National Journal of Multidisciplinary Research and Development
ISSN: 2455-9040
Impact Factor: RJIF 5.22
www.nationaljournals.com
Volume 2; Issue 3; September 2017; Page No. 469-474

Role of human resource in economic development of Karnataka

Supriya S Belavi
PhD Research Scholar, Department of Economics, Karnatak University, Dharwad, Karnataka, India

Abstract
The paper overviews the role of human resource in economic development of karnataka. India is a global leader with 55 per cent of market share in the IT-BPM (Information Technology-Business Process Management) sourcing service industry worldwide. Karnataka's unique advantages have been a focal point, driving and catalysing growth in the IT, ITEs, (Information Technology Enabled Services) BPM service sectors. Uzawa developed an endogenous growth model based on investment in human capital which was used by Lucas. Lucas assumes that investment on education leads to the production of human capital which is the important determinant in the growth process. The study is based on secondary data the data collected from Karnataka at a Glance, Human Development Report, Karnataka (2005); The Karnataka State Integrated Health Policy, Department of Health and Family Welfare (GoK); Saikshanic Anki Anshagala Pakshinota, Karnataka. Simple statistical tools such as percentage, ratio used for causal relation and trend analysis of human capital formation. The study focuses on the role of education specifically higher education and technical education and labour force in human capital formation. It overviews the economic reforms and globalization effect on employment generation in Karnataka and Karnataka's potential in human capital formation and economic development.

Keywords: human resource, economic development, education, IT-BPM (Information technology-business process management), health infrastructure, employment

1. Introduction
India is a global leader with 55 per cent of market share in the IT-BPM (Information Technology-Business Process Management) sourcing service industry worldwide. Karnataka's unique advantages have been a focal point, driving and catalysing growth in the IT, ITEs, (Information Technology Enabled Services) BPM service sectors. It offers an ideal ecosystem of Talent, Infrastructure and prosperous Innovation Cluster-driven by a pioneering proactive policy environment with consistency in excellence.

2. Theoretical Framework: the Endogenous Growth Theory
2.1 The Lucas Model
Uzawa developed an endogenous growth model based on investment in human capital which was used by Lucas. Lucas assumes that investment on education leads to the production of human capital which is the important determinant in the growth process. He makes a distinction between the internal effects of human capital where the individual worker undergoing training becomes more productive, and external effects which spill over and add to the productivity of capital and of other workers in the economy. It is investment in human capital rather than physical capital that have spill over effects that increase the level of technology. Thus, the output for firm i takes the form

$$Y_i = A(K_i).(H_i).H$$

Where A is the technical coefficient, K_i and H_i are the inputs of physical and human capital used by firms to produce goods Y_i. The variable H is the economy's regular level of human capital. The parameter represents the strength of the external effects from human capital to each firm's productivity. In the Lucas model, each firm faces constant returns to scale, while there are increasing returns for the whole economy. Further, learning by doing or on-the-job tuition and spill over effects involve human capital. Each firm profits from the average level of human capital in the economy, rather than from the aggregate of human capital. It is not the accumulated knowledge or occurrence of other firms but the average level of skills and knowledge in the economy that are crucial for economic growth.
In the model, technology is endogenously provided as a side effect of investment decisions by firms. Technology is treated as a public good from the point of view of its users. As a result, firms can be treated as price takers and there can be equilibrium with various firms as under perfect competition.

3. Review of Literature
Paul (1992) [14] examined the neo-classical growth model which supported public welfare through public debt and it is probable to make a case for public debt, because a balanced growth path may be dynamically inefficient. The author showed that balanced growth through possible public debt option no longer holds in an endogenous growth model with constant external returns to capital. It has shown that a raise in public debt reduced the growth rate, so there always exists a future generation that will be damaged, and that a reduction in public debt, although it increases the growth rate, cannot be

Pareto-improving: one existing generation must be harmed, therefore the study strongly suggested to reduce public debt to reduce burden on future generation and benefit of socio-overhead capital.

Lerner (2013) reviewed theories of human development in departments of psychology and human development. It has been following applied developmental science and the developmental systems perspectives. Developmental theories have engaged centre stage after introduction of Human Capital formation especially after 1990s endogenous theories in contemporary developmental science and have provided compelling alternatives to reductionist theoretical financial records having either a nature or nurture emphasis. Therefore, a developmental systems orientation frames the presentation in this study. It focuses on the past roots of concepts and theories of human development, on philosophical models of development, and on developmental contextualism. In its second chapter, the discussion of developmental contextualism one on developmental systems theories wherein numerous exemplars of such models are discussed and a corresponding chapter wherein key instances of such theories--life span, life option, bio-ecological, and action theoretical ones--are presented. A more differentiated action of nature-oriented theories of development is provided in this book.

Shahzad (2015) observed the role of human capital formation on economic growth in Pakistan. The author has made use of time series data form the period of 1990 to 2013. The study included education enrolment index (Proxy of human capital), health (IMR) and physical capital (GFCF, IGR) as independent variables which were the major gives for the economic growth of Pakistan. Data is manipulated from side to side by using least square multiple regression models and by using E-view. The main variable human capital (Education Enrolment Index) has a positive significant collision on dependent variable GDP so it established that enrolment in education favoured for growth of the Pakistan economy and results were robust. Gross fixed capital formation (GFCF) has positive important impact on dependent variable, furthermore investment growth rate (IGR) has a highly significant and positive impact on GDP. There is negative but significant association between Infant Mortality Rate and consumer price index through gross domestic product of Pakistan respectively. These results recommended that both health and education sector should be given more notice to sustain the economic growth of Pakistan.

Figueroa (2015) [8] considers education as a process and its outcome is universal knowledge and human capital. The author attempted to develop an economic theory of human capital formation throughout education. It argues that human capital refers to production skills personified in workers and in standard economics, human capital plays a significant role in the economic course; on the one hand, human capital is as important as machines and technology in the production process; on the other hand, higher human capital implies higher labour productivity and higher income for workers; higher human capital also requires higher education years, which give workers the basic capacity to learn skills. Therefore, the author concludes that population can be changed to human capital through education better than any other means.

4. Objectives of the Study

1. To analyze the role of human resource in economic development of karnataka.
2. To offer policy suggestions for the improvement of human resource in economic development of karnataka.

5. Methodology

The study is based on secondary data the data collected from Karnataka at a Glance, Human Development Report, Karnataka (2005); The Karnataka State Integrated Health Policy, Department of Health and Family Welfare (GoK); Saikshanic Anki Anshagala Pakshinota, Karnataka. Human Development Reports at national and state level for health and education status and Report on Higher Education Vision 2020 submitted by Mission Group on Higher education policy Karnataka Jnana Aayoga (Karnataka Knowledge Commission) Government of Karnataka-December 2012.Simple statistical tools such as percentage, ratio used for causal relation and trend analysis of human capital formation.

6. Results and Discussion

6.1 Karnataka Economy at Glance

Karnataka GDP is Rs 11, 33, 194 crores as for estimation of Karnataka budget 2016-17 that is 6.9 per cent growth rate over previous year. Service sector has contributed 64 per cent share in the GSDP, industries and agriculture shared 24 per cent and 12 per cent respectively in 2016-17. Per capita income is at Rs 1, 59,893, fiscal deficit is lower than national level at 2.12 per cent of GSDP and Karnataka state accounts for 10.3 per cent share of total FDI (Foreign Direct Investment) inflow in India during 2015-16 financial year. Karnataka is the top exporter of IT and ITEs (Information Technology Enable Services) exports in India with total Rs 1, 99,822 crores software exports from the state accounted for 36.96 per cent share of total software exports from India during 2015-16. Karnataka's total exports is Rs 3,25,414 crores that is 31.8 per cent of her GSDP and ITEs exports accounted for 61.4 per cent out of total exports from Karnataka state.

6.2 Demographic Profile and Health Infrastructure in Karnataka

Karnataka is the ninth largest populated states in India as per 2011census. Birth rate and death rates have declined during the reform period. Birth rate in 1990-91 was 26.9 (i.e. per thousand populations) and it declined to 18.1 in 2015-16. Infant Mortality rate (IMR) decreased to 29 (i.e. per thousand live births) in 2016 from 77 in 1991. MMR (Maternal Mortality Rate) has declined to 133 in 2016 from 178 in 2011. Health infrastructure in Karnataka state is better compared other advanced states in India. In 1991, total number of hospitals were 293 which has increased to 418 in 2016 that is 1/3rd increase. Number of dispensaries increased thrice over the period and it is 658 in 2016. Primary health centres are 2,353 operational and total sub centres are 8,871 in Karnataka state at the end of December 2016. But number of beds per lakh population in Karnataka state has declined to 79 in 2016 from 104 in 1991, which is also because of less expenditure on health sector in recent past. Table 1 shows the projected population in different age groups in 2016 among major advanced states in India.

Table 1: Projected Population in Working Age Group across States in India, 2016

States	18-23 Years		
	Male	Female	Total
Uttar Pradesh	13076573	11626012	24702585
Maharashtra	7002901	6303252	13306153
Gujarat	3784827	3416767	7201594
Tamil Nadu	3598596	3588775	7187371
Karnataka	3608150	3444297	7052447
Andhra Pradesh	2760044	2788649	5548650
Delhi	1241134	1026558	2267692
All India	35072225	32194310	67266492

***Source*:** Ministry of Human Resource Department, Government of India

Karnataka state is also having edge in demographic dividend advantage in India. Karnataka state has 70, 52,447 youths under 18-23 age group population in 2016 which can be used for human capital formation in the state and helps to economic development.

6.3 Education scenario in Karnataka

Literacy rate in Karnataka is 75.40 per cent which is higher than national level that is 73 per cent in 2011. Enrolment ratio in Karnataka has improved during reform period but still it has not reached 100 per cent mark in upper primary and secondary education. According to latest data (Budget Document, 2016-17) Gross Enrolment Ratio (GER) at primary education is 103.71 per cent, followed by upper primary 92.90 per cent and 84.44 GER at secondary education in Karnataka state. Primary schools in the state are 60,913 and secondary schools increased thrice to15140 in 2016 from 5020 schools in 1991. There are 412 government and 321 private aided graduation colleges in the state which are affiliated to 14 state universities. Karnataka state is the leading state in higher education in India. It has highest number of medical and engineering colleges in India. During 2015-16, 221 engineering colleges, 295 diploma and polytechnics colleges, 89 fine arts colleges were operational in Karnataka and a total number of technical institutions are 605 which are enough to match demand of technical education in the state. The expenditure on technical education in the state also got increased.

Table 2 shows the plan and non-plan expenditure on technical education in Karnataka during 2012-2016. Total technical education expenditure in the state has got increased to Rs 82,957 lakhs in 2015-16 from Rs 46,957.9 lakhs during 2011-12, that is accounting for 76.6 per cent growth rate. Plan expenditure on technical education has been increasing much faster than non-plan expenditure in recent years.

Table 2: Technical Education Expenditure (Plan & Non-Plan) in Karnataka, 2012-2016 (Rs. in Lakhs)

	Plan Expenditure	Non-Plan Expenditure	Total Expenditure
2011-12	23497.2	23460.7	46957.9
2012-13	29219.1	23972.8	53191.9
2013-14	49754.7	27840.2	77594.9
2014-15	44797.2	31633.4	76430.6
2015-16	49896.2	33060.8	82957.0

***Source*:** Karnataka Economic Survey 2016-17, Government of Karnataka

Karnataka state has highest number of medical colleges in India. There are a total of 55 medical colleges in the state, followed by 66 Ayurveda colleges, 11 Homoeopathic colleges, 4 Unani and Naturopathy colleges each, 39 Dental colleges, 54 Pharmacy colleges and 248 Nursing Colleges are operational during 2016. Karnataka state passed Public Libraries Act in 1965 to enable public to access education as public good and right now state had 7000 operational public libraries in 2016.

6.4 Employment Status in Karnataka

According to Karnataka Economic Survey Report 2016-17, Under UPSS (Usual Principal Status) approach, unemployment rate of Karnataka is 1.4 per cent for all persons put together rural and urban which is very less compared to India's rate of 3.7 per cent. In Karnataka, in rural areas unemployment rate is 1.1 per cent for males and 1.4 per cent for females. Whereas in urban areas, for males it is 1.5 per cent and for females it is 3.1 per cent. At all India level, for males in rural areas it is 2.9 per cent and for females 4.7 per cent, for urban male and female are 3.0 per cent and 10.9 per cent respectively. In Karnataka, the overall rate of employment among Post-graduates is 64.6 per cent. Only 4.9 per cent is unemployed and the remaining 30.5 per cent are not in labour force. Karnataka has highest numbers of persons with self-employed accounting for 43.2 per cent. This is followed by casual labourers with 36.7 per cent and wage earners with 17.9 per cent. The proportion of contract workers is just 2.3 per cent. Among the total working force, self-employed and casual labourers accounted for 79.9 per cent in Karnataka. This once again reiterates the importance of sustainable livelihood opportunities for this category of workers.

6.5 Human Capital Formation in Karnataka

According to a recent study by RBI (The Reserve Bank of India's report State Finances: A Study of Budgets, 2016), Karnataka state witnessed a decline in its expenditure on key social sectors such as education and health between 2000 and 2016, while major States have increased expenditure on education and health. Even though Karnataka's budget size crossed one lakh crores rupees in 2012-13, the state has recorded a decline in expenditure in terms of percentage of total expenditure on education and health sectors during 2000-01 to 2015-16 (As for budget estimates). For example, expenditure on education out of total expenditure in Karnataka declined to 14.4 per cent in 2015-16 from 17.7 per cent in 2000-01. Similarly, expenditure on medical and public health out of total expenditure in Karnataka declined to 4.4 per cent in 2015-16 from 5.1 per cent in 2000-01. Expenditure on

medical, public health and family welfare, as ratio to aggregate expenditure, declined from 5.1 per cent to 4.4 per cent in the same period and it was less than the national average of 4 per cent in 2015-16. The aggregate expenditure on education was highest in Rajasthan accounting for 6.8 per cent and lowest in Bihar at 4.1 per cent in 2015–16.

Table 3: Human Development Index among major states in India, 1981-2012

States	1981		1991		2001		2011		2012*	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Andhra Pradesh	0.298	9	0.377	9	0.416	10	0.485	11	0.593	11
Assam	0.272	10	0.348	10	0386	14	0.474	12	0.563	14
Bihar	0.237	15	0.308	15	0.367	15	0.447	18	0.536	20
Gujarat	0.360	4	0.431	6	0.479	6	0.514	8	0.598	10
Haryana	0.360	5	0.443	5	0.509	5	0.545	5	0.628	6
Karnataka	**0.346**	**6**	**0.412**	**7**	**0.478**	**7**	**0.508**	**10**	**0.611**	**8**
Kerala	0.500	1	0.591	1	0.638	1	0.625	1	0.693	1
Madhya Pradesh	0.245	14	0.328	13	0.394	12	0.451	16	0.548	16
Maharashtra	0.363	3	0.452	4	0.523	4	0.549	4	0.642	3
Orissa	0.267	11	0.345	12	0.404	11	0.442	19	0.540	18
Punjab	0.411	2	0.475	2	0.537	2	0.569	2	0.641	4
Rajasthan	0.256	12	0.347	11	0.424	9	0.468	14	0.566	13
Tamil Nadu	0.343	7	0.466	3	0.531	3	0.544	6	0.634	5
Uttar Pradesh	0.255	13	0.314	14	0.388	13	0.468	13	0.538	19
West Bengal	0.305	8	0.404	8	0.472	8	0.509	9	0.593	12
All India	**0.302**		**0.381**		**0.472**		**0.504**		**0.587**	

***Source*:** Karnataka Economic Survey 2016-17, Government of Karnataka
Note: * From the findings of the yet to be published Third Karnataka State Human Development Report, 2015

Table 3 shows human development index (HDI) value and ranking of major states in India during 1981 to 2012. Kerala state has continuously retained top position in all time in India. Karnataka state was sixth rank in HDI report among Indian states in 1981 with HDI value 0.346 while HDI value increased over the period but ranking among states changed. The HDI value of Karnataka state in 1991 and 2001 was 0.412 and 0.478 respectively, which showed slight improvement over the previous decades but retained 7th rank. The performance of other states in terms of education and health has led lower ranking for Karnataka state in 2011 and HDI value increased to 0.508. Recently Karnataka state has conducted gram panchayat level human development report and placed at District Human Development Reports (DHDR). According to latest data from third Karnataka State Human Development Report (KSHDR), Karnataka is placed in 8th rank among major states in India and her HDI value increased to 0.611 in 2012 from 0.508 in 2011 that is 20.27 per cent change over the year.

6.6 Contribution of IT and ITEs to Human Capital Formation in Karnataka

Karnataka state is known as Knowledge, Innovation and R&D Capital of India. The state GDP stands at US$ 120 billion and is rising at a healthy rate of 7 per cent annually. It has an industrial output of US$ 61.5 billion and a cumulative FDI of US$ 20.30 billion since April 2000 to March 2017. The value of total exports of the state is US$ 52 billion which contributes to 13 per cent of India's exports to the world. Karnataka state is home for research and development specifically Bengaluru town in India. It is place for many research institutes and organizations such as Indian Space Research Organization (ISRO), Defence Research and Development Organization (DRDO), Boeing Research and Technology Centre and Airbus Engineering Centre which together have contributed for 65 per cent exports across all aerospace related products from India.

The state is home to over 60 per cent of Biotech units and contributes second largest revenues in India's Biotech industry. Bangalore ranks number one as Best place for innovative Biotech start-ups in India. Karnataka is home to 221 formulation units and 74 bulk drug units, Karnataka exports 40 per cent of its pharma produce. The engineering exports from the state stand valued at US$ 3.5 billion with exports reaching Germany, China, South Korea, Brazil, USA, Malaysia, Thailand, South Africa & Singapore. The state's

foundry industry is strong and is valued at US$ 10.41 billion.

6.7 Job Opportunities under IT Sector in Karnataka

According to recent study by Assocham Economic Research Bureau (AERB-2016) (ASSOCHAM-The Associated Chambers of Commerce), Karnataka has been ranked as the country's top job creating state with over 24 per cent share that is 2.16 lakh job openings during the fourth quarter of the 2015-16. It is followed by Maharashtra 23 per cent that is 2 lakh jobs and Tamil Nadu 10.5 per cent that is 93 thousand opening jobs. Information technology (IT) sector created about 57 per cent of about nine lakh job openings recorded between January to March 2016, followed by services 19 per cent and manufacturing 11 per cent according to the ASSCHAM report. Banking, financial services and insurance (BFSI) sector accounted for just over 8 per cent share followed by construction and real estate 3.5 per cent. Within Karnataka, ITEs (IT Enable Services) accounted for over 65 per cent share in job openings across the state, followed by services 16 per cent, manufacturing 8 per cent, BFSI (Banking, Financial Services and Insurance) 6 per cent, construction and real estate sector accounted 2.5 per cent. The Indian IT-BPM sector continues to be one of the largest employers in the country directly employing nearly 3.5 million professionals, adding over 2,30,000 employees.

7. Suggestions

- Compared to the health expenditure at the national level the state level expenditure has declined over the years. The health expenditure in the state needs to be increased since better health conditions of the people will raise their physical productivity.
- Even though the literacy rate of karnataka is higher than that of the national figure, serious efforts will have to be made to raise the literacy rate since it adds to the mental capacity of the individuals.
- Higher secondary education should be made compulsory in the state since more than two third of literate people in karnataka do not have higher secondary level education. Attractive measures will have to be designed to raise the enrollment rate at this level.
- Over the years grants released from UGC to the private aided and government colleges in the state is showing a declining trend, therefore the concerned authority will have to take the initiative to get more fund released by the UGC to imprue the infrastructure facilities to the colleges of karnataka.
- Government of Karnataka should frame effective measures to fully utilize the export potential of the IT sector, whereby the employment opportunities in the state can be enhanced and the revenue of the government can be raised.
- Compared to the number of private educational institutions, the number of government educational institutions in the state of karnataka is less. Proper measures should be undertaken to establish more number of government educational institutions in the state to enable the poor and middle class students to get better educational facilities.
- Since only the affluent class people can afford to pay the heavy charges imposed by the private hospitals and health clinics, more number of such institutions should be set up by the government with better medical amenities.

8. Conclusion

The present study examines that promoting more education by quality and skill will definitely help to Karnataka economic development further. It shows the crucial role education and education expenditure in the context of growth and development in Karnataka state. Therefore, economic development in Karnataka state is primarily dependent on physical capital that is development expenditure as well as human capital that is education and health.

The study focuses on the role of education specifically higher education and technical education and labour force in human capital formation. It overviews the economic reforms and globalization effect on employment generation in Karnataka and Karnataka's potential in human capital formation and economic development. The capital stocks very useful for economic development of any country and different economic strategies are needed due to different population, geography and resources. The traditional economics focussed economic development in terms of investment capital cum physical capital while post-neoclassical economist considered human resource as major economic development factor and endogenous growth models succeeded to prove human resource as the major cause for socio-economic welfare.

9. References

1. Ali S, *et al*. The impact of human capital formation in the economic growth in Pakistan. Pakistan Journal of Social Sciences (PJSS). 2012; 32(1):229-240.
2. Awan AG. Capital: Driving Force of Economic Growth in Selected Emerging Economies Global Disclosure of Economic and Business. 2012; 01(1).
3. Beine Michel, Fréderic Docquier, Hillel Rapoport. Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers. The Economic Journal. 2008; 118(528):631-652.
4. Biradar RR. Human Capital Base of Labour Force Among Social Group in India: Emerging Issues and Challenges. The Indian Journal of Labour Economics. 2004; 47(4):731-748.
5. Cervellati Matteo, Uwe Sunde. Human Capital Formation, Life Expectancy, and the Process of Development. The American Economic Review. 2005; 95(5):1653-1672.
6. Chani Muhammad Irfan, Mahboob Hassan Ul, Muhammad Shahid. Human Capital Formation and Economic Development in Pakistan: An Empirical Analysis", MPRA. 2012; 38925(17):19 UTC. Online at https://mpra.ub.uni-muenchen.de/38925/.
7. Chaudhry IS. Exploring the causality relationship between trade liberalization, Human capital and economic growth: empirical evidence from Pakistan. Journal of Economics and International Finance. 2005; 2(9):175-182.

8. Figueroa Adolfo. Growth, Employment, Inequality and the Environment, Unity of Knowledge in Economics, Volume 2, Palgrave Macmillan, New York, 2015.
9. Figueroa, Adolfo. Growth, Employment, Inequality and the Environment, Unity of Knowledge in Economics, Volume 2, Palgrave Macmillan, New York, 2015.
10. Grossman GM, Helpman E. Endogenous Innovation in the Theory of Growth. Journal of Economic Perspectives. 1994; 8(1):23-44.
11. Hall R, Jones C. Why Do Some Countries Produce So Much More Output Per Worker Than Others?", The Quarterly Journal of Economics. 1999; 114(1):83-116.
12. Lichtenberg FR. R & D Investment and International Productivity Differences, NBER Working Paper N. 1992, 4161. Retrieved from the National Bureau of Economic Research website: http://www.nber.org/papers/w4161.pdf?new_ window=1 (accessed on 27 June 2013).
13. Ojha VP, Pradhan BK. Human Capital Formation and Economic Growth in India: A CGE Analysis, This study was undertaken at the National Council of Applied Economic Research (NCAER), New Delhi and sponsored by the South Asia Network of Economic Research Institutes (SANEI), 1987.
14. Schultz Paul T. The Formation of Human Capital and the Economic Development of Africa: Returns to Health and Schooling investments, African Development Bank, Economic Research Papers No. 1976, 37.