

ABSTRACT

THE KNOWLEDGE ECONOMY: SCOPE AND CHALLENGES

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This paper examines scope and challenges of Kerala in exploiting knowledge in global market. The knowledge economy is a subject matter for discussion in the twenty first century among the academicians and policy makers of the developing as well as developed countries. The key feature of the knowledge economy is its greater reliance on intellectual capabilities than on physical inputs or natural resources. Developed nations explore the possibilities in exploiting knowledge as an untapped source of wealth and they are under transition from an economy based on natural resources and physical inputs to one based on intellectual. Under this new model, labour and capital are endogenous factors of production where as knowledge becomes an exogenous factor that is not within the economic system. The leverage of information and communication technologies enables advanced countries to exploit potential of this exogenous factor using convenience of global market. Economists from various quarters react differently towards this move, the knowledge economy. While the neo-liberal economists see the knowledge economy as one that accelerates world development, neo-rationalists (pro-Marxist economists) argue that the knowledge economy remains inherent to capitalist exploitation of labour. However both, neo-liberalists and neo-rationalists, accept the fact that the economic function of education remains crucial in development of the twenty first century. Consequently, nations with leadership in knowledge and high human capital investment will be able to take a lead in world development. Kerala, being rich in knowledge-based (human capital) investment, can exploit this opportunity and play an important role in world development.

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1. Introduction

Development of the world in the twenty-first century revolves around knowledge economy. Economic growth in leading world economies is increasingly based on knowledge and the most technologically advanced economies are knowledge-based countries with an evolutionary economic orientation (Yeo 2010, World Bank 1999). The key feature of the knowledge economy is its greater reliance on intellectual capabilities than on physical inputs or natural resources (Bullen, Fahey, and Kenway, 2006, Walter, Powel and Snellman 2004). As a consequence tangible assets like capital and labour are no longer the dominant factors of production. Developed nations explore the possibilities in exploiting knowledge as an untapped source of wealth and they are under transition from an economy based on natural resources and physical inputs to one based on intellectual (Powell and Snellman 2004 Thornton 2009). Under this new model, labor and capital become endogenous factors of production where as knowledge becomes an exogenous factor that is not within the economic system (Ernst and Young, 1999, Yeo 2010). This leverage of information and communication technologies enables developed economies to exploit newly emerged world order for their advantage. Economists from various quarters react differently towards this new development paradigm in using knowledge for economic development. While the neo-liberal economists are of the view that the knowledge economy accelerates world development, neo-rationalists (pro-Marxist economists) believe that the knowledge economy remains inherent to capitalist exploitation of labour. Although the neo-liberalists and the neo-rationalists keep different views on use of knowledge on economic development under different economic system, they accept the fact that the economic function of education remains crucial in development of the twenty first century. This paper examines role of knowledge on economic development with reference to a country or nation with leadership in knowledge and high human capital investment.

The article is structured as follows. While the second section conceptualizes the idea of knowledge economy the third section examines theoretical underpinning. The fourth section deals with the knowledge economy in developed economy and the fifth section is devoted in examining socio-economic impact of the knowledge economy. The last section recapitulates the major observations.

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2. The Concept of Knowledge Economy

The term 'knowledge economy' is used to define an economy of knowledge and a knowledge-based economy. 'Economy of knowledge' focuses on production and management of knowledge whereas 'knowledge-based economy' refers to the use of knowledge to produce economic benefits as well as job creation. Production and management of knowledge is associated with the institutionalization of education and its distributive strategy. In fact, these two functions of knowledge economy are not mutually exclusive but complementary. However, current paper focuses mainly on knowledge based economy.

A commonly used definition provided by Organization for Economic Co-operation & Development (OECD) for knowledge economy is "economies, which are directly based on the production, distribution and use of knowledge and information". Consequently, different definitions are provided by various researchers. Walter, Powel and Snellman (2004) defined it as production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance; Peters (2003) defined as knowledge about technology and levels of information flow are now considered critical for economic development and can account for differential growth patterns and Engelbrecht (2009) defined as to do with knowledge, learning, innovation, entrepreneurship, networks, information and communication technologies.

3. Theoretical Underpinning

The theory of knowledge economy is developed on the foundation of human capital investment principle introduced first by Adam Smith and expanded by the Nobel laureate Gary Becker (Smith 1991, Becker 1964). Smith theory remained as a showpiece for long time until Becker came forward with the view that people are a type of economic asset (human capital) that increased investment in skills, and knowledge provides future returns to the economy through increase in productivity of labor (Becker 1964). Becker's principal of knowledge attracted attention of academician and policy makers. Consequently, neo-liberal and the neo-rationalists came forward with their views on the knowledge economy. The neo-liberalists believe while knowledge has a significant role in development, traditional factors of production are going to be ignored. However, neo-rationalists believe that knowledge economy is a new attempt of the capitalists in to exploiting labour power. The following section examines some of the arguments of neo-liberalists and neo-rationalists.

3.1 Neo-liberalists and Knowledge Economy

In the second half of the twentieth century, isolated studies have been made to relate knowledge with economy. While Hayek (1945) attempted to define the relations between economics and knowledge, Machlup (1962) tried to explain economic value of knowledge. However, Becker's (1964) work gave a new dynamic on knowledge theory. According to him the increasing use of sophisticated knowledge in various production processes enhances the value of education, training and other human capital investment.

Neo-liberalists are of the view that knowledge economy differs from traditional economy in several respects. According to them the traditional principle of scarcity is obsolete but unlike most resources that deplete when used, information and knowledge can be shared, and actually grow through application. There is no location barrier for getting new resources. Laws, barriers and taxes are difficult to apply on solely a national basis. The principle of osmosis is applicable in knowledge economy; flowing to highest demand place with fewer barriers. Knowledge enhanced products or services can command price premiums over comparable products with low embedded knowledge or knowledge intensity. Pricing and value depends heavily on context. Knowledge when locked into systems or processes has higher inherent value than when it can 'walk out of the door' in people's heads. Human capital is a key component of value in a knowledge-based production (Skyrme 2011)

Information and knowledge are regarded as the primary wealth-creating asset. In addition, technological developments in the 20th century have transformed the majority of wealth-creating work from physically-based to "knowledge-based.". Much of the macroeconomic research on knowledge economy has focused on the linkage between technology and labor productivity, defined as the amount of output produced from a unit labor input (Powell and Snellman 2004).

3.2 Neo-rationalists and the Knowledge Economy

Neo-rationalists view the knowledge economy as another way of exploitation of the capitalists. They examine this new phenomenon on value relation. Marxian terms, knowledge, ideas, etc, do have a 'constant' socio-economic value because they are inherent to constant capital (the product of past social labour power, the value of which is already determined by the socially necessary labour time taken to produce and sustain

science and research communities and the labour power of individuals involved) According to neo-rationalists the knowledge economy and labour power in part of value relation in transition, with a focus upon the logic of labour power and the increasing difficulties of capitalism in containing the power of social labour within the fragile bounds of late capitalism. The knowledge economy remains inherent to capitalist exploitation of labour, which is based on the same foundations as industrial capitalism. (Kennedy 2010). The change in favour of the knowledge economy is as profound as the industrial revolution since knowledge is a form of capitalism with the same distinctive features as traditional capitalism: both thrive on capital accumulation, open market competition, free trade, the power of the individual, and the survival of the fittest (Alan Burton-Jones 1999, from **Margaret Thornton**).

The industries and occupations classified as parts of the knowledge economy are big business and a major source of value creation in the wider capitalist economy. The developed countries are capable of making advantages over the developing countries from the leverage of information and communication (Kennedy 2010, Romer, 1990; Romer 1986). The distributional consequence of a knowledge-based economy with respect to growing inequality in wages and high-quality jobs is a serious outcome of this change (Walter, Powell, and Snellman 2004).

4. The Knowledge Economy and Developed Nations

In the 1970s, advanced industrial nations experienced fundamental economic transition from manufacturing-base to a service-base orientation, leading to post-industrial economy. Underlying this economic change is the increased dependency on information and knowledge for production. These advanced countries; knowledge is a crucial factor, along with land, tools, and labor, in determining the standard of living (Powell & Snellman, 2004; Bell, 1973; Block, 1990, World Bank 1999, Yeo 2010). Discourses on knowledge economy have become powerful levers and drivers of policy formation of international bodies like the OECD (2004) and the European Commission (2003). The knowledge economy is also used extensively in policy discussion in the USA (Federal Trade Commission, 2003), UK (Department of Trade & Industry, 2005), Australia (Commonwealth of Australia, 2004), Canada (Government of Canada, 2002), and Ireland (Government of Ireland, 2005) particularly, and by international organizations assisting developing nations (World Bank, 2005).

The impact of this transition in favor of knowledge economy is evident from change in development pattern of advanced economies. American economic growth in the second half of the twentieth century is a typical evidence of the impact of education on

development. While real incomes in all areas and states of the United States grew dramatically, poorer states grew faster than the rich ones, so that inequality of incomes across states and areas declined schooling (Topel 2004: 53). Moreover, ‘Over the past half-century, the increase in the value of raw materials has accounted for only a fraction of the overall growth of US gross domestic product. The rest of that growth reflects the embodiment of ideas in products and services that consumers value’ (Greenspan 2003).

The impact of this transition in developed economies is apparent from the Knowledge Economy Index (KEI) developed by the World Bank for 140 countries in 2008. Denmark was ranked first with a score of 9.52, whereas the USA took 9th place with 9.02. Sweden was placed 2nd with a KEI index of 9.51, Finland was 3rd with a score of 9.37, Canada, and UK were 6th and 7th places with KEI 9.17 and 9.10 respectively. India and China were 81 and 109 places with KEI 4.47 and 3.09 (see Table 1).

Table 1. Knowledge Economic Index for selected Countries in 2008

Rank	Changes in rank from 2000	Country	KEI	Economic Incentive Regime	Innovation	Education	ICT
		World	5.18	8.00	4.35	6.45	6.00
1	2	Denmark	9.52	9.61	9.49	9.78	9.21
2	-1	Sweden	9.51	9.33	9.76	9.29	9.66
3	-1	Finland	9.37	9.31	9.67	9.77	8.73
6	6	Canada	9.17	9.45	9.44	9.26	8.54
7	2	U K	9.1	9.24	9.24	8.49	9.45
9	-3	U S A	9.02	9.04	9.47	8.74	8.83
10	-5	Switzerland	9.01	8.79	9.9	7.68	9.68
19	1	Singapore	8.44	9.68	9.58	5.29	9.22
20	-4	Japan	8.42	7.81	9.22	8.67	8
54	4	Brazil	5.66	4.31	6.19	6.02	6.13
81	13	China	4.47	3.9	5.44	4.2	4.33
109	-2	India	3.09	3.5	4.15	2.21	2.49

Source: World Bank 2008; http://info.worldbank.org/etools/kam2/KAM_page5.asp

5. Social-Economic Impact of the Knowledge Economy

Neo-liberalists and neo-rationalists are of different views on socio-economic impact of knowledge. Neo-liberalists regarded knowledge as new wealth creating asset and hence majority of development can be transformed from physical based to knowledge-based. However, the neo-rationalists are of the view that it is a new tactic introduced by the late

capitalism to exploit labor power (Powell and Snellman 2004 Thornton 2009). Physical presence of the worker is not essential and technology provides the facility to the labor force to work from his residence irrespective of his location of residence. This is a new situation in which opportunity for collective bargaining of work force reduces along with increasing opportunity for capitalist exploitation. The creativity and talent of the workers are exploited for making more profit. *“they are well compensated and work long and unpredictable hours, [they] require a growing pool of low-end service workers to take care of them and do their chores. This class has thus been created out of economic necessity because of the way the Creative Economy operates”* (Florida 2002, p. 71). It is noted that *“The ‘typical internet worker’ in the US and who is at the vanguard of the country’s ‘new economy’ is offered thus: He works 10 hours a day, makes more than £70,000 a year, doesn’t bother to take holidays, dresses as he pleases [and] has never been happier . . . There is also a reasonable chance that his employer will arrange his dry cleaning, allow him to bring his dog to work, offer him free massages and give him stock options”* (Campbell 2000, p. 18, Warhut 2008). Technological changes cause wage increase of a section of workers, which is often quoted as one of the culprits for the growing wage inequality and increasing educational wage differentials in labor market (Levy & Murnane 1992, Morris & Western 1999, Powell and Snellman 2004). Another argument is that the increased hour of work has serious impact on the worker who is taking restless work. For a short period of time long hours of work will be beneficial for the worker to earn more money but in the long run his quality of life and productivity will be diminished. The productivity decrease will be a reason for firing him from the job since employer can substitute him with new talents with high productivity.

6. Concluding Remarks

The knowledge economy is developed on the foundation of the human capital investment concept introduced by Adam Smith and expanded by the Nobel Laureate Garry Becker. The changes in favour of knowledge reduce the relevance of traditional factors of production; labour and capital. The capitalist world started to use the potential of the knowledge economy as unused resource. As a consequence two classes of thoughts emerged; the neo-liberalists and neo-rationalist. The neo liberalists observed knowledge economy as a new breakthrough of development. On the other hand neo-rationalists notified this as a new strategy of the late capitalist to exploit labour force and thereby to get ride of the current crisis in capitalist world citing U.S experience. Eighty percent of the U.S GDP comes from knowledge based productive activities. They have also emphasised its socio economic impact. Workers power of collective bargaining has vanished, they work overtime with out taking desirable leisure, which is favourable for

the capitalist gain. However, a states/countries with high human capital investments make use this emerging global market.

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