technology route or the import of technologically intensive products the transmission of technology has increased over the preceding 15 years. In general, the time taken for access to newer technology and its adoption has reduced considerably from almost 100 years in the nineteenth century to about 20 years currently.

The average adoption lag across all technologies and countries has reduced to forty-four years according to a study by D. Comin and B Hobijn who have undertaken extensive research about the time taken for the diffusion of various technologies across 23 of the world's leading countries. Comin's study (2002) explains the extensive and intensive margin of adoption: the former relates to the time taken for technology to be adopted or inducted in a particular nation and the intensive margin of adoption relates to how extensively a particular technology or set of technologies is being used and this is an indicator of technological diffusion. In this context an important observation of the study is that the gap in technology penetration rates between rich and poor countries has widened over the last 200 years inducing a divergence in the intensive

margin of technology adoption._Furthermore, the gap between Western countries and the rest of the world in the intensive margin of adoption was smaller for technologies invented at the beginning of the nineteenth century than for technologies invented at the end of the twentieth century. This is indicative that the prerequisites required for technologies that were invented earlier and most of which can be categorized as GPT (general purpose technologies) are being put into place relative to that entailed by technology introduced later. Furthermore, the intensive margin of adoption of technology invented during the 20th century would be higher in the modern sector of developing countries than the non-modern sector. In most developing and less developed nations the adoption and absorption of existent technologies continues to be hindered by constraints in infrastructure and limitations in public policy. The World Bank report (2008) cites, ‘‘For technologies discovered during 1950–75, only a quarter of the developing countries that have achieved at least a 5 percent penetration level have gone on to reach the 25 percent threshold, and all of these are upper-middle-income countries. ... Countries where older technologies have yet to penetrate particularly deeply may also face limits to the extent to which other technologies are able to diffuse. Therefore, the authorities should focus on ensuring that publicly supplied technological services are available as widely, reliably, and economically as possible, whether

they are delivered directly by the state or by private firms.'' Therefore, to assume that a faster pace of technological progress in developing nations would be driven by a reduction in the adoption lags is only one part of the story because the constraint to technological progress stems from the pace at which the domestic macroeconomic context adjusts to the requirements entailed by higher levels of technological diffusion. Presuming thus that that a faster penetration of new technology would be unimpeded even if the diffusion of older technology does not gather pace would be erroneous.

It is how closely aligned the macroeconomic context is with the increasing need for expanding education, skill development and innovation along with other constituents of infrastructure that determines the role of technological advancement in economic progress. For a better depiction of this point, it would be useful to broadly enumerate or describe three possible outcomes or scenarios of technological (new and existent technologies) diffusion in developing and less developed nations:

In Scenario 1 There is a pervasive lack of technological diffusion consequent to an extremely constrained situation that stems from endemic underdevelopment. Observably this is prevalent in the poorest nations where it is unlikely that the gain from an induction of newer technology would be significant enough to propel a consistent process of technological progress unless accompanied

by concerted measures towards building a framework that would enable a quicker diffusion and assimilation of existent technology particularly those which relate to infrastructure building.

In Scenario 2 there exists a certain degree of diffusion and assimilation with considerable scope for more. This scenario applies to a larger proportion of developing and less developing countries where it is not uncommon to find enclaves of technological advancement particularly in the industrial sector of middle- and higher-income developing countries and emerging markets. Across a fairly heterogeneous group of countries the commonality is that for a quicker pace of technological progress the general impediment is an acute inadequacy of infrastructure. Evidently it is initializing the adoption of a particular technology or a set technology that encounters a number of obstacles most of which relate to the lack of infrastructure and limitations in public policy. Addressing some of these limitations enables a certain degree of technological diffusion which does seem to get faster at least upto a point after which if the impediments to increasing absorptive capacity have not been overcome sufficiently the pace of diffusion slows down.

Scenario 3: This is characterized by higher and quicker levels of diffusion, assimilation and an expansion of absorptive capacity. The scenario prevails in those countries which are either higher income developing countries and lower income

developed countries. It is the level of development that a country or a region finds itself at that should determine the composition or mix of technologies that are critical for its progress, Therefore one of the main insights that empirical evidence gives to us is that in developing and less developing nations is that the induction of newer technology in countries where there exists considerable scope for the diffusion and assimilation of existent technology will not spearhead consistent technological progress unless measures to tap the latter are implemented. Developing and less developed nations are not participating in scientific innovation at the global technological frontier (with a few exceptions) because there exists an entire backlog of existent technologies that need to be adopted at a faster pace deterred as it were by a host of constraints that continued to be unaddressed. According to the Global Economic prospects report by World Bank (2008), ‘‘In most developing countries and sectors, R&D should focus on the adoption and adaptation of pre-existing technologies, not on efforts to expand the global technological frontier’’

In larger developing nations those spheres that have evolved technologically intensive core competencies represent one facet of competitiveness and it is in these segments that newer technologies will have a role. That said if technology is to become an instrumentality through which a country can increase its level of productivity and competitiveness it is essential to create a macroeconomic and

institutional environment that would facilitate a faster assimilation of existent technology. Most developing countries either lack a framework or a techno-economic paradigm that would facilitate this or have one that is conspicuously incomplete with only some constituents in place. Notably this is the situation on the aggregate but there exist some spheres or rather enclaves particularly in the realm of large-scale manufacturing that have a techno-economic paradigm. The achievement of technological excellence in such spheres sharply contrasts with what exists in most regions and sectors. Empirical evidence shows that if nations are unable to adapt and apply technological advances to their existent domestic industries it is improbable that they will be successful in doing so for new and more progressive industries. A report by Xavier Cirera and William Maloney for the World Bank (2017) says ‘‘Hence, policy advice to move into production baskets thought to be more growth friendly misses a critical point: countries that have been unable to innovate and apply technological advances to their present industries are unlikely to do so in new industries’’ This fact is better depicted when we view the two other constituents of the techno-economic paradigm.

Appropriate technology

What drives economic development, will also spearhead technological progress however to anticipate that a spurt of technological advancement

in some sectors can be a driver of consistent and economy wide progress is unrealistic. This fact is evident when we consider instances in Latin America, India and by a smaller extent China where a few spheres or sectors of technological sophistication are in stark contrast to those regions and segments particularly in the rural economy where an entire spectrum of small enterprises including those in the informal sector that are lagging behind. Appropriate technology can be defined as technologies that fit local conditions and are easily and economically utilized from readily available resources by local communities to meet their needs. Appropriate technology includes an entire range of innovations which include not just state of the art and complex technology but much simpler products and techniques. In developing and less developed nations subsistence agriculture and unorganized segments in the industry and services sector continue to play a fairly important role particularly in so far as employment provision is concerned. Therefore, the role that technology plays in the progress of these spheres that could be described as being less 'modern' than the organized manufacturing sector will determine the impact of technological advancement on the overall. At this point in time given that the advent of most technologies so far have been aligned with the imperatives of advanced countries it is evident that the technological requirements for the non-modern, non-industrial and non-urban sectors of

developing nations have been largely overlooked. Not surprisingly thus adoption and penetration of earlier technologies lags behind in these sectors in a number of developing countries.

Viewed in historical perspective the paradigm of industrialization and technological change that worked effectively for over 100 years to raise countries to a trajectory of prosperity, progress and modernization would currently fall far short of its role as an engine of growth unless supplemented by productivity enhancing measures in the farming and non-farming sectors of rural economies. The role that technology can play in the agricultural sector has not been assigned much importance until the recent past although specific applications of appropriate technology in the primary sector have invariably had a fairly significant if not dramatic impact on productivity and incomes. Take the instance of the Green revolution which according to the World Bank estimates (2008) doubled cereal production in Asia over the period 1970-95. The green revolution which facilitated a significant rise in agricultural productivity in a number of states in India was the outcome of the utilization of technologies related to the pesticides, irrigation and high yielding varieties that had been used in developed countries for a long time before these were put to use in developing nations. Some would rightfully argue that the green revolution also had unfavourable environmental implications because it resulted in the excessive use of agro-chemicals.

The fact remains that there exists considerable scope for the use of environmentally sustainable technologies in farming which can be used by the small and marginal farmer in developing nations.

The antecedents of prevalent agricultural systems in poorer nations have been shaped by deeply embedded social, cultural and political factors. This is the basic reason for the economic heterogeneity underlying primary sectors across countries, a fact that makes specific generalizations about innovation in this context difficult and sometimes tenuous (partly because of the lack of data); However there is a fundamental similarity that applies facilitating or enabling a stronger counterbalance to disruptive effects to technology is inextricably linked with the evolution and implementation of appropriate innovation policies and addressing the investment priorities of the primary sector across an entire span of nations. Furthermore, a stronger income effect within the primary sector entails the utilization of productivity enhancing technology. Two points worth considering in this context is firstly the exigency of evolving agricultural systems that would enable subsistence and small holder farming to become much more viable and benefit from the fair amount of empirical know how that exists about productivity enhancing farming techniques, soil management and water conservation. To envision the potential for innovation without increasing the focus on agricultural innovations particularly for small scale farmer is starkly incomplete given that according

to FAO estimates there are about 475 million farms globally which have a size of less than two hectares and provide livelihoods to almost 2 billion and 80 per cent of food requirements in Asia and Saharan Africa. According to a report by International Assessment of Agricultural Knowledge, Science and Technology for Development (IASTD) (2009) there are an estimated 525 million farms worldwide which provide a livelihood for about 40% of the world's population. Nearly 90% of these are small farms (which is defined as having less than two hectares of land). Although farm size has been getting larger in developed countries, the trend in densely populated developing countries has been a reduction in farm size. The IASTD report cites that over the next two or three decades the dominance of small-scale farms in the primary sector will continue world globally particularly in Asia and Africa. Yet despite this on the aggregate small scale farming struggles to survive amidst constraints be these infrastructural, costs, marketing among others. Furthermore, countries and communities that are heavily dependent on small scale farming are the poorest and most threatened by ecosystem degradation. According to a report by FAO (2017) ''Initiating and sustaining a process of transformation requires modes of exchange that trigger sustainable agricultural productivity growth for a broad segment of the rural population. This is often achieved by lowering transactions costs in ways that increase farm gate prices relative to input costs, and by fostering supply-chain exchange mechanisms that

favour the participation of small farms in agricultural supply chains ‘’Secondly although the opportunities for rural transformation are numerous, the question is whether the predominant modes of agricultural production are aligned with the imperatives of strengthening and expanding urban-rural linkages. Evidently for a fair range of food and non-food crops the possibilities of integrating the small and marginal farmer into large agribusiness systems are numerous but these remain underutilized, once again vividly reflective of the conspicuous lack of a paradigm that assigns centrality to addressing the needs and deterrents confronting the small-scale farmer. The consequence has been that the increasing commercialization of agriculture catalyzed by the emergence of globalized agri-food value chains has marginalised the small farmer that is constrained by a shortfall of resources on one hand and impediments to greater market participation on another. According to the FAO report, “However, while transformation of food systems provides opportunities for producers, it also presents challenges, especially to smallholders. Often, it leads to the capital-intensive concentration of primary production, the consolidation of smaller parcels of farmland into larger holdings, and the exclusion of smallholders from expanding value chains.’

It is evident that addressing the infrastructural constraints and skill gaps that confront small scale farming is key to ensuring a counterbalance to the disruptive effects of technology in developing

nations. Furthermore, it would be short sighted to view the imperative of increasing the productivity and incomes of all those who depend on small scale farming as significant only for the economies of poorer nations. This is not so, because in an interdependent world where economies are intricately interlinked the pace at which rural transformation proceeds in developing and less developed nations would play a role in determining the extent of global economic progress. This point would be better explained when we allude to the demographic trends currently and in the not-so-distant future. According to projections by another report of FAO (2017) two-thirds of the global population will live in urban areas by mid-century. The population of South Asia will increase until the mid-century and that of Sub-Saharan Africa until the end of this century so by the year 2100 Asia and Africa will be home to a population of 9 billion of the 11 billion who live on this planet. Furthermore, low-income countries in Asia and Africa will see fairly large increases in the number of people in the age group of 15-24 years between 2015 and 2050, in low- and middle-income countries, the number of people between 15 and 24 years of age is expected to rise from about1 billion to 1.2 billion. Even if we delve into the implication of just these two trends it becomes evident that the opportunities of job creation in Asia and Africa are closely linked to the pace of rural transformation which in turn will determine the expansion of incomes and markets

in developing nations. The second sustainable development goal that has been outlined by the 2030 Agenda for sustainable development is to end hunger, and achieve food security and nutrition and promote sustainable agriculture. The attainment of other goals of the 2030 agenda is closely related to achieving this goal. Sustainability and structural transformation are inextricably linked because it concerns underlying policy changes and systemic responses involved in addressing a particular challenge or problems. Achieving both entails much more than the achievement of particular target in quantitative terms, take for instance the challenge of food security which can either be viewed in a piecemeal and incomplete way in which case it would merely be defined or understood in terms of acquiring the capacity to produce a certain amount of food by end of the mid-century and thereafter. For the greater part this has been the underlying approach so far not merely in the agricultural sector but outside of it too. Overlooking or ignoring the pathway to achieving a particular target is clearly antithetical to sustainable economics.

“People must come to accept private enterprise not as a necessary evil, but as an affirmative good”.

- Eugene Black
Former President,
World Bank

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The Forum of Free Enterprise is a non-political and non-partisan organisation started in 1956, to educate public opinion in India on free enterprise and its close relationship with the democratic way of life. The Forum seeks to stimulate public thinking on vital economic problems through booklets, meetings, and other means as befit a democratic society.

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