

## How Is Kerala Doing in Higher Education?\*

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### **Abstract**

On the basis of many of the overall quantitative indicators, the higher education scene in Kerala is found to be favourably comparable with the all-India scene, and in some respects, the situation in Kerala is better than some of the rapidly expanding higher education systems in southern states. However, some serious threats do persist, the most important of which being rapid growth of non-philanthropic private sector in higher education, which, if unchecked, may rattle the very foundations of a just and equitable higher education system, which in turn is the foundation of a humane society. With the help of some most recent data, this short note analyses a few selective important dimensions of higher education in Kerala around this broad theme. The attempt is to offer a critical comment on policies and approaches being adopted by Kerala for the development of higher education and to outline what lessons can be drawn from Kerala's own experience and the experience of other states and countries.

### **Keywords**

higher education, educational policy, Kerala, India

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### **Introduction**

Kerala's performance in the area of education is widely recognized and has been intensely researched. With the average years of schooling of population of 7.7 years, which is much above the national average (5.6 years) in 2009-10 (Agrawal, 2014), the state of Kerala is recognized as one of the highly advanced states in India in education. It is one state in India, which attained a high level of, if not total, literacy and near-universal

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elementary education. Even the enrolment ratios in secondary education are considerably high. With near-universal rates in school education, the degree of inequality between different social, gender and economic groups of population is negligible. However, the performance of the state in higher education, which is not as impressive as in the case of school education, which is, nevertheless, favourably comparable in many respects to the system in the rest of the country, has not attracted the attention of many.

With the help of some most recent data,<sup>1</sup> this short note analyses a few selective important dimensions of higher education in Kerala. On the basis of many of the overall quantitative indicators, the higher education scene in Kerala is found to be favourably comparable with the all-India scene, and in some respects, the situation in Kerala is better than some of the rapidly expanding higher education systems in southern states. Some serious threats do persist, the most important of which being rapid growth of non-philanthropic private sector in higher education, which, if unchecked, may rattle the very foundations of a just and equitable higher education system, which in turn is the foundation of a humane society.

First, I present a quick picture of impressive quantitative expansion that has taken place in Kerala during the last few decades. While doing so, the current situation in Kerala is compared with the situation at all-India level and with a few selected states, particularly in South India, like Andhra Pradesh, Tamil Nadu and Karnataka, which also seem to be experiencing rapid expansion of higher education. This will be followed by a critical comment on policies and approaches being adopted by Kerala for the development of higher education. I make one or two concluding observations, drawing lessons from Kerala's own experience and the experience of other states and countries. In this short paper, an exhaustive analysis of issues in higher education in Kerala is not attempted, nor is it attempted to make a thorough in-depth analysis of selected issues.

### **Rapid Growth in Higher Education**

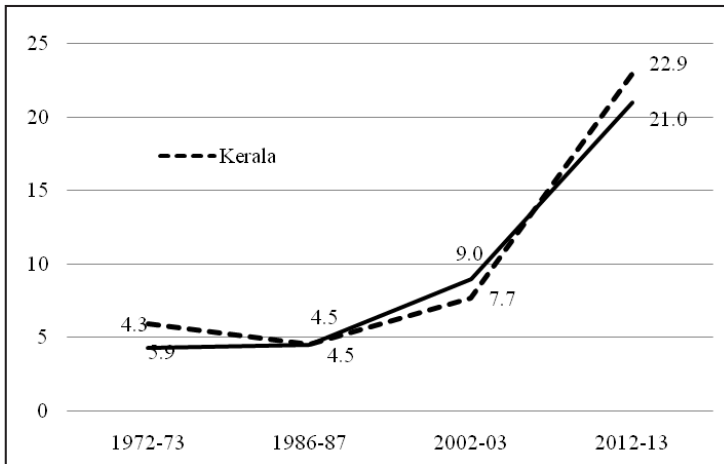
There has been rapid expansion of higher education in Kerala. The total enrolment in higher education has increased by more than four times in 13 years to about 0.72million (estimated) in 2012-13 from 0.17 million in

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<sup>1</sup> The only source available for the data on higher education for the most recent period is the All-India Survey on Higher Education 2012-13, brought out by the Ministry of Human Resource Development, Government of India (Government of India, 2014a). Though it is intended to be a census survey, it suffers from non-response errors. This is used here, and is supplemented by other sources.

1998–99. The gross enrolment ratio in higher education in Kerala increased from 5.9 per cent in 1972–73 to 22.9 per cent in 2012–13. It is a remarkable increase in about four decades. The ratio increased faster between 2000–01 and 2012–13. During 2000–01, the ratio was only 9 per cent. In terms of gross enrolment ratio, today Kerala’s performance in higher education exceeds the all-India level. During 2012–13, the gross enrolment ratio was 21 per cent at all-India level. Kerala was at a lower level than the all-India level during 2000–01, though during 1972–73, Kerala was a little more advanced than all-India as a whole (Figure 1). Not only in terms of gross enrolment ratio, but also in terms of stock of graduates, Kerala is ahead of other southern states. According to the National Sample Survey (66<sup>th</sup> round), graduates account for 9.5 per cent of the total population in Kerala in 2010. The corresponding ratio is below eight in Tamil Nadu, Karnataka and Andhra Pradesh (NSSO, 2010).

Figure 1. Progress in gross enrolment ratio in higher education in Kerala (%)



Sources: Government of India, 1974, 1987, 2004 and 2014a.

Inequalities in higher education are also much lower in Kerala than at the all-India level. With respect to performance of Kerala in terms of enrolment ratios by gender and caste groups, today Kerala presents a more impressive picture than all-India level, and also some of the southern states like Karnataka and Tamil Nadu. The gross enrolment ratio among women,

scheduled castes and scheduled tribes is higher than the ratio in India as a whole. The ratio among women was 26.9 per cent during 2012–13 compared to 18.9 per cent among men. Kerala is a state where the distribution of enrolments favours women than men (Table 1). Further, inequality in distribution of educational attainment (years of education) across individuals, measured using the education Gini index, is estimated to be very low in Kerala (Agrawal, 2014).

Table 1. Gross enrolment ratio in higher education, 2012–13, by gender and caste

<i>States and India</i>	<i>All</i>	<i>Male</i>	<i>Female</i>	<i>Scheduled castes</i>	<i>Scheduled tribes</i>
Kerala	22.9	18.9	26.9	17.8	14.8
All-India	21.0	22.3	19.8	12.4	11.0
Karnataka	25.5	26.3	24.6	16.9	15.3
Andhra Pradesh	29.1	32.7	25.4	24.9	23.6
Tamil Nadu	42.0	45.4	38.7	29.9	34.2

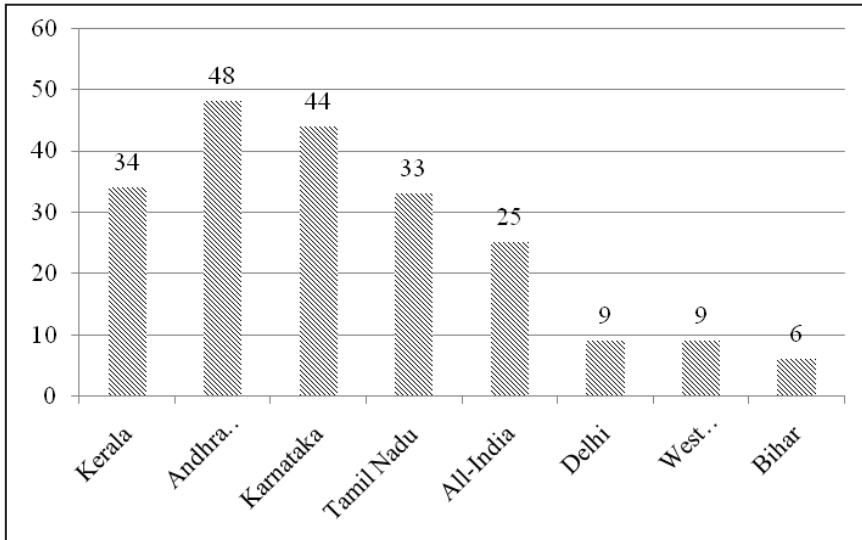
Source: Government of India, 2014a.

In terms of higher education infrastructure, there were 17 university-level institutions, including one central university and 11 state universities, in the state during 2012–13. There are also two institutions deemed to be universities. There are proposals to start one Indian Institute of Technology, one Indian Institute of Information Technology and a few other science and technology-intensive institutions of higher education in the state.

There are nearly 1,100 colleges—arts and sciences and professional/technical. For the small state of Kerala, these seem to be big numbers. The 1,100 colleges mean 34 colleges per 100,000 population, while there are only 26 colleges per 100,000 population in India as a whole on average. The corresponding figure, also known as the college-population index, is only nine in Delhi and West Bengal (Figure 2). However, the figure is much higher in southern states like Andhra Pradesh, Karnataka and Tamil Nadu. The number of technical and medical institutes per million population is higher in Kerala than in the country as a whole.

Data on teachers are not available in detail. But as per the limited data, the situation in Kerala is reasonably good. The pupil-teacher ratio of 13 in universities and colleges is somewhat favourable in the state, compared to the all-India picture (which is around 20). According to the Rashtriya Uchchar Shiksha Abhiyan (RUSA) guidelines (Government of India,

Figure 2. Number of colleges per 100,000 population in all-India and selected states, 2012-13



Source: Government of India, 2014a.

2013), the ideal pupil-teacher ratio in colleges is 1:15 (for a college to be eligible to become an autonomous college). Further, only 6.9 per cent of the teachers in higher education in the state are temporary/contract teachers. However, some studies report a high proportion of guest/temporary teachers in Kerala (Kodoth, n.d.). Guest lecturers in arts and science colleges constituted 15 per cent in 2014 (Government of Kerala, 2015).

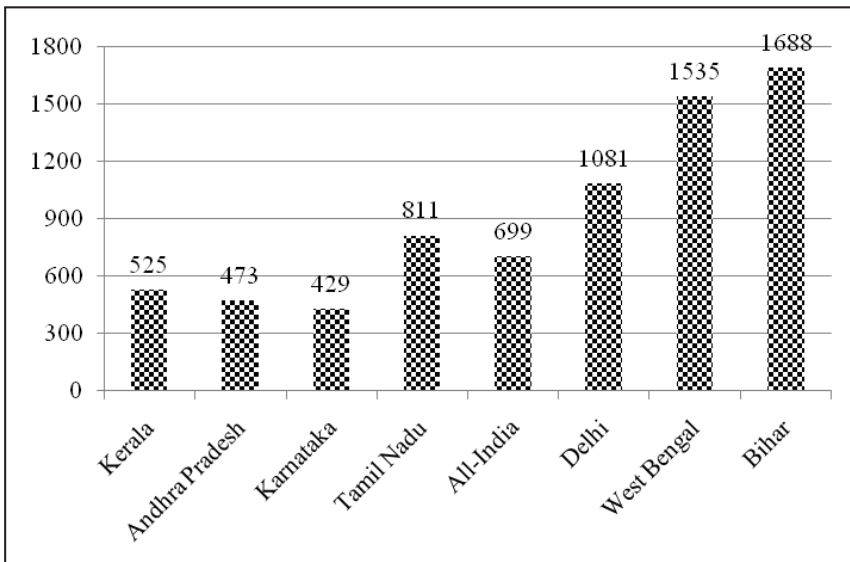
The pyramid of teacher distribution in Kerala is also somewhat more balanced in Kerala than at all-India level. While a normative structure of the pyramid is something like 7 lecturers/assistant professors, 3 readers/associate professors and 1 professor, at all-India level, the structure tends to get reversed and “imbalanced” with small number of assistant professors and larger number of associate professors and professors. At all-India level, the distribution of teachers is 1 professor:1.7 associate professors and 1.3 assistant professors/tutors, while the corresponding ratio is 1:2.4:8.8 in Kerala.

Thus, the network of higher education institutions is wide, and the overall picture of higher education situation in Kerala is fairly satisfactory. It is in fact better than a few other southern states and the all-India level. As

the Ashok Mitra Commission (1999: 84) observed, “the higher education system in Kerala has extensive reach.”

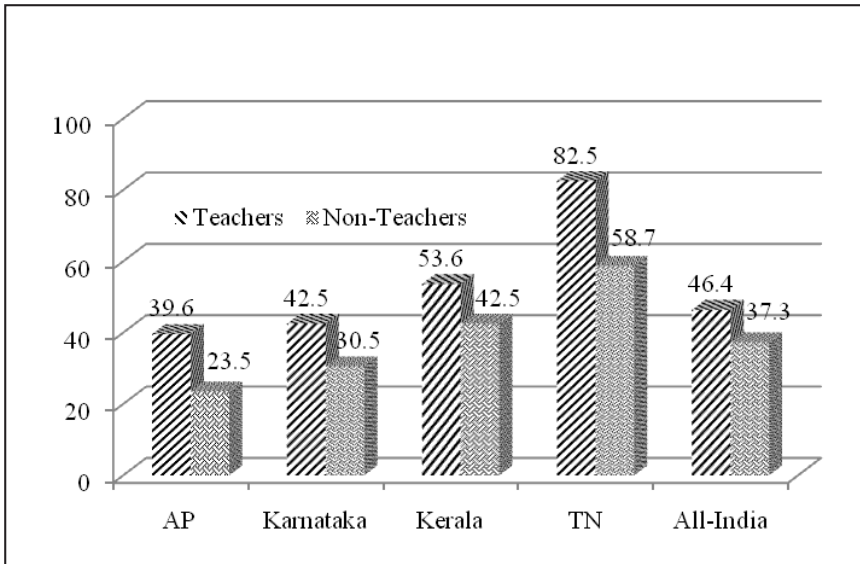
This may lead some to raise a question: Do we need more colleges and universities in Kerala? After all, average size of a college in terms of enrolments in Kerala is very small—525 during 2012-13, compared to 699 at all-India level, 811 in Tamil Nadu and 1,081 in Delhi, implying that some scope for increase in enrolment per college/university exists (Figure 3). Further, in Kerala, there are 52 teachers per college on average, compared to 46 in the country on average and 43 in Karnataka and 40 in Andhra Pradesh (Figure 4). Even pupil-teacher ratios in higher education in Kerala, both in universities and colleges, are highly favourable in Kerala, compared to the all-India scene and other states. Thus, as average enrolment per college is low in Kerala, and as the number of teachers and non-teachers per college is high in Kerala, one might rightly argue that there exists scope for enhancement in enrolments, without necessarily establishing new colleges, or recruiting new teachers in Kerala. There may be need for new colleges and teachers in specific areas of study and in specific geographical areas, like the relative backward districts, like Wayanad and Malappuram.

Figure 3. Average enrolment per college in selected states and all-India, 2012-13



Source: Government of India, 2014a.

Figure 4. Teachers and non-teaching staff per college in selected states, 2012-13



Source: Government of India, 2014a.

It is important to note that during the last couple of decades, in Kerala and other parts of the country, with a view to enhance access to higher education, new colleges and universities are being established. But it is important to note that unlike primary and secondary schools, colleges and universities need not necessarily have to be set up in every location. Instead, capacity of the universities and colleges may be enhanced, supplemented by hostel and transport facilities. This will help not only in reaping economies of scale in financial terms, but also in making colleges and universities academically viable with better learning environment. There may be need for more colleges in some disciplines, but not in general. The Report of the Kerala Higher Education Council (KSHEC) (2012) rightly recommends increasing of infrastructure and the intake capacities of colleges and universities by 50 per cent by next five years and 100 per cent by next 10 years, in subjects/programmes of relevance and high demand. The Kerala State Higher Education Council (KSHEC, 2012) also suggests the need to adhere to the University Grants Commission’s prescribed norms on teacher-pupil ratios, which are 1:10-15 at postgraduate level and 1:20-25 at undergraduate level.

Thus, the quantitative picture presented so far gives an impression that Kerala is in a comfortable situation with respect to higher education development. But it may be noted that these averages conceal a lot, and there are important issues of serious concern.

### **Issues of Concern**

There are indeed a few more important aspects that may be of concern. First, it is widely held that there has been a drastic decline in the quality of higher education to unacceptable levels, and such a poor-quality education will not contribute to development—economic, social and political. Second, higher education is found to be increasingly becoming less and less affordable by a vast majority. The rising household costs of higher education testify this. The high increase in household costs will pose problems in ensuring an inclusive higher education system. The third related problem is the increasing graduate unemployment in the state. According to the *Human Development Report 2005* of Kerala (Government of Kerala, 2006), Kerala experiences the highest rate of unemployment.

I view that these three interrelated problems and many other problems that the higher education system in Kerala face are strongly linked with the growing phenomenon of privatization and commercialization of higher education in the state.<sup>2</sup>

### **Policies and Approaches**

Since the 1990s, higher education in Kerala has been subject to significant policy shifts. The foremost among them is the opening of the doors to self-financing colleges. For a long period, private participation had been encouraged in education in Kerala, like in other states, through private-aided schools and colleges, which received public funds but were managed by private bodies. Such colleges are also large in number in Kerala. During 2012–13, such colleges formed about one-fourth of all colleges in the state, and about half the state budget on higher education goes directly as aid to private aided colleges. These aided colleges have not increased in number

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<sup>2</sup> While the government has initiated a few piecemeal measures, such as introduction of erudite programme and expanded scholarship scheme and thinking on introducing own assessment and accreditation (Kerala State Assessment and Accreditation Council) in place of the National Assessment and Accreditation Council (NAAC) (Government of Kerala, 2013), that partly aim at improving quality and equity aspects, the problem of privatization and commercialization in education is not addressed much.



over the years. For example, in 1991, there were 132 arts and science government-aided colleges; the number increased to 150 by 2007-08 (Table 2). In other disciplines, there has been not even one additional aided college during this period. In many states, including Kerala, governments have stopped giving permission to open aided colleges any more (Varughese, 2006). Government colleges also have not significantly increased during this period. On the whole, from 1956 through to the mid-1980s, Kerala has expanded its higher education essentially through public resources—funding government colleges and universities and providing funds to the private (aided) colleges.

Table 2. Growth of colleges in Kerala by discipline, 1991 and 2007-08

<i>Colleges</i>	<i>Govt. Aided</i>	<i>Unai- ded</i>	<i>Total</i>	<i>%of Unaided</i>	<i>Govt. Aided</i>	<i>Unai- ded</i>	<i>Total</i>	<i>%of Unaided</i>		
Arts and science colleges	40	132	0	172	0.0	39	150	153	44.7	
Polytechnics	24	6	0	30	0.0	43	6	9	58	15.5
Engineering colleges	5	3	0	8	0.0	11	3	72	86	83.7
Medical colleges	5	0	0	5	0.0	4	0	8	12	66.7
Ayurvedic colleges	3	2	1	6	16.7	3	2	8	13	61.5
Dental colleges	2	0	0	2	0.0	3	0	6	9	66.7
Homeopathic colleges	2	3	0	5	0.0	2	3	0	5	0.0
Nursing colleges	3	0	0	3	5.0	5	0	42	47	89.4
Pharmacy colleges	1	0	0	1	0.0	2	0	17	19	89.5

Source: Kumar and George, 2009, pp. 55-61.

After 1990, the Government of Kerala decided to encourage “full-fledged private” participation in the sector, by allowing self-financing or unaided colleges. It opened a flood of gates of the higher education sector to private parties who have different kinds of interests, including non-philanthropic and even purely commercial interests. Further, in 2000, the government decided to “grant ‘no objection certificates’ to any private agency that approached it for permission to start an unaided professional college” (Government of Kerala, 2006: 93). Privatization of higher education has

given a major thrust to professional and technical education in the state. This, the government policy of encouraging private participation in education, led to proliferation of colleges of professional and technical education. Therefore, it is rightly held by many that the growth in higher education in the state is essentially due to the growth of self-financing colleges, which can actually be called student-financed or fee-based institutions.

The rapid growth in the self-financing private sector led to diminution of the public sector and public sector displacement in a big way. Number of students in government and government-aided colleges is found to be declining, as the students are shifting to self-financing colleges.

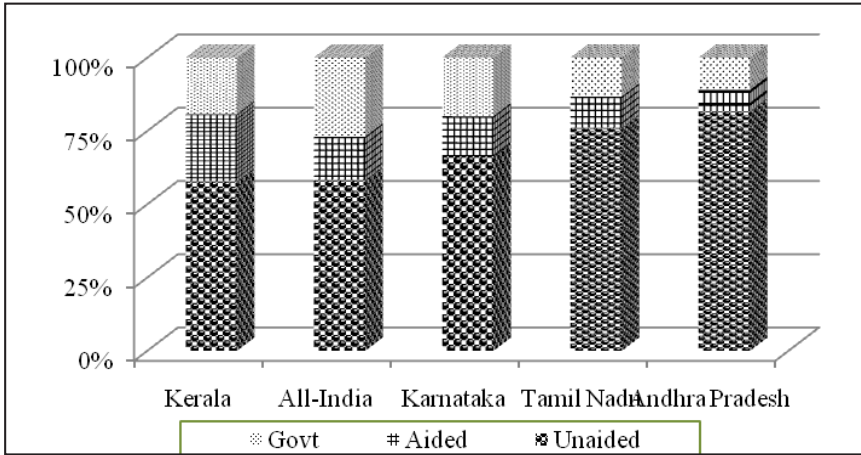
Self-financing colleges have become a big phenomenon in Kerala. In 1991, there were no self-financing colleges in Kerala in any discipline. Government and government-aided private institutions accounted for the total higher education sector. There were a very small number of self-financing (also known as unaided) institutions in the school sector, but not in higher education. In 2012–13, the self-financing colleges formed 58 per cent of all colleges in the state. While that is the average of all colleges, in some disciplines, self-financing colleges form an alarming proportion (Figure 5). For example, 90 per cent of pharmacy colleges, 89 per cent of nursing colleges, 84 per cent of engineering colleges, 67 per cent of dental colleges and 82 per cent of industrial training institutes belonged to such a category in 2007–08. Even in case of arts and science colleges, 45 per cent are self-financing (Kumar and George, 2009) (Figure 6). Many of the arts and science colleges under self-financing category offer programmes in non-traditional subjects (Zachariah, 2010). While in some disciplines they account for 90 per cent of all, on the whole, 58 per cent are private self-financing colleges. These proportions might have increased in recent years. For instance, of the 160 engineering colleges in 2014, as high as 92.5 per cent, i.e. 148, were self-financing colleges (Government of Kerala, 2015).

Though the government seemed to have rejected a proposal to allow private universities to come up in the state,<sup>3</sup> growth of self-financing colleges has been unabated. Most of the self-financing colleges came up in professional and technical education, and least in arts and sciences. Even in technical self-financing colleges, like the engineering colleges, the

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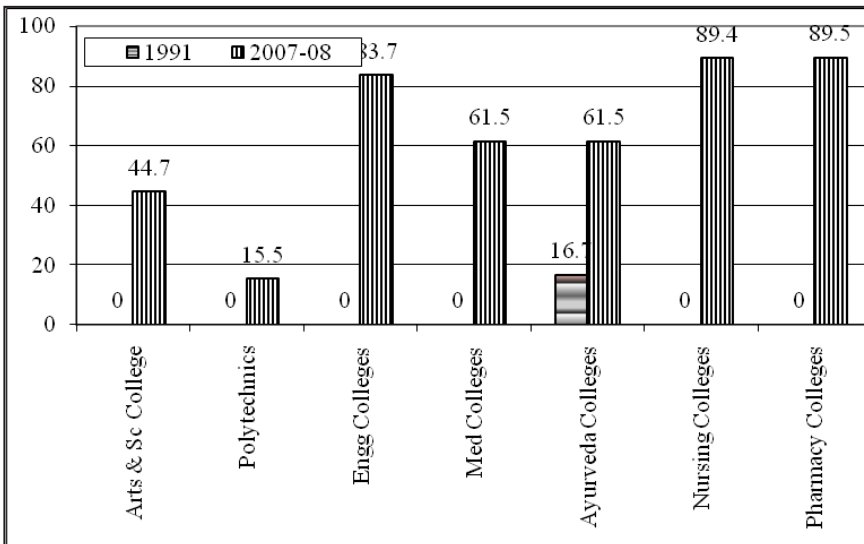
<sup>3</sup> *Times of India* (21 January 2014) Retrieved from <http://timesofindia.indiatimes.com/city/thiruvananthapuram/Kerala-govt-turns-down-proposal-to-set-up-private-varsities/articleshow/29148805.cms>

Figure 5. Distribution of government and private colleges in selected states and in all-India, 2012-13



Source: Government, 2014a.

Figure 6. Growth in privatization in higher education in Kerala, private (self-financing) colleges (%)



Source: Zachariah, 2010, p. 2.

concentration is on marketable disciplines, like electronics engineering and computer sciences, and not in standard traditional but strong areas of engineering, like mechanical, civil and electrical.<sup>4</sup> With undue emphasis on “marketable” disciplines, many important areas of study are getting relegated to the background, which would be costly to the society in the long run. But even in those areas of study which these colleges focus on, as Nair and Nair (2008: 7) observed, owing to the rapid pace at which these colleges increased during a short span of time, many of them do not have competent teachers and their level of teaching remains poor. As a result, the pass (completion) rates in many of these colleges are deplorably low. Relationship between teachers’ qualifications and students’ performance was found to be strong (Mani and Arun, 2012). It has been found that among the colleges affiliated to the University of Kerala, while the pass rates in the two government colleges were 65 per cent and 73 per cent, and 60 per cent in 1 aided college in 2010, it varied between 6 per cent and 54 per cent among the 15 self-financing colleges, the average rate of the self-financing colleges being 30 per cent (Mani and Arun, 2012). This raises the question on the competence of these colleges in producing qualified graduate manpower in sufficient numbers, besides raising questions on their quality. Lastly, the high costs of education in these colleges make higher education less and less affordable by the middle and lower classes, strengthening inequities in the system (see Kumar, 2008; Salim, 2008). A higher education system dependent upon the private sector at such an alarming extent may not be sustainable, and may not be able to contribute to sustainable development of the society in social, economic and political arenas.

In Kerala, we find self-financing colleges not only under the private sector, but also under the government sector. The main agencies in the government’s self-financing sector are the Institute of Human Resource Development (IHRD) and LBS Centre for Science and Technology. There are also self-financing colleges under the government sector under several bodies, such as Kerala State Road Transport Corporation (KSRTC), Co-operative Academy of Professional Education (CAPE), Centre for Continuing Education Kerala (CCEK) and Academy of Medical Sciences (KNM). The Non-resident Keralites Department of the Government of Kerala (NORKA) has also recently announced its plans to start self-financing professional colleges avowedly for the benefit of non-resident Keralites.

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<sup>4</sup> See also Carnoy et al. (2013) for a picture on India and other BRIC (Brazil, Russia, India and China) countries in this regard.

Further, there are also self-financing colleges under state universities and under private deemed universities. In addition, there are self-financing private colleges and also such colleges under private agencies, such as Kerala Catholic Engineering College Managements' Association. To check the problem of lack of social control of the government over private self-financing institutions, the government promoted the formation of student-funded professional colleges in the co-operative sector. The societal control on many of these institutions is debatable (Kumar and George, 2009).

As highlighted by Kumar and George (2009), there are also several “non-formal” higher education institutions, which are not affiliated to any university or to the government, but are offering several job-oriented courses purely on commercial basis. Though reliable data are not available on these institutions, it is largely believed that the student numbers enrolled in these institutions are not small.

At the same time, privatization of public higher education is also taking place at a rapid rate, through increase in student fee, increase in student loan programmes and introduction of self-financing courses in public universities/colleges on a large scale. As Varughese (2006) described, privatization of public assets is taking place in higher education in Kerala through aided colleges, which are also really public wealth, as they are created with the help of public funds. Public assets are created by the government, and for some time, these functioned within the parameters of social control. These assets are now freely operated by private managements for running courses of their choice and are being gradually transferred to individual or corporate managements in the state.<sup>5</sup> As a result of all these developments, there is a serious decline in “public”ness in higher education, including specifically in public higher education.

The high proportion of exclusively fee-relying financing colleges and other measures of increasing privatization of public higher education pose serious problems on enhancing equitable access to higher education, besides posing serious problems in terms of producing low-quality graduates in large numbers, resulting in accentuating the graduate unemployment.

### **Concluding Observations**

The Perspective Plan 2030 of Kerala, also known as Vision 2030 (Government of Kerala, 2014b), has underscored the importance of

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<sup>5</sup> Varughese (2006) refers to this as BOT model—build (with state resources), operate (under social control) and transfer (to private sector). Nowadays, it is also being viewed as an innovative public-private partnership model.

education in the development of the Kerala economy to reach a growth rate of 7.5 per cent. According to the Perspective Plan, besides universal 100 per cent enrolment in primary schools, 95 per cent of all young people shall complete general or vocational upper secondary education by 2015. It also states that 50 per cent of all young people shall complete a higher education programme by 2015. Accounting for 50 per cent of India's exports in education service by 2030, it is expected that with "global knowledge cities" in Kerala, "Kerala will be a key node to global knowledge network by 2030. It will be in the league of the top ranked countries in terms of efficiency, competitiveness, services and market delivery in education" (Government of Kerala, 2014a: 95). While these goals are laudable, the strategies that Kerala adopts to reach these goals need to be carefully formulated. Firstly, Kerala can learn from its own experience in school education. The state has built up a strong universal school education system, essentially based on public and government-aided system, and not relying much on the private sector;<sup>6</sup> and one of the most important dimensions of widely acclaimed social progress of Kerala owes to this school system. Secondly, it is important to learn from other states/countries, but not to necessarily follow them. A few other states have expanded higher education at a faster rate, but following aggressive policies of privatization of higher education at the cost of equity and quality concerns. Kerala also tends to blindly follow the same approach.

### References

- Agrawal, T. (2014). Educational inequality in rural and urban India. *International Journal of Educational Development*, 34, 11-19.
- Ashok Mitra Commission. (1999). Report of the Kerala Education Commission. Kochi: Kerala Sasthra Sahithya Parishad.
- Carnoy, M., Loyalka, P., Dobryakova, M., Dossani, R., Froumin, I., Kuhns, K., et al. (2013). *University Expansion in a Changing Global Economy: Triumph of the BRICS?* Stanford, CA: Stanford University Press.
- Government of India. (1974). Education in India 1972-73. New Delhi: Ministry of Education.
- Government of India. (1987). Selected Educational Statistics 1986-87. New Delhi: Ministry of Human Resource Development.
- Government of India. (2004). Selected Educational Statistics 2002-03. New Delhi: Ministry of Human Resource Development.

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<sup>6</sup> Hardly seven per cent of the schools belonged to the unaided sector in 2013-14 (Government of Kerala, 2015).

- Government of Kerala. (2006). State Human Development Report 2005. Thiruvananthapuram: Centre for Development Studies.
- Government of India. (2013). Rashtriya Uchchatar Shiksha Abhiyan (RUSA). New Delhi: Ministry of Human Resource Development/University Grants Commission. Retrieved from [http://mhrd.gov.in/sites/upload\\_files/mhrd/files/RUSA\\_final090913.pdf](http://mhrd.gov.in/sites/upload_files/mhrd/files/RUSA_final090913.pdf)
- Government of Kerala. (2013). Expert Committee Report on the Kerala State Assessment and Accreditation Council. Report Submitted to the Vice Chairman, the Kerala State Higher Education Council on 11-02-2013. [http://www.kshhec.kerala.gov.in/images/documents/report\\_ksaac\\_kshhec.pdf](http://www.kshhec.kerala.gov.in/images/documents/report_ksaac_kshhec.pdf)
- Government of India. (2014a). All-India Survey on Higher Education 2012-13. New Delhi: Ministry of Human Resource Development. Retrieved from [http://mhrd.gov.in/sites/upload\\_files/mhrd/files/statistics/AISHE2012-13F.pdf](http://mhrd.gov.in/sites/upload_files/mhrd/files/statistics/AISHE2012-13F.pdf)
- Government of Kerala. (2014b). Vision 2030: Draft report of the Kerala Perspective Plan 2030. Thiruvananthapuram. Retrieved from <http://kerala.gov.in/docs/reports/vision2030/3.pdf>
- Government of Kerala. (2015). Economic Review 2014. Thiruvananthapuram: State Planning Board. Retrieved from <http://spb.kerala.gov.in/images/pdf/er14/index.html>
- Kodoth, P. n.d. Globalisation and higher Education in Kerala: Access, equity and quality. Trivandrum: Centre for Development Studies.
- KSHEC. (2012). Report on Kerala state higher education policy. Thiruvananthapuram: Kerala State Council of Higher Education. Retrieved from [http://www.kshhec.kerala.gov.in/images/documents/new%20\\_h%20edn%20policy%20final.pdf](http://www.kshhec.kerala.gov.in/images/documents/new%20_h%20edn%20policy%20final.pdf)
- Kumar, A. (2008). Private cost of medical and para-medical education in Kerala. In K.N. Nair and P.R.G. Nair (eds.), *Higher education in Kerala: Micro-Level perspectives* (19-48). Delhi: Danish Books.
- Kumar, N. A., & George, K.K. (2009). Kerala's education system: From inclusion to exclusion? *Economic and Political Weekly*, 44(41), 55-61.
- Mani, S., & Arun, M. (2012). Liberalisation of technical education in Kerala: Has higher enrolment led to a larger supply of engineers?. *Economic and Political Weekly*, 47(21), 63-73.
- Nair, K.N., & Nair, P.R.G. (2008). Higher education in Kerala: Access, equity and quality. In K.N. Nair and P.R.G. Nair. (eds.) *Higher education in Kerala: Micro-Level perspectives* (1-18). Delhi: Danish Books.
- NSSO. (2010). Status of education and vocational training in India. New Delhi: National Sample Survey Organisation.
- Salim, A.A. (2008). Opportunities for higher education: An enquiry into entry barriers. In K.N. Nair and P.R.G. Nair (eds.), *Higher education in Kerala: Micro-Level perspectives* (49-58). Delhi: Danish Books.

- Varughese, R. 2006. Privatization of public assets in higher education emerging trends in private aided colleges in Kerala. *Journal of Educational Planning and Administration*, 20(3), 313-320.
- Zachariah, G. 2010. Changing enrolment patterns in arts & science colleges in Kerala. Submitted to the Kerala State Higher Education Council, Government of Kerala. Centre for Socio-economic and Environmental Studies, Thiruvananthapuram. <http://csesindia.org/admin/modules/cms/docs/publication/26.pdf>