Chapter I

Introduction

1.1: The Problem

In the late 1700s and early 1800s the world saw the events we now call this Industrial Revolution. We transitioned from an agricultural economy to an industrial economy. During this time, technological and economic progress gained momentum with the development of steam powered ships, railways, and later within the 19th century with the internal combustion engine- an electrical power generation. The GDP per capita was broadly stable before the Industrial Revolution and the emergence of the modern capitalist economy. The Industrial Revolution began an era of per capita economic growth in capitalist economies. And we saw the American economy begin to flourish over time as the U.S became a major force in manufacturing. Over time we have seen this force of manufacturing leaving the United States. This has happened for many reasons, but the results are obvious. The US and many other industrially advanced countries began to be out manufactured by countries such as Japan- the auto industry is a prime example of this. Manufacturing began to move overseas for many reasons. The point is that manufacturing became a secondary part of the advanced countries. Agriculture’s contribution to these economies has been reduced continuously.

In the case of U.S economy, agriculture constitutes only about one percent of the GDP. The main defining feature of the Industrial Revolution was a dramatic increase in the per capita production that was made possible by the mechanization of manufacturing and the processes that were carried out in factories. Its main social impact was that it changed an agrarian economy into an urban industrial society.

In an agricultural economy land is the key resource. In industrial economy natural resources, such as coal and iron ore and labor are the main resources. A knowledge economy is one in which knowledge is the key resource. It is not a new idea that knowledge plays an important role in the economy, nor is it a new fact. All
economies, however simple, are based on knowledge about how, for example, to farm, to mine and to build; and this use of knowledge has been increasing since the Industrial Revolution. But the degree of incorporation of knowledge and information into economic activity is now so great that it is inducing quite profound structural and qualitative changes in the operation of the economy and transforming the basis of competitive advantage. The rising knowledge intensity of the world economy and over increasing ability to distribute that knowledge has increased its value to all participants in the economic system. The implications of this are profound, not only for the strategies of firms and for the policies of government, but also for the institutions and system used to regulate economic behavior.

The knowledge economy is thus a term that refers to an economy of knowledge focused on the production and management of knowledge in the frame of economic constraints or to a knowledge based economy. In the second meaning more frequently used, it refers to the use of knowledge technologies, such as knowledge engineering and knowledge management to produce economic benefits. The phrase was popularized by Peter Drucker as the title of Chapter 12 in his book The Age Of Discontinuity (1966). The essential difference is that in a knowledge economy, knowledge is a product, in knowledge -based economy knowledge is a tool. This difference is not yet well distinguished in the subject matter literature. They both are strongly interdisciplinary, involving economists, computer scientists, software engineers, mathematicians, chemists, physicists as well as cognitivists, psychologists and sociologists.

Various observers describe today’s global economy as one in transition to a knowledge economy as an extension of an information society. The transition requires that the rules and practices that determined success in the industrial economy need rewriting as an interconnected globalised economy where knowledge resources such as know-how and expertise are as critical as other economic resources.

The remarkable economic growth throughout the globe is due mainly to the large extent to the advancement of knowledge combined with an increase in human resources, both in number and capabilities, and an increase in savings which have been translated into physical capital. Two factors have been important in increasing
knowledge. One is the growth of population and the other one is raising real per capita incomes.

A larger population leads to greater creation of knowledge (Kremer, 1993). This is so because the larger the population, the greater the benefit from a given improvement in productivity resulting from new knowledge. With a larger population there are also more individuals capable of making a significant discovery or adding to existing knowledge. But it is not always true that there are more of us available to add to world’s knowledge. With the improvements in agricultural productivity, the expansion of the cities, and the very large increases in real per capita incomes that have occurred over the past two centuries, institutions, namely universities and research institutes of national importance, have been created specifically to advance and transmit knowledge. When 80 percent or more of the world’s labour force was engaged in farming, a small percentage of a much smaller world population had the time and resources to devote to producing non-food products, such as clothing, tools, roads, and housing. More than seven times as many people as there were in 1800 are now engaged in the creation of knowledge. The increase in knowledge has been complemented with improvements in the means of communicating that knowledge in an effective way, with the effect that knowledge has become much more accessible throughout the world, resulting in lower infant mortality rates, increased life expectancy, and higher per capita food supplies.

In India, great potential exists for increasing productivity by shifting labour from low productivity and subsistence in agriculture, informal industry, and informal service activities to more productive modern sectors, as well as to new knowledge-based activities – and in doing so, to reduce poverty and touch every member of society. To take full advantage of knowledge economy India needs strengthening the economic and institutional regime, developing educated and skilled workers, creating an efficient innovation system and building a dynamic information infrastructure.

The notion of a knowledge economy is not new to India. Our past achievements in science, philosophy mathematics and astronomy prove that the country has for millennia been a leading knowledge society. Indian policy makers today are keenly aware of the challenges and opportunities that India faces in different sectors and are already starting to implement some of the key actions that are
necessary to bolster India’s effective transformation to the knowledge economy. Various reports, including the Indian Planning Commission’s reports on India as Knowledge Superpower: Strategy for Transformation (2001) and India Vision 2020(2002); A.P.J. Abdul Kalam’s 2002 Strategy India 2020: A Vision for the New Millennium (Kalam and Rajan 2002); and the High-level Strategic Group’s India’s New Opportunity; 2020 (AIMA 2003) underline ways to address India’s transition to the knowledge economy.

India’s initiatives have largely been developed around the three important pillars of the knowledge economy i.e. education, innovation and ICTs. But to get the maximum benefits from investments in these areas, these initiatives must be part of a broader reform agenda, because some elements of our current economic and institutional regime are constraining full realizations of India’s potential. We will not be able to reap the full benefits of its investments in increasing education, ramping up ICTs, or even doing more R&D, unless its broader institutional and incentive regime stimulates the most effective use of resources in these areas, permits their development to the most productive uses, and allows entrepreneurial activity to flourish to contribute to India’s growth and overall development of the economy.

1.2: Objective of the Study

The knowledge economy is the story of how new technologies combine with human brainpower to transform the basis of economic activity. It describes how general purpose technologies have combined with intellectual and knowledge assets the intangibles of research, design, development, creativity, education, science, brand equity and human capital-help transforming the economy into its next phase of development.

Knowledge is a public good. At the physical level, one can share it with others without losing it. It is not rival in consumption, as are apples and oranges for example. It is mostly provided privately by individuals. Ownership of ideas is increasingly becoming more critical than capital. The ownership of intellectual capital is crucial to economic development. But in order to take advantage of knowledge, there is a need for appropriate institutions. The knowledge economy can result with proper
institutions in a society which is centered in human creativity and diversity, rather than in fossil fuels to power economic growth.

For the last two decades or so India has been known as a major knowledge power and thus many countries have established links with our growing economy. A World Bank Report (2005) has indicated that India has greater potentiality in increasing its productivity in all spheres of economic activities and this can enhance well-being of the population through proper and effective use of knowledge. We will seek to investigate the impact of the power of human resources i.e. the power of knowledge in agriculture, industry and service sector and what is more to see whether these sectors have been able to improve the Indian economy into a knowledge economy in true sense.

1.3: Research Issues and Questions

Some significant research issues have been identified to answer the following set of questions based on which we have formulated some hypotheses which in the subsequent chapters have been analyzed.

How can we define knowledge economy?

Are ICTs more effective in delivering social services to all sections of population?

Is education the fundamental elevator of the knowledge economy?

Are skilled people essential for creating, sharing, disseminating, and unique knowledge effective?

Does India possess a large pool of highly educated and vocationally qualified people?

Is tertiary education critical for the construction of knowledge economy?

Has India diffused knowledge and technology in agriculture?

How can we increase the stock of global knowledge?

Is India emerging as a major global R&D platform?

Is India weak on turning its research into profitable applications?
Is the use of ICTs in India reducing transaction costs and lowering the barriers of time and space?

Has India made global achievements in the IT sector?

Has explosive growth of ICTs been concentrated only in urban areas?

Is India a leading exporter of IT services and software?

Is the Indian Industry becoming more innovative?

Is the Knowledge technology and skills intensity of industrial Output increasing?

1.4: Hypotheses Tested

On the basis of overall discussion in the light of review of some related literature we have formulated some research questions and on the basis of these questions we have formulated some hypotheses. Indeed an exhaustive list of hypotheses cannot be prepared. Our investigation has forced us to formulate some hypotheses and finally we have modified some proposed ones.

The following hypotheses have been probed:

1. That the application of knowledge has helped transforming our agriculture into a more productive one is tested with the help of supportive data.

2. That Indian industrial sector has gradually been becoming knowledge based

3. That India possesses a large pool of highly educated and vocationally qualified people.

4. That India can easily increase the stock of global knowledge.

5. That India is weak on turning its research into profitable applications.

6. That India has emerged as a major global R&D platform could only be probed partially due to inadequacy of quantitative data we require.

7. That the use of ICTs is reducing transaction costs and lowering the barriers of time and space.
8. That India has made global achievements in the IT sector through the export of IT services and software.

9. That the growth of ICTs has wide in the rural areas.

10. That human resource is playing a significant role in the forward march of Indian knowledge economy.

11. That knowledge economy has positive contribution to the GDP that GDP growth of Indian Knowledge Economy is praise worthy.

1.5: Methodology and Information Sources

This study seeks to examine India’s transition into the knowledge economy—an economy that creates, disseminates, and uses knowledge to enhance its growth and development. This study is partly descriptive and analytical and partly it is exploratory. Exploration seems to be incomplete if we are unable to visualize the impact of knowledge into different dimensions of the economy. This in turn will usher in the growth of agriculture, industry and service sectors.

The study covers the entire Indian economy. It specifically deals with the impact of the knowledge economy to different sectors such as agriculture, industry, services and international trade and its consequent impact on the well-being of the people.

The study is taken up with the help of secondary data published by the Government (NSSO, various Ministries etc.) and data published by non-governmental-non-profit organizations. Data published by Ministry of Agriculture, Ministry of Industries, Ministry of Finance, Ministry of Railways, etc. are utilized to explore the impact of knowledge on productivity over different periods of time. Data published by international organizations such as World Bank, IMF, ILO, UNESCO, UNO, WHO, are utilized. Published and unpublished research reports and survey data have consulted.

Method of investigation is both inductive and deductive method as used in economic investigation. For compilation and analysis of quantitative information simple descriptive statistical techniques such as average, percentage, standard deviation, growth rate have been deployed.
1.6: The Study Framework

The dissertation contains ten chapters. The study to probe the basic objectives stated is organized as follows.

Chapter-I: The Introduction

In the introductory chapter, an overview of knowledge based economy is made to set the objective of the study. Statement of problem, research questions and hypotheses probed has been described. Sources of information and methodology of investigation are also included in this chapter.

Chapter-II: Review of Literature

This chapter elaborately reviews the existing literature relevant for our investigation for deeper understanding (and framing our objective and research hypotheses described in chapter 1).

Chapter III: Knowledge and Knowledge Based Economy

In this chapter concept of knowledge and knowledge based economy is made. Some reference is made of Indian knowledge economy.

Chapter-IV: India as the Knowledge Economy

This chapter analyses performance of Indian economy. Penetration of knowledge in the Indian economy and consequently her increased global competitiveness with the development of education and human resource in the knowledge era is discussed in this chapter.

Chapter -V: Information Technology and Knowledge Economy: Role of Indian Service Sector

Service sector is gaining importance across the world. The vital role of service sector in knowledge based economy cannot be appreciated without proper understanding of interconnection between IT and service sector. Investigation in this direction is the subject matter of this chapter. We have here also concentrated on participation of elderly person in the society. In the new age, chronological constraint is much diluted – due to growth of Internet. A comparative analysis is therefore is worthy to investigate participation of elderly between India and USA.
Chapter-VI: A Discourse on Knowledge Based International Trade- Pragmatic Analysis

In the globalized Knowledge Based world, economic order and development possibility without exaggeration may be stated to lie in integrating the nations – developed and developing world. External trade is key to globalization thus development prospect lies in the participation in international trade. The subject deliberates on knowledge based International Trade.

Chapter-VII: Impact of Knowledge Economy on Indian Agriculture

This chapter discusses the nature of Indian agriculture. The impact of knowledge on production, productivity and marketing of agricultural commodities is probed. Discussion is made on agricultural research and IT, IT in agricultural extension management, IT in agro-based rural development, role of GIS in agriculture, scope of rural internet, IT based agricultural communication in India. Some case studies are reviewed for deeper understanding.

Chapter-VIII: Knowledge Influencing Industrialisation in India

In this chapter we discuss, in brief, the growth of industries and study the impact of knowledge on the production, productivity and marketing and also on overall employment scenario. Knowledge revolution has opened up avenues of effective and wider use of human capital. Human capital like all other physical capital has to be produced. Sustain effort is necessary at the national level. Human capital is consumed in the production process and at the same time human mind is the birth place of every kind of knowledge and its application. Research is imperative with training.

Chapter-IX: Knowledge Expansion and Human Resource Development in India

Different facets of human resource development such as skill, efficiency and organization, quality improving strategies etc. in Indian context are the subject matter of chapter-IX.

Chapter-X: Conclusions, Findings and Recommendations

This chapter summarises, conclueds and recommends.
References


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